

REGION IX:

Innovation and Partnerships in Coachella Valley, CA



The Coachella Valley Stormwater Channel Levee System was the first in the country to implement FEMA's new levee analysis and mapping procedures.

LESSONS LEARNED AND BEST PRACTICES:

- **Importance of Local Partnerships:** The initiative taken by the Coachella Valley Water District (CVWD) not only helped start this project, but also push it across the finish line. CVWD's partnership with FEMA involved collaboration to support the successful completion of the mapping project.
- **Importance of the Local Levee Partnership Team (LLPT):** This project showed how important the LLPT is for any mapping project, drawing on a diverse group of stakeholders early and often in the process.
- **Cooperating Technical Partner (CTP) Grant and Engineering Resources:** FEMA helped CVWD identify and gain access to additional funding. The CTP grant helped the district hire an engineering firm. Having an outside expert to verify the process and results made the LLPT feel more comfortable.

THE CHALLENGE

In August 2007, FEMA and CVWD signed a Provisionally Accredited Levee (PAL) agreement for levees along the Coachella Valley Stormwater Channel (CVSC) from the Indio Boulevard (City of Indio) to the Salton Sea. In August 2008, CVWD submitted a progress report indicating that for the portions of the levee system from Indio Boulevard to Airport Boulevard, the 1-percent-annual-chance flood would be contained within the normal channel by existing ground adjacent to the levees. In August 2009, CVWD submitted a letter and the documentation demonstrating the conditions discussed in their August 2008 progress report. In that same letter, CVWD acknowledged that they would not be providing data to certify the remaining levee system from Airport Boulevard to the Salton Sea.

They requested that FEMA work closely with CVWD to remap the flood hazards landward of the non-accredited levees. In early 2011, CVWD worked with FEMA Region IX to coordinate this mapping update and to implement the concepts being developed by FEMA to map non-accredited levee systems.

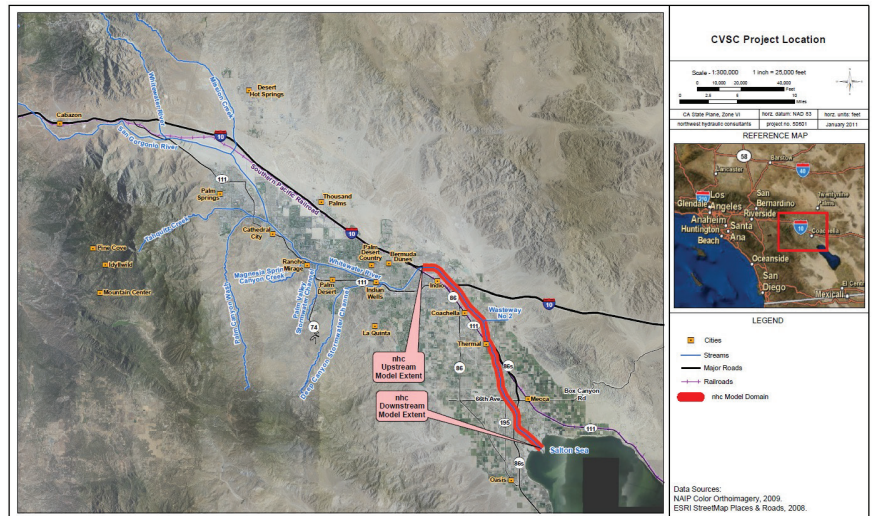


Figure 1 - CVSC Project Location
Coachella Valley Stormwater Channel Hydraulic Analysis: Existing Conditions

Coachella Valley Levee Systems

rhc
January 2011

THE SOLUTION

CVWD is responsible for regional stormwater infrastructure and floodplain mapping within its jurisdiction. This leads to a better understanding of the existing and long-term risk from flooding in the area. The district's authority provides a mechanism that allows them to work with impacted communities participating in the National Flood Insurance Program (NFIP) and other stakeholders, while driving the project forward from a funding and technical standpoint.

As FEMA was developing guidance for the levee analysis and mapping procedures—which would more precisely map the flood hazards for non-accredited levee systems—CVWD worked with FEMA Region IX to obtain guidance on how to model the areas using the developing procedures.

Given that there was no standard in place, the partnership was beneficial for both the water district and FEMA; it helped determine how to map the levee system, but also was a significant milestone in the development of how FEMA maps non-accredited levee systems. Throughout the development of these new levee mapping procedures, everyone involved worked together to overcome potential problems and advance the project. An issue arose with Zone D designations remaining in the study area from the original 1-D Natural Valley Analysis. Zone D designates areas of unknown hazards, which was a concern to the stakeholders. In response to this concern, a more detailed Natural Valley Analysis was developed utilizing a 2-D model, which resulted in eliminating the less precise Zone D designations within the study area. FEMA then used the more detailed 2-D model analysis results to eliminate the less precise Zone D designations within the study area.

“This was an innovative project. We were on the forefront of incorporating the levee analysis and mapping procedures and in touch with FEMA as the guidelines were being developed and finalized.”

– BRADY MCDANIEL, Engineer, Northwest Hydraulics Consultants (Contractor to CVWD)

LLPT

One of the first steps to implement the process was for the CVWD to form an LLPT. This was a crucial step that helped to identify the impacted communities and engage them early. The LLPT included a broad cross-section of stakeholders, including various communities, tribal representatives, intergovernmental agencies, and representatives from Riverside County. This structure allowed for the CVWD to obtain buy-in throughout the process and allowed the district to be responsive to its board which was concerned about the potential impact of any floodplain changes.

The LLPT held several meetings to review mapping analyses and the resulting flooding conditions. One best practice that worked particularly well was to place 6-foot copies of the maps on tables. This was more effective than showing the maps on a screen because it allowed people to better view their property and feel more connected to the physical map. Reviewers were able to make comments on the maps. were an effective way to work through challenges. Community members felt comfortable speaking up, asking questions, and expressing concerns.

“The LLPT process was positive and facilitated engagement on the participants’ part and highlighted the role everyone plays. The atmosphere of engagement helped give participants a sense of ownership.”

– DAVID WILSON, Engineer – Stormwater/Irrigation/Drainage, CVWD



LLPT meets

FUNDING AND ENGINEERING

While CVWD was proactive in identifying and providing funding, FEMA's grant, which enabled the CVWD to engage an engineering firm familiar with FEMA's modeling and mapping, made communication easier during development of the levee analysis and mapping approach. This was, in part, because the LLPT had a trusted independent expert who helped with community buy-in and acceptance. The engineering consultants developed 2-D models for the Structural-Based Inundation procedure, performed a Natural Valley analysis using a 1-D model, and ensured that the procedures selected were consistent with FEMA's in-process guidance development. These procedures were applied to various reaches to determine the appropriate mapping approach to identify the flood hazards landward of the non-accredited levee system.

“I've been working with FEMA since I joined CVWD. It's been a great relationship and we've made a lot of progress on many CVWD projects. This project was unique and challenging as there was no defined procedure or guideline for its path forward at the beginning but the effective collaboration and FEMA's responsiveness to the issues made this project a success.”

– TESFAYE DEMISSIE, Engineer – Stormwater, Coachella Valley Watershed District

THE OUTCOME

This CVSC levee system was the first in the country to implement FEMA's new levee analysis and mapping procedures. The evaluation used the Natural Valley and Structural-Based Inundation Procedures to map the various reaches and assess the existing levee system. Preliminary Flood Insurance Rate Map (FIRM) panels were issued on May 29, 2015 and have been reviewed with all impacted NFIP communities and stakeholders.

The preliminary FIRM panels show some areas newly mapped in a Special Flood Hazard Area (SFHA), the area subject to inundation by the base (1-percent-annual-chance) flood. The Letter of Final Determination, which provides the effective date of the maps and gives the NFIP communities 6 months to update their ordinances, was issued on September 6, 2017, and the preliminary FIRM panels became effective on March 6, 2018.

This milestone in the mapping process also marks a renewed communication effort in which FEMA works with floodplain planning staff to finalize any outstanding issues, and with stakeholders to help them understand their risk. Specifically, this compliance period is an important time to communicate the flood insurance implications for any structures that are newly identified in the SFHA, particularly if they are pre-FIRM structures.