



## Frequently Asked Questions Upper Santa Cruz River Flood Risk Map

1. What is a Risk MAP project?
  - a. Risk MAP projects provide high quality flood maps, flood information, and tools for floodplain administrators to better assess the risks associated with flooding from several different flood events. Risk MAP projects also provide planning and outreach support to communities to help them act in reducing or mitigating flood risk. Each Risk MAP project is tailored to the needs of the community involved and may have different products and services.
  
2. What communities are within the study?
  - a. Pima County, Green Valley, the Town of Sahuarita, and the Tohono O’odham Nation.
  
3. What are Flood Risk Products?
  - a. Flood Risk Products go beyond the basic flood hazard information provided on regulatory flood hazard products (i.e. Zone AE, etc.). These products are intended to provide a deeper and user-friendly analysis of flood risks, help community members and officials visualize local flood risk, and allow communities to make informed decisions about reducing flood loss.
  - b. Flood Risk MAP products include:
    - i. Flood Risk Map (FRM). This product depicts flood risk data and illustrates the flood risk for a given area. In this project area flood depth maps were create for the 10, 4, 2, 1 and 0.2% chance flood events. Those floods are most commonly referred to as the 10, 25, 50, 100, and 500-year events.
    - ii. Flood Risk Report (FRR). This product explains the Flood Risk Map and is a tool for the community to use if raising local flood risk awareness.
    - iii. Flood Risk Database (FRD). This product is used to store the flood risk data for a given flood risk project.
  
4. What is Risk MAP?
  - a. Risk MAP is Risk Mapping, Assessment, and Planning. The FEMA program is designed to provide communities with flood information and tools they may use to enhance their mitigation plans and to take action to better prepare citizens for flood events. Risk MAP gives the local community a greater ability to make informed decisions about reducing flood risk.
  - b. FEMA is responsible for the administration of the Risk MAP program.

- c. Risk MAP's Flood Risk Products work alongside regulatory products (FIRM panels, FEMA flood zones) to provide flood risk information and to support a community's overall floodplain management and hazard mitigation strategies.
  - d. Flood Depth Maps are the Flood Risk Maps created by this project.
- 5. Why was this project done?
  - a. Floodplain regulators and others have long suspected that the existing floodplain mapping of the Santa Cruz River floodplain, as shown on the Flood Insurance Rate Maps (FIRMs), is outdated due to geomorphic changes, floodplain encroachment, and inherent difficulties in modeling a perched floodplain. Since the Santa Cruz River was mapped by FEMA in the 1990's, there have been natural changes to the river, structural changes such as bridges, and there have been significant advances in the technology used in defining and mapping complicated flood hazards.
  - b. This Risk MAP project was an outcome of the FEMA Upper Santa Cruz Watershed Discovery Report (2013) which identified that a Risk MAP project would be beneficial.
- 6. Who did this project?
  - a. The Pima County Regional Flood Control District authorized JE Fuller to perform this study.
- 7. Who paid for this project?
  - a. FEMA and the Pima County Regional Flood Controls District
- 8. What are the project goals?
  - a. Provide flood mapping products (maps, water surface profiles, tables documenting flood information, and Risk MAP report).
  - b. Define and delineate the floodplains resulting from the 10-percent, 4-percent, 2-percent, 1-percent, and 0.5-percent flood events.
- 9. What are the limits of the project?
  - a. This study includes approximately 23 river miles of the Santa Cruz River, starting approximately 1.6 miles south of the Santa Cruz County line and extending 2 miles north of Pima Mine Road (the southern Boundary of the Tohono O'odham Nation). This study does not include any of the tributaries to the Santa Cruz River.
- 10. Will this study replace the current FIRMs?

- a. No. This Risk Map product uses different modeling techniques that are at this time not compatible with replacing the existing FIRM data. The results of the study does indicate additional flood hazards not reflected in the current FIRMs.

11. What did we learn from this project?

- a. A large portion of the floodplain is perched along the eastern embankment downstream of Continental Road. Downstream of Sahuarita, the flow is further separated at Pima Mine Road and becomes a divided flow regime.
- b. Both the Rancho Sahuarita and Green Valley wastewater treatment plants are expected to be inundated during the 100-year flood.
- c. The older flood models assumed a flat water surface across the valley (from left to right in the flow direction). Advances in flood modeling have allowed us to understand how the water surface elevation, depth, and velocity vary across the floodplain which lets us better define risks at each location.
- d. This project identified the areas where the effective flood depths are inaccurate which allows local communities to make better informed decisions regarding permitting, construction, and development of regulatory products.
- e. This project has identified areas where properties and infrastructure are at risk of flooding and possible failure.
- f. The project identified where roads are at risk of inundation during the various flood frequencies analyzed.
- g. The detailed flood mapping and GIS products can be valuable for planners in planning for development of property and infrastructure.

12. Where do we go from here?

- a. The Risk MAP data may be used as “Best Available Data” by regulatory agencies, provided that, any proposed improvements, encroachments, or developments are not less stringent than what is allowed by the current FIRMs, State Statutes and local floodplain ordinances.
- b. Address the need to remap the Flood Insurance Rate Maps.
- c. Address the needs for an Upper Santa Cruz River Management Plan.
- d. Address the issues to protect inundated infrastructure.
- e. Use the Risk MAP products for flood warning and emergency response planning.