Successful Rebuilding After Previous Ruidoso Flood Proves it Can be Done

Full Mitigation Best Practice Story

Lincoln County, New Mexico

Ruidoso, NM - On Highway 70, as the New Mexico desert landscape ascends into mountains, a yellow road sign warns northbound travelers that the area may close due to flooding. In 2006, the continuous summer rains caused that to happen. The storms created overland flooding throughout Lincoln County, New Mexico. On September 18th at the base of the Gavilan Canyon in the Village of Ruidoso, rapid waters from the Rio Ruidoso washed out a bridge crossing.

The Gavilan Canyon Road, a two-lane bridge built in the early 1980s, serves as a major bypass connecting permanent and secondary residences to the village. Ruidoso has 9,500 permanent residences and thousands of seasonal residents who stay in condos, hotels, campsites, family cabins, large resort homes, and mobile homes. During peak weekends, the population may increase to 30,000.

The Gavilan Canyon Road bridge consists of nine side-by-side, 30-inch round culverts packed with gravel, covered by a concrete decking, and paved with asphalt. In incidents prior to the 2006 floods, water topped over the bridge but did not wash out as it did in the 2006 flooding event.

After the floodwaters subsided, village officials inspecting the bridge crossing discovered heavy debris clogging. A video camera extended into the 30-foot length of each corrugated metal culvert revealed the reasons. “What the camera showed was rusted metal with giant cavities around five of the culverts. The only thing holding the bridge [together] was the concrete on top of it,” said J.R. Baumann, Street Director for the Village of Ruidoso. The Gavilan Canyon bridge was considered extensively damaged.

In response, the Village of Ruidoso selected significantly larger prefabricated, concrete-box culverts to improve the bridge. The new culverts double the capacity to 500 cubic feet per second.

“Foresight on the part of the governing body of the Village of Ruidoso saw this as a mitigation opportunity. Village leaders agreed to provide additional funding to improve the size of the bridge culverts to accommodate additional flow during flooding events,” said Ken Davis, Federal Emergency Management Agency (FEMA) Public Assistance Officer. The Village of Ruidoso’s action would mitigate the crossing against future flooding damage. As an interim solution the existing culverts were cleaned out, which allowed the bridge to be used for the remainder of 2006 and 2007.

In March 2008, the crossing was closed to traffic and the damaged culverts removed. Three new culverts with a 3-foot by 5-foot capacity were installed. The river banks were widened and covered with gravel and the upstream side “straightened” and expanded to allow better flow. A new pedestrian walkway was added to the bridge with exterior handrails installed. However, custom guardrails for the interior that were ordered had not arrived in time for the Memorial Day weekend opening.

Just a few weeks after the bridge’s re-opening, a major flash flood arrived. “On Sunday, July 26th the flooding really came fast and the main damage was again in the Village of Ruidoso,” said Curt Temple, Planning Director of Lincoln County. Around 1:30 AM at the Gavilan Canyon Crossing, the Rio Ruidoso was rushing two feet above the new bridge.

After the flooding subsided, an inspection showed that the new culverts worked well. However, some minor damage did occur. The bank reinforcement on the upstream side had been disturbed and the exterior handrails were carried down river. As Baumann concluded, “Well, the handrails were bent but most everything else worked.”

“As a result of the mitigation action of the Gavilan Canyon Crossing, serious damages from the 2008 flooding event were minimized,” said Davis.

Necessary repair of the crossing will be minor. The purchase of a mesh cover for the upper river bank for erosion control is being considered, and the new guardrails have arrived and are ready for installation.

Activity/Project Location

Geographical Area:	**Single County in a State**
FEMA Region:	**Region VI**
State:	**New Mexico**
County:	**Lincoln County**
City/Community:	**Ruidoso**

Key Activity/Project Information

Sector:	**Public/Private Partnership**
Hazard Type:	**Flooding**
Activity/Project Type:	**Flood Control**
Activity/Project Start Date:	**09/2006**
Activity/Project End Date:	**03/2008**
Funding Source:	**Local Sources; Mitigation Planning**
Funding Recipient:	**Local Government**
Funding Recipient Name:	**Village of Ruidoso**

Activity/Project Economic Analysis

Cost:	**Amount Not Available**

Activity/Project Disaster Information

Mitigation Resulted From Federal Disaster?	**Unknown**
Value Tested By Disaster?	**Yes**
Tested By Federal Disaster #:	**1783 , 08/14/2008**
Repetitive Loss Property?	**Unknown**

Reference URLs

No URLs were submitted

Main Points

No Main Points were entered.

Gavilan Canyon Road bridge debris-clogged culverts after 2006 flood event.

Gavilan Canyon Road bridge continued water pooling on upper-river side after 2006 flood event.

The Gavilan Canyon Road bridge new culverts after 2008 mitigation.

Dirt work expansion of upper-river side at Gavilan Canyon Road bridge after 2008 mitigation.