

## **Appendix 11-2: Archive of Hazard Mitigation Successes**

In addition to the several “Hazard Mitigation Successes” featured in each Part III chapter of this plan, the State IHMT also reports the following success stories in reducing Oregon’s vulnerability to natural hazards.

### **All-Hazards**

#### **Project Inspection Reports**

The action AH-ST-3 calls for the state to monitor hazard mitigation implementation. OEM routinely conducts final inspections and prepares one-page inspection reports with pictures and brief narrative for projects completed via the Hazard Mitigation Grant Program, Flood Mitigation Assistance Program, and Pre-Disaster Mitigation Grant Program.

### **Flood**

The people of Oregon have a long history of respecting natural hazards and using community-based planning to minimize flooding impacts. Oregon has one of oldest and most comprehensive statewide land use planning programs in the nation. Oregon’s state and local floodplain management programs are rooted in the statewide land use planning program and have been quite successful over the years at minimizing loss of life and damage to property from flooding. Part of the key to success is that all counties and cities with flood hazard areas regulate their floodplains and participate in the National Flood Insurance Program. Both the state and the federal government have benefited greatly<sup>1</sup> from the work done by Oregon’s local governments to prepare comprehensive land use plans, implement floodplain development codes, and comply with the NFIP.

Oregon’s floodplain management program has enjoyed much success over the years. The results of the state program have included greater public awareness of flood risks, enhanced understanding among local officials and the public of the benefits of the NFIP, continued implementation of local floodplain development ordinances that meet – and in many cases exceed – NFIP requirements, and ongoing technical assistance for local governments and others regarding flood hazards. Oregon residents have also benefited from increased coordination between emergency managers and floodplain program managers, and better communication among state-level hazard mitigation agencies. Oregon’s floodplain management program continues to be steadfast, but also looks to be innovative and proactive wherever possible in its efforts.

A few of the key successes are described as follows.

#### **Hazard Mitigation Grant Program (HMGP) Projects**

The following projects were accomplished utilizing HMGP funds, along with non-federal resources, sometimes leveraged with Community Development Block Grant (CDBG) funding. HMGP is FEMA funding administered by OEM; it assists communities to implement hazard mitigation projects following Presidentially declared major disasters. CDBG “block” grants are U.S. Housing and Urban Development (HUD) funding administered by OECD for Oregon’s rural and smaller communities and directly by Oregon’s largest cities. Many of the following projects have already demonstrated their effectiveness:

- ▶ Seven major floods occurred on Johnson Creek in Portland over the last 35 years. While only 6% of Portland’s floodplain is associated with Johnson Creek, 78% of Portland’s repetitive loss claims come from Johnson Creek. Floods in February of 1996 on Johnson Creek totaled \$4.7 million in damages, including loss of revenue to businesses. The city developed the Johnson Creek Willing Seller Land Acquisition Program to address this problem. The program’s goal is to help move people and property out of harm’s way of flooding and minimize repetitive losses. Willing sellers are offered real market value for their property and are under no obligation to sell. When the City purchases a property, the structures are removed and the land committed to open space purposes such as constructed wetlands, floodplain terraces and passive recreation. As of the date of this report, 69 properties have been purchased, totaling 126 acres. Also see the full page success story description in the Flood Chapter of this plan.

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<sup>1</sup> In 1996 FEMA indicated that, as a result of Oregon’s excellent statewide land use planning program, an average of \$10 million in flood losses are avoided annually. Also, as a result of the statewide land use planning program, Oregon’s cities and counties had the highest participation rate in the NFIP in the nation.

- ▶ At a cost of \$2 million, HMGP funds were used to elevate 28 dwellings in Tillamook County, and six commercial structures and one residence in the City of Nehalem after the 1996 floods. The home and business owners contributed the required 25% non-federal cost share to elevate their own structures. No damage occurred to these buildings in the December 1998 or November 1999 floods, with estimated savings that range from \$10,000 to \$40,000 per residence per flood event (based on documented losses to the homes from previous, similar flood events).

During the same timeframe, demonstrating its commitment to flood hazard mitigation and to protecting new and substantially improved structures, Tillamook County enacted an ordinance that requires new construction and retrofits of substantially improved existing construction be elevated at least three feet above the base flood elevation. In subsequent years, additional FEMA mitigation funding from the FMA Program supported the acquisition of the Tillamook Inn (2001), Coast Tire (2003), and Dean Motors (2006) commercial properties. A subsequent FMA grant, combined with HMGP funding, provided the impetus to elevate the Western Royal Inn (2004). All three of these properties were among the most egregious repetitive loss properties in Oregon among those insured by the NFIP.

- ▶ During 1996 and 1997, FEMA's HMGP and local funds were used in a million dollar project in Mapleton (Lane County) to elevate 20 structures above the base flood elevation. The project saved over \$900,000 in a single year in avoided damages which otherwise would have occurred during the floods of December 1998. See also the full page success story in the Flood Chapter of this plan.
- ▶ Following the 1996 floods \$240,000 in HMGP and local funds were used to create four elevated mounds on commercial dairy farms to prevent the loss of hundreds of dairy cows. In some cases, landslide debris and soil were provided by the ODOT as fill for this project, and in other instances the fill material was commercially procured. The project is expected to save over \$5 million in future losses to herds and milk production. The dairy industry is a vital component of the Tillamook County economy.
- ▶ Crook County experienced a wetter than normal May 1998 followed by a 24-hour period of intense rain late in the month that caused many small streams and rivers to run at capacity or spill over their banks. Ochoco Creek flooded causing significant damage in the City of Prineville and adjacent unincorporated areas. Residential housing was particularly hard-hit by this event; in one mobile home park essentially all but two residences were deemed uninhabitable as a result of the flooding. The community determined that the acquisition of the mobile home park was a top priority, removing all structures from this low-lying area in the floodplain. Multi-objective benefits were also gained including the continuation of a linear park fronting the creek, the creation of a pervious-surfaced parking lot for a nearby baseball field, and the opportunity for future mobile home tenants to be located outside the flood hazard area. Funding from HMGP and FEMA's Public Assistance Program, the OECCD, and local match dollars worked together to accomplish this project.
- ▶ The City of Rufus is located along the Columbia River at the bottom of Gerking Canyon, which drains a watershed largely comprised of dryland wheat fields. Heavy rainfall associated with summer thunderstorms or rapid snow melt coincident with an extended rain event causes significant runoff that carries water and rocky debris through town impacting roads, bridges, housing, and the community well system.

This multi-objective project was designed to control runoff before it reaches town by detaining the precipitation in small catchment basins in the dryland wheat fields above town. Not only are peak runoff flows reduced, but also soil erosion in the fields is controlled and the detained water is given a chance to percolate into the ground to improve soil moisture. This project included partnerships with the NRCS and the Sherman County SWCD, leveraging FEMA's HMGP project funding.

- ▶ Past floods along the Siletz River in Lincoln County have destroyed homes and caused major disruption to peoples' lives. After the floods of 1996 and 1998, OEM, FEMA, and Lincoln County started a program to elevate homes in harm's way. With a combination of two FEMA funding sources and money from the participating homeowners, 51 homes were elevated. It is estimated that by elevating these homes, more than \$1 million dollars will be saved in future flood damages. See also the full page success story description in the Flood Chapter of this plan.

## **Rogue River Restoration**

A consortium of landowners, sport and conservation groups, and local, state, and federal agencies joined together to form the Rogue River Stakeholders Group with the objective of restoring a section of the Rogue River that had been impacted by pre-Mined Land Restoration Act gravel quarrying. A three-phase restoration plan was formulated to avoid future impacts and mitigate current impacts to fisheries and water quality that have resulted from the channel capture of an ODOT gravel pond (12 feet deep) during the 1997 New Year's Day Storm and ensuing flooding on the Rogue River.

The idea is to restore conditions to guide future channel adjustments within the historic channel migration zone. The most significant aspect of this project is protection of the Rogue River and side channels from being de-watered by river avulsion into 60-foot deep gravel ponds threatening the stability of the river upstream and local near-river landowners and agriculture.

The restoration plan allows the system to adjust away from high-risk features. Streambank erosion is a natural process and all floodplain activities should allow adequate space for future channel adjustments. However, channel avulsion into man-made features, such as gravel pits, is an unnatural erosion process. These legacy mine sites will not safely accommodate future channel migration. The restoration plan is not a plan to return the channel to its pre-1997 course, nor is it a plan to channelize or fix the location of the current channel. This is a plan concordant with the geomorphic trends and natural tendencies of the Rogue River. This plan will counteract the threat of imminent and artificial channel avulsion.

Funding for the project was acquired from a variety of federal and state sources. A similar model for the stakeholders' group and restoration project is being considered for a section of the Willamette River by Lambert Bend.

## **Federal Legislation Limiting Payments for Repetitive Losses**

In 2004, the U.S. Congress passed the Bunning-Bereuter-Blumenauer *Flood Insurance Reform Act* (FIRA). The Act provides additional tools for addressing the impact of repetitive loss properties on the national flood insurance fund. It introduces a five-year pilot project that: (1) defines "severe repetitive loss," (2) authorizes additional funds for mitigation of these properties, and (3) mandates a 50% increase in premiums for these property owners should they decline a mitigation offer. It also provides funding for the pilot program. The state supported this legislation, which had been FL-ST-4. This represents an accomplishment towards NHMP goal #2.

## **Landslide and Debris Flow**

### **Storm Impacts Study**

In response to the landslides of 1996, the Oregon Department of Forestry completed a *Storms Impacts Study*, a ground-based study designed to evaluate the performance of forest practice rules under extreme conditions. A total of eight study areas (52 mi<sup>2</sup>) were investigated by on-the-ground surveys of all stream channels in the study areas. Five of the eight study areas were chosen specifically because they experienced high rates of landslide activity and channel impacts. Three sites were randomly selected. Aerial reconnaissance and ground-based survey methods were utilized to identify and investigate all landslides on forestland that delivered sediment and debris to channels. All forest access roads in six of the study areas (170 mi. in length) were surveyed for landslides and washouts.

The results of the *Storm Impacts Study* were directly used to provide scientific basis for Oregon Department of Forestry's Landslide and Public Safety Rules. These rules provide policy direction for the department's forestry practices.

## **Property Acquisitions**

Since 1997, voluntary acquisition projects funded by the Hazard Mitigation Grant Program for landslide mitigation have been implemented in:

- ▶ Dodson-Warrendale (Multnomah County) – acquisition of landslide damaged or landslide threatened properties;
- ▶ Portland – acquisition of residential properties damaged by landslides, or in jeopardy of being damaged in northwest and southwest areas of town; and
- ▶ City of Dallas – Clay Street acquisitions on a sliding bluff above Rickreal Creek.

## **Windstorms**

### **Reducing Falling Vegetation Damage to Electric Utilities**

A December 12, 1995 windstorm battered more than ten counties in Western Oregon, causing extensive damage to the electric utility infrastructure in the area. Much of the damage to utility poles and power lines was a result of falling vegetation. FEMA approved a hazard mitigation grant to mitigate future losses to utility infrastructure. The grant assisted utilities in refining and better publicizing tree pruning practices, right-of-way clearing policies, and in sharing techniques that reduce powerline breakage by improved and alternate attachments to poles.

A consumer-oriented program was also initiated to assist property owners in selecting trees that are “powerline friendly.” This project is expected to make a big difference over time in reducing windstorm damage to power lines and poles. Emerald PUD (Lane County) estimates savings of at least \$30,000 per year for their utility alone. This hazard mitigation project leveraged funding resources from the HMGP, people’s and rural electric cooperatives, private utilities, and the Bonneville Power Administration.

On February 7, 2002, another significant windstorm struck many of the same counties. In the *Hazard Mitigation Survey Team Report* developed following that storm, “the consensus of the participants was that the implementation of mitigation measures since (the December 1995 storm) had lessened the impact of the most recent event” (page 1).

Hence, the powerline friendly program noted above reduced losses from the February 2002 event as well as other wind events that didn’t meet federal disaster thresholds. Homeowners learned the importance of managing vegetation near the feed line from the utility pole to their house (oftentimes trees impact this last 100 feet of above-ground line) and cities replaced hazard trees near powerlines with lower-growing, power-friendly trees. These proactive outreach efforts on vegetation management have helped both the investor and consumer-owned utilities around the state.

Likewise, hazard mitigation accomplished after the February 2002 wind event later provided reduced losses from a December 2003 to January 2004 winter storm (ice and snow loading) event. In this case, reduced losses to utilities were largely due to the success of the undergrounding projects. For example, the Cline Hill Underground Project (eastern Lincoln County) implemented by Consumers Power, Inc., was successful in totally eliminating electric service disruption and infrastructure losses from the wind and heavy rain events of late December 2005 – January 2006.