



Seismic Retrofit of Mobile Homes

Full Mitigation Best Practice Story

Pierce County, Washington

King County, WA - Rainier Manor Mobile Home Park with more than 75 homes sits in a "bowl" on the banks of the Puyallup River. In 1995, due to excessive spring rains and an early snow melt in the mountains, the levy overflowed, flooding over half of the homes that were situated in the lowest parts of the mobile home park and within the confines of this "bowl." Most of the mobile homes were destroyed or had damages of more than 50 percent of their value, exceeding the 50 percent rule of the National Flood Insurance Program (NFIP).



This initiated a visit by an NFIP agent. The agent discovered that the residents were not following any type of standard in their recovery efforts, which prompted him to persuade them of the importance of supporting and enforcing regulations to maintain their eligibility in the flood program. Informing the residents, all retired and on limited incomes, of the regulations they were violating made them quite upset, prompting them to argue for a variance because they didn't want the added expense of the requirements.

The NFIP and the Small Business Association (SBA) set up a Disaster Field Office (DFO) in the mobile home park to educate and convince residents to not only elevate for flood but also seismic retrofit for earthquakes at the same time. A team of counselors made individual counseling available to each homeowner. Homeowners were shown renderings of what their homes could look like, and the counselors assisted in going to dealers in the area to find the best prices for new mobile homes. To help soften the expense for the homeowners, a mission assignment was developed with the U.S. Army Corp of Engineers to do an elevation for each homeowner, so each one would know what was necessary for his or her individual home.

Through the Hazard Mitigation Technical Assistance Program (HMTAP), a video was produced to educate dealers and all stakeholders from transporting to set-up and installation of mobile homes. New seismic standards were incorporated with the best methods for tying mobile homes to their foundations. With their homeowner's insurance and help with SBA loans, all the residents in the Rainier Manor Mobile Home Park, elevated and retrofitted their homes.

A 6.8 magnitude earthquake struck the Puget Sound Region on February 28, 2001. Not one home sustained any damage. The success of this story is not only the fact that no homes were damaged in this earthquake event, but that the agents from the NFIP and SBA turned an otherwise disastrous situation into a positive result with their patience, guidance and assistance, creating a safe environment for every resident in the Rainier Mobile Home Park. The average replacement cost for each mobile home was approximately \$40,000, with an average \$10,000 to \$15,000 for each retrofit/elevation.

Standard Homeowner's insurance policies do not cover flood damage. The National Flood Insurance Program makes Federally backed flood insurance available to homeowners, renters, and business owners in participating communities.

Activity/Project Location

Geographical Area: **Single County (County-wide)**

FEMA Region: **Region X**

State: **Washington**

County: **Pierce County**

Key Activity/Project Information

Sector: **Public**
Hazard Type: **Earthquake; Flooding**
Activity/Project Type: **Elevation, Structural; Retrofitting, Structural**
Activity/Project Start Date: **01/1996**
Activity/Project End Date: **Ongoing**
Funding Source: **Hazard Mitigation Technical Assistance Program (HMTAP); Private funds**
Funding Recipient: **Property Owner - Residential**
Funding Recipient Name: **Approximately 40 individual homeowners**

Activity/Project Economic Analysis

Cost: **\$2,000,000.00 (Estimated)**

Activity/Project Disaster Information

Mitigation Resulted From Federal
Disaster? **No**

Value Tested By Disaster? **Yes**

Tested By Federal Disaster #: **No Federal Disaster specified**

Year First Tested: **2001**

Repetitive Loss Property? **Unknown**

Reference URLs

Reference URL 1: <http://www.fema.gov/business/nfip/index.shtm>

Reference URL 2: <http://emd.wa.gov/>

Main Points

- The NFIP and the Small Business Association (SBA) set up a Disaster Field Office (DFO) in the mobile home park to educate and convince residents to not only elevate for flood but also seismic retrofit for earthquakes at the same time.
- A video was produced to educate dealers and all stakeholders from transporting to set-up and installation of mobile homes.
- To help soften the expense for the homeowners, a mission assignment was developed with the U.S. Army Corp of Engineers to do an elevation for each homeowner, so each one would know what was necessary for his or her individual home.