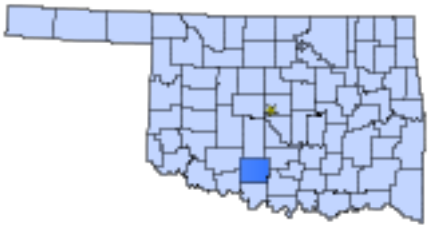
A Bridge Over Powered Water

Full Mitigation Best Practice Story

Stephens County, Oklahoma



Duncan, OK – During 2007, five intense storms, in as many months, tested the resolve of City administrators and residents in Duncan, Oklahoma. Over 100 businesses and homes suffered damage, and numerous pedestrian bridges loosened from their footings. One particular bridge, however, built higher than the Base Flood Elevation (BFE), remained solid and functional. Its fortitude proving the worth of mitigation!

Duncan's Public Works Director R. Scott Vaughn said, "Townspeople had lived with drought for about ten years and forgotten the power of floodwaters, until this year."

By the end of August 2007, Duncan had experienced the sixth wettest year in their history. Roads flooded, creeks eroded banks, and bridges washed away. Home and business owners grew tired of cleaning red mud from their properties after waters receded and the City faced costly repairs on pedestrian bridges used to cross canals.

Vaughn's experience as a public works director taught him the power of water, especially moving water. With that experience in mind, Vaughn built a pedestrian bridge on Main Street in the late 1990s at a height three feet above the BFE.

The elevated bridge project took 30 months to complete and included a concerted effort to educate the City Council regarding the benefits of building above the BFE prior to construction. The bridge now stands about four feet above street level supported by deep footings, and according to Vaughn includes access from both sides of the bridge in compliance with the Americans with Disabilities Act.

The wet summer months of 2007 resulted in four pedestrian bridges being damaged or completely washed away with the exception of the elevated bridge Vaughn had built above the BFE, which sustained no damage.

Costing about $20,000 in materials and using City staff for labor, Vaughn's bridge proved cost effective and served Duncan residents by providing the only safe way to cross the canal by foot. Replacing the bridge entirely would have added an estimated $10,000 to the cost, or $30,000 total.

Vaughn feels that the wise use of local floodplain maps and building above the BFE are effective floodplain management measures that contribute to community safety and sustainability.

Activity/Project Location	
Geographical Area:	**Single County in a State**
FEMA Region:	**Region VI**
State:	**Oklahoma**
County:	**Stephens County**
City/Community:	**Duncan**

Key Activity/Project Information

Sector:	**Public**
Hazard Type:	**Flooding**
Activity/Project Type:	**Elevation, Structural**
Activity/Project Start Date:	**03/1999**
Activity/Project End Date:	**10/2001**
Funding Source:	**Local Sources**
Funding Recipient:	**Local Government**
Funding Recipient Name:	**City of Duncan**

Activity/Project Economic Analysis

Cost:	**$20,000.00 (Estimated)**

Activity/Project Disaster Information

Mitigation Resulted From Federal Disaster?	**No**
Value Tested By Disaster?	**Yes**
Tested By Federal Disaster #:	**1718 , 08/24/2007**
Repetitive Loss Property?	**Yes**

Reference URLs

Reference URL 1:	**http://www.floodsmart.gov**
Reference URL 2:	**http://www.fema.gov/hazard/flood/index.shtm**

Main Points

- During 2007, five intense storms within months tested the resolve of Duncan, Oklahoma. Over 100 businesses and homes suffered damage, and numerous pedestrian bridges loosened from their footings.
- One particular bridge, however, built higher than the Base Flood Elevation (BFE) remained solid and functional. Its fortitude proved the worth of mitigation.
- After waters receded from the floods, and the city faced costly repairs on pedestrian bridges used to cross canals.
- Now the city has raised other bridges to prevent damage in future flood events. The bridge that survived the 2007 floods proved that mitigation works.

Picture of a bridge damaged in 2007 floods.

Elevated Footbridge on Main Street