

Volume III: Mitigation Resources

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Appendix A: Action Items

Natural Hazard Action Item Proposal Form

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| Proposed Action Item: | | Alignment with Plan Goals: | |
| MH #1 - Identification and Pursuit of Implementation Funding for Mitigation Actions and Creation of Part-time Position to Coordinate Efforts (NHMP & CWPP) | | <ul style="list-style-type: none"> • <i>Acknowledge Responsibility</i> • <i>Facilitate Partnerships and Coordination</i> • <i>Emergency Services Enhancement</i> | |
| Alignment with Existing Plans/Policies: | | | |
| CWPP | | | |
| Rationale for Proposed Action Item: | | | |
| <ul style="list-style-type: none"> • The switch from planning to implementation is the step that begins the reduction of risk | | | |
| Ideas for Implementation: | | | |
| <ul style="list-style-type: none"> • Form partnerships with cities, other counties, and state agencies. Use these partnerships to apply for federal and local (local bonds, measures) mitigation grants. • Create spreadsheet checklist which: <ul style="list-style-type: none"> ○ Identifies prioritized action items ○ Coordinating organization which should apply for funding on County's behalf ○ Possible funding sources ○ Funding cycles ○ Timeframe • Part-time hazard coordinator/deputy emergency | | | |
| Coordinating Organization: | | BOC | |
| Internal Partners: | | External Partners: | |
| County Departments | | Cities, State Agencies, Non-Government/Quasi-governmental Organizations, CWPP, SWCD | |
| Potential Funding Sources: | | Estimated cost: | Timeline: |
| | | N/A | <input checked="" type="checkbox"/> Short Term (0-2 years) <input type="checkbox"/> Long Term (2-4+ years) <input checked="" type="checkbox"/> Ongoing |
| Form Submitted by: | DOGAMI / NHMP Coordinator | | |
| Action Item Status: | Deferred / Modified | | |

Natural Hazard Action Item Proposal Form

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| Proposed Action Item: | | Alignment with Plan Goals: | |
| MH#2 - Develop Public Outreach / Educational Programs | | <ul style="list-style-type: none"> • <i>Education and Outreach</i> • <i>Acknowledge Responsibility</i> • <i>Facilitate Partnerships and Coordination</i> | |
| Alignment with Existing Plans/Policies: | | | |
| | | | |
| Rationale for Proposed Action Item: | | | |
| <ul style="list-style-type: none"> • Developing education programs aimed at mitigating the risk posed by hazards are sometimes the best way to reduce the risk | | | |
| Ideas for Implementation: | | | |
| <ul style="list-style-type: none"> • Use internet websites, local fairs, news articles, brochures, etc to get the data to the public. • Create Natural Hazard display to place at library, planning department, court house, and other public buildings • Create a hazard information page as part of the EM website • Use public service radio announcements to educate public on emergency procedures • Sustain education/outreach program for local jurisdictions <ul style="list-style-type: none"> ○ Coordinate county wide EM training & exercises ○ Train local jurisdictions ○ Inform local jurisdictions of available resources, grants, opportunities and other assistance ○ Disseminate OEM and FEMA information • According to the Mid-Columbia Household Survey, conducted by the Oregon Natural Hazards Workgroup in the spring of 2006, television news (53%), mail (49%), and newspaper stories (48%) were the most effective ways of receiving information about how to mitigate the impact of natural hazards. In terms of identifying specific news sources that are trusted by the public, 40% of respondents cited the Red Cross as the most trusted source of news. The second most trusted source was utility companies, cited by 38% of respondents. For improving effectiveness of outreach, partner with the Red Cross and utility providers to create informative mailings about natural hazard mitigation. Also, work with the Red Cross and utility providers to create news stories about natural hazard mitigation, and work with local news media to have the stories run both in print and on television. | | | |
| Coordinating Organization: | | Emergency Management | |
| Internal Partners: | | External Partners: | |
| County Agencies (Planning, SWCD, Building specifically) | | Cities, State Agencies, Non-Government/Quasi-governmental Organizations, Public, Media, Schools, Forest Service | |
| Potential Funding Sources: | | Estimated cost: | Timeline: |
| | | N/A | <input checked="" type="checkbox"/> Short Term (0-2 years) <input type="checkbox"/> Long Term (2-4+ years) <input checked="" type="checkbox"/> Ongoing |
| Form Submitted by: | DOGAMI / NHMP Coordinator | | |
| Action Item Status: | Deferred / Modified | | |

Natural Hazard Action Item Proposal Form

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| Proposed Action Item: | | Alignment with Plan Goals: | |
| MH#3 - Annual Review and Update of the County Community Wildfire Protection Plan, and Natural Hazards Mitigation Plan; Re-Adoption by County Court Every 5-Years; Review and Update of the County Emergency Operations Plan Every 2-Years | | <ul style="list-style-type: none"> • <i>Acknowledge Responsibility</i> • <i>Facilitate Partnerships and Coordination</i> | |
| Alignment with Existing Plans/Policies: | | | |
| <p> </p> | | | |
| Rationale for Proposed Action Item: | | | |
| <ul style="list-style-type: none"> • FEMA requires NHMP update every 5 years to maintain HMGP funding eligibility • Annual review/update ensures operability of plans and makes 5 year update easier | | | |
| Ideas for Implementation: | | | |
| <ul style="list-style-type: none"> • County Emergency Management will coordinate plan updates annually and complete reviews at least every five years. During the complete reviews, the plans will be evaluated with respect to the county's Zoning Ordinance and Comprehensive Land Use Plan. • Consider the goals and action items from the County Natural Hazard Mitigation Plan for implementation in other county documents and programs, where appropriate. • Review the Natural Hazards Mitigation Plan for opportunities to update the county's Comprehensive Land Use Plan and supporting plans and documents. Statewide Planning Goal 7 is designed to protect life and property from natural disasters and hazards through planning strategies. • Consider how components of the county's Natural Hazards Mitigation Plan might be used in updating current and future capital improvement plans. • Integrate goals and action items into the county's storm water management program. | | | |
| Coordinating Organization: | | Emergency Management / BOC | |
| Internal Partners: | | External Partners: | |
| Planning, BOC | | OEM, OPDR | |
| Potential Funding Sources: | | Estimated cost: | Timeline: |
| | | N/A | <input checked="" type="checkbox"/> Short Term (0-2 years) <input type="checkbox"/> Long Term (2-4+ years) <input checked="" type="checkbox"/> Ongoing |
| Form Submitted by: | NHMP Coordinator | | |
| Action Item Status: | | | |

Natural Hazard Action Item Proposal Form

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| Proposed Action Item: | | Alignment with Plan Goals: | |
| MH#4 - Develop & Maintain Comprehensive Impact Database | | <ul style="list-style-type: none"> • <i>Acknowledge Responsibility</i> • <i>Facilitate Partnerships and Coordination</i> | |
| Alignment with Existing Plans/Policies: | | | |
| | | | |
| Rationale for Proposed Action Item: | | | |
| <ul style="list-style-type: none"> • Data may be used to create hazard maps, assess risk and develop plans • Electronic GIS data may be easily maintained, stored, and updated over time | | | |
| Ideas for Implementation: | | | |
| <ul style="list-style-type: none"> • Electronic synthesis of inventory information on natural hazards, land development, community infrastructure and demographics • Inventory all critical facilities, large employers/public assembly areas, and lifelines (critical infrastructure), and use GIS to evaluate vulnerability by comparing them with hazard prone areas. | | | |
| Coordinating Organization: | GIS | | |
| Internal Partners: | | External Partners: | |
| Emergency Management, Planning, Public Works | | ODOT, BLM, ODF, USFS, Utilities, Telecommunications, DOGAMI | |
| Potential Funding Sources: | | Estimated cost: | Timeline: |
| | | N/A | <input type="checkbox"/> Short Term (0-2 years) <input checked="" type="checkbox"/> Long Term (2-4+ years) <input checked="" type="checkbox"/> Ongoing |
| Form Submitted by: | NHMP Coordinator | | |
| Action Item Status: | Deferred / Modified | | |

Natural Hazard Action Item Proposal Form

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| Proposed Action Item: | | Alignment with Plan Goals: | |
| MH#5 - Create Systems to Support Special Needs Populations | | <ul style="list-style-type: none"> • <i>Acknowledge Responsibility</i> • <i>Facilitate Partnerships and Coordination</i> | |
| Alignment with Existing Plans/Policies: | | | |
| Rationale for Proposed Action Item: | | | |
| <ul style="list-style-type: none"> • Special needs populations (elderly, disabled, low income, non-English speaking) are at greatest risk during a hazard event. • For hazard mitigation, low-income populations need special considerations, because they may not have the savings to withstand economic setbacks, and if work is interrupted, housing, food, and necessities become a greater burden. Additionally, low-income households are more reliant upon public transportation, public food assistance, public housing, and other public programs, all which can be impacted in the event of a natural disaster. 13 percent of Hood River County's citizens live below the poverty line. • The high percentage of elderly individuals require special consideration due to their sensitivities to heat and cold, their reliance upon transportation for medications, and their comparative difficulty in making home modifications that reduce risk to hazards. 13 percent of Hood River County's citizens are 65 or older. • Special consideration should also be given to populations who do not speak English as their primary language. These populations can be harder to reach with preparedness and mitigation information materials. They are less likely to be prepared if special attention is not given to language and culturally appropriate outreach techniques. 15 percent of Hood River County's citizens over 5 years of age speak English less than "very well". | | | |
| Ideas for Implementation: | | | |
| <ul style="list-style-type: none"> • Database system to 911 EMO Centers showing location of disabled persons • Database allows for information sharing by assisting agencies • Website w/ assistance information • Media campaign • Establish a neighbor to neighbor network of voluntary organizations • According to the Mid-Columbia Household Survey, conducted by the Oregon Natural Hazards Workgroup in the spring of 2006, television news (53%), mail (49%), and newspaper stories (48%) were the most effective ways of receiving information about how to mitigate the impact of natural hazards. In terms of identifying specific news sources that are trusted by the public, 40% of respondents cited the Red Cross as the most trusted source of news. The second most trusted source was utility companies, cited by 38% of respondents. For improving effectiveness of outreach, partner with the Red Cross and utility providers to create informative mailings about natural hazard mitigation. Also, work with the Red Cross and utility providers to create news stories about natural hazard mitigation, and work with local news media to have the stories run both in print and on television. Also consider soliciting participation through organizations that cater to special needs populations (i.e. elderly activity centers, organizations that have close ties to the Hispanic community). | | | |
| Coordinating Organization: | | Emergency Management | |
| Internal Partners: | | External Partners: | |
| Health Department, Planning | | Red Cross, Hospitals, 911, CCFL | |
| Potential Funding Sources: | | Estimated cost: | Timeline: |
| | | N/A | <input checked="" type="checkbox"/> Short Term (0-2 years) <input type="checkbox"/> Long Term (2-4+ years) <input checked="" type="checkbox"/> Ongoing |
| Form Submitted by: | NHMP Coordinator | | |
| Action Item Status: | Deferred / Modified | | |

Natural Hazard Action Item Proposal Form

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| Proposed Action Item: | | Alignment with Plan Goals: | |
| MH#6 - Create County Position for Volunteer Coordination & Planning | | <ul style="list-style-type: none"> • <i>Education & Outreach</i> • <i>Acknowledge Responsibility</i> • <i>Facilitate Partnerships and Coordination</i> • <i>Emergency Services Enhancement</i> | |
| Alignment with Existing Plans/Policies: | | | |
| | | | |
| Rationale for Proposed Action Item: | | | |
| <ul style="list-style-type: none"> • Volunteers are a critical resource during disaster and many are members of more than one Organization • Need for a clear view of their roles during different types of disasters to help them prioritize their efforts | | | |
| Ideas for Implementation: | | | |
| <ul style="list-style-type: none"> • Identify & prioritize how volunteers can assist during different types of disaster • Provide training • Develop notification procedures w/ thresholds of activation • Coordinate registration and training • Retain professional or volunteer coordinator for volunteer programs/activities/grant opportunities, etc. | | | |
| Coordinating Organization: | | BOC | |
| Internal Partners: | | External Partners: | |
| Emergency Management, Emergency Response | | Cities, ODF, BLM, CERT, Region (neighboring counties) | |
| Potential Funding Sources: | | Estimated cost: | Timeline: |
| | | | <input type="checkbox"/> Short Term (0-2 years) <input checked="" type="checkbox"/> Long Term (2-4+ years) <input type="checkbox"/> Ongoing |
| Form Submitted by: | NHMP Coordinator | | |
| Action Item Status: | Deferred / Modified | | |

Natural Hazard Action Item Proposal Form

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| Proposed Action Item: | | Alignment with Plan Goals: | |
| MH#7 – Formation of All Hazard Overhead Team | | <ul style="list-style-type: none"> • <i>Protection of Life & Property</i> • <i>Facilitate Partnerships and Coordination</i> • <i>Emergency Services Enhancement</i> | |
| Alignment with Existing Plans/Policies: | | | |
| | | | |
| Rationale for Proposed Action Item: | | | |
| | | | |
| Ideas for Implementation: | | | |
| | | | |
| Coordinating Organization: | Fire Districts | | |
| Internal Partners: | | External Partners: | |
| BOC | | ODF, USFS | |
| Potential Funding Sources: | | Estimated cost: | Timeline: |
| | | | <input type="checkbox"/> Short Term (0-2 years) <input type="checkbox"/> LT Long Term (2-4+ years) <input type="checkbox"/> Ongoing |
| Form Submitted by: | Peter Mackwell | | |
| Action Item Status: | Deferred | | |

Natural Hazard Action Item Proposal Form

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| Proposed Action Item: | | Alignment with Plan Goals: | |
| MH#8 – Develop Post-Disaster Short Term Recovery Plan | | <ul style="list-style-type: none"> • <i>Acknowledge Responsibility</i> • <i>Facilitate Partnerships & Coordination</i> • <i>Disaster Resilient Economy</i> | |
| Alignment with Existing Plans/Policies: | | | |
| | | | |
| Rationale for Proposed Action Item: | | | |
| <ul style="list-style-type: none"> • A coordinated post disaster response with clearly defined roles and steps will increase the speed with which the community recovers | | | |
| Ideas for Implementation: | | | |
| <ul style="list-style-type: none"> • Improve knowledge base with respect to hazard vulnerability • Hire consultant to assist County Court with plan development | | | |
| Coordinating Organization: | | BOC | |
| Internal Partners: | | External Partners: | |
| Planning, Public Works, County Facilities, Emergency Management | | Cities, FEMA, OPDR | |
| Potential Funding Sources: | | Estimated cost: | Timeline: |
| | | | <input type="checkbox"/> Short Term (0-2 years) <input checked="" type="checkbox"/> Long Term (2-4+ years) <input checked="" type="checkbox"/> Ongoing |
| Form Submitted by: | NHMP Coordinator | | |
| Action Item Status: | Deferred / Modified | | |

Natural Hazard Action Item Proposal Form

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| Proposed Action Item: | | Alignment with Plan Goals: | |
| MH#9 – Develop Small Business Awareness & Continuity Planning Campaign | | <ul style="list-style-type: none"> • <i>Education and Outreach</i> • <i>Disaster Resilient Economy</i> • <i>Facilitate Partnerships and Coordination</i> | |
| Alignment with Existing Plans/Policies: | | | |
| | | | |
| Rationale for Proposed Action Item: | | | |
| <ul style="list-style-type: none"> • Majority of businesses are small “mom & pop” shops or farms/ranches which may lack resources to recover from a disaster • Continuity planning would assist businesses get back on their feet quicker • Business that are prepared will help keep the local economy going | | | |
| Ideas for Implementation: | | | |
| <ul style="list-style-type: none"> • Use OPDR business continuity planning materials & methods • Hold workshops • Partner with the City of Hood River | | | |
| Coordinating Organization: | Hood River Chamber of Commerce | | |
| Internal Partners: | | External Partners: | |
| BOC | | OPDR | |
| Potential Funding Sources: | | Estimated cost: | Timeline: |
| | | | <input type="checkbox"/> Short Term (0-2 years) <input checked="" type="checkbox"/> Long Term (2-4+ years) <input checked="" type="checkbox"/> Ongoing |
| Form Submitted by: | OPDR | | |
| Action Item Status: | Deferred | | |

Natural Hazard Action Item Proposal Form

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| Proposed Action Item: | | Alignment with Plan Goals: | |
| MH#10 - Update County Comprehensive Land Use Plan | | <ul style="list-style-type: none"> • <i>Protection of Life & Property</i> • <i>Acknowledge Responsibility</i> | |
| Alignment with Existing Plans/Policies: | | | |
| | | | |
| Rationale for Proposed Action Item: | | | |
| <ul style="list-style-type: none"> • Goal 7 is out of date • Take advantage of opportunity to use comp. plan to implement non-structural mitigation activities | | | |
| Ideas for Implementation: | | | |
| <ul style="list-style-type: none"> • Use updated hazard information for county ordinances and regulations that govern site specific land use decisions • Use Oregon TRG and other resources to help guide drafting and implementation of regulations and ordinances (non-structural) to mitigate risk | | | |
| Coordinating Organization: | | Planning | |
| Internal Partners: | | External Partners: | |
| BOC | | DLCD | |
| Potential Funding Sources: | | Estimated cost: | Timeline: |
| | | N/A | <input type="checkbox"/> Short Term (0-2 years) <input checked="" type="checkbox"/> Long Term (2-4+ years) <input type="checkbox"/> Ongoing |
| Form Submitted by: | NHMP Coordinator | | |
| Action Item Status: | Deferred | | |

Natural Hazard Action Item Proposal Form

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| Proposed Action Item: | | Alignment with Plan Goals: | |
| MH#11 - Improve County Forest Road Maintenance | | <ul style="list-style-type: none"> • <i>Protection of Life & Property</i> • <i>Natural Resource Systems Protection</i> | |
| Alignment with Existing Plans/Policies: | | | |
| | | | |
| Rationale for Proposed Action Item: | | | |
| <ul style="list-style-type: none"> • Improve flood capacity and lower the risk of road washouts. • Improved road maintenance and road management will reduce fine sediment loading and landslide risks introduced by the forest road network. It is also expected to improve aquatic habitat conditions for threatened steelhead and bull trout, as well as chinook, cutthroat and rainbow trout, and other native species. Forest roads are a major source of fine sediment delivery to streams especially where poor road conditions and wet weather vehicle use intersect and where culvert failures exist. • County roads with native soil surfaces, inadequate drainage, too-small culverts, and poor ditch conditions were all identified in a road inventory completed in 2001. Inventory methods followed Oregon Department of Forestry and ODFW protocols. | | | |
| Ideas for Implementation: | | | |
| <ul style="list-style-type: none"> • Conduct various road maintenance activities, drainage improvements, culvert enlargement for flood capacity, cut slope and roadside ditch treatment, resurfacing, obliteration, gating, or other treatments as necessary to reduce sediment delivery to streams. Control risks of washouts and slope failures associated with the forest road system | | | |
| Coordinating Organization: | | HRC Forestry Department | |
| Internal Partners: | | External Partners: | |
| | | HR Soil and Water Conservation District | |
| Potential Funding Sources: | | Estimated cost: | Timeline: |
| | | | <input type="checkbox"/> Short Term (0-2 years) <input checked="" type="checkbox"/> Long Term (2-4+ years) <input checked="" type="checkbox"/> Ongoing |
| Form Submitted by: | SWCD | | |
| Action Item Status: | Deferred / Modified | | |

Natural Hazard Action Item Proposal Form

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| Proposed Action Item: | | Alignment with Plan Goals: | |
| MH#12 - Extend Streamside Vegetation Protection to All Land Uses | | <ul style="list-style-type: none"> • <i>Protection of Life & Property</i> • <i>Natural Resource Systems Protection</i> | |
| Alignment with Existing Plans/Policies: | | | |
| | | | |
| Rationale for Proposed Action Item: | | | |
| <ul style="list-style-type: none"> • Sufficient streamside vegetation reduces risk for erosion and flood • Insufficient development rules currently exist to protect streamside vegetation important to aquatic life. Several stream segments exceed temperature standards that protect coldwater fish • Riparian and shade assessments of the Lower Hood River and Lower East and Middle Fork Hood River watersheds found that up to 28% of stream bank length has low shade and that wood recruitment potential is limited by development and infrastructure along 58 miles of stream length examined. A 2001DEQ study found similar results • This measure will help restore and protect important riparian zone functions including shade, erosion control, large woody debris recruitment, and absorption of contaminated runoff in streams used by threatened steelhead, as well as other salmonids | | | |
| Ideas for Implementation: | | | |
| <ul style="list-style-type: none"> • Encourage and assist the County and City Planning Departments, Planning Commissions, and elected officials to develop and adopt appropriate development standards, ordinances, and rules to maintain sufficient vegetation buffers along stream banks in residential, commercial and all other non-forest, non-agricultural lands. State law requires that adequate shade and vegetation be maintained along stream corridors for commercial timber harvest and agriculture, but no similar protection exists for other land use activities. | | | |
| Coordinating Organization: | | Hood River Watershed Group | |
| Internal Partners: | | External Partners: | |
| Soil and Water Conservation District, HR County Planning | | HR City Planning | |
| Potential Funding Sources: | | Estimated cost: | Timeline: |
| | | | <input type="checkbox"/> Short Term (0-2 years) <input checked="" type="checkbox"/> Long Term (2-4+ years) <input checked="" type="checkbox"/> Ongoing |
| Form Submitted by: | SWCD | | |
| Action Item Status: | Deferred / Modified | | |

Natural Hazard Action Item Proposal Form

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| Proposed Action Item: | | Alignment with Plan Goals: | |
| MH#13 - Identification / Analysis of Irrigation Water Systems & Elimination of Open Irrigation Water with Consideration of Impact on Storm water | | <ul style="list-style-type: none"> • <i>Disaster Resilient Economy</i> • <i>Natural Resource Systems Protection</i> | |
| Alignment with Existing Plans/Policies: | | | |
| | | | |
| Rationale for Proposed Action Item: | | | |
| <ul style="list-style-type: none"> • Piped highest canals prevents evaporation and water loss, no vegetation loss • Education & piping = best use in drought • Prevents repetitive flood loss in irrigation ditches • According to the state risk assessment, Hood River County's risk of drought is high. Therefore, preserving water is a wise measure | | | |
| Ideas for Implementation: | | | |
| <ul style="list-style-type: none"> • Apply for grant funding to replace open channel & roadside irrigation ditches with piped system. | | | |
| Coordinating Organization: | | Soil and Water Conservation District | |
| Internal Partners: | | External Partners: | |
| Planning, Irrigation Districts | | USDA, OSU Extension Service | |
| Potential Funding Sources: | | Estimated cost: | Timeline: |
| | | | <input type="checkbox"/> Short Term (0-2 years) <input checked="" type="checkbox"/> Long Term (2-4+ years) <input type="checkbox"/> Ongoing |
| Form Submitted by: | Farmer's Irrigation District | | |
| Action Item Status: | Deferred / Modified | | |

Natural Hazard Action Item Proposal Form

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| Proposed Action Item: | | Alignment with Plan Goals: | |
| DH#1 - Support Local Agencies Training on Water Conservation Measures and Drought Management Practices | | <ul style="list-style-type: none"> • <i>Education & Outreach</i> • <i>Disaster Resilient Economy</i> • <i>Facilitate Partnerships and Coordination</i> • <i>Natural Resource Systems Protection</i> | |
| Alignment with Existing Plans/Policies: | | | |
| Rationale for Proposed Action Item: | | | |
| <ul style="list-style-type: none"> • Agricultural economy- crops and livestock- susceptible to drought <ul style="list-style-type: none"> o Loss of income for farmers and ranchers during drought season • Need for raised awareness of the impacts of drought • Need for coordinated water conservation efforts • Need for County-wide effort to reduce drought impact • The impact that a natural hazard event has on one industry can reverberate throughout the regional economy. The effect is especially great when the businesses concerned belong to a basic sector industry. Basic sector industries are those that are dependent on sales outside of the local community; they bring money into a local community via employment. The farm industry is a basic industry. If agricultural production is hampered by a natural hazard event, the multiplier effect could harm the local community, in addition to meaning job losses in the agricultural industry. A decrease in basic sector purchasing power results in lower profits (and potentially job losses) for the local non-basic businesses that are dependent on them. In Hood River County, farming and ranching comprise 10 percent of local industry. Understanding and addressing the farming industry's sensitivity to drought is a strategic way to increase the resiliency of the entire regional economy • According to the state risk assessment, Hood River County's risk of drought is high. | | | |
| Ideas for Implementation: | | | |
| <ul style="list-style-type: none"> • In cooperation with OSU Extension Service and agricultural organizations prominent and respected within the farming and ranching community, build on existing outreach methods with the goal of providing water conservation/drought management training to farmers and ranchers <ul style="list-style-type: none"> o Establish a public advisory committee o Include public participation in drought planning o Organize drought information meetings for the public and the media o Implement water conservation awareness programs o Publish and distribute pamphlets on water conservation techniques / drought management o Organize workshops on special drought-related topics o Prepare sample ordinances on water conservation o Establish a drought information center o Set up a demonstration of on-site treatment technology at visitor center o Establish tuition assistance so farmers can enroll in farm management classes o Develop training materials in several languages o Provide education on different cultural perspectives of water resources o Employ public participation and public information | | | |
| Coordinating Organization: | | Soil and Water Conservation District | |
| Internal Partners: | | External Partners: | |
| County Agencies | | OSU Extension Service, Fruit Growers, Water Districts | |
| Potential Funding Sources: | | Estimated cost: | Timeline: |
| | | N/A | <ul style="list-style-type: none"> x Long Term (2-4+ years) x Ongoing |
| Form Submitted by: | | NHMP Coordinator | |
| Action Item Status: | | Deferred Modified | |

Natural Hazard Action Item Proposal Form

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| Proposed Action Item: | | Alignment with Plan Goals: | |
| DH#2 - Ensure Long-range Water Resources Development | | <ul style="list-style-type: none"> • <i>Disaster Resilient Economy</i> • <i>Protection of Life & Property</i> • <i>Facilitate Partnerships and Coordination</i> • <i>Natural Resource Systems Protection</i> | |
| Alignment with Existing Plans/Policies: | | | |
| Rationale for Proposed Action Item: | | | |
| <ul style="list-style-type: none"> • Potential and projected growth within the County could place serious burden on water supply for domestic and agricultural use • Studying alternative sources may reveal under-utilized water resources and other information useful to water managers • The impact that a natural hazard event has on one industry can reverberate throughout the regional economy. The effect is especially great when the businesses concerned belong to a basic sector industry. Basic sector industries are those that are dependent on sales outside of the local community; they bring money into a local community via employment. The farm industry is a basic industry. If agricultural production is hampered by a natural hazard event, the multiplier effect could harm the local community, in addition to meaning job losses in the agricultural industry. A decrease in basic sector purchasing power results in lower profits (and potentially job losses) for the local non-basic businesses that are dependent on them. In Hood River County, farming and ranching comprise 10 percent of local industry. Understanding and addressing the farming industry's sensitivity to drought is a strategic way to increase the resiliency of the entire regional economy | | | |
| Ideas for Implementation: | | | |
| <ul style="list-style-type: none"> • Assist in the determination of which alternative water sources in or near Hood River County would benefit by detailed studies and also assist in the determination of how these studies can be funded • County Adoption of Stricter Water Conservation Policies <ul style="list-style-type: none"> o Establish stronger economic incentives for private investment in water conservation o Encourage voluntary water conservation o Improve water use and conveyance efficiencies o Implement water metering and leak detection programs o Imposing excess-use charges during times of water shortage o Imposing mandatory water-use restrictions during times of water shortage o Conduct water-conservation education of the public and of school children, including special emphasis during times of water shortage | | | |
| Coordinating Organization: | | HR County Water Planning Group | |
| Internal Partners: | | External Partners: | |
| GIS, Public Works, BOC, SWCD | | | |
| Potential Funding Sources: | | Estimated cost: | Timeline: |
| | | | <input type="checkbox"/> Short Term (0-2 years) <input checked="" type="checkbox"/> Long Term (2-4+ years) <input type="checkbox"/> Ongoing |
| Form Submitted by: | NHMP Coordinator | | |
| Action Item Status: | Deferred / Modified | | |

Natural Hazard Action Item Proposal Form

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| Proposed Action Item: | | Alignment with Plan Goals: | |
| FH#1 - Mitigate Flood Event Resulting from Naturally Induced Dam Failure | | <ul style="list-style-type: none"> • <i>Protection of Life & Property</i> • <i>Acknowledge Responsibility</i> | |
| Alignment with Existing Plans/Policies: | | | |
| | | | |
| Rationale for Proposed Action Item: | | | |
| <ul style="list-style-type: none"> • Acquire or prepare detailed dam failure inundation maps: <ul style="list-style-type: none"> ○ Identifying the hazard is necessary prior to identifying public notification areas and evacuation routes • Improve understanding of vulnerability and risk to life and property from natural hazard induced dam failure: <ul style="list-style-type: none"> ○ If we can understand the risk from dam failure closer to reality, we can plan and use resources more appropriately to prepare against this hazard • Rehabilitate identified vulnerable dams: <ul style="list-style-type: none"> ○ Reduce or eliminate the risk to life, property and infrastructure • Evaluate emergency response plan and identify areas of public notification and evacuation routes: <ul style="list-style-type: none"> ○ Ensure the plan is adequate to cope with a hazard event • Dam failures can occur at any time and are quite common. Fortunately, most failures result in minor damage and pose little or no risk to life safety. However, the potential for severe damage and fatalities does exist • Hood River County has 1 dam with a high threat potential | | | |
| Ideas for Implementation: | | | |
| <ul style="list-style-type: none"> • Prepare maps with FEMA 100 and 500-year flood inundation maps along with the dam failure inundation zone. Complete inventory of critical facilities • After the improvement of the hazard layers and the vulnerability inventory, the risk analysis should be reevaluated. Provide educational media to identified vulnerable communities. • Evaluate existing plan and revise notification and evacuation routes based on vulnerability inventory. | | | |
| Coordinating Organization: | | Middle Fork Irrigation District | |
| Internal Partners: | | External Partners: | |
| Public Works, GIS, Fire Department | | Army Corps of Engineers, BPA, DEQ, FERC | |
| Potential Funding Sources: | | Estimated cost: | Timeline: |
| | | | <input checked="" type="checkbox"/> Short Term (0-2 years) <input type="checkbox"/> Long Term (2-4+ years) <input checked="" type="checkbox"/> Ongoing |
| Form Submitted by: | DOGAMI | | |
| Action Item Status: | Deferred / Modified | | |

Natural Hazard Action Item Proposal Form

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| Proposed Action Item: | | Alignment with Plan Goals: | |
| FH#2 - Apply for NFIP Community Rating System | | <ul style="list-style-type: none"> • <i>Education and Outreach</i> • <i>Acknowledge Responsibility</i> | |
| Alignment with Existing Plans/Policies: | | | |
| | | | |
| Rationale for Proposed Action Item: | | | |
| <ul style="list-style-type: none"> • CRS Rating System reduces community flood insurance premiums • Minimize community response and recovery costs • Provide flood insurance coverage not generally available in private market • Stimulate floodplain management to guide future development • Emphasize less costly non-structural flood control measures • Reduce costs to federal government/taxpayers by shifting burden to floodplain occupants • According to the Mid-Columbia Household Survey, conducted by the Oregon Natural Hazards Workgroup in the spring of 2006, 71% strongly agree or agree with supporting policies to prohibit development in areas subject to natural hazards. Residents may support zoning regulations to prohibit growth in flood prone areas if the rating systems revealed a substantial threat • According to the state hazard risk assessment, Hood River County's risk to flood is moderate | | | |
| Ideas for Implementation: | | | |
| <ul style="list-style-type: none"> • Implement the steps needed for County to become a participant in the NFIP Community Rating System • Determine CRS eligibility requirements • Research and document current activities that County is already conducting. • Complete and submit CRS participation application • Update code to reflect requirements of the CRS • Establish outreach projects to provide education flood hazards to County Residents • Implement reasonable higher regulatory standards • Obtain digital floodplain maps | | | |
| Coordinating Organization: | | Planning | |
| Internal Partners: | | External Partners: | |
| BOC | | Cities, LCDC, FEMA, OEM | |
| Potential Funding Sources: | | Estimated cost: | Timeline: |
| | | N/A | <input checked="" type="checkbox"/> Short Term (0-2 years) <input type="checkbox"/> Long Term (2-4+ years) <input type="checkbox"/> Ongoing |
| Form Submitted by: | NHMP Coordinator | | |
| Action Item Status: | Deferred / Modified | | |

Natural Hazard Action Item Proposal Form

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| Proposed Action Item: | | Alignment with Plan Goals: | |
| FH#3 - Update FIRM Maps | | <ul style="list-style-type: none"> • <i>Protection of Life & Property</i> • <i>Natural Resource Systems Protection</i> | |
| Alignment with Existing Plans/Policies: | | | |
| | | | |
| Rationale for Proposed Action Item: | | | |
| <ul style="list-style-type: none"> • FIRM maps are out of date | | | |
| Ideas for Implementation: | | | |
| <ul style="list-style-type: none"> • Work with FEMA on specific areas to update as funding becomes available; and • Suggest to FEMA to incorporate 'ground-truthing' models with updates to FIRM | | | |
| Coordinating Organization: | | Planning | |
| Internal Partners: | | External Partners: | |
| GIS, Public Works | | FEMA, DOGAMI | |
| Potential Funding Sources: | | Estimated cost: | Timeline: |
| | | | <input checked="" type="checkbox"/> Short Term (0-2 years) <input type="checkbox"/> Long Term (2-4+ years) <input type="checkbox"/> Ongoing |
| Form Submitted by: | NHMP Coordinator | | |
| Action Item Status: | Deferred / Modified | | |

Natural Hazard Action Item Proposal Form

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| Proposed Action Item: | | Alignment with Plan Goals: | |
| FH#4 - Improve Methods of Barrier Prioritization and Culvert Barrier Remediation for Fish Passage & Flood Mitigation | | <ul style="list-style-type: none"> • <i>Protection of Life & Property</i> • <i>Natural Resource Systems Protection</i> | |
| Alignment with Existing Plans/Policies: | | | |
| | | | |
| Rationale for Proposed Action Item: | | | |
| <ul style="list-style-type: none"> • Improve flood capacity and reduce the risk of road washouts and sedimentation • Barrier remediation will restore access to more upstream habitat for steelhead and bull trout listed as threatened species, and spring chinook, coho, resident trout, and Pacific lamprey | | | |
| Ideas for Implementation: | | | |
| <ul style="list-style-type: none"> • Refine fish passage barrier prioritization method using complete inventory. Local entities fix known culvert and other barriers according to assigned priorities and availability of funds • Identify sensitive road segments where alternative storm water and roadside vegetation control practices are needed, continue staff training regarding the need to adapt practices and techniques to meet changing environmental standards, and identify opportunities to improve management practices while still meeting roadway safety requirements | | | |
| Coordinating Organization: | Public Works | | |
| Internal Partners: | | External Partners: | |
| | | Soil and Water Conservation District | |
| Potential Funding Sources: | | Estimated cost: | Timeline: |
| | | | <input type="checkbox"/> Short Term (0-2 years) <input checked="" type="checkbox"/> Long Term (2-4+ years) <input checked="" type="checkbox"/> Ongoing |
| Form Submitted by: | Soil and Water Conservation District | | |
| Action Item Status: | Deferred / Modified | | |

Natural Hazard Action Item Proposal Form

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| Proposed Action Item: | | Alignment with Plan Goals: | |
| EH#1 - Rehabilitate Identified Vulnerable Schools, Emergency Facilities, and Public Buildings/Lifelines | | <ul style="list-style-type: none"> • <i>Protection of Life & Property</i> • <i>Emergency Services Enhancement</i> | |
| Alignment with Existing Plans/Policies: | | | |
| | | | |
| Rationale for Proposed Action Item: | | | |
| <ul style="list-style-type: none"> • Performing the rehabilitation of vulnerable buildings is one of the final steps that actually reduces the risk • According to the Mid-Columbia Household Survey, conducted by the Oregon Natural Hazards Workgroup in the spring of 2006, 96% of respondents indicated that it is very important or somewhat important for the community to protect critical facilities. In addition, over 91% indicated that it is very important or somewhat important to protect and reduce damage to utilities and strengthen emergency services. Additionally, 85.8% of the respondents strongly agree or agree that they support improving the disaster preparedness of local schools | | | |
| Ideas for Implementation: | | | |
| <ul style="list-style-type: none"> • Provide scientific basis in effort to obtain local state, federal, and private funding | | | |
| Coordinating Organization: | | County Facilities | |
| Internal Partners: | | External Partners: | |
| Emergency Management, BOC, Planning, GIS, Public Works | | DOGAMI, OEM, DLCDC | |
| Potential Funding Sources: | | Estimated cost: | Timeline: |
| | | N/A | <input type="checkbox"/> Short Term (0-2 years) <input checked="" type="checkbox"/> Long Term (2-4+ years) <input type="checkbox"/> Ongoing |
| Form Submitted by: | DOGAMI | | |
| Action Item Status: | Deferred | | |

Natural Hazard Action Item Proposal Form

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| Proposed Action Item: | | Alignment with Plan Goals: | |
| EH#2 - Improve Knowledge of Earthquake Sources / Improve Earthquake Hazard Zone Maps | | <ul style="list-style-type: none"> <i>Acknowledge Responsibility</i> | |
| Alignment with Existing Plans/Policies: | | | |
| | | | |
| Rationale for Proposed Action Item: | | | |
| <ul style="list-style-type: none"> The source and location of an earthquake is a critical component of the expected damage to a particular site The current earthquake hazard maps are frequently a compilation of the existing maps, and were not necessarily the result of a systematic approach. These maps were compiled at widely varying scales and therefore have similarly varying levels of detail. The coarse-scale maps may mislead people to believe that certain areas have no hazard, whereas those areas have simply not been evaluated in detail. Systematic upgrading of these maps will lead to greater understanding of hazard locales. This will improve land use planning and provide for more efficient and cost effective development | | | |
| Ideas for Implementation: | | | |
| <ul style="list-style-type: none"> Improve the existing crustal fault database by expanding LIDAR survey coverage and interpreting the results. After the potentially active faults are identified, trenching should be conducted to associated data such as recurrence intervals and maximum magnitude. Expand the seismic instrument network Systematically utilize the new Oregon Geologic Digital Data Compilation project output. Use new digital elevation models including those derived from LIDAR surveys to significantly enhance the accuracy of hazard classification. Collect and compile engineering properties of the geologic units. Incorporate improved spatial (vertical and horizontal) engineering properties data of the geologic rock units (shear wave velocities, strength, grain size, density, etc). Include hydrologic database characteristics such as groundwater depth | | | |
| Coordinating Organization: | | Emergency Management | |
| Internal Partners: | | External Partners: | |
| GIS, Public Works | | DOGAMI, OEM, DLCD | |
| Potential Funding Sources: | | Estimated cost: | Timeline: |
| | | N/A | <input type="checkbox"/> Short Term (0-2 years) <input checked="" type="checkbox"/> Long Term (2-4+ years) <input type="checkbox"/> Ongoing |
| Form Submitted by: | DOGAMI | | |
| Action Item Status: | Deferred / Modified | | |

Natural Hazard Action Item Proposal Form

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| Proposed Action Item: | | Alignment with Plan Goals: | |
| EH#3 - Educate Those at Risk | | <ul style="list-style-type: none"> • <i>Education & Outreach</i> • <i>Protection of Life & Property</i> • <i>Acknowledge Responsibility</i> | |
| Alignment with Existing Plans/Policies: | | | |
| | | | |
| Rationale for Proposed Action Item: | | | |
| <ul style="list-style-type: none"> • Those at risk need to be made aware to effect change • According to the Institute for Business and Home Safety, more than 1/4 of businesses that close due to a natural hazard never reopen | | | |
| Ideas for Implementation: | | | |
| <ul style="list-style-type: none"> • Provide education media to identified vulnerable residential and commercial building owners and occupants. Explain structural and non-structural rehabilitation techniques and encourage rehabilitation • According to the Mid-Columbia Household Survey, conducted by the Oregon Natural Hazards Workgroup in the spring of 2006, television news (53%), mail (49%), and newspaper stories (48%) were the most effective ways of receiving information about how to mitigate the impact of natural hazards. In terms of identifying specific news sources that are trusted by the public, 40% of respondents cited the Red Cross as the most trusted source of news. The second most trusted source were utility companies, cited by 38% of respondents. For improving effectiveness of outreach, partner with the Red Cross and utility providers to create informative mailings about natural hazard mitigation. Also, work with the Red Cross and utility providers to create news stories about natural hazard mitigation, and work with local news media to have the stories run both in print and on television | | | |
| Coordinating Organization: | | Emergency Management | |
| Internal Partners: | | External Partners: | |
| Public Works, GIS | | DOGAMI, OEM, DLCD, School Districts | |
| Potential Funding Sources: | | Estimated cost: | Timeline: |
| | | N/A | <input type="checkbox"/> Short Term (0-2 years) <input checked="" type="checkbox"/> Long Term (2-4+ years) <input checked="" type="checkbox"/> Ongoing |
| Form Submitted by: | DOGAMI | | |
| Action Item Status: | Deferred / Modified | | |

Natural Hazard Action Item Proposal Form

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| Proposed Action Item: | | Alignment with Plan Goals: | |
| LH#1 - Improve Understanding of Landslide Risk Inside Hazard Areas | | <ul style="list-style-type: none"> • <i>Disaster Resilient Economy</i> • <i>Protection of Life & Property</i> • <i>Acknowledge Responsibility</i> • <i>Emergency Services Enhancement</i> | |
| Alignment with Existing Plans/Policies: | | | |
| | | | |
| Rationale for Proposed Action Item: | | | |
| <ul style="list-style-type: none"> • Better data provides for better decisions to minimize loss. Incorporating indirect economic loss better depicts the cost from natural hazard events • Once DOGAMI has identified and adopted “further review areas” the County can overlay those areas with utility system and tax assessor information to identify potential risk • According to the state risk assessment, Hood River County’s risk of landslide is moderate. | | | |
| Ideas for Implementation: | | | |
| <ul style="list-style-type: none"> • Complete inventory of critical facilities including: schools and emergency facilities, vulnerable public and commercial buildings, vulnerable residential buildings, and lifelines (including roads). Evaluate risk to life and property, including indirect economic loss. After the improvement of the hazard layers and the vulnerability inventory, the risk analysis should be reevaluated. | | | |
| Coordinating Organization: | Planning | | |
| Internal Partners: | | External Partners: | |
| Emergency Management, GIS | | DOGAMI, ODF, DLCD, USGS | |
| Potential Funding Sources: | | Estimated cost: | Timeline: |
| | | N/A | <input type="checkbox"/> Short Term (0-2 years) <input checked="" type="checkbox"/> Long Term (2-4+ years) <input type="checkbox"/> Ongoing |
| Form Submitted by: | DOGAMI | | |
| Action Item Status: | Deferred / Modified | | |

Natural Hazard Action Item Proposal Form

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| Proposed Action Item: | | Alignment with Plan Goals: | |
| LH#2 - Improve Landslide Hazard Area Maps | | <ul style="list-style-type: none"> <i>Acknowledge Responsibility</i> | |
| Alignment with Existing Plans/Policies: | | | |
| | | | |
| Rationale for Proposed Action Item: | | | |
| <ul style="list-style-type: none"> The current landslide hazard maps are a compilation of the existing maps. These maps are a work in progress” and have been compiled at widely varying scales and sometimes only depict risk for certain types of landslides. These various scales and levels of detail may lead to people to believe that some areas have no slope hazard, when the case is that those areas just have not been evaluated yet. Systematic upgrading of these maps will lead to greater understanding of hazard locales. This will improve land use planning and provide for more efficient and cost effective development According to the state risk assessment, Hood River County’s risk of landslide is moderate According to the Mid-Columbia Household Survey, conducted by the Oregon Natural Hazards Workgroup in the spring of 2006, 71% strongly agree or agree with supporting policies to prohibit development in areas subject to natural hazards. However, such policies cannot go into effect until landslide hazard area maps are updated | | | |
| Ideas for Implementation: | | | |
| <ul style="list-style-type: none"> Possibly incorporate new Oregon Geologic Digital Data Model. Sponsor and collect LIDAR surveys to inexpensively but vastly improve the landslide hazard model. Continue field-based science research by detailed mapping of existing landslide-prone areas. Once sufficient data is collected, perform modeling to predict areas of future higher-to-lower instability potential | | | |
| Coordinating Organization: | | GIS | |
| Internal Partners: | | External Partners: | |
| Planning, Emergency Management | | DOGAMI, ODF, DLCD, USGS | |
| Potential Funding Sources: | | Estimated cost: | Timeline: |
| | | N/A | <input type="checkbox"/> Short Term (0-2 years) <input checked="" type="checkbox"/> Long Term (2-4+ years) <input checked="" type="checkbox"/> Ongoing |
| Form Submitted by: | DOGAMI | | |
| Action Item Status: | Deferred / Modified | | |

Natural Hazard Action Item Proposal Form

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| Proposed Action Item: | | Alignment with Plan Goals: | |
| LH#3 - Provide Education/Awareness for Those at Risk | | <ul style="list-style-type: none"> • <i>Education and Outreach</i> • <i>Protection of Life & Property</i> | |
| Alignment with Existing Plans/Policies: | | | |
| | | | |
| Rationale for Proposed Action Item: | | | |
| <ul style="list-style-type: none"> • With continued urban and near-urban development, areas with significant hazard risk will face development pressures. Land use development should provide for mitigating potential losses from landslide hazards • Educate identified vulnerable residential and commercial building owners, occupants, and developers helps those with the greatest risk and streamlines use of County resources • According to the Mid-Columbia Household Survey, conducted by the Oregon Natural Hazards Workgroup in the spring of 2006, 71% strongly agree or agree with supporting policies to prohibit development in areas subject to natural hazards. Education about which areas are most subject to hazards may be sufficient to help this willing population avoid hazardous development practices | | | |
| Ideas for Implementation: | | | |
| <ul style="list-style-type: none"> • Provide educational media to identified vulnerable residential and commercial building owners, occupants, and developers, which explain structural and non-structural reduction techniques such as local drainage improvements • Distribute DOGAMI landslide brochure (pick up at Planning office) • According to the Mid-Columbia Household Survey, conducted by the Oregon Natural Hazards Workgroup in the spring of 2006, television news (53%), mail (49%), and newspaper stories (48%) were the most effective ways of receiving information about how to mitigate the impact of natural hazards. In terms of identifying specific news sources that are trusted by the public, 40% of respondents cited the Red Cross as the most trusted source of news. The second most trusted source were utility companies, cited by 38% of respondents. For improving effectiveness of outreach, partner with the Red Cross and utility providers to create informative mailings about natural hazard mitigation. Also, work with the Red Cross and utility providers to create news stories about natural hazard mitigation, and work with local news media to have the stories run both in print and on television | | | |
| Coordinating Organization: | | Planning | |
| Internal Partners: | | External Partners: | |
| GIS, Emergency Management | | DOGAMI, ODF, DLCD | |
| Potential Funding Sources: | | Estimated cost: | Timeline: |
| | | N/A | <input type="checkbox"/> Short Term (0-2 years) <input checked="" type="checkbox"/> Long Term (2-4+ years) <input type="checkbox"/> Ongoing |
| Form Submitted by: | DOGAMI | | |
| Action Item Status: | Deferred / Modified | | |

Natural Hazard Action Item Proposal Form

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| Proposed Action Item: | | Alignment with Plan Goals: | |
| LH#4 - Update County Zoning Ordinance Regarding Landslide Hazards | | <ul style="list-style-type: none"> • <i>Disaster Resilient Economy</i> • <i>Protection of Life & Property</i> • <i>Acknowledge Responsibility</i> | |
| Alignment with Existing Plans/Policies: | | | |
| | | | |
| Rationale for Proposed Action Item: | | | |
| <ul style="list-style-type: none"> • Drafting and adopting landslide ordinances would reduce risk especially within areas marked for future growth • According to the Mid-Columbia Household Survey, conducted by the Oregon Natural Hazards Workgroup in the spring of 2006, 71% strongly agree or agree with supporting policies to prohibit development in areas subject to natural hazards. The existing public support for such an ordinance may warrant its creation | | | |
| Ideas for Implementation: | | | |
| <ul style="list-style-type: none"> • Use financial incentive and disincentives to promote development outside of identified risk Areas • Oregon Technical Resource Guide has many examples of how other communities have drafted these types of ordinances | | | |
| Coordinating Organization: | Planning | | |
| Internal Partners: | | External Partners: | |
| Planning Commission | | OPDR, OEM | |
| Potential Funding Sources: | | Estimated cost: | Timeline: |
| | | N/A | <input type="checkbox"/> Short Term (0-2 years) <input checked="" type="checkbox"/> Long Term (2-4+ years) <input type="checkbox"/> Ongoing |
| Form Submitted by: | NHMP Coordinator | | |
| Action Item Status: | Deferred / Modified | | |

Natural Hazard Action Item Proposal Form

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| Proposed Action Item: | | Alignment with Plan Goals: | |
| SH#1 - Continue Partnership Programs to Reduce Vulnerability of Public Infrastructure from Severe Winter Storms | | <ul style="list-style-type: none"> • <i>Disaster Resilient Economy</i> • <i>Protection of Life & Property</i> | |
| Alignment with Existing Plans/Policies: | | | |
| | | | |
| Rationale for Proposed Action Item: | | | |
| <ul style="list-style-type: none"> • Partnerships between County, communities, and utilities distributes burdens of risk and cost • Partnerships facilitate participation in risk reduction activities in communities with little government resources • According to the Mid-Columbia Household Survey, conducted by the Oregon Natural Hazards Workgroup in the spring of 2006, 96% of respondents indicated that it is very important or somewhat important for the community to protect critical facilities. Rely on this proven public support for protecting public infrastructure to raise money, or perhaps even garner physical support from community members to support mitigation measures • According to the state risk assessment, Hood River County's risk to severe storms is high | | | |
| Ideas for Implementation: | | | |
| <ul style="list-style-type: none"> • Partner with responsible agencies and organizations to design and implement programs that reduce risk to life, property, and utility systems • Develop partnerships between utility providers and county and local public works agencies to document known hazard areas and minimize risk | | | |
| Coordinating Organization: | | Emergency Management | |
| Internal Partners: | | External Partners: | |
| Planning, Public Works | | Cities, Utilities, ODOT, OSP | |
| Potential Funding Sources: | | Estimated cost: | Timeline: |
| | | N/A | <input type="checkbox"/> Short Term (0-2 years) <input checked="" type="checkbox"/> Long Term (2-4+ years) <input checked="" type="checkbox"/> Ongoing |
| Form Submitted by: | NHMP Coordinator | | |
| Action Item Status: | Deferred / Modified | | |

Natural Hazard Action Item Proposal Form

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| Proposed Action Item: | | Alignment with Plan Goals: | |
| SH#2 - Support/Encourage Electrical Utilities to Use Underground Construction Methods | | <ul style="list-style-type: none"> • <i>Disaster Resilient Economy</i> | |
| Alignment with Existing Plans/Policies: | | | |
| | | | |
| Rationale for Proposed Action Item: | | | |
| <ul style="list-style-type: none"> • Underground construction of electrical utilities where possible through public incentives and partnerships helps to reduce power outages from severe storms • There is potential for significant growth within the County within the next 50 years; adopting risk reducing building methods such as underground utilities in newly built areas now lessens the risk burden on future generations • According to the state risk assessment, Hood River County's risk to severe storms is high • According to the Mid-Columbia Household Survey, conducted by the Oregon Natural Hazards Workgroup in the spring of 2006, over 91% indicated that it is very important or somewhat important to protect and reduce damage to utilities | | | |
| Ideas for Implementation: | | | |
| <ul style="list-style-type: none"> • Continue support of utility under-grounding program in newly developed areas to minimize future conflicts with utilities; • Increase the use of underground utilities where possible in redevelopment areas; • Coordinate with local utility companies and contractors to install underground utilities; • Partner with utilities to investigate under-grounding utilities in sections of the county that are prone to hazards related to overhead utilities; and • Identify underground utilities projects as a part of future Capital Improvement Projects (CIP). | | | |
| Coordinating Organization: | | Planning | |
| Internal Partners: | | External Partners: | |
| Emergency Management, GIS | | Cities, Utilities, Building Contractors, Real Estate | |
| Potential Funding Sources: | | Estimated cost: | Timeline: |
| | | N/A | <input checked="" type="checkbox"/> Short Term (0-2 years) <input type="checkbox"/> Long Term (2-4+ years) <input checked="" type="checkbox"/> Ongoing |
| Form Submitted by: | NHMP Coordinator | | |
| Action Item Status: | Deferred / Modified | | |

Natural Hazard Action Item Proposal Form

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| Proposed Action Item: | | Alignment with Plan Goals: | |
| SH#3 - Increase and Maintain Public Awareness of Severe Storms. | | <ul style="list-style-type: none"> • <i>Education and Outreach</i> • <i>Disaster Resilient Economy</i> | |
| Alignment with Existing Plans/Policies: | | | |
| | | | |
| Rationale for Proposed Action Item: | | | |
| <ul style="list-style-type: none"> • Education and awareness is often the most efficient and cost effective way to reduce a community's risk • Focusing on the benefits of mitigation activities through education aimed at households and businesses and targeting of special needs populations ensures community wide coverage • According to the state risk assessment, Hood River County's risk to severe storms is high | | | |
| Ideas for Implementation: | | | |
| <ul style="list-style-type: none"> • Collect additional information and add to existing informational sources on public education materials for protecting life, property, and the environment from storm events • Distribute educational materials to County residents and public and private sector organizations regarding evacuation routes during road closures • Distribute audience-specific educational materials to schools, churches, and other public and private sector organizations • Develop methods of improving emergency warning system • Distribute educational materials to County residents and public and private sector organizations regarding preparedness for no-power situations • According to the Mid-Columbia Household Survey, conducted by the Oregon Natural Hazards Workgroup in the spring of 2006, television news (53%), mail (49%), and newspaper stories (48%) were the most effective ways of receiving information about how to mitigate the impact of natural hazards. In terms of identifying specific news sources that are trusted by the public, 40% of respondents cited the Red Cross as the most trusted source of news. The second most trusted source was utility companies, cited by 38% of respondents. For improving effectiveness of outreach, partner with the Red Cross and utility providers to create informative mailings about natural hazard mitigation. Also, work with the Red Cross and utility providers to create news stories about natural hazard mitigation, and work with local news media to have the stories run both in print and on television | | | |
| Coordinating Organization: | | Emergency Management | |
| Internal Partners: | | External Partners: | |
| Planning, Public Works | | Utilities, Cities, American Red Cross, Churches, Fire, FEMA | |
| Potential Funding Sources: | | Estimated cost: | Timeline: |
| | | N/A | <input type="checkbox"/> Short Term (0-2 years) <input checked="" type="checkbox"/> Long Term (2-4+ years) <input checked="" type="checkbox"/> Ongoing |
| Form Submitted by: | NHMP Coordinator | | |
| Action Item Status: | Deferred | | |

Natural Hazard Action Item Proposal Form

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| Proposed Action Item: | | Alignment with Plan Goals: | |
| SH#4 - Reduce Trees in Public Utility Right-of-ways - Avoiding Damage to Power Lines | | <ul style="list-style-type: none"> • <i>Emergency Services Enhancement</i> • <i>Protection of Life & Property</i> • <i>Acknowledge Responsibility</i> | |
| Alignment with Existing Plans/Policies: | | | |
| | | | |
| Rationale for Proposed Action Item: | | | |
| <ul style="list-style-type: none"> • During a recent ice storm (January 2012) Hood River County experienced extensive damage to power lines due to fallen trees situated in right-of-ways | | | |
| Ideas for Implementation: | | | |
| <ul style="list-style-type: none"> • Community outreach to advise property owners to cut trees, at least close to or exceeding power lines • Identify “problem areas” where damage to power lines situated in right-of-ways is most likely to occur during a severe storm | | | |
| Coordinating Organization: | | Public Works | |
| Internal Partners: | | External Partners: | |
| Community Development, Emergency Management | | Utility Companies (Pacific Power, HR Co-op) | |
| Potential Funding Sources: | | Estimated cost: | Timeline: |
| | | | <input type="checkbox"/> Short Term (0-2 years) <input checked="" type="checkbox"/> Long Term (2-4+ years) <input checked="" type="checkbox"/> Ongoing |
| Form Submitted by: | Emergency Management | | |
| Action Item Status: | Recently Developed | | |

Natural Hazard Action Item Proposal Form

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|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------|
| Proposed Action Item: | | Alignment with Plan Goals: | |
| WH#1 - Establish County-wide Wildfire Protection Group | | <ul style="list-style-type: none"> • <i>Acknowledge Responsibility</i> • <i>Facilitate Partnership and Coordination</i> • <i>Emergency Services Enhancement</i> | |
| Alignment with Existing Plans/Policies: | | | |
| | | | |
| Rationale for Proposed Action Item: | | | |
| <ul style="list-style-type: none"> • Need to establish “champions” to ensure CWPP actions are implemented • Mirror goals and objectives set forth by SB 360 • According to the state risk assessment, Hood River County’s risk of wildfire is moderate. However, according to the Mid-Columbia Household Survey, conducted by the Oregon Natural Hazards Workgroup in the spring of 2006, respondents were most concerned about household fire and wildfire. Creation of the wildfire protection group aligns with citizens concerns over wildfire | | | |
| Ideas for Implementation: | | | |
| <ul style="list-style-type: none"> • County, city & fire districts appoint community based committee to oversee, plan and provide direction for implementation of CWPP projects | | | |
| Coordinating Organization: | BOC | | |
| Internal Partners: | | External Partners: | |
| County Agencies, Fire Districts, Ports, SWCD | | Cities, ODF, USFS | |
| Potential Funding Sources: | | Estimated cost: | Timeline: |
| | | N/A | <input checked="" type="checkbox"/> Short Term (0-2 years) <input type="checkbox"/> Long Term (2-4+ years) <input type="checkbox"/> Ongoing |
| Form Submitted by: | Peter Mackwell | | |
| Action Item Status: | Deferred | | |

Natural Hazard Action Item Proposal Form

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| Proposed Action Item: | | Alignment with Plan Goals: | |
| WH#2 - Improve Residential Fire Protection Capacity | | <ul style="list-style-type: none"> • <i>Protection of Life & Property</i> • <i>Facilitate Partnerships and Coordination</i> • <i>Emergency Services Enhancement</i> | |
| Alignment with Existing Plans/Policies: | | | |
| | | | |
| Rationale for Proposed Action Item: | | | |
| <ul style="list-style-type: none"> • Provide solutions for residents that live on roads that have only one means of access and egress. These residents may be beyond help in a fast moving fire when access may be too risky for fire apparatus or if the access becomes clogged • These residents need the education and assistance that will allow them to help themselves should they be cut off from help in the face of a wildfire • According to the state risk assessment, Hood River County's risk of wildfire is moderate. However, according to the Mid-Columbia Household Survey, conducted by the Oregon Natural Hazards Workgroup in the spring of 2006, respondents were most concerned about household fire and wildfire. There is undoubtedly public interest in receiving and implementing knowledge about wildfire prevention and response measures that can be taken at the household level | | | |
| Ideas for Implementation: | | | |
| <ul style="list-style-type: none"> • Consider demonstration projects in these areas. • Create a route for residents to obtain Wildfire Firewise safety inspections for house and property | | | |
| Coordinating Organization: | | Fire Districts | |
| Internal Partners: | | External Partners: | |
| GIS, Public Works | | ODOT, USFS, ODF, General Public, Property Owners | |
| Potential Funding Sources: | | Estimated cost: | Timeline: |
| | | N/A | <input checked="" type="checkbox"/> Short Term (0-2 years) <input type="checkbox"/> Long Term (2-4+ years) <input checked="" type="checkbox"/> Ongoing |
| Form Submitted by: | Peter Mackwell | | |
| Action Item Status: | Deferred / Modified | | |

Natural Hazard Action Item Proposal Form

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| Proposed Action Item: | | Alignment with Plan Goals: | |
| WH#3 - Hazard Fuel Reduction | | <ul style="list-style-type: none"> • <i>Protection of Life & Property</i> • <i>Natural Resource Systems Protection</i> • <i>Emergency Services Enhancement</i> | |
| Alignment with Existing Plans/Policies: | | | |
| | | | |
| Rationale for Proposed Action Item: | | | |
| <ul style="list-style-type: none"> • Westside District: Reed Road to Columbia River <ul style="list-style-type: none"> o With seasonal drying and heavily forested lands, the potential for an intense fast moving fire on the Westside of the county exists when mixed with an unstable air mass and the high winds for which the Columbia River Gorge is known. o Wind driven fires moving from the fine fuels into ladder fuels along the freeway represent a scenario that responding fire apparatus and personnel may not be able to resolve in a timely manner. • I84 Corridor <ul style="list-style-type: none"> o The heavy flow of vehicular and train traffic historically has started fires along the freeway and railroad right of way. Fires have started mostly in the fine fuels adjacent to the interstate and have the potential for rapid spread into heavily wooded areas • Pine Grove District: Fir Mountain <ul style="list-style-type: none"> o Residents on the upper portion (beyond cemetery) of Fir Mountain Road and Fir Mountain Loop do have two means of access/egress but the potential for a fast moving fire moving up the chute in heavily wooded timber poses significant threat to most houses • Pine Grove District: Highline / Panorama <ul style="list-style-type: none"> o Residents of this area face into the prevailing westerlies; with a large cluster of houses close together fire spread may be rapid and access for larger apparatus would be an issue. • Watersheds <ul style="list-style-type: none"> o Recognizing that there are many water districts serving the residents within the county, the water sources are of vital importance to protect from the all consuming effects of a major wildfire • According to the state risk assessment, Hood River County's risk of wildfire is moderate. However, according to the Mid-Columbia Household Survey, conducted by the Oregon Natural Hazards Workgroup in the spring of 2006, respondents were most concerned about household fire and wildfire. There is undoubtedly public interest in treating hazard fuels in the wildland urban interface. | | | |
| Ideas for Implementation: | | | |
| <ul style="list-style-type: none"> • Coordinated fuel reduction effort • Community volunteers/clubs | | | |
| Coordinating Organization: | | Fire Districts / BOC | |
| Internal Partners: | | External Partners: | |
| Public Works, Maintenance, SWCD | | Railroads, ODOT, USFS, ODF, Property Owners | |
| Potential Funding Sources: | | Estimated cost: | Timeline: |
| | | | <input checked="" type="checkbox"/> Short Term (0-2 years) <input type="checkbox"/> Long Term (2-4+ years) <input checked="" type="checkbox"/> Ongoing |
| Form Submitted by: | Peter Mackwell | | |
| Action Item Status: | Deferred / Modified | | |

Natural Hazard Action Item Proposal Form

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| Proposed Action Item: | | Alignment with Plan Goals: | |
| WH#4 - Ensure Proper Road Continuity, Numbering and Naming | | <ul style="list-style-type: none"> • <i>Protection of Life & Property</i> • <i>Emergency Services Enhancement</i> | |
| Alignment with Existing Plans/Policies: | | | |
| | | | |
| Rationale for Proposed Action Item: | | | |
| <p>Emergency Response Road Continuity</p> <ul style="list-style-type: none"> • Roads that are physically separated by parks, schools or any other object preclude the possibility of a continuous road • The lack of continuity enhances the possibility of error and delaying responding Emergency Services <p>Residential Numbering</p> <ul style="list-style-type: none"> • All residences should be numbered to provide a sequential range that either increases or decreases depending on the direction of travel • All residences should have their number prominently displayed at the road side and at appropriate places along shared driveways to direct responding emergency services • All residences should have their number displayed on the side of the structure • The lack of continuity or the absence of numbering enhances the possibility of error for responding emergency service <p>Road Naming Conventions</p> <ul style="list-style-type: none"> • Residences that are physically off Road "A" at times have a Road "B" address • This serves to confuse both dispatchers and emergency responders alike | | | |
| Ideas for Implementation: | | | |
| <ul style="list-style-type: none"> • Analysis of continuity, numbering and naming system • Put emergency response conventions in place | | | |
| Coordinating Organization: | | Planning | |
| Internal Partners: | | External Partners: | |
| Fire Districts, BOC, Public Works | | | |
| Potential Funding Sources: | | Estimated cost: | Timeline: |
| | | N/A | <input checked="" type="checkbox"/> Short Term (0-2 years) <input type="checkbox"/> Long Term (2-4+ years) <input checked="" type="checkbox"/> Ongoing |
| Form Submitted by: | Peter Mackwell | | |
| Action Item Status: | Deferred / Modified | | |

Natural Hazard Action Item Proposal Form

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| Proposed Action Item: | | Alignment with Plan Goals: | |
| WH#5 - Update County Zoning Ordinance to Implement the WUI | | <ul style="list-style-type: none"> • <i>Disaster Resilient Economy</i> • <i>Protection of Life & Property</i> • <i>Acknowledge Responsibility</i> | |
| Alignment with Existing Plans/Policies: | | | |
| | | | |
| Rationale for Proposed Action Item: | | | |
| <ul style="list-style-type: none"> • WUI, Zoning and Ordinances are out of date | | | |
| Ideas for Implementation: | | | |
| <p>Planning</p> <ul style="list-style-type: none"> • Anticipate and enhance fire safety needs as zoning restrictions; relax in the WUI <p>Ordinances County – City</p> <ul style="list-style-type: none"> • Review ordinances to see if changes can be made to enhance wildfire planning and mitigation • Review and possibly implement SB 360 | | | |
| Coordinating Organization: | | Planning | |
| Internal Partners: | | External Partners: | |
| Fire Districts, BOC | | ODF, USFS, OPDR | |
| Potential Funding Sources: | | Estimated cost: | Timeline: |
| | | N/A | <input checked="" type="checkbox"/> Short Term (0-2 years) <input type="checkbox"/> Long Term (2-4+ years) <input type="checkbox"/> Ongoing |
| Form Submitted by: | Peter Mackwell | | |
| Action Item Status: | Deferred / Modified | | |

Natural Hazard Action Item Proposal Form

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| Proposed Action Item: | | Alignment with Plan Goals: | |
| WH#6 - Perform Routine Forest Management on Zones of Contribution for County-wide Potable Water Systems | | <ul style="list-style-type: none"> • <i>Disaster Resilient Economy</i> • <i>Protection of Life & Property</i> • <i>Natural Resource Systems Protection</i> | |
| Alignment with Existing Plans/Policies: | | | |
| CWPP, Oregon SPP Goal 6 | | | |
| Rationale for Proposed Action Item: | | | |
| <ul style="list-style-type: none"> • Protection of potable water sources from the affects of fire | | | |
| Ideas for Implementation: | | | |
| <ul style="list-style-type: none"> • Identify and map zones of contribution • Educate the public and relevant agencies about the risk posed to county water systems by the affects of fire | | | |
| Coordinating Organization: | | Hood River Wildfire Protection Group, CWPP Manager | |
| Internal Partners: | | External Partners: | |
| Community Development | | Potable Water Districts, Land Owners, Cities, SWCD | |
| Potential Funding Sources: | | Estimated cost: | Timeline: |
| OWEB | | | <input type="checkbox"/> Short Term (0-2 years) <input checked="" type="checkbox"/> Long Term (2-4+ years) <input checked="" type="checkbox"/> Ongoing |
| Form Submitted by: | Community Development | | |
| Action Item Status: | Recently Developed | | |

Natural Hazard Action Item Proposal Form

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| Proposed Action Item: | | Alignment with Plan Goals: | |
| VH#1 - Improve the Public's Knowledge Base of Volcanic Risk and Vulnerability | | <ul style="list-style-type: none"> <i>Acknowledge Responsibility</i> | |
| Alignment with Existing Plans/Policies: | | | |
| | | | |
| Rationale for Proposed Action Item: | | | |
| <ul style="list-style-type: none"> If we can understand the risk from volcanic hazards closer to reality, we can plan and use resources more appropriately to prepare against this hazard According to the Mid-Columbia Household Survey, conducted by the Oregon Natural Hazards Workgroup in the spring of 2006, 96% of respondents indicated that it is very important or somewhat important for the community to protect critical facilities. In addition, over 91% indicated that it is very important or somewhat important to protect and reduce damage to utilities and strengthen emergency services. Another 85.8% of the respondents strongly agree or agree that they support improving the disaster preparedness of local schools. There is a large amount of community support to mitigate losses to community assets, and learning more about volcanic risk and vulnerability is perhaps the best way to begin mitigating losses | | | |
| Ideas for Implementation: | | | |
| <ul style="list-style-type: none"> This is particularly important for critical structures (schools and emergency facilities) and lifelines. After the improvement of the hazard layers and the vulnerability, the understanding of vulnerability and risk should be reevaluated | | | |
| Coordinating Organization: | | Planning | |
| Internal Partners: | | External Partners: | |
| GIS | | DOGAMI, OEM, USGS | |
| Potential Funding Sources: | | Estimated cost: | Timeline: |
| | | N/A | <input type="checkbox"/> Short Term (0-2 years) <input checked="" type="checkbox"/> Long Term (2-4+ years) <input type="checkbox"/> Ongoing |
| Form Submitted by: | DOGAMI | | |
| Action Item Status: | Deferred / Modified | | |

Natural Hazard Action Item Proposal Form

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|------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Proposed Action Item: | | Alignment with Plan Goals: | |
| VH#2 - Evaluate Emergency Response Plan and Identify Areas of Public Notification and Evacuation Routes | | <ul style="list-style-type: none"> • <i>Protection of Life & Property</i> • <i>Acknowledge Responsibility</i> • <i>Facilitate Partnerships and Coordination</i> • <i>Emergency Services Enhancement</i> | |
| Alignment with Existing Plans/Policies: | | | |
| | | | |
| Rationale for Proposed Action Item: | | | |
| <ul style="list-style-type: none"> • The coordination of a warning alert to the local level is as important as the alert itself. | | | |
| Ideas for Implementation: | | | |
| <ul style="list-style-type: none"> • Evaluate existing plan and revise notification and evacuation routes based on vulnerability inventory. | | | |
| Coordinating Organization: | | Emergency Management | |
| Internal Partners: | | External Partners: | |
| EM Response | | Cities, ODF, BLM, Confederated Tribes of Warm Springs | |
| Potential Funding Sources: | | Estimated cost: | Timeline: |
| | | N/A | <input type="checkbox"/> Short Term (0-2 years) <input checked="" type="checkbox"/> Long Term (2-4+ years) <input checked="" type="checkbox"/> Ongoing |
| Form Submitted by: | DOGAMI | | |
| Action Item Status: | Deferred / Modified | | |

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Appendix B: Planning and Public Process

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Memo

To: Federal Emergency Management Agency

From: Oregon Partnership for Disaster Resilience

Date: August 31, 2012

Re: List of changes to the 2007 Hood River County NHMP for the 2012 Plan Update

Purpose

This memo describes the changes made to the 2007 Hood River County Natural Hazards Mitigation Plan (NHMP) during the 2011-2012 plan update process. Major changes are documented by plan section.

Project Background

In August 2011, Hood River County partnered with the Oregon Partnership for Disaster Resilience (OPDR) to update the 2007 Hood River County Natural Hazards Mitigation Plan (NHMP). The Disaster Mitigation Act of 2000 requires communities to update their mitigation plans every five years to remain eligible for Pre-Disaster Mitigation (PDM) program funding, Flood Mitigation Assistance (FMA) program funding, and Hazard Grant Mitigation Program (HMGP) funding. Members of OPDR and the plan coordinator met with members of the Hood River County steering committee in November (2011), February, May, and June (2012) to update all content within the county's NHMP. OPDR and the committee made several changes to the 2007 NHMP. Major changes are documented and summarized in this memo.

2012 Plan Update Changes

The sections below only discuss *major* changes made to the 2007 Hood River County NHMP during the 2012 plan update process. Major changes include replacement or deletion of large portions of text, changes to the plan's organization, and new additions to the plan. If a section is not addressed in this memo, then it can be assumed that no significant changes occurred.

The plan's format and organization have been altered to fit within OPDR's plan templates. Table B.1 below lists the 2007 plan section names and the corresponding 2012 section names, as updated. This memo will use the 2012 plan update section names to reference any changes, additions, or deletions within the plan.

Table B.1: Changes to Plan Sections

| 2007 Hood River County NHMP | 2012 Hood River County NHMP |
|-----------------------------------------------------------|---------------------------------------------------------------------------------|
| Table of Contents | Table of Contents |
| Executive Summary | Executive Summary |
| Section I: Introduction | Section 1: Introduction |
| Section II: Community Profile | Section 2: Risk Assessment |
| Section III: Risk Assessment Summary | Section 3: Mission, Goals, and Action Items |
| Section IV: Goals & Action Items | Section 4: Plan Implementation and Maintenance |
| Section V: Plan Implementation & Maintenance | Hazard Annexes |
| Hazard Annex | Appendix A: Action Item Forms |
| Appendix A: Public Process | Appendix B: Planning and Public Process |
| Appendix B: Resource Directory | Appendix C: Community Profile |
| Appendix C: Household Natural Hazards Preparedness Survey | Appendix D: Economic Analysis |
| Appendix D: Economic Analysis | Appendix E: Mid-Columbia Region Natural Hazard Mitigation Public Opinion Survey |
| Appendix E: Existing Plans & Programs | Appendix F: Grant Programs |
| Appendix F: Mitigation Tools | |
| Appendix G: Acronyms | |

Aside from substantial changes to plan section content, the most visible changes to the plan’s organization from the update process are the reclassification of the community profile from a section to an appendix, the replacement of the plan’s hazard annex with the natural hazard section of Hood River County’s Hazard Identification and Vulnerability Analysis (HIVA) document, the addition of an appendix that provides grant program information, and the removal of Appendix G: Acronyms as well as Appendix B: Resource Directory.

Front Pages

1. The plan’s cover has been updated.
2. Acknowledgements have been updated to include the 2012 project partners and planning participants.

Volume I

Volume I provides the overall plan framework for the 2012 NHMP update. Volume I contains the following sections: 1) Introduction; 2) Risk Assessment 3) Mission, Goals, and Action Items; and 4) Plan Implementation and Maintenance.

Section1: Introduction

Section 1 introduces the concept of natural hazards mitigation planning and answers the question “Why develop a mitigation plan?” Additionally, Section 1 summarizes the 2012 plan update process, and provides an overview of how the plan is organized. Major changes to Section 1 include the following:

1. Most of Section 1 includes new information that replaces out of date text found in the 2007 NHMP. The new text defines mitigation, gives examples of mitigation strategies, and describes

the federal mitigation funding programs for which Hood River County is eligible to apply (i.e., the Pre-Disaster Mitigation (PDM) Program, the Flood Mitigation Assistance (FMA) Program, and the Hazard Mitigation Grant Program (HMGP)).

2. Section 1 of the 2007 NHMP discussed the methodology for developing a plan and how the plan was organized. OPDR and the plan update coordinator replaced this information with text that summarized the development of the 2007 NHMP and added new text to describe the 2012 plan update process, including plan update meetings, public outreach efforts, and final plan review and adoption processes.

Section 2: Risk Assessment

Section 2 describes Hood River County's vulnerability to natural hazards in the region. This section highlights the hazards themselves in terms of probability and incidence, and identifies community assets. Major changes to Section 2 include the following:

1. Development of Relative Risk scores to more accurately define hazard risks in the county, and to supplement previously developed Total Threat Scores.
2. An overview of Hood River County hazards was developed that summarizes information from the plan's Hazard Annex.
3. Community Vulnerability has been added to the section, including a listing of community assets and issues that fall under Populations, Economies, Land Use and Development, Critical Infrastructure, and Environment categories.
4. Additional tables address NFIP participation information and general risk assessment scoring.

Section 3: Mission, Goals, and Action items

This section provides the basis and justification for the mission, goals, and mitigation actions identified in the NHMP. Major changes to Section 3 include the following:

1. Hood River County's steering committee reviewed the 2007 plan's goals and modified them with the goals currently identified in Section 3. One goal (Intergenerational Equity) was deleted from the plan entirely, and four others (Protection of Life and Property, Acknowledge Responsibility, Facilitate Partnerships and Coordination, and Emergency Services Enhancement) were modified slightly in terms of language. The 2007 NHMP goals previously read as follows:

Goal #1: Education & Outreach

Goal Statement 1: Develop and implement education programs to increase awareness among citizens, local, county, and regional agencies, non-profit organizations, businesses, and industry.

Goal Statement 2: Develop and conduct outreach programs to increase the number of local activities implemented by public and private sector organizations.

Goal Statement 3: Build community consensus through outreach, education and activities

Goal #2: Disaster Resilient Economy

Goal Statement 1: Foster a diverse economy to reduce the debilitation impacts of a hazard event on any one sector.

Goal Statement 2: Create the conditions for a transitional economy that welcomes new industry and innovative ideas that are sensitive to potential hazard risks faced by the county.

Goal Statement 3: Protect recreation and tourist industries by raising awareness of potential hazard impacts.

Goal Statement 4: Provide support for agricultural industries to help them prepare for hazardous events.

Goal #3: Protection of Life and Property

Goal Statement 1: Develop and implement activities to protect human life, commerce, property and natural resource systems.

Goal Statement 2: Reduce insurance losses and repetitive claims for chronic hazard events while promoting insurance for catastrophic hazards.

Goal Statement 3: Evaluate county guideline/codes, and permitting processes in addressing hazard mitigation; emphasize non-structural means of mitigating hazard impact.

Goal Statement 4: When applicable, utilize structural mitigation activities to minimize risks associated with hazard events.

Goal #4: Intergenerational Equity

Goal Statement 1: Encourage growth and development that meets the needs of the present without compromising future generations.

Goal #5: Acknowledge Responsibility

Goal Statement 1: Coordinate programs to increase natural hazard knowledge base and use technology to better record events and model vulnerability.

Goal Statement 2: Actively acknowledge amount of loss the county is susceptible to and develop efforts to overcome that loss without significant reliance on outside resources.

Goal Statement 3: Educate county leadership and incorporate hazard mitigation as part of the county's routine decision making process.

Goal #6: Facilitate Partnerships and Coordination

Goal Statement 1: Strengthen communication and coordination of public/private partnerships and emergency services among local, county and regional governments and the private sector.

Goal Statement 2: Incorporate hazard mitigation into the greater social economic and natural resource goal framework.

Goal #7: Natural Resource Systems Protection

Goal Statement 1: Link watershed planning, natural resource management, and land use planning with natural hazard mitigation activities to protect vital habitat and water quality.

Goal Statement 2: Preserve and rehabilitate natural systems to serve natural hazard mitigation functions and protect recreation and tourist resources.

Goal #8: Emergency Services Enhancement

- Goal Statement 1: Evaluate performance of critical facilities during a natural hazard event.
Goal Statement 2: Minimize life safety issues.
Goal Statement 3: Ensure resources, staffing and volunteer base keeps pace with county growth.

2. The county's goals were also re-prioritized by members of the 2012 steering committee during a committee meeting activity, where they were re-prioritized to the way they currently appear in Section 3. The goals were previously prioritized as follows:

Priority 1:

Facilitate Partnerships and Coordination
Emergency Services Enhancement

Priority 2:

Acknowledge Responsibility

3. Several other tables and figures in the section were modified during the plan update. Several new plans were modified and added to Table 3.1: Hood River County Existing Plans and Policies, and several organizations were eliminated or modified in Table 3.2: Hood River County Community Organizations and Programs. Figure 3.2: Hood River County Action Item Framework, a flow chart that outlined the plan's action item framework in terms of coordinating organizations, was also modified to reflect changes and updates to the plan's action items. The Hood River County Action Item Matrix, a set of summary tables describing the county's action items, was also changed to reflect updates to the plan by the steering committee.

On May 17, 2012, the Hood River County steering committee met to review the 2007 NHMP action items. The Hood River County steering committee reviewed and identified which of the 2007 NHMP's 51 action items had been completed or not, or whether they should be deleted or deferred. Action items were deleted for a number of reasons, including not meeting basic action item criteria such as being measurable, assignable, or achievable. Action items that were deferred had not yet been addressed or were only partially addressed over the previous five years, but the steering committee decided they were still worthy of being continued through the 2012 update. Most of the Action items that were deferred (36) were modified in some way to make them more achievable, accurate, or actionable. After deciding which actions to defer, the steering committee formulated two new action items for the 2012 Natural Hazard Mitigation Plan. These new action items are based upon continuous community needs, deferred action items, and current needs based upon the community risk assessment. They are designed to be feasibly accomplished within the next five years, and can be found in Appendix A. The 51 action items from the 2007 NHMP and their statuses are discussed in Table B.2 below.

Table B.2: 2007 Hood River County NHMP Action Items

| Action Item | Status | Comment | Description |
|---------------------------|---------------------|----------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Multi-Hazard (MH) | | | |
| Multi-hazard (ST ongoing) | Deferred / Modified | Lack of funding | Identification and Pursuit of Implementation Funding for Mitigation Actions and Creation of Part-time Position to Coordinate Efforts (NHMP & CWPP) |
| Multi-hazard (ST ongoing) | Deferred / Modified | Lack of funding / information is available but no active outreach has been conducted | Develop Public Outreach / Educational Programs |
| Multi-hazard (ST ongoing) | Deferred / Modified | Lack of funding / County Emergency Operations Plan is under review | Annual Review and Update of the County Community Wildfire Protection Plan, and Natural Hazards Mitigation Plan; Re-Adoption by County Court Every 5-Years; Review and Update of the County Emergency Operations Plan Every 2-Years |
| Multi-hazard (LT ongoing) | Deferred / Modified | Lack of funding / some updates have been completed (data and information updates) | Develop & Maintain Comprehensive Impact Database |
| Multi-hazard (ST ongoing) | Deferred / Modified | Voluntary registration database is in final stages and nearing completion | Create Systems to Support Special Needs Populations |
| Multi-hazard (LT ongoing) | Deferred / Modified | Lack of funding / ongoing | Create County Position for Volunteer Coordination & Planning |
| Multi-hazard (LT) | Deferred | Lack of priority | Formation of All Hazard Overhead Team |
| Multi-hazard (LT) | Deleted | Legislation did not pass at state level, and there is almost no capacity to create at county level | Create Emergency Disaster Fund |
| Multi-hazard (LT ongoing) | Deferred / Modified | Part of Emergency Operation Plan process | Develop Post-Disaster Short Term Recovery Plan |
| Multi-hazard (ST) | Completed | Finished in 2012 | Create Emergency Communication Systems that are Interoperable |

| Action Item | Status | Comment | Description |
|---------------------------|---------------------|------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------|
| Multi-hazard (LT ongoing) | Deferred | Lack of priority | Develop Small Business Awareness & Continuity Planning Campaign |
| Multi-hazard (LT) | Deleted | Superfluous / part of daily business | Post-development Inspection Procedures |
| Multi-hazard (LT) | Deferred | Currently not a high priority | Update County Comprehensive Land Use Plan |
| Multi-hazard (LT ongoing) | Deferred / Modified | Important and ongoing | Improve County Forest Road Maintenance |
| Multi-hazard (LT ongoing) | Deferred / Modified | Ongoing | Extend Streamside Vegetation Protection to All Land Uses |
| Multi-hazard (LT) | Deferred / Modified | County policy is currently under review | Identification / Analysis of Irrigation Water Systems & Elimination of Open Irrigation Water with Consideration of Impact on Stormwater |
| Multi-hazard (LT) | Deleted | Not jurisdiction of county | Improve U.S. Forest Service Road Maintenance |
| Drought Hazard (DH) | | | |
| Drought (LT ongoing) | Deferred / Modified | Progress is currently being made | Support Local Agencies Training on Water Conservation Measures and Drought Management Practices |
| Drought (LT ongoing) | Deferred / Modified | Ongoing | Ensure Long-range Water Resources Development |
| Flood Hazard (FH) | | | |
| Flood (ST ongoing) | Deferred / Modified | Update completed recently / ongoing | Mitigate Flood Event Resulting from Naturally Induced Dam Failure |
| Flood (ST) | Deferred / Modified | Not selected by sponsoring agency (FEMA) | Apply for NFIP Community Rating System |
| Flood (ST) | Deleted | No repetitive loss properties/incidence | Address Repetitive Loss |
| Flood (ST) | Deferred / Modified | Not selected by sponsoring agency (FEMA) | Update FIRM Maps |
| Flood (LT ongoing) | Deleted | Not applicable to county | Create Flood Identification Inventory |

| Action Item | Status | Comment | Description |
|---------------------------------|---------------------|-----------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------|
| Flood (LT ongoing) | Deferred / Modified | These concerns are now part of a permitting process / ongoing | Improve Methods of Barrier Prioritization and Culvert Barrier Remediation for Fish Passage & Flood Mitigation |
| Flood (LT ongoing) | Deleted | Completed as part of county's normal operations | Promote Onsite Stormwater Infiltration and Retention |
| Flood (LT ongoing) | Deleted | Lack of priority / lack of funding | Develop Flood Education and Outreach Programs |
| Earthquake Hazard (EH) | | | |
| Earthquake (LT) | Deferred | Lack of priority by county right now, did not apply for grants | Rehabilitate Identified Vulnerable Schools, Emergency Facilities, and Public Buildings/Lifelines |
| Earthquake (LT ongoing) | Deferred / Modified | New maps are coming out soon | Improve Knowledge of Earthquake Sources / Improve Earthquake Hazard Zone Maps |
| Earthquake (LT) | Deleted | Covered by previous Action Item | Improve Understanding of Vulnerability and Risk |
| Earthquake (LT ongoing) | Deferred / Modified | No active education / info is available (drills at local schools) / ongoing | Educate Those at Risk |
| Landslide Hazard (LH) | | | |
| Landslide (LT) | Deferred / Modified | Not currently a top priority | Improve Understanding of Landslide Risk Inside Hazard Areas |
| Landslide (LT ongoing) | Deferred / Modified | Ongoing | Improve Landslide Hazard Area Maps |
| Landslide (LT ongoing) | Deferred / Modified | No comprehensive maps are currently available | Provide Education/Awareness for Those at Risk |
| Landslide (ST) | Deleted | Not applicable to county | Improve Knowledge of Debris Flow (rapid moving) Landslide Hazard Areas and Improve Warning Systems |
| Landslide (LT) | Deferred / Modified | Not currently a high county priority | Update County Zoning Ordinance Regarding Landslide Hazards |
| Severe Storm Hazard (SH) | | | |
| Severe Storm (LT ongoing) | Deferred / Modified | Have developed partnerships with ODOT, OSP, and other regional entities / ongoing | Continue Partnership Programs to Reduce Vulnerability of Public Infrastructure from Severe Winter Storms |

| Action Item | Status | Comment | Description |
|---------------------------|---------------------|---------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------|
| Severe Storm (ST) | Completed | Generators have been acquired for county facilities | Encourage Critical Facilities to Secure and Maintain Emergency Power |
| Severe Storm (ST ongoing) | Deferred / Modified | Part of county zoning code / ongoing | Support/Encourage Electrical Utilities to Use Underground Construction Methods |
| Severe Storm (LT ongoing) | Deferred | Ongoing | Increase and Maintain Public Awareness of Severe Storms. |
| Severe Storm (ST) | Completed | Plan recently completed | Enhance Strategies for Debris Management and/or Removal Before/After Storm Event |
| Severe Storm (ST ongoing) | Deleted | Beyond county capacity | Encourage Building Standards Beyond Minimum State Requirements for Windstorm Impact |
| Severe | <i>Created</i> | | Reduce Trees in Public Utility |
| Wildfire Hazard (WH) | | | |
| Wildfire | Deferred | Lack of funding | Establish County-wide Wildfire |
| Wildfire (ST ongoing) | Deferred / Modified | Programs have been developed | Improve Residential Fire Protection Capacity |
| Wildfire (ST ongoing) | Deferred / Modified | Ongoing | Hazard Fuel Reduction |
| Wildfire (ST ongoing) | Deferred / Modified | Dependent on priority and funding (is done one piece at a time) / ongoing | Ensure Proper Road Continuity, Numbering and Naming |
| Wildfire (ST) | Deferred / Modified | Currently not a high county priority | Update County Zoning Ordinance to Implement the WUI |
| Wildfire (ST ongoing) | Deleted | Redundant | Enhance County GIS Infrastructure |
| Wildfire (ST ongoing) | <i>Created</i> | | Perform Routine Forest Management on Zones of Contribution for County-wide Potable Water Systems |
| Volcano Hazard | | | |
| Volcano (ST) | Completed | Hazard maps have been acquired for Mt. Hood | Acquire or Prepare Detailed Volcanic Hazard Maps |

| Action Item | Status | Comment | Description |
|----------------------|---------------------|----------------------------------------------|--------------------------------------------------------------------------------------------------|
| Volcano (LT) | Deferred / Modified | County will likely utilize new Mt. Hood maps | Improve the Public's Knowledge Base of Volcanic Risk and Vulnerability |
| Volcano (LT ongoing) | Deferred / Modified | In progress, reverse 911 is being pursued | Evaluate Emergency Response Plan and Identify Areas of Public Notification and Evacuation Routes |

Section 4: Plan Implementation and Maintenance

This section details the formal process that will ensure that the Hood River County Natural Hazards Mitigation Plan remains an active and relevant document. Major developments from the Planning Implementation and Maintenance update steering committee meeting involved the following:

1. The committee agreed to maintain its current co-convenor structure, in which NHMP duties are split between Hood River County Emergency Management and Hood River County Community Development.
2. The committee agreed to move to an annual, rather than semi-annual, meeting schedule
3. Minor changes and revisions were made to the plan's public involvement strategy.

Volume II Hazard Annexes

Volume II is comprised of Hood River County's recently updated Hazard Identification and Vulnerability Assessment (HIVA). The document was updated in 2012 by Hood River County Emergency Management, and defines hazards and vulnerabilities in Hood River County and each of its cities. The document contains an introduction that describes risk assessment processes, as well as the methodology used to develop the plan's hazard analysis. The hazard annexes provide detailed risk assessments for drought, earthquake, flood, wildland fire, landslide, severe local storms, tornado, and volcano.

The Hazard Annex from the 2007 Hood River County NHMP divided each hazard into four section headings:

- (1) Best Available Local Data
- (2) State of Oregon NHMP Mid-Columbia (Region 5) Risk Assessment
- (3) Hood River County Hazard Identification and Vulnerability Assessment (HIVA)
- (4) Oregon Technical Resource Guide

For all essential purposes of the update process, best available local data was incorporated into the update of the county's HIVA. Information from the Mid-Columbia (Region 5) Risk Assessment was used and referenced during most stages of the 2012 county update process, however references to the Oregon Technical Resource Guide have been removed from the plan.

Volume III Resource Appendices

Appendix A: Action Item Forms

Appendix A is new to the Hood River County NHMP and lists the plan's action items. Action items are detailed recommendations for activities that local departments, citizens and others could engage in to reduce risk. This appendix contains detailed action item forms for each of the mitigation strategies identified in this plan.

The 2007 NHMP included action items, but the detailed action item proposal forms were included at the end of the Mitigation Strategy section. The 2012 Appendix A action items include most of the 2007 action items, though most action items were deleted, completed or modified during the 2012 NHMP update process.

Appendix B: Planning and Public Process

Appendix B includes documentation of all the countywide public processes utilized to develop the plan. It includes invitation lists, agendas, sign-in sheets, and summaries of steering committee meetings, and public involvement meetings or outreach strategies. The 2007 NHMP's public process is also fully documented in Appendix B.

Appendix C: Community Profile

Appendix C describes the community in a variety of ways. This section highlights geographic, demographic, employment, housing, transportation, and land use characteristics. The community profile was included in the 2007 NHMP as the section II Community Profile. Though the theme of the 2012 community profile is consistent with the Section II Community Profile from the 2007 NHMP, the entire section has been updated and modified in terms of scope and information, expanding from 11 to 50 pages.

Appendix D: Economic Analysis of Natural Hazard Mitigation Projects

Appendix D describes the Federal Emergency Management Agency's (FEMA) requirements for benefit cost analyses in natural hazards mitigation, as well as various approaches for conducting economic analyses of proposed mitigation activities. This appendix replaces the 2007 NHMP's information about benefit cost analyses.

Appendix E: Mid-Columbia Region Natural Hazard Mitigation Public Opinion Survey

Appendix E provides a summary report of the survey administered to community stakeholders in the fall of 2011 during the early stages of the Hood River County NHMP Update. The Oregon Partnership for Disaster Resilience (OPDR) distributed a mailed survey to 7,500 random households throughout an eight county region in Northern Oregon. The counties surveyed included: Clackamas, Hood River, Gilliam, Morrow, Sherman, Umatilla, Wasco, and Wheeler. OPDR developed and distributed the survey in partnership with the University of Oregon's Resource Assistance for Rural Environments (RARE) program. This appendix replaces the 2007 NHMP's tables and summaries from the previous regional survey.

Appendix F: Grant Programs

This appendix lists state and federal resources as well as grant opportunities by agency and program. Appendix F essentially replaces the 2007 NHMP's Appendix B.

November 10, 2011 Plan Update Meeting #1 Materials



Hood River County Planning and Building

601 State Street • Hood River, OR 97031
Phone: (541) 387-6840 • plan.dept@co.hood-river.or.us
www.co.hood-river.or.us

Meeting: Natural Hazards Mitigation Plan Update – Kickoff Meeting
Date & Time: Thursday, November 10th
Time: 9:00 a.m. – 11:30 a.m.
Location: CBAB, 601 State Street, 1st Floor Conf. Room, Hood River, OR

MEETING AGENDA

- I. Introductions and Background (30 minutes)**
- Welcome & Introductions
 - Primary Goals/Anticipated Outcomes
 - Process Overview
 - Who is Involved & Why
- II. Natural Hazards Mitigation Overview/Update Process (60 minutes)**
- What is Natural Hazards Mitigation Planning
 - Grant Opportunities
 - Plan Update Process & Timeline
 - Steering Committees & Expectations
- III. Discussion Items (30 Minutes)**
- Previous NHMP Action Items
 - Public Involvement Strategies
- IV. Next Steps (15 Minutes)**
- Work to be Completed Before Next Meeting
 - Identify Meeting Dates for Remaining Three Meetings
- IV. Questions/Comments/Other (15 minutes)**

Hood River Meeting Sign-In

Hood River
 [NAME] County NHMP UPDATE
 [Meeting Name] [DATE MO/DAY/YEAR]

Steering Committee 11/10/11, Thursday
 Rivett

| Name | Representing | Email | Roundtrip mileage (if applicable) |
|---------------|--------------|-----------------------------------|-----------------------------------|
| MIKE BENEDICT | HR County | | — |
| Dean Guess | HR County | | |
| Sandi LAIN | HR County | Sandi.Lain@co.hood-river.or.us | |
| Marita Haddan | HR County | marita.haddan@co.hood-river.or.us | |
| GARRET JENSEN | RARE | | |
| Josef Bruci | OPDR | | |
| Will Clark | RARE | | |

Anne Saxby Hood River SWCD Saxharp@gorge.net

Memo

To: Mike Benedict
From: William Clark, RARE-MCCOG / Josh Bruce, OPDR
Date: September 2_, 2011
Re: Hood River County 2011-2012 Natural Hazard Mitigation Plan Update, Phase I – Getting Started

Purpose

This memorandum outlines the components of Phase I (Getting Started) of the 2011 Hood River County Natural Hazard Mitigation Plan Update, including a preliminary schedule, initial data needs and next steps for the Oregon Partnership for Disaster Resilience (OPDR) as well as the Hood River County Project Lead and Steering Committee.

Background

A Natural Hazard Mitigation Plan (NHMP) forms the foundation for a community's long-term strategy to reduce disaster losses and break the cycle of disaster impacts, reconstruction and repeated damage. It creates a framework for risk-based decision making to reduce damages to lives, property and the economy from future disasters. Jurisdictions with Federal Emergency Management Agency (FEMA) approved mitigation plans are eligible for federal grant funding to implement those mitigation items identified in the plan. Jurisdictions are required to review, update, and re-seek FEMA approval of their plans every five years in order to maintain grant eligibility. Hood River County adopted its Natural Hazard Mitigation Plan in January 2007 making it due for its 5-year update early 2012.

The NHMPs of Clackamas, Wasco, Sherman, Gilliam, Morrow, Wheeler and Umatilla Counties are also nearing expiration. In an effort to streamline the update process, OPDR will facilitate a regional planning approach with training sessions, technical assistance and plan updates occurring for each county simultaneously. We anticipate holding up to four regional training sessions, and appreciate your cooperation as we attempt to facilitate this process as efficiently as possible.

Preliminary Fall and Winter 2011-2012 Schedule

Between now and January 2012, OPDR will work with Hood River County Emergency Management to:

Develop a Work Plan (October 2011)

- Establish a viable work plan with the intention of submitting the Hood River County NHMP Update for FEMA approval in the summer of 2012
- Review the OPDR Plan Update Training Manual (available on Basecamp)

Conduct Project Initiation Meeting Between OPDR and County Project Leads (October 2011)

- Review scope of work and overall project schedule
- Review roles and responsibilities
- Coordinate plan update training schedule and locations

In order to maintain momentum and complete the plan update on schedule OPDR suggests that Hood River County complete the following during this same period:

Reconvene Mitigation Plan Steering Committee (October 2011)

- Convene 2007 Hood River County NHMP Steering Committee*
- Identify and invite new participants or jurisdictions
 - External Partners (e.g. Oregon Department of Forestry, National Forest Service, Oregon Department of Agriculture, school districts, U.S. Army Corps of Engineers, Hospitals, Soil and Water Conservation Districts, etc.)
 - Incorporated Jurisdictions (e.g. Hood River, Cascade Locks)

Develop a Public Involvement Strategy (October/November 2011)

- Review and update strategy identified in the 2007 Hood River County NHMP
- Outreach strategies may include stakeholder surveys, public information workshops, and press releases

Collect Data (November/December 2011)

- Collect mitigation plan maintenance meeting agendas and minutes from the previous five years
- Collect documentation related to any hazard occurrences or emergency declarations in Hood River County since 2007
- Identify and document plan implementation activities, including completed projects and other “success stories”
- Collect any local, state, or federal studies or reports completed since 2007
 - Local development ordinances, flood maps, HAZUS studies, DOGAMI studies, USGS reports, etc.

Identify necessary updates to the 2007 Hood River County NHMP (November/December 2011)

- Mitigation Item Analysis (completed, pending, and un-initiated)
- Previously identified data limitations

Next Steps for OPDR

Grant Administration

Finalize specific scope of work for Hood River County

Project Initiation

Schedule and hold kickoff meeting with regional project leads

Next Steps for Hood River County

- Convene NHMP Steering Committee
- Provide county assessment and taxation data
- Brief county administration on project
- Notify public?? PSA – we can help write it and get it to local news outlets
- Identify potential stakeholder groups

Should you have any questions or concerns, please do not hesitate to contact Will Clark at (541) 298-4101 x206 or via email at William.Clark@mccog.com or Josh Bruce at (541) 346-7326 or via email at jdbruce@uoregon.edu.

*** Previous Steering Committee Members include:**

- Anne Debbaut, *Hood River County Planning*
- Jennifer Donnelly, *City of Hood River Planning*
- Peter Mackwell, *West Side Fire District*
- Jeff Pricher, *City of Cascade Locks*
- Anne Saxby, *Soil and Water Conservation District*
- Hannah Settje, *American Red Cross*
- Jade Soddell, *Emergency Management*
- Joe Wampler, *Sheriff's Department*
- Don Wiley, *Hood River County Public Works*

February 15, 2012 Plan Update Meeting # 2 Materials



Hood River County Planning and Building

601 State Street • Hood River, OR 97031
Phone: (541) 387-6840 • plan.dept@co.hood-river.or.us
www.co.hood-river.or.us

Meeting: Natural Hazards Mitigation Plan Update – Risk Assessment
Date & Time: Wednesday, February 15th
Time: 9:00 a.m. – 11:30 a.m.
Location: CBAB, 601 State Street, 1st Floor Conf. Room, Hood River, OR

MEETING AGENDA

- | | | |
|-------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------|
| I. | Welcome and Introductions | (5 minutes) |
| II. | Community Profile Discussion | (10 minutes) |
| III. | Overview of Risk Assessment Process | (20 minutes) |
| IV. | Review of Hazard Identification | (30 minutes) |
| | <ul style="list-style-type: none">• Update on Hazard Inventories | |
| III. | Review Existing Vulnerability Information | (30 Minutes) |
| | <ul style="list-style-type: none">• Update the list of Community Critical/Essential Facilities and Infrastructure (Review of Asset Worksheet) | |
| IV. | Relative Risk Overview | (45 Minutes) |
| | <ul style="list-style-type: none">• Outline potential severity/impact of identified hazards (Review of Relative Risk Questionnaire) | |
| V. | Next Steps | (10 Minutes) |
| | <ul style="list-style-type: none">• Identify date for the next meeting | |

Meeting Sign-In

Hood River County NHMP UPDATE

Steering Committee Meeting – Risk Assessment – Wednesday, 02/15/2012

| Name | Representing | Email | Roundtrip mileage (if applicable) |
|---------------|---------------|------------------------------------------|-----------------------------------|
| Sandi Lain | HR County | Sandi.lain@co.hood-river.or.us | |
| Marita Haddan | H.R. 9-1-1 | marita.haddan@co.hood-river.or.us | |
| Peter Maxwell | HRFD | peter@hoodriverfire.com | |
| Don Wilely | HR County | don.wiley@co.hood-river.or.us | |
| MIKE BENEDICT | HR County | MIKE.BENEDICT@CO.HOOD-RIVER.OR.US | |
| PAUL KOCH | CASCADE LOCKS | PKOCH@CASCADE-LOCKS.ORG | N/A |
| Josh Broue | OPDR | JDBROU@VOR.EDU | N/A |

Will Clark VARE (MCCOY) OPDR william.clark@mcco.com

May 17, 2012 Plan Update Meeting # 3 Materials



Hood River County Planning and Building

601 State Street • Hood River, OR 97031
Phone: (541) 387-6840 • plan.dept@co.hood-river.or.us
www.co.hood-river.or.us

Meeting: Natural Hazards Mitigation Plan Update – Mitigation Strategy
Date & Time: Thursday, May 17th
Time: 9:00 a.m. – 11:50 a.m.
Location: CBAB, 601 State Street, 1st Floor Conf. Room, Hood River, OR

MEETING AGENDA

- | | |
|----------------------------------------------------------------------------------------------------------------------------------------|--------------|
| I. Welcome & Introductions | (5 minutes) |
| II. Survey & Risk Assessment Discussion | (10 minutes) |
| III. Timeline & Process for Adoption of Updated Plan | (5 minutes) |
| IV. Overview of Mitigation Strategy Process | (30 minutes) |
| V. Review and Update Current Mitigation Strategy | (60 minutes) |
| <ul style="list-style-type: none">• Update goals and mission statement• Review previously approved action items | |
| VI. Action Item Development | (55 Minutes) |
| <ul style="list-style-type: none">• Review Risk Assessment vs. overall Relative Risk• Develop new action items | |
| VII. Next Steps | (5 Minutes) |
| <ul style="list-style-type: none">• Identify date for the next meeting | |

Meeting Sign-In

Hood River County NHMP UPDATE

Steering Committee Meeting – Mitigation Strategy/Plan Implementation and Maintenance – Thursday, 05/17/2012

| Name | Representing | Email | Roundtrip mileage (if applicable) |
|----------------|-----------------------------------------|-----------------------------------|-----------------------------------|
| KARL TESCH | HRC DEM | KTESCH@PACFIER.COM | |
| MIKE BENEDICT | HRC COMM. DEV | MIKE.BENEDICT@CO.HOOD-RIVER.OR.US | |
| Don Wilely | HRC Public Works | don.wiley@co.hood-river.or.us | |
| PETER MAXWELL | HOOD RIVER CITY HOOD RIVER CITY FIRE | peter@hoodriverfire.com | |
| Michael Hampp | OPDR | MRHammond@verizon.net | |
| GARRETT JENSEN | FARE/MCLOG | | |
| Will Clark | FARE/MCLOG | | |

June 28, 2012 Plan Update Meeting # 4 Materials



Hood River County Planning and Building

601 State Street • Hood River, OR 97031
Phone: (541) 387-6840 • plan.dept@co.hood-river.or.us
www.co.hood-river.or.us

Meeting: Natural Hazards Mitigation Plan Update – Plan Implementation and Maintenance

Date & Time: Thursday, June 28th

Time: 9:00 a.m. – 11:00 a.m.

Location: CBAB, 601 State Street, 1st Floor Conf. Room, Hood River, OR

MEETING AGENDA

- | | | |
|-------------|----------------------------------------------------------------------------------------------------------------------------------------------|--------------|
| I. | Welcome & Introductions | (5 minutes) |
| II. | Mitigation Strategy Review | (25 minutes) |
| | <ul style="list-style-type: none">• Address Mitigation Strategy section questions/concerns• Finalize new action items | |
| III. | Overview of Plan Implementation and Maintenance | (30 minutes) |
| IV. | Review and Update Hood River County Plan Implementation and Maintenance Strategy | (45 minutes) |
| V. | Next Steps and Final Steering Committee Business | (15 Minutes) |

Meeting Sign-In

Hood River County NHMP UPDATE

Steering Committee Meeting – Plan Implementation and Maintenance – Thursday, 06/28/2012

| Name | Representing | Email | Roundtrip mileage (if applicable) |
|-----------------|--------------------------------------------|-----------------------------------|-----------------------------------|
| Mary Kay Hadden | H.R. County 911 | marita.hadden@co.hood-river.or.us | — |
| Peter Mackewell | HR County fire & EMS City of Hood River | peter@hoodriverfire.com | |
| MIKE BENEDICT | HR County | | |
| KARL TESCH | HRC DEM | KARL.TESCH@CO.HOOD-RIVER.OR.US | |
| Sandi Lam | HRC Admin | Sandi.Lam@co.hood-river.or.us | |
| Will Clark | RARE / MCOG | William.Clark@mcog.com | |

NHMP Press/Public Outreach Documentation

ASPIRE to help high school dreamers

By **JULIE RAEFIELD-GOBBO**
News staff writer

With more than 300 seniors in this year's Hood River Valley High School graduating class there is a great need for ASPIRE volunteers.

According to Carolyn Bondurant, Summit Career Center coordinator, adults are especially needed to mentor students on their pathway towards and beyond graduation through this school-based program.

Bondurant and career center staff facilitate students' future college and training aspirations within the ASPIRE program. The



Carolyn Bondurant

only qualification for potential volunteers is a desire to work with high school students.

ASPIRE (Access to Student Assistance Programs In Reach of Everyone) is a program that brings together students, school staff, community volunteers and parents to help students overcome obstacles to their continuing education.

Volunteer mentors, who are trained by the high school staff, provide advising, resources, and encouragement to help students overcome barriers to future career plans.

According to Bondurant, one former student wrote of her mentor, "Not only did you help me through the college and scholarship

process, but you believed in me. I just wanted to let you know that I am extremely grateful for all of your help and kindness!"

"If you have one hour per week to volunteer or even more time," Bondurant encourages community adults to help these students prepare for a brighter future.

For more information contact the Summit Career Center, 541-387-5034.

An upcoming ASPIRE training session entitled, "How to Advise ASPIRE Students" will be held on Sept. 19, 7-8:30 p.m. in the HRV library.

County seeks public input on update to Natural Hazards Mitigation Plan

Hood River County is currently in the process of updating the existing Natural Hazards Mitigation Plan. This work is being performed in cooperation with the Oregon Partnership for Disaster Resilience, Resource Assistance to Rural Environments and Oregon Emergency Management utilizing funds obtained from the Federal Emergency Management Agency Pre-Disaster Mitigation Grant Program.

With re-adoption of the plan, Hood River County will maintain its eligibility to apply for federal funding to

wards natural hazard mitigation projects. This local planning process includes a wide range of representatives from city and county government, emergency management personnel, and outreach to members of the public in the form of a mailed survey.

A natural hazards mitigation plan provides communities with a set of goals, action items, and resources designed to reduce risk from future natural disaster events. Engaging in mitigation activities provides jurisdictions with a number of benefits, including reduced

loss of life, property, essential services, critical facilities and economic hardship; reduced short-term and long-term recovery and reconstruction costs; increased cooperation and communication within the community through the planning process; and increased potential for state and federal funding for recovery and reconstruction projects.

To comment on hazard mitigation planning in Hood River County, visit csc.uoregon.edu/opdr/current/gorge/hood_river.

A draft version of the updated Hood River Natural

Hazards Mitigation Plan will be available for formal public comment from Aug. 20-31. Copies of the plan will be available on the OPDR and County websites.

If you have any questions regarding the Hood River County Natural Hazards Mitigation Plan or the update process in general, contact Mike Benedict, Hood River County community development director, at 541-387-6840 or plan.dept@co.hood-river.or.us; or Josh Bruce, interim director for the Oregon Partnership for Disaster Resilience, at 541-346-7326 or jdbruce@uoregon.edu.

Local music groups seek members

The many musical ensembles of the Columbia Gorge Orchestra Association are about to begin fall rehearsals and are seeking new musicians. All groups meet and

ensemble is being developed this year and will be under the direction of HRMS music teacher Rebecca Nederhiser.

The Voci chamber choir.

This year, an audition-only small vocal ensemble will be added to CGOA's choral offerings. Voci rehearses on Monday evenings from 6:30-8:15, beginning Sept. 10.

Auditions will take place at the first rehearsal on Sept. 11, at 6 p.m.

The Gorge Strings is a beginning-to-intermediate string ensemble and group

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Brunquist

Ann Brunquist
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JOE PETSHOW Publisher
KIRBY NEUMANN-REA Editor

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Hazard Mitigation

Public can comment on the plan

To borrow a phrase used in *The Week* magazine, a certain "boring but important" item deserves attention:

Well, not really that boring, since it deals with the advent of a serious storm or other natural disaster.

Hood River County is currently in the process of updating its existing Natural Hazards Mitigation Plan (details on page A5). A draft version of the updated plan will be available for formal public comment through Aug. 31. Copies of the plan will be available on the county and Oregon Partnership for Disaster Resilience websites.

It all comes down to: How well is this county prepared to not only deal with disaster but also to gain funding and help in response?

The sunny days of late summer may not feel like the ideal time to delve into a thick document of this kind, but it's available to anyone who wants to take the time to comment on it before the Aug. 31 deadline.

A drive up Highway 35 to see the road upgrades between Parkdale and the Highway 26 intersection is a reminder of why this kind of work is important: It amounts to the ongoing picking-up-the-pieces from storms in 2006 and 2008 after floods washed out bridges, something that affects us all.

Flags Lowered

Private First Class Andrew Keller



Our reader

Not just the economy

In the coming days the Republicans will try to distance themselves from U.S. Rep. Todd Akins' idiotic idea that women cannot get pregnant from "legitimate rape." They will even say that the whole issue is a distraction from the "real issues," but let's look at the history.

This idea is not a Republican Party anomaly as they want you to believe. Last March, in a discussion in the Kansas House about abortion policies, Republican State Rep. Pete Degreaf suggested women should plan ahead for rape the way he keeps a spare tire in his car. This year Rick Santorum suggested rape victims who become pregnant from an attack should be forced to keep the baby and make the best out of a bad situation.

More than 200 Republican members of Congress joined Todd Akin in sponsoring House Resolution 3. VP hopeful Paul Ryan can try to distance himself from Todd but Ryan's name is still on record in support of that bill.

Ryan says he changed his mind after the Todd debacle. He says he now stands with Romney and would not ban abortions in the case of rape, but he signed on to House Resolution 212 Sanctity of Human Life Act which would have done just that. It fits that Romney chose Ryan as his

bills introduced to increase you?

Even the Republican platform at their convention prohibits for rape and incest. It is hypocrisy that the GOP is for less government interference, and yet in war issues, these Republicans have the right to interfere.

Ron Y
E

Blame falls everywhere

In response to Jon Larson readers write, Aug. 22):

Jon, you are entirely correct. Congress spends money on the president. However, you have turned around and "blamed" Democrats when you chase Vance for "blaming" Republicans.

This is a national problem. The more we argue about blame, the longer political pocket special interests look out for what's best for themselves and who gives the money, rather than the good of our country.

Dating back to President Republican presidents are can-legal congresses have a to the debt-GDP ratio that rat-led presidents and That's just fact.

If you really believe Frank and Chris Dodd are

2007 Plan Development Public Process

People tend to support what they help build. To engage public support of this plan, and to involve the residents in the process, the University of Oregon RARE participant assigned to coordinate this project reached out to the Hood River County community in three primary ways. First, a steering committee was formed to guide the NHMP Coordinator through the process of developing the plan. Secondly, The Coordinator sent out invitations to key stakeholders and an open invitation to the public for a NHMP Community Stakeholder Forum to raise awareness about natural hazard events and solicit input from community. Lastly, stakeholder interviews were conducted to retrieve local community knowledge of hazard events and how to best address the community's risk. Secondary methods of outreach were also conducted in posting the final draft of the mitigation plan for public comment on the County Planning & Development website and the printing and distribution of the International Business & Home Safety *Protect Your Home From Wildfire* brochure at the Hood River County Planning & Building services counter. Lastly, ONHW conducted region-wide outreach and training efforts in the form of a regional household preparedness survey and IBHS *Open for Business* training.

Steering Committee

The Hood River County Steering Committee was comprised of individuals best suited to guide the county through the planning process and ensure that the mitigation plan is fully implemented once adopted.

Its mission is to ensure proper development and implementation of the county natural hazards mitigation plan by:

- setting goals;
- establishing subcommittee work groups to address specific needs;
- ensuring public, private and federal participation;
- distributing and presenting the plan;
- facilitating public discussion/involvement;
- developing implementation activities; and
- coordinating plan maintenance and implementation strategies.

Through raising awareness and citizen involvement, the Committee's end goal is to make hazard mitigation a part of the community's routine decision-making process.

Methodology

Three Steering Committee sessions were held over the course of the 2006 calendar year:

- 1) Introduction & Overview: 18 January 2006
- 2) Hazard Risk Assessment: 3 March 2006

3) Goals & Action Items: 14 July 2006

These sessions set the tone and structure for the plan's development. Through these meetings the NHMP Coordinator was able to collect valuable information regarding hazard events and impacts within the County, as well as contacts for additional stakeholders to involve in the process. The Steering Committee also played an integral part in the development of the mitigation plan vision, mission, goals and action items. The Committee revised the drafted vision, mission and goals, and selected and prioritized the action items documented in this plan.

Participants

The steering committee was formed by Michael Pasternak, NHMP Coordinator under the guidance of Mike Benedict, Hood River County Planning & Building Services. Additional input provided by the Oregon Natural Hazards Workgroup. Participants included:

Table A.1 NHMP Steering Committee

| Name | Title | Organization |
|-------------------|-------------------|----------------------------------------|
| Anne Debbaut | Planner | Hood River County Planning |
| Jennifer Donnelly | Planner | City of Hood River Planning Department |
| Peter Mackwell | Assistant Chief | West Side Fire District |
| Jeff Pricher | Fire Marshall | City of Cascade Locks |
| Anne Saxby | Director | Soil & Water Conservation District |
| Hannah Settje | District Manager | Red Cross |
| Jade Soddell | Emergency Manager | Hood River County Emergency Management |
| Joe Wampler | Sheriff | Hood River County Sheriff's Department |
| Don Wiley | Engineer | Hood River County Public Works |

Community Stakeholder Forum

The County-wide Stakeholder Forum held was designed to solicit input from individuals and community organizations with resources or property that may be severely impacted by natural disasters. The Forums was held on April 11th 2006 at the County Business & Administration Building in Hood River, OR. Roughly 50 people from the County were invited to attend the Forum. The invitees consisted of business leaders, utility providers, government workers (state and county), service providers, transportation & communication workers, health providers, and representatives of vulnerable populations (e.g. elderly, migrant workers).

The purpose of the Forum was three-fold:

- 1) To spread awareness of potential disasters impacting the County by soliciting a large cross-section of the active public to participate in the hazard mitigation process;

2) To provide a factual basis for potential hazard mitigation measures by public input into critical County infrastructure and resources, and known hazard zones, through the critical asset and hazard identification mapping exercise; and

3) To plant the seeds for potential mitigation measures by introduction and discussion of the action item concept and creating personal relationships (i.e. face-to-face introduction) for stakeholder interview and action item follow-ups.

Those that participated in the Forum were actively responsive to the mapping exercise and the concepts and importance of hazard mitigation. The identification of critical assets and infrastructure re-enforced much of what had already been identified in steering committee meetings and coordinator research, and also provided some previously overlooked assets. All Forum participants have been willing participants in the stakeholder interview follow-ups.

Methodology & Outcomes

The method and outcomes of the Community Stakeholder Forum are described below:

(1) DOGAMI Hazard Impact Overview

Bill Burns, DOGAMI Engineering Geologist presented and dissected local and state natural hazards data, and informed participants on how communities are impacted by natural hazard events.

Outcome: Documented community stakeholder knowledge/input with respect to local hazard events.

(2) Community Asset Identification Exercise

Participants were asked to fill out a worksheet identifying the County's critical infrastructure and assets.

Outcome: (a) Identified and discussed key elements of the region and individual communities within it; and (b) Identified main assets, resources and functions of region within the themes of People, Dollars (economy, cultural & historic assets, environmental assets), and Infrastructure (critical physical facilities).

- Participants identified many of the same critical assets identified in the Steering Committee meeting and NHMP Coordinator research. This that assured that data collected for mitigation plan purposes was relevant.

(3) Community Mapping Exercise

Participants were asked to map assets & infrastructure from previous exercise

Outcome: (a) Discussed and documented implications with regards to asset loss/damage to community; (b) Provided mechanism to focus planning efforts; (c) Provided a fact base for subsequent action item identification, and (d) Provided physical document (map) of community input.

Figure 3.2 Stakeholder Forum Exercise Maps



(4) Action Items & Follow-up Stakeholder Interviews

Discussed importance mitigation and the development of action items; passed out action item forms to participants

Outcome: Documented potential action items discussed in forum, and distributed action item worksheets to participants. Set up stakeholder interview.

Invitees

The following the individuals and organizations were contacted to participate in the Forum:

Table A.2 Community Stakeholder Forum Invitees

| Name | Organization |
|-----------------------------------|----------------------------------------|
| Craig Schmidt* | Hood River Chamber of Commerce |
| Katie MacKendrick | MCEDD |
| Tim Donahue | Real Estate |
| Glen Taylor | Real Estate |
| Risa Wonsyld | Real Estate |
| Brent Gleason | Hood River County Forest Department |
| David S. Meyer | Bonneville Power Association |
| Ron Koffman | Hood River Historic RR |
| Jean Godfrey | Grower-Shipper Association |
| Tom Yates | Sprint |
| Rick Brock | Farmers Irrigation District |
| Diane Bambi | USDAFS |
| Ian Macek | Port of Cascade Locks |
| Mike Doke* | Port of Hood River |
| Bill Fashing | Hood River County Economic Development |
| Pam Bates* | Hood River County 911 |
| Billie Stevens | OSU Extension Service |
| Ellen Larson* | Department of Health |
| Anne Debbaut | Hood River County Planning |
| Nancy Steele* | Hood River County Planning |
| Sonya Kazen | Oregon Department of Transportation |
| Michael (Swede) Hays | ODOT Rail Division |
| Bill Burns* | DOGAMI |
| Pat Evenson-Brady, Superintendent | Hood River County Schools |
| Dean Nygaard | Hood River County Building |
| Dean Guess | Hood River County Public Works |
| Gary Grossman | Columbia Gorge Broadcasters |
| Kirby Neumann-Rea | Hood River News |
| Elizabeth Settje | Hood River Memorial Hospital |
| Marianne Durkan | Home Health |
| Gwen | Senior Advisory Council |
| Lou DeSitter | Catholic Churches |
| Joe Wampler | Hood River County Sheriff |
| Peter Mackwell* | Westside Fire District |

*Participant

Stakeholder Interviews

Due to poor community participation in the Stakeholder Forum, the stakeholder interviews became a crucial component of the public process. Many of the Forum invitees were contacted and their input included in the plan. The individuals contacted ranged from city,

state, and federal government employees to business owners and farmers. These individuals provided insight into how hazard events have impacted the community in the past, how growth and development could collide with future hazard events, and how the community can best work together to reduce collective risk. Many of the action items documented in this plan were spawned from ideas discussed during the stakeholder interview process.

Methodology

Stakeholder interviews were conducted May through July 2006. The NHMP Coordinator telephoned stakeholders individually and asked a series of questions. The questions are as follows:

- What is the history of natural hazard events in Hood River County?
- How does growth and development in the community, both current and projected, contribute to natural hazard events?
- Does your organization/industry currently work in natural hazard mitigation? If so, how?
- How can your organization/industry contribute to strengthen regional coordination and cooperation in reducing risk from natural hazards?
- What activities will assist Hood River County in reducing risk and preventing loss from future natural hazard events? (e.g. If you had the money, how would you spend it?)
- How does your organization/industry view the County government's role in reducing risk from natural hazard events?
- What are the ways you would like to see agencies, organizations or individuals participating and coordinating to reduce risk from natural hazard events?
- How does hazard mitigation fit into Hood River County's land-use, environmental, social, and economic goals?
- What goals should the County set to reduce risk from natural hazard events, and how would we measure whether our mitigation efforts are successful?
- Can you think of anyone else that should be contacted as part of this process?

The information recorded from the stakeholder interviews was primarily incorporated into three sections of this plan: Community Profile, Risk Assessment, and Goals & Action items.

Contacts

The following the individuals and organizations were contacted to participate in the stakeholder interview process:

Table A.3 Community Stakeholder Interview Contacts

| Name | Organization |
|--------------------|----------------------------------------|
| Bill Fashing* | Hood River County Economic Development |
| Rick Brock* | Farmers Irrigation District |
| Mike Doke* | Port of Hood River |
| Ian Macek* | Port of Cascade Locks |
| Steve Castgnoli* | OSU Extension Service |
| Jean Godfrey* | Grower-Shipper Association |
| David S. Meyer* | BPA |
| Andrea Klass* | Port of The Dalles |
| Mel Gard* | ODF |
| Tom Yates* | Sprint |
| Peter Mackwell* | Westside Fire District |
| Kirby Neumann-Rea* | Hood River News |
| Elizabeth Settje | Hood River Memorial Hospital |
| Dean Nygaard* | Hood River County Building |
| Tom Yates* | Sprint |
| Lou DeSitter | Catholic Churches |
| Risa Wonsyld* | Real Estate |
| Bill Burns* | DOGAMI |
| Sonya Kazen | Oregon Department of Transportation |
| Brent Gleason* | Hood River County Forest Department |

*Participant

Secondary Outreach Methods

Additional methods of outreach involved in the public process included:

Public Comment of Hood River County NHMP Draft

The mitigation plan draft was sent to steering committee members for review, comment, and approval before the final draft was shipped off the OEM for State review. Additionally, the plan was posted on the Hood River County Planning & Development website for public review and comment.

IBHS Wildfire Brochure

While the final draft of the NHMP was under review by the Steering Committee and public, the NHMP Coordinator oversaw the printing and distribution of the International Business & Home Safety *Protect Your Home From Wildfire* brochure at the Hood River County Planning & Building service counter.

ONHW Region-wide Outreach

The Oregon Natural Hazards Workgroup conducted region-wide outreach activities which included:

Household Preparedness Survey

As part of the regional PDM grant, ONHW implemented a region wide household preparedness survey. The survey gauged household knowledge of mitigation tools and techniques and assessed household disaster preparedness. The survey results improve public/private coordination of mitigation and preparedness for natural hazards by obtaining more accurate information on household understanding and needs. The results of the survey are documented in the plan's *Appendix C: Regional Household Survey*.

IBHS Open for Business Training

ONHW, with commitment from the Institute for Business & Home Safety (IBHS), provided individuals in the Mid-Columbia region with access to, and use of, the IBHS interactive, web-based *Open for Business* property protection and disaster recovery planning tool. The access was provided in two classes, one located in Hermiston, Oregon on May 24th, 2006 and the second in The Dalles, Oregon on May 25th, 2006. The following agencies and organizations were invited to attend: agencies providing start-up and ongoing counseling services to micro and small businesses in low-income areas, such as the Statewide Small Business Development Center; agencies providing housing services to hundreds of low-income residents, such as County Housing Authorities, which also employs low-income people; and disaster assistance agencies serving at-risk populations, such as food banks and the American Red Cross. Any remaining spaces were made available to: micro- or small business start-up companies; and established micro- or small businesses.

The classes were organized as train-the-trainer classes, so that the agency personnel and the business people could: 1. Understand the importance of disaster planning; 2. Learn how to navigate the interactive, web-based *Open for Business* property protection and disaster recovery planning tool; 3. Start to develop their own plans during the training; 4. Learn how to communicate the importance of developing and utilizing plans for property protection and recovery from business interruption to their constituencies and/or colleagues, in order to institutionalize disaster safety into every day decision making.

Recruitment Process

The Oregon Natural Hazards Workgroup assembled a list of social service providers from basic internet searches and representative small businesses from Chamber of Commerce Membership databases for the seven counties in the region. E-mail and/or mailed invitations were sent to over 200 agencies, organizations and businesses in the region. Recruitment materials can be found on the following page. The following agencies and organizations attended the workshop:

- Umatilla/Morrow County Housing Authority
- Irrigon Chamber of Commerce
- Pendleton Chamber of Commerce
- Small Business Development Center – Blue Mountain Community College
- Small Business Development Center – Columbia Gorge Community College

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Appendix B: Planning and Public Process

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Memo

To: Federal Emergency Management Agency
From: Oregon Partnership for Disaster Resilience
Date: August 31, 2012
Re: **List of changes to the 2007 Hood River County NHMP for the 2012 Plan Update**

Purpose

This memo describes the changes made to the 2007 Hood River County Natural Hazards Mitigation Plan (NHMP) during the 2012 plan update process. Major changes are documented by plan section.

Project Background

In August 2011, Hood River County partnered with the Oregon Partnership for Disaster Resilience (OPDR) to update the 2007 Hood River County Natural Hazards Mitigation Plan (NHMP). The Disaster Mitigation Act of 2000 requires communities to update their mitigation plans every five years to remain eligible for Pre-Disaster Mitigation (PDM) program funding, Flood Mitigation Assistance (FMA) program funding, and Hazard Grant Mitigation Program (HMGP) funding. Members of OPDR and the plan coordinator met with members of the Hood River County steering committee in November (2011), February, May, and June (2012) to update all content within the county's NHMP. OPDR and the committee made several changes to the 2007 NHMP. Major changes are documented and summarized in this memo.

2012 Plan Update Changes

The sections below only discuss *major* changes made to the 2007 Hood River County NHMP during the 2012 plan update process. Major changes include replacement or deletion of large portions of text, changes to the plan's organization, and new additions to the plan. If a section is not addressed in this memo, then it can be assumed that no significant changes occurred.

The plan's format and organization have been altered to fit within OPDR's plan templates. Table B.1 below lists the 2007 plan section names and the corresponding 2012 section names, as updated. This memo will use the 2012 plan update section names to reference any changes, additions, or deletions within the plan.

Table B.1: Changes to Plan Sections

| 2007 Hood River County NHMP | 2012 Hood River County NHMP |
|-----------------------------------------------------------|---------------------------------------------------------------------------------|
| Table of Contents | Table of Contents |
| Executive Summary | Executive Summary |
| Section I: Introduction | Section 1: Introduction |
| Section II: Community Profile | Section 2: Risk Assessment |
| Section III: Risk Assessment Summary | Section 3: Mission, Goals, and Action Items |
| Section IV: Goals & Action Items | Section 4: Plan Implementation and Maintenance |
| Section V: Plan Implementation & Maintenance | Hazard Annexes |
| Hazard Annex | Appendix A: Action Item Forms |
| Appendix A: Public Process | Appendix B: Planning and Public Process |
| Appendix B: Resource Directory | Appendix C: Community Profile |
| Appendix C: Household Natural Hazards Preparedness Survey | Appendix D: Economic Analysis |
| Appendix D: Economic Analysis | Appendix E: Mid-Columbia Region Natural Hazard Mitigation Public Opinion Survey |
| Appendix E: Existing Plans & Programs | Appendix F: Grant Programs |
| Appendix F: Mitigation Tools | |
| Appendix G: Acronyms | |

Aside from substantial changes to plan section content, the most visible changes to the plan’s organization from the update process are the reclassification of the community profile from a section to an appendix, the replacement of the plan’s hazard annex with the natural hazard section of Hood River County’s Hazard Identification and Vulnerability Analysis (HIVA) document, the addition of an appendix that provides grant program information, and the removal of Appendix G: Acronyms as well as Appendix B: Resource Directory.

Front Pages

1. The plan’s cover has been updated.
2. Acknowledgements have been updated to include the 2012 project partners and planning participants.

Volume I

Volume I provides the overall plan framework for the 2012 NHMP update. Volume I contains the following sections: 1) Introduction; 2) Risk Assessment 3) Mission, Goals, and Action Items; and 4) Plan Implementation and Maintenance.

Section1: Introduction

Section 1 introduces the concept of natural hazards mitigation planning and answers the question “Why develop a mitigation plan?” Additionally, Section 1 summarizes the 2012 plan update process, and provides an overview of how the plan is organized. Major changes to Section 1 include the following:

1. Most of Section 1 includes new information that replaces out of date text found in the 2007 NHMP. The new text defines mitigation, gives examples of mitigation strategies, and describes the federal mitigation funding programs for which Hood River County is eligible to apply (i.e., the Pre-Disaster Mitigation (PDM) Program, the Flood Mitigation Assistance (FMA) Program, and the Hazard Mitigation Grant Program (HMGP)).
2. Section 1 of the 2007 NHMP discussed the methodology for developing a plan and how the plan was organized. OPDR and the plan update coordinator replaced this information with text that summarized the development of the 2007 NHMP and added new text to describe the 2012 plan update process, including plan update meetings, public outreach efforts, and final plan review and adoption processes.

Section 2: Risk Assessment

Section 2 describes Hood River County's vulnerability to natural hazards in the region. This section highlights the hazards themselves in terms of probability and incidence, and identifies community assets. Major changes to Section 2 include the following:

1. Development of Relative Risk scores to more accurately define hazard risks in the county, and to supplement previously developed Total Threat Scores.
2. An overview of Hood River County hazards was developed that summarizes information from the plan's Hazard Annex.
3. Community Vulnerability has been added to the section, including a listing of community assets and issues that fall under Populations, Economies, Land Use and Development, Critical Infrastructure, and Environment categories.
4. Additional tables address NFIP participation information and general risk assessment scoring.

Section 3: Mission, Goals, and Action items

This section provides the basis and justification for the mission, goals, and mitigation actions identified in the NHMP. Major changes to Section 3 include the following:

1. Hood River County's steering committee reviewed the 2007 plan's goals and modified them with the goals currently identified in Section 3. One goal (Intergenerational Equity) was deleted from the plan entirely, and four others (Protection of Life and Property, Acknowledge Responsibility, Facilitate Partnerships and Coordination, and Emergency Services Enhancement) were modified slightly in terms of language. The 2007 NHMP goals previously read as follows:

Goal #1: Education & Outreach

Goal Statement 1: Develop and implement education programs to increase awareness among citizens, local, county, and regional agencies, non-profit organizations, businesses, and industry.

Goal Statement 2: Develop and conduct outreach programs to increase the number of local activities implemented by public and private sector organizations.

Goal Statement 3: Build community consensus through outreach, education and activities

Goal #2: Disaster Resilient Economy

Goal Statement 1: Foster a diverse economy to reduce the debilitation impacts of a hazard event on any one sector.

Goal Statement 2: Create the conditions for a transitional economy that welcomes new industry and innovative ideas that are sensitive to potential hazard risks faced by the county.

Goal Statement 3: Protect recreation and tourist industries by raising awareness of potential hazard impacts.

Goal Statement 4: Provide support for agricultural industries to help them prepare for hazardous events.

Goal #3: Protection of Life and Property

Goal Statement 1: Develop and implement activities to protect human life, commerce, property and natural resource systems.

Goal Statement 2: Reduce insurance losses and repetitive claims for chronic hazard events while promoting insurance for catastrophic hazards.

Goals Statement 3: Evaluate county guideline/codes, and permitting processes in addressing hazard mitigation; emphasize non-structural means of mitigating hazard impact.

Goal Statement 4: When applicable, utilize structural mitigation activities to minimize risks associated with hazard events.

Goal #4: Intergenerational Equity

Goal Statement 1: Encourage growth and development that meets the needs of the present without compromising future generations.

Goal #5: Acknowledge Responsibility

Goal Statement 1: Coordinate programs to increase natural hazard knowledge base and use technology to better record events and model vulnerability.

Goal Statement 2: Actively acknowledge amount of loss the county is susceptible to and develop efforts to overcome that loss without significant reliance on outside resources.

Goal Statement 3: Educate county leadership and incorporate hazard mitigation as part of the county's routine decision making process.

Goal #6: Facilitate Partnerships and Coordination

Goal Statement 1: Strengthen communication and coordination of public/private partnerships and emergency services among local, county and regional governments and the private sector.

Goal Statement 2: Incorporate hazard mitigation into the greater social economic and natural resource goal framework.

Goal #7: Natural Resource Systems Protection

Goal Statement 1: Link watershed planning, natural resource management, and land use planning with natural hazard mitigation activities to protect vital habitat and water quality.

Goal Statement 2: Preserve and rehabilitate natural systems to serve natural hazard mitigation functions and protect recreation and tourist resources.

Goal #8: Emergency Services Enhancement

Goal Statement 1: Evaluate performance of critical facilities during a natural hazard event.

Goal Statement 2: Minimize life safety issues.

Goal Statement 3: Ensure resources, staffing and volunteer base keeps pace with county growth.

2. The county's goals were also re-prioritized by members of the 2012 steering committee during a committee meeting activity, where they were re-prioritized to the way they currently appear in Section 3. The goals were previously prioritized as follows:

Priority 1:

Facilitate Partnerships and Coordination
Emergency Services Enhancement

Priority 2:

Acknowledge Responsibility

3. Several other tables and figures in the section were modified during the plan update. Several new plans were modified and added to Table 3.1: Hood River County Existing Plans and Policies, and several organizations were eliminated or modified in Table 3.2: Hood River County Community Organizations and Programs. Figure 3.2: Hood River County Action Item Framework, a flow chart that outlined the plan's action item framework in terms of coordinating organizations, was also modified to reflect changes and updates to the plan's action items. The Hood River County Action Item Matrix, a set of summary tables describing the county's action items, was also changed to reflect updates to the plan by the steering committee.

On May 17, 2012, the Hood River County steering committee met to review the 2007 NHMP action items. The Hood River County steering committee reviewed and identified which of the 2007 NHMP's 51 action items had been completed or not, or whether they should be deleted or deferred. Action items were deleted for a number of reasons, including not meeting basic action item criteria such as being measurable, assignable, or achievable. Action items that were deferred had not yet been addressed or were only partially addressed over the previous five years, but the steering committee decided they were still worthy of being continued through the 2012 update. Most of the Action items that were deferred (36) were modified in some way to make them more achievable, accurate, or actionable. After deciding which actions to defer, the steering committee formulated two new action items for the 2012 Natural Hazard Mitigation Plan. These new action items are based upon continuous community needs, deferred action items, and current needs based upon the community risk assessment. They are designed to be feasibly accomplished within the next five years, and can be found in Appendix A. The 51 action items from the 2007 NHMP and their statuses are discussed in Table B.2 below.

Table B.2: 2007 Hood River County NHMP Action Items

| Action Item | Status | Comment | Description |
|---------------------------|---------------------|----------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Multi-Hazard (MH) | | | |
| Multi-hazard (ST ongoing) | Deferred / Modified | Lack of funding | Identification and Pursuit of Implementation Funding for Mitigation Actions and Creation of Part-time Position to Coordinate Efforts (NHMP & CWPP) |
| Multi-hazard (ST ongoing) | Deferred / Modified | Lack of funding / information is available but no active outreach has been conducted | Develop Public Outreach / Educational Programs |
| Multi-hazard (ST ongoing) | Deferred / Modified | Lack of funding / County Emergency Operations Plan is under review | Annual Review and Update of the County Community Wildfire Protection Plan, and Natural Hazards Mitigation Plan; Re-Adoption by County Court Every 5-Years; Review and Update of the County Emergency Operations Plan Every 2-Years |
| Multi-hazard (LT ongoing) | Deferred / Modified | Lack of funding / some updates have been completed (data and information updates) | Develop & Maintain Comprehensive Impact Database |
| Multi-hazard (ST ongoing) | Deferred / Modified | Voluntary registration database is in final stages and nearing completion | Create Systems to Support Special Needs Populations |
| Multi-hazard (LT ongoing) | Deferred / Modified | Lack of funding / ongoing | Create County Position for Volunteer Coordination & Planning |
| Multi-hazard (LT) | Deferred | Lack of priority | Formation of All Hazard Overhead Team |
| Multi-hazard (LT) | Deleted | Legislation did not pass at state level, and there is almost no capacity to create at county level | Create Emergency Disaster Fund |
| Multi-hazard (LT ongoing) | Deferred / Modified | Part of Emergency Operation Plan process | Develop Post-Disaster Short Term Recovery Plan |
| Multi-hazard (ST) | Completed | Finished in 2012 | Create Emergency Communication Systems that are Interoperable |

| Action Item | Status | Comment | Description |
|---------------------------|---------------------|------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------|
| Multi-hazard (LT ongoing) | Deferred | Lack of priority | Develop Small Business Awareness & Continuity Planning Campaign |
| Multi-hazard (LT) | Deleted | Superfluous / part of daily business | Post-development Inspection Procedures |
| Multi-hazard (LT) | Deferred | Currently not a high priority | Update County Comprehensive Land Use Plan |
| Multi-hazard (LT ongoing) | Deferred / Modified | Important and ongoing | Improve County Forest Road Maintenance |
| Multi-hazard (LT ongoing) | Deferred / Modified | Ongoing | Extend Streamside Vegetation Protection to All Land Uses |
| Multi-hazard (LT) | Deferred / Modified | County policy is currently under review | Identification / Analysis of Irrigation Water Systems & Elimination of Open Irrigation Water with Consideration of Impact on Stormwater |
| Multi-hazard (LT) | Deleted | Not jurisdiction of county | Improve U.S. Forest Service Road Maintenance |
| Drought Hazard (DH) | | | |
| Drought (LT ongoing) | Deferred / Modified | Progress is currently being made | Support Local Agencies Training on Water Conservation Measures and Drought Management Practices |
| Drought (LT ongoing) | Deferred / Modified | Ongoing | Ensure Long-range Water Resources Development |
| Flood Hazard (FH) | | | |
| Flood (ST ongoing) | Deferred / Modified | Update completed recently / ongoing | Mitigate Flood Event Resulting from Naturally Induced Dam Failure |
| Flood (ST) | Deferred / Modified | Not selected by sponsoring agency (FEMA) | Apply for NFIP Community Rating System |
| Flood (ST) | Deleted | No repetitive loss properties/incidence | Address Repetitive Loss |
| Flood (ST) | Deferred / Modified | Not selected by sponsoring agency (FEMA) | Update FIRM Maps |
| Flood (LT ongoing) | Deleted | Not applicable to county | Create Flood Identification Inventory |

| Action Item | Status | Comment | Description |
|---------------------------------|---------------------|-----------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------|
| Flood (LT ongoing) | Deferred / Modified | These concerns are now part of a permitting process / ongoing | Improve Methods of Barrier Prioritization and Culvert Barrier Remediation for Fish Passage & Flood Mitigation |
| Flood (LT ongoing) | Deleted | Completed as part of county's normal operations | Promote Onsite Stormwater Infiltration and Retention |
| Flood (LT ongoing) | Deleted | Lack of priority / lack of funding | Develop Flood Education and Outreach Programs |
| Earthquake Hazard (EH) | | | |
| Earthquake (LT) | Deferred | Lack of priority by county right now, did not apply for grants | Rehabilitate Identified Vulnerable Schools, Emergency Facilities, and Public Buildings/Lifelines |
| Earthquake (LT ongoing) | Deferred / Modified | New maps are coming out soon | Improve Knowledge of Earthquake Sources / Improve Earthquake Hazard Zone Maps |
| Earthquake (LT) | Deleted | Covered by previous Action Item | Improve Understanding of Vulnerability and Risk |
| Earthquake (LT ongoing) | Deferred / Modified | No active education / info is available (drills at local schools) / ongoing | Educate Those at Risk |
| Landslide Hazard (LH) | | | |
| Landslide (LT) | Deferred / Modified | Not currently a top priority | Improve Understanding of Landslide Risk Inside Hazard Areas |
| Landslide (LT ongoing) | Deferred / Modified | Ongoing | Improve Landslide Hazard Area Maps |
| Landslide (LT ongoing) | Deferred / Modified | No comprehensive maps are currently available | Provide Education/Awareness for Those at Risk |
| Landslide (ST) | Deleted | Not applicable to county | Improve Knowledge of Debris Flow (rapid moving) Landslide Hazard Areas and Improve Warning Systems |
| Landslide (LT) | Deferred / Modified | Not currently a high county priority | Update County Zoning Ordinance Regarding Landslide Hazards |
| Severe Storm Hazard (SH) | | | |
| Severe Storm (LT ongoing) | Deferred / Modified | Have developed partnerships with ODOT, OSP, and other regional entities / ongoing | Continue Partnership Programs to Reduce Vulnerability of Public Infrastructure from Severe Winter Storms |

| Action Item | Status | Comment | Description |
|---------------------------|---------------------|---------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------|
| Severe Storm (ST) | Completed | Generators have been acquired for county facilities | Encourage Critical Facilities to Secure and Maintain Emergency Power |
| Severe Storm (ST ongoing) | Deferred / Modified | Part of county zoning code / ongoing | Support/Encourage Electrical Utilities to Use Underground Construction Methods |
| Severe Storm (LT ongoing) | Deferred | Ongoing | Increase and Maintain Public Awareness of Severe Storms. |
| Severe Storm (ST) | Completed | Plan recently completed | Enhance Strategies for Debris Management and/or Removal Before/After Storm Event |
| Severe Storm (ST ongoing) | Deleted | Beyond county capacity | Encourage Building Standards Beyond Minimum State Requirements for Windstorm Impact |
| Severe | <i>Created</i> | | Reduce Trees in Public Utility |
| Wildfire Hazard (WH) | | | |
| Wildfire | Deferred | Lack of funding | Establish County-wide Wildfire |
| Wildfire (ST ongoing) | Deferred / Modified | Programs have been developed | Improve Residential Fire Protection Capacity |
| Wildfire (ST ongoing) | Deferred / Modified | Ongoing | Hazard Fuel Reduction |
| Wildfire (ST ongoing) | Deferred / Modified | Dependent on priority and funding (is done one piece at a time) / ongoing | Ensure Proper Road Continuity, Numbering and Naming |
| Wildfire (ST) | Deferred / Modified | Currently not a high county priority | Update County Zoning Ordinance to Implement the WUI |
| Wildfire (ST ongoing) | Deleted | Redundant | Enhance County GIS Infrastructure |
| Wildfire (ST ongoing) | <i>Created</i> | | Perform Routine Forest Management on Zones of Contribution for County-wide Potable Water Systems |
| Volcano Hazard | | | |
| Volcano (ST) | Completed | Hazard maps have been acquired for Mt. Hood | Acquire or Prepare Detailed Volcanic Hazard Maps |

| Action Item | Status | Comment | Description |
|----------------------|---------------------|----------------------------------------------|--------------------------------------------------------------------------------------------------|
| Volcano (LT) | Deferred / Modified | County will likely utilize new Mt. Hood maps | Improve the Public's Knowledge Base of Volcanic Risk and Vulnerability |
| Volcano (LT ongoing) | Deferred / Modified | In progress, reverse 911 is being pursued | Evaluate Emergency Response Plan and Identify Areas of Public Notification and Evacuation Routes |

Section 4: Plan Implementation and Maintenance

This section details the formal process that will ensure that the Hood River County Natural Hazards Mitigation Plan remains an active and relevant document. Major developments from the Planning Implementation and Maintenance update steering committee meeting involved the following:

1. The committee agreed to maintain its current co-convener structure, in which NHMP duties are split between Hood River County Emergency Management and Hood River County Community Development.
2. The committee agreed to move to an annual, rather than semi-annual, meeting schedule
3. Minor changes and revisions were made to the plan's public involvement strategy.

Volume II Hazard Annexes

Volume II is comprised of Hood River County's recently updated Hazard Identification and Vulnerability Assessment (HIVA). The document was updated in 2012 by Hood River County Emergency Management, and defines hazards and vulnerabilities in Hood River County and each of its cities. The document contains an introduction that describes risk assessment processes, as well as the methodology used to develop the plan's hazard analysis. The hazard annexes provide detailed risk assessments for drought, earthquake, flood, wildland fire, landslide, severe local storms, tornado, and volcano.

The Hazard Annex from the 2007 Hood River County NHMP divided each hazard into four section headings:

- (1) Best Available Local Data
- (2) State of Oregon NHMP Mid-Columbia (Region 5) Risk Assessment
- (3) Hood River County Hazard Identification and Vulnerability Assessment (HIVA)
- (4) Oregon Technical Resource Guide

For all essential purposes of the update process, best available local data was incorporated into the update of the county's HIVA. Information from the Mid-Columbia (Region 5) Risk Assessment was used and referenced during most stages of the 2012 county update process, however references to the Oregon Technical Resource Guide have been removed from the plan.

Volume III Resource Appendices

Appendix A: Action Item Forms

Appendix A is new to the Hood River County NHMP and lists the plan's action items. Action items are detailed recommendations for activities that local departments, citizens and others could engage in to reduce risk. This appendix contains detailed action item forms for each of the mitigation strategies identified in this plan.

The 2007 NHMP included action items, but the detailed action item proposal forms were included at the end of the Mitigation Strategy section. The 2012 Appendix A action items include most of the 2007 action items, though most action items were deleted, completed or modified during the 2012 NHMP update process.

Appendix B: Planning and Public Process

Appendix B includes documentation of all the countywide public processes utilized to develop the plan. It includes invitation lists, agendas, sign-in sheets, and summaries of steering committee meetings, and public involvement meetings or outreach strategies. The 2007 NHMP's public process is also fully documented in Appendix B.

Appendix C: Community Profile

Appendix C describes the community in a variety of ways. This section highlights geographic, demographic, employment, housing, transportation, and land use characteristics. The community profile was included in the 2007 NHMP as the section II Community Profile. Though the theme of the 2012 community profile is consistent with the Section II Community Profile from the 2007 NHMP, the entire section has been updated and modified in terms of scope and information, expanding from 11 to 50 pages.

Appendix D: Economic Analysis of Natural Hazard Mitigation Projects

Appendix D describes the Federal Emergency Management Agency's (FEMA) requirements for benefit cost analyses in natural hazards mitigation, as well as various approaches for conducting economic analyses of proposed mitigation activities. This appendix replaces the 2007 NHMP's information about benefit cost analyses.

Appendix E: Mid-Columbia Region Natural Hazard Mitigation Public Opinion Survey

Appendix E provides a summary report of the survey administered to community stakeholders in the fall of 2011 during the early stages of the Hood River County NHMP Update. The Oregon Partnership for Disaster Resilience (OPDR) distributed a mailed survey to 7,500 random households throughout an eight county region in Northern Oregon. The counties surveyed included: Clackamas, Hood River, Gilliam, Morrow, Sherman, Umatilla, Wasco, and Wheeler. OPDR developed and distributed the survey in partnership with the University of Oregon's Resource Assistance for Rural Environments (RARE) program. This appendix replaces the 2007 NHMP's tables and summaries from the previous regional survey.

Appendix F: Grant Programs

This appendix lists state and federal resources as well as grant opportunities by agency and program. Appendix F essentially replaces the 2007 NHMP's Appendix B.

November 10, 2011 Plan Update Meeting #1 Materials



Hood River County Planning and Building

601 State Street • Hood River, OR 97031
Phone: (541) 387-6840 • plan.dept@co.hood-river.or.us
www.co.hood-river.or.us

Meeting: Natural Hazards Mitigation Plan Update – Kickoff Meeting
Date & Time: Thursday, November 10th
Time: 9:00 a.m. – 11:30 a.m.
Location: CBAB, 601 State Street, 1st Floor Conf. Room, Hood River, OR

MEETING AGENDA

- I. Introductions and Background (30 minutes)**
- Welcome & Introductions
 - Primary Goals/Anticipated Outcomes
 - Process Overview
 - Who is Involved & Why
- II. Natural Hazards Mitigation Overview/Update Process (60 minutes)**
- What is Natural Hazards Mitigation Planning
 - Grant Opportunities
 - Plan Update Process & Timeline
 - Steering Committees & Expectations
- III. Discussion Items (30 Minutes)**
- Previous NHMP Action Items
 - Public Involvement Strategies
- IV. Next Steps (15 Minutes)**
- Work to be Completed Before Next Meeting
 - Identify Meeting Dates for Remaining Three Meetings
- IV. Questions/Comments/Other (15 minutes)**

Hood River Meeting Sign-In

Hood River
 [NAME] County NHMP UPDATE
 [Meeting Name] [DATE MO/DAY/YEAR]

Steering Committee 11/10/11, Thursday
 Rivett

| Name | Representing | Email | Roundtrip mileage (if applicable) |
|---------------|--------------|-----------------------------------|-----------------------------------|
| MIKE BENEDICT | HR County | | — |
| Dean Guess | HR County | | |
| Sandi LAIN | HR County | Sandi.Lain@co.hood-river.or.us | |
| Marita Haddan | HR County | mar.ta.haddan@co.hood-river.or.us | |
| GARRET JENSEN | RARE | | |
| Josef Bruci | OPDR | | |
| Will Clark | RARE | | |

Anne Saxby Hood River SWCD Saxharp@gorge.net

Memo

To: Mike Benedict
From: William Clark, RARE-MCCOG / Josh Bruce, OPDR
Date: September 2_, 2011
Re: Hood River County 2011-2012 Natural Hazard Mitigation Plan Update, Phase I – Getting Started

Purpose

This memorandum outlines the components of Phase I (Getting Started) of the 2011 Hood River County Natural Hazard Mitigation Plan Update, including a preliminary schedule, initial data needs and next steps for the Oregon Partnership for Disaster Resilience (OPDR) as well as the Hood River County Project Lead and Steering Committee.

Background

A Natural Hazard Mitigation Plan (NHMP) forms the foundation for a community's long-term strategy to reduce disaster losses and break the cycle of disaster impacts, reconstruction and repeated damage. It creates a framework for risk-based decision making to reduce damages to lives, property and the economy from future disasters. Jurisdictions with Federal Emergency Management Agency (FEMA) approved mitigation plans are eligible for federal grant funding to implement those mitigation items identified in the plan. Jurisdictions are required to review, update, and re-seek FEMA approval of their plans every five years in order to maintain grant eligibility. Hood River County adopted its Natural Hazard Mitigation Plan in January 2007 making it due for its 5-year update early 2012.

The NHMPs of Clackamas, Wasco, Sherman, Gilliam, Morrow, Wheeler and Umatilla Counties are also nearing expiration. In an effort to streamline the update process, OPDR will facilitate a regional planning approach with training sessions, technical assistance and plan updates occurring for each county simultaneously. We anticipate holding up to four regional training sessions, and appreciate your cooperation as we attempt to facilitate this process as efficiently as possible.

Preliminary Fall and Winter 2011-2012 Schedule

Between now and January 2012, OPDR will work with Hood River County Emergency Management to:

Develop a Work Plan (October 2011)

- Establish a viable work plan with the intention of submitting the Hood River County NHMP Update for FEMA approval in the summer of 2012
- Review the OPDR Plan Update Training Manual (available on Basecamp)

Conduct Project Initiation Meeting Between OPDR and County Project Leads (October 2011)

- Review scope of work and overall project schedule
- Review roles and responsibilities
- Coordinate plan update training schedule and locations

In order to maintain momentum and complete the plan update on schedule OPDR suggests that Hood River County complete the following during this same period:

Reconvene Mitigation Plan Steering Committee (October 2011)

- Convene 2007 Hood River County NHMP Steering Committee*
- Identify and invite new participants or jurisdictions
 - External Partners (e.g. Oregon Department of Forestry, National Forest Service, Oregon Department of Agriculture, school districts, U.S. Army Corps of Engineers, Hospitals, Soil and Water Conservation Districts, etc.)
 - Incorporated Jurisdictions (e.g. Hood River, Cascade Locks)

Develop a Public Involvement Strategy (October/November 2011)

- Review and update strategy identified in the 2007 Hood River County NHMP
- Outreach strategies may include stakeholder surveys, public information workshops, and press releases

Collect Data (November/December 2011)

- Collect mitigation plan maintenance meeting agendas and minutes from the previous five years
- Collect documentation related to any hazard occurrences or emergency declarations in Hood River County since 2007
- Identify and document plan implementation activities, including completed projects and other “success stories”
- Collect any local, state, or federal studies or reports completed since 2007
 - Local development ordinances, flood maps, HAZUS studies, DOGAMI studies, USGS reports, etc.

Identify necessary updates to the 2007 Hood River County NHMP (November/December 2011)

- Mitigation Item Analysis (completed, pending, and un-initiated)
- Previously identified data limitations

Next Steps for OPDR

Grant Administration

Finalize specific scope of work for Hood River County

Project Initiation

Schedule and hold kickoff meeting with regional project leads

Next Steps for Hood River County

- Convene NHMP Steering Committee
- Provide county assessment and taxation data
- Brief county administration on project
- Notify public?? PSA – we can help write it and get it to local news outlets
- Identify potential stakeholder groups

Should you have any questions or concerns, please do not hesitate to contact Will Clark at (541) 298-4101 x206 or via email at William.Clark@mccog.com or Josh Bruce at (541) 346-7326 or via email at jdbruce@uoregon.edu.

*** Previous Steering Committee Members include:**

- Anne Debbaut, *Hood River County Planning*
- Jennifer Donnelly, *City of Hood River Planning*
- Peter Mackwell, *West Side Fire District*
- Jeff Pricher, *City of Cascade Locks*
- Anne Saxby, *Soil and Water Conservation District*
- Hannah Settje, *American Red Cross*
- Jade Soddell, *Emergency Management*
- Joe Wampler, *Sheriff's Department*
- Don Wiley, *Hood River County Public Works*

February 15, 2012 Plan Update Meeting # 2 Materials



Hood River County Planning and Building

601 State Street • Hood River, OR 97031
Phone: (541) 387-6840 • plan.dept@co.hood-river.or.us
www.co.hood-river.or.us

Meeting: Natural Hazards Mitigation Plan Update – Risk Assessment
Date & Time: Wednesday, February 15th
Time: 9:00 a.m. – 11:30 a.m.
Location: CBAB, 601 State Street, 1st Floor Conf. Room, Hood River, OR

MEETING AGENDA

- | | | |
|-------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------|
| I. | Welcome and Introductions | (5 minutes) |
| II. | Community Profile Discussion | (10 minutes) |
| III. | Overview of Risk Assessment Process | (20 minutes) |
| IV. | Review of Hazard Identification | (30 minutes) |
| | <ul style="list-style-type: none">• Update on Hazard Inventories | |
| III. | Review Existing Vulnerability Information | (30 Minutes) |
| | <ul style="list-style-type: none">• Update the list of Community Critical/Essential Facilities and Infrastructure (Review of Asset Worksheet) | |
| IV. | Relative Risk Overview | (45 Minutes) |
| | <ul style="list-style-type: none">• Outline potential severity/impact of identified hazards (Review of Relative Risk Questionnaire) | |
| V. | Next Steps | (10 Minutes) |
| | <ul style="list-style-type: none">• Identify date for the next meeting | |

Meeting Sign-In

Hood River County NHMP UPDATE

Steering Committee Meeting – Risk Assessment – Wednesday, 02/15/2012

| Name | Representing | Email | Roundtrip mileage (if applicable) |
|---------------|---------------|------------------------------------------|-----------------------------------|
| Sandi Lain | HR County | Sandi.lain@co.hood-river.or.us | |
| Marita Haddan | H.R. 9-1-1 | marita.haddan@co.hood-river.or.us | |
| Peter Maxwell | HRFD | peter@hoodriverfire.com | |
| Don Wilely | HR County | don.wiley@co.hood-river.or.us | |
| MIKE BENEDICT | HR County | MIKE.BENEDICT@CO.HOOD-RIVER.OR.US | |
| PAUL KOCH | CASCADE LOCKS | PKOCH@CASCADE-LOCKS.ORG | N/A |
| Josh Broue | OPDR | JDBROU@VOR.EDU | N/A |

Will Clark VARE (MCCOY) OPDR william.clark@mcco.com

May 17, 2012 Plan Update Meeting # 3 Materials



Hood River County Planning and Building

601 State Street • Hood River, OR 97031
Phone: (541) 387-6840 • plan.dept@co.hood-river.or.us
www.co.hood-river.or.us

Meeting: Natural Hazards Mitigation Plan Update – Mitigation Strategy
Date & Time: Thursday, May 17th
Time: 9:00 a.m. – 11:50 a.m.
Location: CBAB, 601 State Street, 1st Floor Conf. Room, Hood River, OR

MEETING AGENDA

- | | | |
|-------------|----------------------------------------------------------------------------------------------------------------------------------------|--------------|
| I. | Welcome & Introductions | (5 minutes) |
| II. | Survey & Risk Assessment Discussion | (10 minutes) |
| III. | Timeline & Process for Adoption of Updated Plan | (5 minutes) |
| IV. | Overview of Mitigation Strategy Process | (30 minutes) |
| V. | Review and Update Current Mitigation Strategy | (60 minutes) |
| | <ul style="list-style-type: none">• Update goals and mission statement• Review previously approved action items | |
| VI. | Action Item Development | (55 Minutes) |
| | <ul style="list-style-type: none">• Review Risk Assessment vs. overall Relative Risk• Develop new action items | |
| VII. | Next Steps | (5 Minutes) |
| | <ul style="list-style-type: none">• Identify date for the next meeting | |

Meeting Sign-In

Hood River County NHMP UPDATE

Steering Committee Meeting – Mitigation Strategy/Plan Implementation and Maintenance – Thursday, 05/17/2012

| Name | Representing | Email | Roundtrip mileage (if applicable) |
|----------------|-----------------------------------------|-----------------------------------|-----------------------------------|
| KARL TESCH | HRC DEM | KTESCH@PACFIER.COM | |
| MIKE BENEDICT | HRC COMM. DEV | MIKE.BENEDICT@CO.HOOD-RIVER.OR.US | |
| Don Wilely | HRC Public Works | don.wiley@co.hood-river.or.us | |
| PETER MAXWELL | HOOD RIVER CITY HOOD RIVER CITY FIRE | peter@hoodriverfire.com | |
| Michael Hampp | OPDR | MRHammond@verizon.net | |
| GARRETT JENSEN | FARE/MCCOG | | |
| Will Clark | FARE/MCCOG | | |

June 28, 2012 Plan Update Meeting # 4 Materials



Hood River County Planning and Building

601 State Street • Hood River, OR 97031
Phone: (541) 387-6840 • plan.dept@co.hood-river.or.us
www.co.hood-river.or.us

Meeting: Natural Hazards Mitigation Plan Update – Plan Implementation and Maintenance

Date & Time: Thursday, June 28th

Time: 9:00 a.m. – 11:00 a.m.

Location: CBAB, 601 State Street, 1st Floor Conf. Room, Hood River, OR

MEETING AGENDA

- | | | |
|-------------|----------------------------------------------------------------------------------------------------------------------------------------------|--------------|
| I. | Welcome & Introductions | (5 minutes) |
| II. | Mitigation Strategy Review | (25 minutes) |
| | <ul style="list-style-type: none">• Address Mitigation Strategy section questions/concerns• Finalize new action items | |
| III. | Overview of Plan Implementation and Maintenance | (30 minutes) |
| IV. | Review and Update Hood River County Plan Implementation and Maintenance Strategy | (45 minutes) |
| V. | Next Steps and Final Steering Committee Business | (15 Minutes) |

Meeting Sign-In

Hood River County NHMP UPDATE

Steering Committee Meeting – Plan Implementation and Maintenance – Thursday, 06/28/2012

| Name | Representing | Email | Roundtrip mileage (if applicable) |
|-----------------|--------------------------------------------|-----------------------------------|-----------------------------------|
| Mary Kay Hadden | H.R. County 911 | marita.hadden@co.hood-river.or.us | — |
| Peter Mackewell | HR County fire & EMS City of Hood River | peter@hoodriverfire.com | |
| MIKE BENEDICT | HR County | | |
| KARL TESCH | HRC DEM | KARL.TESCH@CO.HOOD-RIVER.OR.US | |
| Sandi Lam | HRC Admin | Sandi.Lam@co.hood-river.or.us | |
| Will Clark | RARE / MCOG | William.Clark@mcog.com | |

NHMP Press/Public Outreach Documentation

es

ASPIRE to help high school dreamers

By JULE RAEFFELD-GOBBO
Staff writer



Carolyn Bondurant

With more than 900 seniors in this year's Hood River Valley High School graduating class there is a great need for ASPIRE volunteers.

According to Carolyn Bondurant, Summit Career Center coordinator, adults are especially needed to mentor students on their pathway towards and beyond graduation through this school-based program.

Bondurant and career-center staff facilitate students' future college and training aspirations within the ASPIRE program. The

ASPIRE (Access to Student Assistance Programs In Reach of Everyone) is a program that brings together students, school staff, community volunteers and parents to help students overcome obstacles to their continuing education.

Volunteer mentors, who are trained by the high school staff, provide advising, resources, and encouragement to help students overcome barriers to future career plans.

According to Bondurant, one former student wrote of her mentor, "Not only did you help me through the college and scholarship

process, but you believed in me. I just wanted to let you know that I am extremely grateful for all of your help and kindness!"

"If you have one hour per week to volunteer or even more time," Bondurant encourages community adults to help these students prepare for a brighter future.

For more information, contact the Summit Career Center, 541-987-6084.

An upcoming ASPIRE training session entitled, "How to Advise ASPIRE Students" will be held on Sept. 19, 7-9:30 p.m. in the HRV library.

will be held on, g. 24, from 4-6 p.m. Libby and Powell Home, 1100 Kelly Jaffe.

services will be tuesday Aug. 25, at St. Peter's Catholic with Fr. Joseph clacing.

Brunquist

Ann Brunquist of a short illness 7, 2012. She was 12, 1867, in Seattle,) Loren H. and Holden.

was a graduate of Clark College, to be a research Stamford Univer, after earning her degree in science at State University member of AAUW and served as a Portland Art Mus-

married Leland S. of Hood River, in

ed traveling the world, reading, sewing, live theater, ballet and taking classes at Portland State. Her journey's took her to live in Hood River, Junction City, d Portland, Ore.

in 1976, she re-er studies, enjoy- and arts at Port- University and ing at Portland the Performing he Japanese Gar-

was preceded in er husband of 90 and Stanley Brun-

rieved by her chil- isabeth (Betsy) id her daughter, rs, of Hood River,

County seeks public input on update to Natural Hazards Mitigation Plan

Hood River County is currently in the process of updating the existing Natural Hazards Mitigation Plan. This work is being performed in cooperation with the Oregon Partnership for Disaster Resilience, Resource Assistance to Rural Environments and Oregon Emergency Management utilizing funds obtained from the Federal Emergency Management Agency Pre-Disaster Mitigation Grant Program.

With re-adoption of the plan, Hood River County will maintain its eligibility to apply for federal funding to-

wards natural hazard mitigation projects. This local planning process includes a wide range of representatives from city and county government, emergency management personnel, and outreach to members of the public in the form of a mailed survey.

A natural hazards mitigation plan provides communities with a set of goals, action items, and resources designed to reduce risk from future natural disaster events. Engaging in mitigation activities provides jurisdictions with a number of benefits, including reduced

loss of life, property, essential services, critical facilities and economic hardship; reduced short-term and long-term recovery and reconstruction costs; increased cooperation and communication within the community through the planning process; and increased potential for state and federal funding for recovery and reconstruction projects.

To comment on hazard mitigation planning in Hood River County, visit esc.noregon.edu/opdr/current/hood_river.

A draft version of the updated Hood River Natural

Hazards Mitigation Plan will be available for formal public comment from Aug. 20-31. Copies of the plan will be available on the OPDR and County websites.

If you have any questions regarding the Hood River County Natural Hazards Mitigation Plan or the update process in general, contact Mike Benedict, Hood River County community development director, at 541-587-6840 or plan.dept@co.hood-river.or.us; or Josh Bruce, interim director for the Oregon Partnership for Disaster Resilience, at 541-346-7526 or jbtrace@oregon.od.

Local music groups seek members

The many musical ensembles of the Columbia Gorge Orchestra Association are about to begin fall rehearsals and are seeking new musicians. All groups meet and

ensemble is being developed this year and will be under the direction of HRMS music teacher Rebecca Nederhiser.

The Vocal chamber choir

This year, an audition-only small vocal ensemble will be added to CGO's choral offerings. Vocal rehearses on Monday evenings from 6:30-8:15, beginning Sept. 10.

ner. Additions will take place at the first rehearsal on Sept. 11, at 6 p.m.

The Gorge Strings is a beginning-to-intermediate string ensemble and meets

2007 Plan Development Public Process

People tend to support what they help build. To engage public support of this plan, and to involve the residents in the process, the University of Oregon RARE participant assigned to coordinate this project reached out to the Hood River County community in three primary ways. First, a steering committee was formed to guide the NHMP Coordinator through the process of developing the plan. Secondly, The Coordinator sent out invitations to key stakeholders and an open invitation to the public for a NHMP Community Stakeholder Forum to raise awareness about natural hazard events and solicit input from community. Lastly, stakeholder interviews were conducted to retrieve local community knowledge of hazard events and how to best address the community's risk. Secondary methods of outreach were also conducted in posting the final draft of the mitigation plan for public comment on the County Planning & Development website and the printing and distribution of the International Business & Home Safety *Protect Your Home From Wildfire* brochure at the Hood River County Planning & Building services counter. Lastly, ONHW conducted region-wide outreach and training efforts in the form of a regional household preparedness survey and IBHS *Open for Business* training.

Steering Committee

The Hood River County Steering Committee was comprised of individuals best suited to guide the county through the planning process and ensure that the mitigation plan is fully implemented once adopted.

Its mission is to ensure proper development and implementation of the county natural hazards mitigation plan by:

- setting goals;
- establishing subcommittee work groups to address specific needs;
- ensuring public, private and federal participation;
- distributing and presenting the plan;
- facilitating public discussion/involvement;
- developing implementation activities; and
- coordinating plan maintenance and implementation strategies.

Through raising awareness and citizen involvement, the Committee's end goal is to make hazard mitigation a part of the community's routine decision-making process.

Methodology

Three Steering Committee sessions were held over the course of the 2006 calendar year:

- 1) Introduction & Overview: 18 January 2006
- 2) Hazard Risk Assessment: 3 March 2006
- 3) Goals & Action Items: 14 July 2006

These sessions set the tone and structure for the plan’s development. Through these meetings the NHMP Coordinator was able to collect valuable information regarding hazard events and impacts within the County, as well as contacts for additional stakeholders to involve in the process. The Steering Committee also played an integral part in the development of the mitigation plan vision, mission, goals and action items. The Committee revised the drafted vision, mission and goals, and selected and prioritized the action items documented in this plan.

Participants

The steering committee was formed by Michael Pasternak, NHMP Coordinator under the guidance of Mike Benedict, Hood River County Planning & Building Services. Additional input provided by the Oregon Natural Hazards Workgroup. Participants included:

Table A.1 NHMP Steering Committee

| Name | Title | Organization |
|-------------------|-------------------|----------------------------------------|
| Anne Debbaut | Planner | Hood River County Planning |
| Jennifer Donnelly | Planner | City of Hood River Planning Department |
| Peter Mackwell | Assistant Chief | West Side Fire District |
| Jeff Pricher | Fire Marshall | City of Cascade Locks |
| Anne Saxby | Director | Soil & Water Conservation District |
| Hannah Settje | District Manager | Red Cross |
| Jade Soddell | Emergency Manager | Hood River County Emergency Management |
| Joe Wampler | Sheriff | Hood River County Sheriff’s Department |
| Don Wiley | Engineer | Hood River County Public Works |

Community Stakeholder Forum

The County-wide Stakeholder Forum held was designed to solicit input from individuals and community organizations with resources or property that may be severely impacted by natural disasters. The Forums was held on April 11th 2006 at the County Business & Administration Building in Hood River, OR. Roughly 50 people from the County were invited to attend the Forum. The invitees consisted of business leaders, utility providers, government workers (state and county), service providers, transportation & communication workers, health providers, and representatives of vulnerable populations (e.g. elderly, migrant workers).

The purpose of the Forum was three-fold:

- 1) To spread awareness of potential disasters impacting the County by soliciting a large cross-section of the active public to participate in the hazard mitigation process;
- 2) To provide a factual basis for potential hazard mitigation measures by public input into critical County infrastructure and resources, and known hazard zones, through the critical asset and hazard identification mapping exercise; and
- 3) To plant the seeds for potential mitigation measures by introduction and discussion of the action item concept and creating personal relationships (i.e. face-toface introduction) for stakeholder interview and action item follow-ups.

Those that participated in the Forum were actively responsive to the mapping exercise and the concepts and importance of hazard mitigation. The identification of critical assets and infrastructure re-enforced much of what had already been identified in steering committee meetings and coordinator research, and also provided some previously overlooked assets. All Forum participants have been willing participants in the stakeholder interview follow-ups.

Methodology & Outcomes

The method and outcomes of the Community Stakeholder Forum are described below:

(1) DOGAMI Hazard Impact Overview

Bill Burns, DOGAMI Engineering Geologist presented and dissected local and state natural hazards data, and informed participants on how communities are impacted by natural hazard events.

Outcome: Documented community stakeholder knowledge/input with respect to local hazard events.

(2) Community Asset Identification Exercise

Participants were asked to fill out a worksheet identifying the County's critical infrastructure and assets.

Outcome: (a) Identified and discussed key elements of the region and individual communities within it; and (b) Identified main assets, resources and functions of region within the themes of People, Dollars (economy, cultural & historic assets, environmental assets), and Infrastructure (critical physical facilities).

- Participants identified many of the same critical assets identified in the Steering Committee meeting and NHMP Coordinator research. This that assured that data collected for mitigation plan purposes was relevant.

(3) Community Mapping Exercise

Participants were asked to map assets & infrastructure from previous exercise

Outcome: (a) Discussed and documented implications with regards to asset loss/damage to community; (b) Provided mechanism to focus planning efforts; (c) Provided a fact base for subsequent action item identification, and (d) Provided physical document (map) of community input.

Figure 3.2 Stakeholder Forum Exercise Maps



(4) Action Items & Follow-up Stakeholder Interviews

Discussed importance mitigation and the development of action items; passed out action item forms to participants

Outcome: Documented potential action items discussed in forum, and distributed action item worksheets to participants. Set up stakeholder interview.

Invitees

The following the individuals and organizations were contacted to participate in the Forum:

Table A.2 Community Stakeholder Forum Invitees

| Name | Organization |
|-----------------------------------|----------------------------------------|
| Craig Schmidt* | Hood River Chamber of Commerce |
| Katie MacKendrick | MCEDD |
| Tim Donahue | Real Estate |
| Glen Taylor | Real Estate |
| Risa Wonsyld | Real Estate |
| Brent Gleason | Hood River County Forest Department |
| David S. Meyer | Bonneville Power Association |
| Ron Koffman | Hood River Historic RR |
| Jean Godfrey | Grower-Shipper Association |
| Tom Yates | Sprint |
| Rick Brock | Farmers Irrigation District |
| Diane Bambi | USDAFS |
| Ian Macek | Port of Cascade Locks |
| Mike Doke* | Port of Hood River |
| Bill Fashing | Hood River County Economic Development |
| Pam Bates* | Hood River County 911 |
| Billie Stevens | OSU Extension Service |
| Ellen Larson* | Department of Health |
| Anne Debbaut | Hood River County Planning |
| Nancy Steele* | Hood River County Planning |
| Sonya Kazen | Oregon Department of Transportation |
| Michael (Swede) Hays | ODOT Rail Division |
| Bill Burns* | DOGAMI |
| Pat Evenson-Brady, Superintendent | Hood River County Schools |
| Dean Nygaard | Hood River County Building |
| Dean Guess | Hood River County Public Works |
| Gary Grossman | Columbia Gorge Broadcasters |
| Kirby Neumann-Rea | Hood River News |
| Elizabeth Settje | Hood River Memorial Hospital |
| Marianne Durkan | Home Health |
| Gwen | Senior Advisory Council |
| Lou DeSitter | Catholic Churches |
| Joe Wampler | Hood River County Sheriff |
| Peter Mackwell* | Westside Fire District |

*Participant

Stakeholder Interviews

Due to poor community participation in the Stakeholder Forum, the stakeholder interviews became a crucial component of the public process. Many of the Forum invitees were contacted and their input included in the plan. The individuals contacted ranged from city,

state, and federal government employees to business owners and farmers. These individuals provided insight into how hazard events have impacted the community in the past, how growth and development could collide with future hazard events, and how the community can best work together to reduce collective risk. Many of the action items documented in this plan were spawned from ideas discussed during the stakeholder interview process.

Methodology

Stakeholder interviews were conducted May through July 2006. The NHMP Coordinator telephoned stakeholders individually and asked a series of questions. The questions are as follows:

- What is the history of natural hazard events in Hood River County?
- How does growth and development in the community, both current and projected, contribute to natural hazard events?
- Does your organization/industry currently work in natural hazard mitigation? If so, how?
- How can your organization/industry contribute to strengthen regional coordination and cooperation in reducing risk from natural hazards?
- What activities will assist Hood River County in reducing risk and preventing loss from future natural hazard events? (e.g. If you had the money, how would you spend it?)
- How does your organization/industry view the County government's role in reducing risk from natural hazard events?
- What are the ways you would like to see agencies, organizations or individuals participating and coordinating to reduce risk from natural hazard events?
- How does hazard mitigation fit into Hood River County's land-use, environmental, social, and economic goals?
- What goals should the County set to reduce risk from natural hazard events, and how would we measure whether our mitigation efforts are successful?
- Can you think of anyone else that should be contacted as part of this process?

The information recorded from the stakeholder interviews was primarily incorporated into three sections of this plan: Community Profile, Risk Assessment, and Goals & Action items.

Contacts

The following the individuals and organizations were contacted to participate in the stakeholder interview process:

Table A.3 Community Stakeholder Interview Contacts

| Name | Organization |
|--------------------|----------------------------------------|
| Bill Fashing* | Hood River County Economic Development |
| Rick Brock* | Farmers Irrigation District |
| Mike Doke* | Port of Hood River |
| Ian Macek* | Port of Cascade Locks |
| Steve Castgnoli* | OSU Extension Service |
| Jean Godfrey* | Grower-Shipper Association |
| David S. Meyer* | BPA |
| Andrea Klass* | Port of The Dalles |
| Mel Gard* | ODF |
| Tom Yates* | Sprint |
| Peter Mackwell* | Westside Fire District |
| Kirby Neumann-Rea* | Hood River News |
| Elizabeth Settje | Hood River Memorial Hospital |
| Dean Nygaard* | Hood River County Building |
| Tom Yates* | Sprint |
| Lou DeSitter | Catholic Churches |
| Risa Wonsyld* | Real Estate |
| Bill Burns* | DOGAMI |
| Sonya Kazen | Oregon Department of Transportation |
| Brent Gleason* | Hood River County Forest Department |

*Participant

Secondary Outreach Methods

Additional methods of outreach involved in the public process included:

Public Comment of Hood River County NHMP Draft

The mitigation plan draft was sent to steering committee members for review, comment, and approval before the final draft was shipped off the OEM for State review. Additionally, the plan was posted on the Hood River County Planning & Development website for public review and comment.

IBHS Wildfire Brochure

While the final draft of the NHMP was under review by the Steering Committee and public, the NHMP Coordinator oversaw the printing and distribution of the International Business & Home Safety *Protect Your Home From Wildfire* brochure at the Hood River County Planning & Building service counter.

ONHW Region-wide Outreach

The Oregon Natural Hazards Workgroup conducted region-wide outreach activities which included:

Household Preparedness Survey

As part of the regional PDM grant, ONHW implemented a region wide household preparedness survey. The survey gauged household knowledge of mitigation tools and techniques and assessed household disaster preparedness. The survey results improve public/private coordination of mitigation and preparedness for natural hazards by obtaining more accurate information on household understanding and needs. The results of the survey are documented in the plan's *Appendix C: Regional Household Survey*.

IBHS Open for Business Training

ONHW, with commitment from the Institute for Business & Home Safety (IBHS), provided individuals in the Mid-Columbia region with access to, and use of, the IBHS interactive, web-based *Open for Business* property protection and disaster recovery planning tool. The access was provided in two classes, one located in Hermiston, Oregon on May 24th, 2006 and the second in The Dalles, Oregon on May 25th, 2006. The following agencies and organizations were invited to attend: agencies providing start-up and ongoing counseling services to micro and small businesses in low-income areas, such as the Statewide Small Business Development Center; agencies providing housing services to hundreds of low-income residents, such as County Housing Authorities, which also employs low-income people; and disaster assistance agencies serving at-risk populations, such as food banks and the American Red Cross. Any remaining spaces were made available to: micro- or small business start-up companies; and established micro- or small businesses.

The classes were organized as train-the-trainer classes, so that the agency personnel and the business people could: 1. Understand the importance of disaster planning; 2. Learn how to navigate the interactive, web-based *Open for Business* property protection and disaster recovery planning tool; 3. Start to develop their own plans during the training; 4. Learn how to communicate the importance of developing and utilizing plans for property protection and recovery from business interruption to their constituencies and/or colleagues, in order to institutionalize disaster safety into every day decision making.

Recruitment Process

The Oregon Natural Hazards Workgroup assembled a list of social service providers from basic internet searches and representative small businesses from Chamber of Commerce Membership databases for the seven counties in the region. E-mail and/or mailed invitations were sent to over 200 agencies, organizations and businesses in the region. Recruitment materials can be found on the following page. The following agencies and organizations attended the workshop:

- Umatilla/Morrow County Housing Authority
- Irrigon Chamber of Commerce
- Pendleton Chamber of Commerce
- Small Business Development Center – Blue Mountain Community College
- Small Business Development Center – Columbia Gorge Community College

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Appendix C: Community Profile

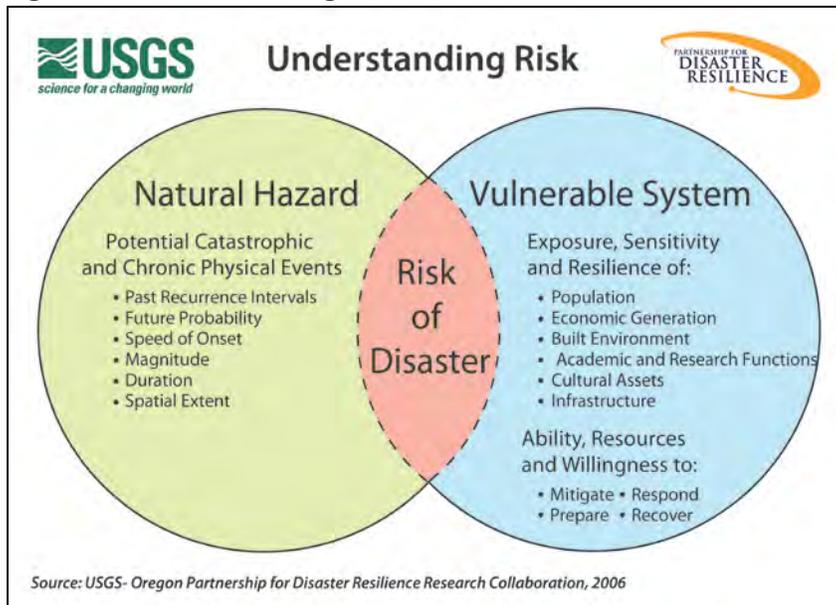
The following section describes Hood River County from a number of perspectives in order to help define and understand its sensitivity and resilience to natural hazards. Sensitivity and resilience indicators are identified through the examination of community capitals which include natural environment, socio-demographic capacity, regional economy, physical infrastructure, community connectivity and political capital. The most fundamental definition of capital is a resource or asset that can be used, invested, or exchanged to create new resources. The concept of community capitals provides a useful framework for identifying the diverse resources and activities that make up a local economy.¹

Sensitivity factors can be defined as those community assets and characteristics that may be impacted by natural hazards (e.g., special populations, economic factors and historic and cultural resources). Community resilience factors can be defined as the community's ability to manage risk and adapt to hazard event impacts by way of the governmental structure, agency missions and directives, as well as through plans, policies, and programs.

The information in this section represents a snapshot in time of the sensitivity and resilience factors in the county during the plan's most recent update. The information documented below, along with the hazard assessments located in *Section 2: Risk Assessment*, should be used as the local level rationale for the risk reduction action items identified in *Appendix A*. The identification of actions that reduce Hood River County's sensitivity, and increase its resilience, assists in reducing overall risk, represented by the overlap in Figure C.1 below.

¹ Cornelia Flora, Jan Flora, Susan Fey and Mary Emery, "Community Capitals Framework," English Language Learners Symposium.

Figure C.1 Understanding Risk



Why Plan for Natural Hazards in Hood River County?

Natural hazards impact citizens, property, the environment and the economy of affected communities. Hood River County residents and businesses could be exposed to incredible financial and emotional costs in the event of a natural disaster, whether from droughts, earthquakes, flooding, landslides, volcanoes, wildfires, or seasonal storms. The risk associated with natural hazards increases as more people move to areas that are subject to a higher rate of natural hazard incidence or probability. The inevitability of natural hazards and activity within the county create an urgent need to develop strategies, coordinate resources and increase public awareness to reduce risk and prevent loss from future natural hazard events. Identifying risks posed by natural hazards and developing strategies to reduce the impact of a hazard event can assist in protecting life and property of citizens and communities. Local residents and businesses should therefore work together with the county to keep the natural hazards mitigation plan updated. The Natural Hazards Mitigation Plan addresses the potential impacts of hazard events and allows the county to apply for certain funding from FEMA for pre and post disaster mitigation projects that would otherwise not be available if the county did not have an up to date Natural Hazards Mitigation Plan.

Natural Environment Capacity

Geography

Hood River County, located in the north central section of Oregon in the Columbia Gorge, has a land area of 529 square miles, making it the second smallest county in the state in terms of geographic area. Its dimensions are a length of 32 miles from north to south, and a width varying from 23 miles, in the north, to 10.5 miles in the extreme south. It is situated

on the eastern edge of Oregon's Cascade Range and west of the Umatilla Plateau, bounded by Mt Hood and the Mt Hood National Forest to the south, and the Columbia River to the north. The majestic snowcapped Mt. Hood in the southwest portion of the county, and the Columbia River Gorge to the north, provide the stunning backdrop that has made Hood River one of the most unique and beautiful places in the Northwest, and a destination for tourists and recreation enthusiasts alike.

Oregon, like most of the Western States, is largely owned by the federal government with a vast majority of federal lands administered by the Bureau of Land Management (BLM) and the United States Forest Service (USFS).² In Hood River County 36% of the land is privately owned (roughly 122,000 acres), whereas the remaining 64% is held by the US Forest Service (roughly 216,000 acres).³ Land owned by the US Forest Service arcs from the west of Hood River County to the southeast, and is primarily designated as the Mt Hood National Forest. A majority of the private land in the county is either agricultural land or forest, and the entire county is classified as rural except for land within the City of Hood River.⁴

Hood River County is a relatively compact physiographic unit, primarily situated in the Middle Columbia Basin. The Hood River Valley, occupying the bottom of the Hood River drainage basin, is 20 miles long and four to eight miles wide. Local relief separates the valley into two distinct units known as the Lower and Upper Valleys. The Lower Valley, the larger unit, extends about six miles southward from the Columbia River to Middle Mountain, a traverse ridge about 2,000 feet in elevation. A low ridge encloses a small bench of a few thousand acres on the north flank of Middle Mountain known locally as Middle Valley. The Upper Valley, located south of Middle Mountain, is approximately seven miles long and four miles wide and rises southward in elevation from 1,500 to 3,000 feet.

The surface of the entire valley was modified by glacial action. A till sheet of varying thickness was laid down over the floor and subsequently reworked by glacial melt waters and forerunners of the present rivers. The soil pattern is directly related to the nature of the local till and the action of water. Variations range from silt loam laid down in the quiet waters of a lake in the bottom lands of the Lower Valley, to loams derived from weathering of glacial outwash materials and gravelly sandy loams derived from stream deposits. In portions of the Upper Valley, soils deriving from recent volcanic ash deposits cover many outwash terraces.

WEST AND EAST CASCADES

As can be seen in Figure C.2 below, Hood River County is mainly split between the West Cascade and East Cascade physiographic provinces, though it is also bordered near its eastern boundary by the Columbia Basin.

The West Cascades is a mountainous ecoregion underlain by Cenozoic volcanic, and has been affected by alpine glaciations. It is characterized by steep ridges and river valleys in the west, a high plateau in the east and both active and dormant volcanoes. Its moist, temperate climate supports an extensive and highly productive coniferous forest. Subalpine meadows occur at high elevations.

² Allan, Stuart et al., *Atlas of Oregon*. Pg. 83.

³ Allan, Stuart et. al., *Atlas of Oregon*. Pg. 84.

⁴ U.S. Census Bureau, 2010 Census, Oregon's 68 Urban Areas

In the rain shadow of the Cascade Mountains, the East Cascades slopes and foothill's climate exhibits greater temperature extremes and less precipitation than in ecoregions to the west. Open forests of ponderosa pine and some lodge pole pine distinguish this region from the higher ecoregions to the west where hemlock and fir forests are common, and the lower, drier ecoregions to the east where shrubs and grasslands are predominant. The vegetation is adapted to the prevailing dry, continental climate and is highly susceptible to wildfire. Volcanic cones and buttes are common in much of the region.

Figure C.2: Physiographic Provinces of Oregon



Physiographic Provinces, Oregon Habitat Joint Venture - <http://www.ohjv.org/projects.html>

Level Four Ecoregions

“Ecoregions denote areas of general similarity in ecosystems and in the type, quality, and quantity of environmental resources; they are designed to serve as a spatial framework for the research, assessment management, and monitoring of ecosystem components. By recognizing the spatial differences in the capacities and potentials of ecosystems, ecoregions stratify the environment by its probable response to disturbance.”⁵ There are five level four ecoregions within the Columbia Basin and East Cascades that can be found in Hood River County; the Pleistocene Lake Basin, the Western Cascades Lowlands and Valleys, the Western Cascades Montane Highlands, the Cascade Crest Montane Forest and the Cascades Subalpine/Alpine.

⁵ Environmental Protection Agency. “Ecoregions of Oregon.” ftp://ftp.epa.gov/wed/ecoregions/or/or_front.pdf.

PLEISTOCENE LAKE BASINS⁶: the Pleistocene Lake Basins once contained vast temporary lakes that were created by flood waters from glacial lakes Missoula and Columbia. In Oregon, the flood waters accumulated from the eastern entrance of the Columbia River Gorge upstream to the Wallula Gap to form ancient Lake Condon. Today, the region is the driest and warmest part of the Columbia Basin with mean annual precipitation varying from seven to ten inches. Native vegetation consists of bunchgrass and sagebrush. Major irrigation projects provide Columbia River water to this region, allowing the conversion of large areas into agriculture.

WESTERN CASCADES LOWLANDS AND VALLEYS⁷: this ecoregion includes the lower slopes of the Cascades. Its mild, wet climate promotes lush western hemlock-Douglas-fir forests, and its soils are warmer than higher elevation ecoregions. The steep valleys contain high gradient rivers and streams that support cold water salmonids, including the threatened Chinook salmon, steelhead, and bull trout. Reservoirs store winter snow melt for irrigation and municipal water supply in the Willamette Valley.

WESTERN CASCADES MONTANE HIGHLANDS⁸: this ecoregion is composed of steeply sloping, dissected mountains between about 3,000 and 6,500 feet elevation. The Western Cascades are older and more eroded than the lava plateau and prominent snow-covered cones of the High Cascades; they are composed of dark basalt in contrast to the gray andesite of the High Cascades. The ecoregion has lower temperatures and receives more winter snow than the Western Cascades Lowlands and Valleys, and soils have frigid or cryic temperature regimes, in contrast to the Western Cascades Lowlands and Valleys' mesic temperature regime of soils. Abundant precipitation supports forests dominated by Douglas-fir, western hemlock, noble fir, and Pacific silver fir.

CASCADE CREST MONTANE FOREST⁹: this ecoregion consists of an undulating plateau punctuated by volcanic mountains and lava flows. Volcanism in the Pliocene epoch overtopped the existing Miocene volcanics of the Western Cascades Montane Highlands. Later Pleistocene glaciations left numerous naturally-fishless lakes. Today the ecoregion contains forests dominated by mountain hemlock and Pacific silver fir. It has a shorter summer drought and fewer intermittent streams than the High Southern Cascades Montane Forest.

CASCADE SUBALPINE/ALPINE¹⁰: this ecoregion contains the prominent volcanic peaks of the High Cascades. Pleistocene glaciations reshaped the mountains above 6,500 feet, leaving moraines, glacial lakes, and U-shaped glacial canyons. Glaciers and permanent snowfields still occur on the highest peaks. The vegetation is adapted to high elevations, cold winter temperatures, short growing season, and deep winter snow pack. Herbaceous subalpine meadow vegetation and scattered patches of mountain hemlock, subalpine fir, and white bark pine occur near timberline.

⁶ Ibid.

⁷ Ibid.

⁸ Ibid.

⁹ Ibid.

¹⁰ Ibid.

Rivers

Most of Hood River County is within the drainage basin of the Hood River. The Hood River system rises on the slopes of Mt. Hood and flows north to join the Columbia River at the City of Hood River, a river distance of 39 miles and a fall of 7,500 feet from source to mouth.

COLUMBIA RIVER BASIN

The Columbia River Basin is North America's fourth largest, draining a 259,000 square mile basin that includes territory in seven states (Oregon, Washington, Idaho, Montana, Nevada, Wyoming and Utah) and one Canadian province (British Columbia). The river flows for more than 1,200 miles, from the base of the Canadian Rockies in southeastern British Columbia to the Pacific Ocean at Astoria, Oregon, and Ilwaco, Washington. The Columbia River Basin includes a diverse ecology that ranges from temperate rain forests to semi-arid plateaus, with precipitation levels from six inches to 110 inches per year. Furthermore, the Columbia is a snow-charged river that seasonally fluctuates in volume. Its annual average discharge is 160 million acre-feet of water with the highest volumes between April and September and the lowest from December to February. From its source at 2,650 feet above sea level, the river drops an average of more than two feet per mile, but in some sections it falls nearly five feet per mile.¹¹

The Columbia River Basin is the most hydroelectrically developed river system in the world.¹² The Federal Columbia River Power System (FCRPS) encompasses the operations of 14 major dams and reservoirs on the Columbia and Snake rivers, operated as a coordinated system. In addition, the U.S. Army Corps of Engineers operates nine of 10 major federal projects on the Columbia and Snake rivers. These federal projects are a major source of power in the region, and provide flood control, navigation, recreation, fish and wildlife, municipal and industrial water supply, and irrigation benefits.¹³

HOOD RIVER

The Hood River drains 339 square miles (217,340 acres) of Hood River County and consists of three main forks (West, Middle, and East) that converge into the mainstem Hood River near River Mile 12.0. The drainage contains approximately 400 miles of perennial stream channel of which an estimated 100 miles is accessible to anadromous fish.

Five tributaries of the three forks are fed by glacial sources that drain approximately one third of the total glacial ice on Mt. Hood. During high flows, large amounts of bedload and sediment are transported in these tributaries and in the mainstem. Glacial melt increases water turbidity in the form of suspended silt and glacial flour during summer and early fall. Glacial sediment is more prevalent in the Middle and East Forks and Hood River mainstem, while glacial sediment in the West Fork is contributed by a single small tributary, Ladd Creek. Natural disturbances that contribute significant amounts of sediment to stream channels include landslides and debris torrents that originate on glacial moraines and steep slopes of Mt Hood.

¹¹ Center for Columbia River History. "Columbia River". Written by: Bill Lang Professor of History Portland State University, Former Director, Center for Columbia River History. <http://www.ccrh.org/river/history.htm>.

¹² Ibid

¹³ National Oceanic and Atmospheric Administration. Northwest Regional Office. "Columbia/Snake Basin". <http://www.nwr.noaa.gov/Salmon-Hydropower/Columbia-Snake-Basin/>.

Typical of many Cascade mountain streams, the hydrology of Hood River County is characterized by highly variable stream flow and rapid storm runoff. The mean annual flow in the Hood River is 1,079 cubic feet per second (cfs) at Tucker Bridge (River Mile 6.1). The river's record flood is reported as 33,000 cfs¹⁴ (December 1964), while the minimum seven-day average was 155 cfs (September 1994). Mean monthly flows range from 392 cfs in September to a high of 1,747 cfs in January.

Snowmelt generally begins during April. Many tributaries have very low summer flows, while tributaries with glacial sources maintain higher flows. Natural disturbances occurring in the Hood River watershed include floods, fires, mudflows, landslides, and insect and botanical disease epidemics. Rain-on-snow floods are common disturbance events. Periodically, natural dams created by terminal moraines at receding glaciers on Mt. Hood break and cause floods and debris flows; many of these events are triggered by intense rainstorms. Landslides are common but not frequent events.

Climate

TEMPERATURE, PRECIPITATION AND TOPOGRAPHY

The Hood River Valley lies in a transition zone between the marine-influenced climates west of the Cascade Mountains and the dry-continental climate of the intermountain region. Local topography and elevation play significant roles in explaining the marked differences in average temperature and precipitation between the Lower and Upper Valleys. The City of Hood River is located within the Columbia River Gorge at an elevation of 500 feet above sea level. The Columbia Gorge is a near sea-level water gap through which marine, often relatively warm, air normally flows from the west.

Strong marine influences also reflect the occurrence of precipitation, more than half of which falls from November through February. Table C.1 highlights the average temperature, precipitation and snowfall in the City of Hood River. The city has an average growing season of 183 days, and from 1981 to 2010, the average annual precipitation equaled 31.3 inches per year. Snowfall amounts averaged 36.0 inches per year with the highest amounts occurring in December and January; however snowfall averages displayed in the table below are from over a hundred years of observation, and thus may not be representative of current climate trends.

¹⁴ Northwest Power and Conservation Council, Hood River Subbasin Assessment, May 28, 2004

Table C.1: Period of Record General Climate Summary, the City of Hood River, OR

| Month | Mean Maximum Temperature (deg F) | Mean Minimum Temperature (deg F) | Mean Temperature (deg F) | Mean Precipitation (inches) | Average Snowfall (inches) |
|---------------|----------------------------------|----------------------------------|--------------------------|-----------------------------|---------------------------|
| January | 42.1 | 30.5 | 36.3 | 5.3 | 14.6 |
| February | 47.2 | 30.9 | 39 | 3.9 | 7.3 |
| March | 54.9 | 35.2 | 45.1 | 3 | 2.2 |
| April | 61.3 | 39 | 50.2 | 1.8 | 0.1 |
| May | 68.8 | 45.1 | 56.9 | 1.3 | 0 |
| June | 74.4 | 50.5 | 62.5 | 0.9 | 0 |
| July | 81.8 | 54.7 | 68.3 | 0.3 | 0 |
| August | 82.4 | 53.5 | 67.9 | 0.3 | 0 |
| September | 76.2 | 46.1 | 61.2 | 0.9 | 0.4 |
| October | 63.8 | 38 | 50.9 | 2.3 | 0.1 |
| November | 49.6 | 34.2 | 41.9 | 5.4 | 2.7 |
| December | 40.4 | 29.7 | 35.1 | 5.9 | 8.7 |
| Annual | 62 | 40.7 | 51.3 | 31.3 | 36 |

Source: Western Regional Climate Center, Western US Climate Historical Summaries, <http://www.wrcc.dri.edu/CLIMATEDATA.html> – Temperature and precipitation data (1981-2010), snowfall data (1893-2011)

The county’s rolling topography creates local differences in wind patterns, and highly unstable climatic conditions are found in the Columbia Gorge and nearby areas as a result. The contact between continental and maritime air masses produces strong wind patterns. Prevailing winds are north-westerly in summer and north-easterly in winter. Winds are less dominant away from the Columbia Gorge, and southern parts of Hood River County are generally protected from winds by the Cascade Mountains.

Hazard Severity

There are many potential hazards that can occur within Hood River County; however certain types are more frequent due to Hood River County’s geography. A history of drought within the region has periodically threatened the county’s populations and natural resources, and during dry years, the entire population of the county is vulnerable. Of particular concern with regard to drought potential are the non-irrigated areas around the county, especially farms.

Historically, flooding has occurred along one or more of the county’s waterways every few years. These include the Hood River, Indian Creek, Phelps Creek and the Columbia River. Flood hazard areas are along the East, Middle and West forks of the Hood River, and along Emil, Odell, Baldwin and Neal Creeks. Flooding on these rivers and creeks usually occurs during spring and early summer. Long periods of heavy rainfall and mild temperatures coupled with snowmelt contribute to flooding conditions. Riverine and flash floods may both occur in Hood River County. Riverine floods happen when the amount of water flowing through a river channel exceeds the capacity of that channel, and are the most common type of flooding. Flash flooding occurs during sudden rainstorms when a large amount or

rain falls in a very short period of time. These typically happen in steeply sloping valleys and in small waterways.

Because of its wet climate and considerable topographic relief, the Pacific Northwest is one of the more prolific portions of the nation for slope failures. Hood River County has a history of landslides that tend to occur in isolated, sparsely developed areas threatening individual structures and remote sections of the transportation, energy and communications infrastructure. In contrast, the landslide prone area along parts of Interstate Highway 84 from the border of Multnomah County to the City of Hood River has the potential to cause traffic accidents and damage to the region's transportation system. Slides in Hood River County generally range in size from thin masses of soil of a few yards wide to much larger, deep-seated bedrock slides. Travel rate may range in velocity from a few inches per month to many feet per second, depending largely on slope, material, and water content. Landslides typically occur in Hood River County during or after periods of heavy rain and flooding.

Historically, it appears that the instance of wildfire is increasing throughout the Columbia Gorge region. Though small in size, Hood River County contains a diverse set of wildfire hazard and risk situations. There are several climatic and topographic conditions found in Hood River County that are conducive for large wildfires: hot and dry conditions during the fire season throughout the county; frequent high winds along the Columbia River Gorge which can contribute to fast moving fires that are difficult to control; and moderate to steep slopes in places which add to the rate of wildfire spread and suppression difficulty. Hood River County's fire season usually runs from mid-May through October. However, any prolonged period of lack of precipitation presents a potentially dangerous problem. The probability of a forest fire in any one locality on a particular day depends on fuel conditions, topography, the time of year, the past and present weather conditions, and the activities (debris burning, land clearing, camping, etc.) that are or will be taking place.

Synthesis

Natural capital is essential in sustaining all forms of life, including human life, and plays an often under represented role in natural hazard community resiliency planning. With four distinct mild seasons, a diverse terrain and its proximity to the Columbia Gorge, Hood River County historically has had to deal with habitual drought, flooding, wildfires and the occasional landslide. By identifying potential hazards, temperature and precipitation patterns, along with natural capitals such as key river systems, Hood River County can focus on key areas to better prepare, mitigate, and increase the resiliency of local communities.

Socio Demographic Capacity

Population

According to the Census Bureau, the population of Hood River County in 2010 equaled 22,346 and averaged 42.8 persons per square mile. The population in the State of Oregon increased by 12% from 2000 to 2010, while the population of Hood River County experienced an increase of 9.5% during the same time period. The county is primarily rural and currently the twenty-fifth most populated in the State of Oregon. The population of the

county is slightly less than neighboring Wasco County, and significantly less than the populations of neighboring Clackamas and Multnomah Counties. Table C.2 describes the population change in Hood River County and nearby communities.

Table C.2: Regional Change in County Populations

| County | Population (2010) | Population (2000) | Population Change (2000 - 2010) | Percent Change (2000 - 2010) | Average Annual Growth Rate |
|------------|-------------------|-------------------|---------------------------------|------------------------------|----------------------------|
| Hood River | 22,346 | 20,411 | 1,935 | 9.5% | 0.9% |
| Clackamas | 375,992 | 338,391 | 37,601 | 11.1% | 1.1% |
| Gilliam | 1,871 | 1,915 | -44 | -2.3% | -0.2% |
| Multnomah | 735,334 | 660,486 | 74,848 | 11.3% | 1.1% |
| Sherman | 1,765 | 1,934 | -169 | -8.7% | -0.9% |
| Wasco | 25,213 | 23,791 | 1,422 | 6.0% | 0.6% |
| Oregon | 3,831,074 | 3,421,399 | 409,675 | 12.0% | 1.1% |

Source: U.S. Census Bureau, 2000 Census, 2010 Census

The largest populated area in Hood River County is the City of Hood River, where just under a third of county residents reside. Table C.3 describes the population change between 2000 and 2010 in the Cities of Hood River and Cascade Locks, along with the unincorporated areas of Hood River County, compared to the county as a whole. The City of Hood River, which is located along the Columbia River and Interstate 84 in the northern part of the county, grew at more than twice the rate of the whole county from 2000 to 2010, and had a comparable rise in population. The rest of the county's population is dispersed between Cascade Locks, unincorporated communities and isolated dwellings.

Table C.3: Change in Hood River County Population

| Jurisdiction | Population (2010) | Population (2000) | Population Change (2000 - 2010) | Percent Change (2000 - 2010) | Average Annual Growth Rate |
|-------------------|-------------------|-------------------|---------------------------------|------------------------------|----------------------------|
| Hood River | 7,167 | 5,831 | 1,336 | 22.9% | 2.1% |
| Cascade Locks | 1,144 | 1,115 | 29 | 2.6% | 0.3% |
| Unincorporated | 14,035 | 13,465 | 570 | 4.2% | 0.4% |
| Hood River County | 22,346 | 20,411 | 1,935 | 9.5% | 0.9% |

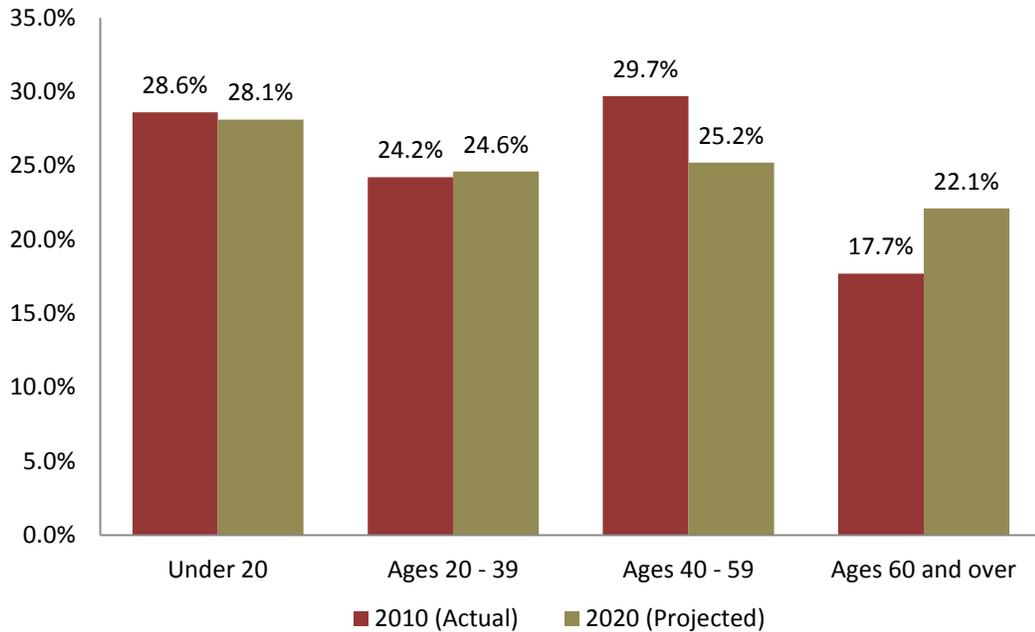
Source: U.S. Census Bureau, 2000 Census, 2010 Census

Population size itself is not an indicator of vulnerability. More important is the location, composition and capacity of the population within the community. Research by social-scientists demonstrates that human capital indices such as age, race, education, income, health and safety can greatly affect the integrity of a community, impacting its resilience to and ability to recover from, natural disasters.

Age

The age profile of an area has a direct impact both on what actions are prioritized for mitigation and how response to hazard incidents is carried out. Figure C.3 illustrates the current and projected percentage of population by age groups within the county. Currently, less than a fifth (17.7%) of the population in the county is over the age of 60, compared to 20.1% of the population for Oregon as a whole. The Office of Economic Analysis (OEA) projects that from 2010 to 2020 the percent of the county's population under the age of 20 will decrease only slightly, while those over the age of 60 are set to increase by nearly 5%.

Figure C.3: Hood River County Population by Age, 2010 and 2020



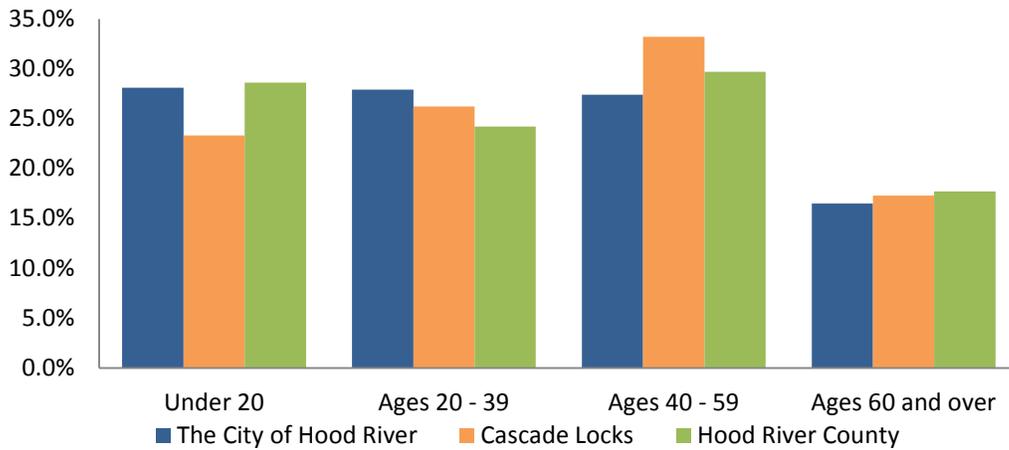
Source: 2010 (Actual), U.S. Census Bureau, 2010 Census
2020 (Projected), Office of Economic Analysis, Department of Administrative Services, State of Oregon, Released April 2004

Figure C.4 illustrates the percentage of population by various age groups in the Cities of Hood River and Cascade Locks compared with Hood River County as a whole. The City of Hood River has a lower percentage of residents under the age of 20 and over the age of 60 compared to the county overall, though the two proportions are very comparable. School age children rarely make decisions about emergency management. Therefore, a larger youth population in an area will increase the importance of outreach to schools and parents on effective ways to teach children about fire safety, earthquake response, and evacuation plans. Children are also more vulnerable to the heat and cold, have few transportation options and require assistance to access medical facilities.¹⁵ The largest proportion of Cascade Locks residents are between ages of 40 and 59, however the two incorporated cities and county overall all have relatively low populations of people aged 60 and over. Older populations may require assistance in an evacuation due to limited mobility or health

¹⁵ State of Oregon Natural Hazards Mitigation Plan, Region 4 Southwest Oregon Regional Profile.

issues. Additionally, older populations may require special medical equipment or medications and can lack the social and economic resources needed for post-disaster recovery.¹⁶

Figure C.4: Hood River County City Population Distribution by Age, 2010



Source: U.S. Census Bureau, 2010 Census

Other important considerations for high risk populations are the number of households where persons over the age of 65 live alone as well as single parent households with children under 18. Table C.4 describes the high risk populations in each jurisdiction within the county. Over 30% of the 8,173 households in the county have individuals living in them who are 65 or older, and close to half of those are 65 or older householders that live alone. Additionally, 8% of the households in the county are occupied by single parents with children under the age of 18. These groups are more heavily impacted because they may lack the necessary knowledge, skills, social support structures, or the mental and physical abilities necessary to take care of themselves. Historically, vulnerable populations present a special challenge to emergency managers and response agencies and they are more likely to be victims of a disaster.¹⁷

¹⁶ Wood, Nathan. Variations in City Exposure and Sensitivity to Tsunami Hazards in Oregon. U.S. Geological Survey, Reston, VA, 2007.

¹⁷ Source: Hood River County HIVA, July 2008

Table C.4: Hood River County High Risk Populations

| High Risk Households | Hood River County | Percent | Cascade Locks | Percent | The City of Hood River | Percent |
|-----------------------------------------------|-------------------|---------|---------------|---------|------------------------|---------|
| Total households | 8,173 | | 445 | | 2,972 | |
| Households with individuals under 18 | 2,934 | 29.3% | 135 | 30.3% | 1,004 | 33.8% |
| Single householder with own children under 18 | 653 | 8.0% | 47 | 10.6% | 286 | 9.6% |
| Households with individuals 65 years and over | 2,003 | 30.8% | 99 | 22.3% | 703 | 23.7% |
| Householder 65 years and over living alone | 806 | 12.5% | 33 | 7.4% | 409 | 13.8% |

Source: U.S. Census Bureau, 2010 Census, American FactFinder, DP-1

Race

The impact following a disaster in terms of losses and the ability of the community to recover may also vary among minority population groups. Studies have shown that racial and ethnic minorities can be more vulnerable to natural disaster events. Minorities are more likely to be isolated in communities, are less likely to have the savings to rebuild after a disaster, and less likely to have access to transportation and medical care. Additionally, minorities and the poor are more likely to rent than own homes, and in the event of a natural disaster, where homeowners would gain homeowner insurance, renters often do not have rental insurance.¹⁸ Table C.5 describes the population in Hood River County by race and ethnicity.

Table C.5: Hood River County Racial Composition

| Race | Count | Percent |
|--------------------------------------------|--------|---------|
| Total Population | 22,346 | |
| One Race | 21,640 | 96.8% |
| White | 18,568 | 83.1% |
| Black or African American | 101 | 0.5% |
| American Indian or Alaska Native | 181 | 0.8% |
| Asian | 314 | 1.4% |
| Native Hawaiian and other Pacific Islander | 37 | 0.2% |
| Other race | 2,439 | 10.9% |
| Two or more races | 706 | 3.2% |

Source: U.S. Census Bureau, 2010 Census, American FactFinder, DP-1

¹⁸ State of Oregon Natural Hazards Mitigation Plan, Region 5 Mid-Columbia Regional Profile.

Table C.6: Hood River County Hispanic Ethnicity

| Hispanic or Latino Origin | Count | Percent |
|----------------------------------|--------------|----------------|
| Total Population | 22,346 | |
| Hispanic or Latino (of any race) | 6,589 | 29.5% |
| Not Hispanic or Latino | 15,757 | 70.5% |

Source: U.S. Census Bureau, 2010 Census, American FactFinder, DP-1

The U.S. Census reports that nearly 14% of the Hood River County population identifies with a non-white race. Similarly, nearly 30% of the population is of Hispanic or Latino origin, primarily individuals who self identify as Mexican. Thus, it is important to identify specific ways to support all segments of the community through hazard preparedness and response. Culturally appropriate and effective outreach includes both methods and messaging targeted to this diverse audience. For example, connecting to historically disenfranchised populations through trusted sources or providing preparedness handouts and presentations in the languages spoken by the population can increase community resilience.

Education

Educational attainment of community residents is also an influencing factor in socio demographic capacity. Tables C.7 and C.8 describe educational attainment throughout the county and the state. Compared to the state, Hood River County has both a lower percentage of high school graduates and college graduates with a Bachelor’s degree or higher.

Table C.7: Hood River County Educational Attainment

| Educational Attainment | County | Percent |
|--------------------------------|---------------|----------------|
| Population 25 and over | 14,418 | |
| High school graduate or higher | 12,067 | 83.7% |
| Bachelor's degree or higher | 3,734 | 25.9% |

Source: U.S. Census Bureau, 2010 Census, American FactFinder, S1501

Table C.8: Oregon Educational Attainment

| Educational Attainment | County | Percent |
|--------------------------------|---------------|----------------|
| Population 25 and over | 2,614,886 | |
| High school graduate or higher | 2,320,749 | 88.8% |
| Bachelor's degree or higher | 751,803 | 28.8% |

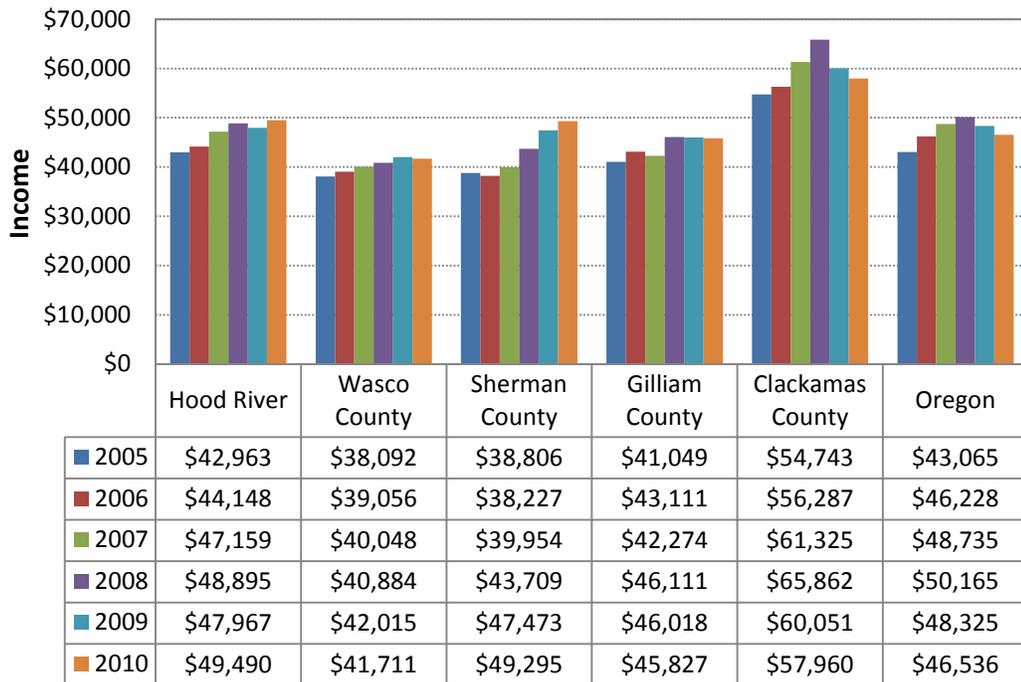
Source: U.S. Census Bureau, 2010 Census, American FactFinder, S1501

Educational attainment often reflects higher income and therefore higher self reliance. Widespread educational attainment is also beneficial for the regional economy and employment sectors as there are potential employees for professional, service and manual labor workforces. An oversaturation of either highly educated residents or low educational attainment can both have negative effects on the resiliency of the community.

Income

Household income and poverty status levels are indicators of socio demographic capacity and the stability of the local economy. Household income can be used to compare economic areas as a whole, but does not reflect how the income is divided among the residents in the area.¹⁹ Figure C.5 illustrates changes in the median household income from 2005 to 2010 in Hood River and surrounding Counties. In 2010 the median household income across Hood River County equaled \$49,490, roughly \$3,000 higher than Oregon as a whole. Likewise, the county's 15.2% growth in median household income between 2005 and 2010 is nearly double the 8.1% growth indicated by the state as a whole over the same period of time.

Figure C.5: Median Household Income, 2005-2010



Source: U.S. Census Bureau, Small Area Estimates Branch, 2005-2010

Income is a resiliency indicator as higher incomes are often associated with increased self reliance and ability to prepare oneself if an emergency does occur. Table C.9 identifies both the number and the percentage of individuals living below the poverty level. In 2010, the national poverty guideline for a family of four equaled income levels at or below \$22,050.²⁰ The Census Bureau estimates that 13% of the total population and 21.2% of children live below the poverty level across the county. Poverty levels of all ages and that of children living below the poverty level have both decreased by over 2% since 2005. Poverty limits the ability of households to engage in household level mitigation activities. In addition, the higher the poverty rate, the more assistance the community will likely need in the event of a

¹⁹ State of Oregon Natural Hazards Mitigation Plan, Region 4 Southwest Oregon Regional Profile.

²⁰ U.S. Department of Health and Human Services. *Federal Register*, Vol. 75, No. 148, August 3, 2010, pp. 45628–45629

disaster in the form of sheltering, medical assistance and transportation. Notably, the poverty estimates as a percentage were consistently higher in Hood River County compared to state and national averages in 2005; however they are now below both the state and national averages.

Table C.9: Individuals Living Below Poverty Level

| | 2005 Poverty All Ages (Estimate) | 2010 Poverty All Ages (Estimate) | 2005 Poverty Under 18 (Estimate) | 2010 Poverty Under 18 (Estimate) |
|-------------------|-------------------------------------------------|-------------------------------------------------|-------------------------------------------------|-------------------------------------------------|
| Hood River County | 3,105 | 2,888 | 1,220 | 1,196 |

| | 2005 Percent Poverty All Ages | 2010 Percent Poverty All Ages | 2005 Percent Poverty Under 18 | 2010 Percent Poverty Under 18 |
|-------------------|----------------------------------------------|----------------------------------------------|----------------------------------------------|----------------------------------------------|
| Hood River County | 15.3% | 13.0% | 23.4% | 21.2% |
| Oregon | 14.1% | 15.8% | 18.8% | 21.7% |
| United States | 13.3% | 15.3% | 18.5% | 21.6% |

Source: U.S. Census Bureau, Small Area Estimates Branch, 2005 Estimates, 2010 Estimates

Additionally, the number of school children eligible to receive free or reduced lunch has fluctuated but increased considerably from 2005 to 2010, though the numbers of eligible children have been much more stable from 2006 to 2010. As shown in Table C.10 below, nearly half or more of the students in the county qualified for the lunch program over the past five years.

Table C.10: Hood River County Free or Reduced Price School Lunch Eligibility

| | 2005 | 2006 | 2007 | 2008 | 2009 | 2010 |
|-----------------------------------------------------------------------------------|-------------|-------------|-------------|-------------|-------------|-------------|
| Percent of children eligible to receive free/reduced lunch during the school year | 36.0% | 54.0% | 49.0% | 54.9% | 54.7% | 54.7% |

Source: Children First for Oregon, Status of Oregon's Children, 2005-2010

The county has also seen an increase since 2008 in the number of individuals enrolling in assistance programs. As of August 2011, 16.2% of Hood River County residents were receiving Food Stamps. This figure represents a 49% increase from January 2008 levels. Furthermore, the number of people receiving cash assistance as a part of Temporary Assistance to Needy Families (TANF) has dropped to 0.8% of county residents, down 18% from January 2008 levels.²¹ The TANF program provides cash assistance to low-income families with children while they strive to become self-sufficient with the goal of reducing the number of families living in poverty, through employment and community resources.²² The current maximum monthly benefit for a family of three is \$506.

²¹ Oregon State University, Rural Studies Program, Oregon Agriculture and County Information System, 2008-2011 - <http://osu.prognoz.com/CurrentRatesTable.aspx>

²² Oregon Department of Human Services. Food, Cash, Housing. Temporary Assistance for Needy Families. <http://www.oregon.gov/DHS/assistance/cash/tanf.shtml>

Health and Safety

Individual and community health play an integral role in community resiliency. It is recognized that those who lack health insurance have higher vulnerability to hazards and will likely require additional community support and resources. Table C.11 identifies health insurance coverage across Hood River County. The Census Bureau estimates in 2009 that the number of uninsured residents in Hood River County under the age of 65 equaled 4,484, roughly 21.8%. It is important to note that the uninsured rate for persons under the age of 65 has been consistently higher in the county compared to the state over the past five years. Overall, the percent of uninsured residents in Hood River County has gradually decreased by about four and three percent respectively, for people under age 65 and those under age 19, since 2005.

Table C.11: Hood River County Health Insurance Coverage

| | | Percent Uninsured - Under Age 65 | Margin of Error | Percent Uninsured - Under Age 19 |
|------|-------------------|----------------------------------------|--------------------|----------------------------------------|
| 2005 | Hood River County | 27.8% | +/-4.1% | n/a |
| | Oregon | 18.7% | +/-0.9% | n/a |
| 2006 | Hood River County | 26.8% | +/-3.6% | 19.5% |
| | Oregon | 19.1% | +/-0.9% | 12.9% |
| 2007 | Hood River County | 28.3% | +/-3.2% | 23.0% |
| | Oregon | 18.8% | +/-0.9% | 12.8% |
| 2008 | Hood River County | 24.8% | +/-2.0% | 20.6% |
| | Oregon | 18.0% | +/-0.4% | 12.3% |
| 2009 | Hood River County | 23.9% | +/-1.8% | 16.6% |
| | Oregon | 19.4% | +/-0.4% | 11.0% |

Source: U.S. Census Bureau, Small Area Health Insurance Estimates, 2005-2009

The availability of law enforcement officials and professional medical care providers can serve to strengthen the resilience of a community and lessen the immediate impacts during and immediately following a major disaster. According to the Federal Bureau of Investigation, the rate of sworn police officers per 1,000 people in Hood River County is a little less than half of the state rate. Adversely, the American Medical Association identifies that there are nearly four physicians in patient care per 1,000 people, over two thirds more than the state as a whole.

Table C.12: Hood River County Physicians and Sworn Police Officers

| | | Hood River County | Oregon |
|------|---------------------------------|-------------------|--------|
| 2010 | Number of Sworn Police Officers | 27 | 6,035 |
| | Rate per 1,000 population | 1.21 | 1.6 |
| 2009 | Number of Physicians | 82 | 9,609 |
| | Rate per 1,000 population | 3.7 | 2.5 |

Source: Federal Bureau of Investigation, Uniform Crime Reports, Updated: November 17, 2010.
American Medical Association, Physician Characteristics and Distribution in the US, Update: February 24, 2011.

Synthesis

Socio demographic capacity is a significant indicator of community hazard resiliency. The characteristics and qualities of the community population such as age, race, education, income, health and safety are significant factors that can influence the community's ability to cope, adapt to and recover from natural disasters. The current status of socio demographic capacity indicators can have long term impacts on the economy and general stability of a community, ultimately affecting an area's overall level of resilience.

Regional Economic Capacity

Economic resilience to natural disasters is far more complex than merely restoring employment or income to the local community. Building a resilient economy requires an understanding of how the component parts of employment sectors, workforce, resources and infrastructure are interconnected in any existing economic picture. Once inherent strengths or systematic vulnerabilities become apparent, both the public and private sectors can take action to increase the resilience of the local economy.

Regional Affordability

The evaluation of regional affordability supplements the identification of socio-demographic capacity indicators, i.e. median income, and is a critical analysis tool to understanding the economic status of a community. This information can capture the likelihood of individuals' ability to prepare for hazards, through retrofitting homes or purchasing insurance. Regional affordability is a mechanism for generalizing the abilities of community residents to get back on their feet without Federal, State or local assistance.

MEDIAN INCOME

Median income can be used as an indicator of the strength of a region's economic stability. Table C.13 shows that between 1999 and 2009 the median household income in Hood River County has risen at a faster rate than both the state and nation as a whole, though the county's median income still hovers below state and national averages.

Table C.13: Median Household Income, 1999 and 2009

| | 1999 | 2009 | Change | Average Annual Growth Rate |
|-------------------|----------|----------|---------|----------------------------|
| Hood River County | \$38,326 | \$47,967 | \$9,641 | 2.3% |
| Oregon | \$40,916 | \$48,325 | \$7,409 | 1.7% |
| United States | \$41,994 | \$50,221 | \$8,227 | 1.8% |

Source: U.S. Census Bureau: Household Income 1999 – Census 2000 Brief; State and County Quick Fact – 2010 Census; American FactFinder – 2000 Census

Economic Diversity

Economic diversity is a general indicator of an area's fitness for weathering difficult financial times. One method for measuring economic diversity is through use of the Hachman Index, a formula that compares the composition of county and regional economies with those of states or the nation as a whole. Using the Hachman Index, a diversity ranking of 1 indicates the Oregon county with the most diverse economic activity compared to the state as a whole, while a ranking of 36 corresponds with the least diverse county economy. Hood River

County and neighboring Wasco County sit just east of the two most highly ranked counties in the state in terms of economic diversity, as well as two of the lowest ranked counties, with Sherman County ranked lowest in the state overall. The Hood River County economic diversity ranking is 22²³, in the middle tier of Oregon’s 36 counties.

Table C.14: County Hachman Index Scores and Ranks

| County | 2009 Hachman Index Score | 2009 State Rank | 1999 State Rank |
|-------------------|--------------------------|-----------------|-----------------|
| Hood River | 0.306 | 22 | 24 |
| Clackamas | 0.855 | 1 | 4 |
| Gilliam | 0.066 | 35 | 35 |
| Multnomah | 0.838 | 2 | 2 |
| Sherman | 0.064 | 36 | 36 |
| Wasco | 0.357 | 17 | 19 |

Source: Oregon Employment Department

While illustrative, economic diversity is not a guarantor of economic vitality or resilience. For example as of 2010, though Multnomah and Clackamas Counties are ranked number 1 and 2 for economic diversity in the state, they are both listed as “economically distressed” by the Oregon Business Development Commission. Meanwhile Hood River County, ranked 22 in terms of economic diversity, is not.²⁴ The economic distress measure is based on indicators of decreasing new jobs, average wages and income, and is associated with an increase of unemployment.

Employment and Wages

Data provided by the US Census in the 2010 American Community Survey indicate that Hood River County’s labor force (defined as the population of 16 and older which are in the labor force) increased from 11,718 to 14,519 between 2001 and 2010, a 23.9% increase.²⁵

Though there was a rise in unemployment in Hood River County from 2009 to 2010, reflecting national trends, unemployment has dropped as low as 7.2% during 2011 according to the Oregon Employment Department.²⁶ Many surrounding Counties in the region have remained below the state average over the past three years, and Hood River has remained below the national average during that time period as well. As of October 2011, total non-farm employment for the county was 10,270 individuals,²⁷ and total employment in the county was 14,560.²⁸

²³ Oregon Employment Department – 2009 Hachman Index Scores by County

²⁴ Business Oregon – Oregon Economic Data “Distressed Communities List”

²⁵ Oregon Employment Department - “Local Area Employment Statistics”, <http://www.qualityinfo.org/olmisj/labforce>

²⁶ Ibid.

²⁷ Oregon Employment Department – “Current Employment Statistics”, <http://www.qualityinfo.org/olmisj/CES>

²⁸ Oregon Employment Department - “Local Area Employment Statistics” <http://www.qualityinfo.org/olmisj/labforce>

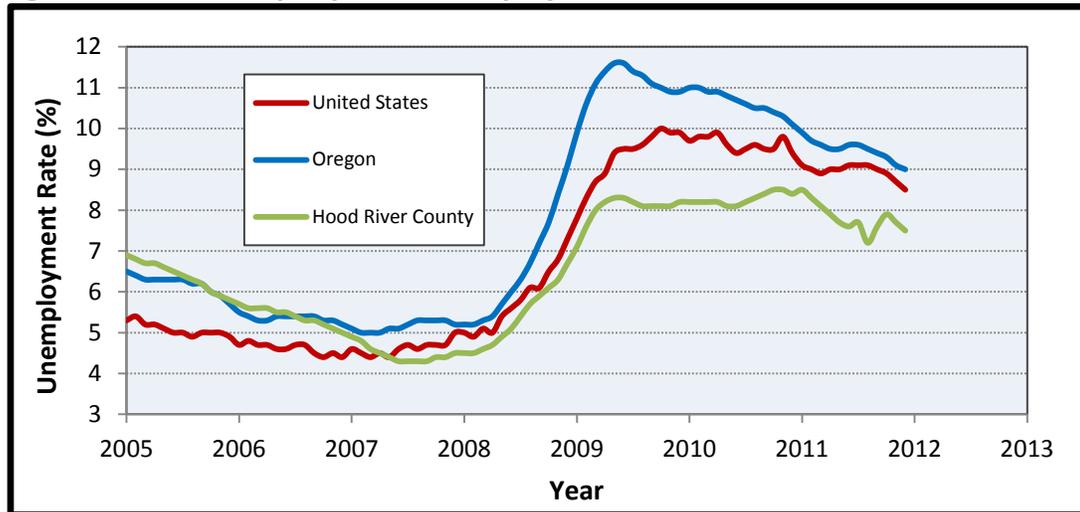
Table C.15: Regional Unemployment

| County | 2005 Unemployment Rate | 2011 Unemployment Rate | Percent Change from 2005 |
|-------------------|------------------------|------------------------|--------------------------|
| Hood River | 6.4 | 7.7 | 20.3% |
| Clackamas | 5.5 | 8.7 | 58.2% |
| Gilliam | 5.7 | 6.5 | 14.0% |
| Multnomah | 6.1 | 8.7 | 42.6% |
| Sherman | 6.9 | 9 | 30.4% |
| Wasco | 7.1 | 8.4 | 18.3% |
| Oregon | 6.2 | 9.5 | 53.2% |

Source: Oregon Employment Department, "Local Area Employment Statistics".
<http://www.qualityinfo.org/olmisj/labforce>.

Employment data from the Oregon Employment Department demonstrate a cyclical employment pattern in the Hood River and Wasco County region, with a seasonal peak in the fall (September/October) for Hood River County and a seasonal peak in the Summer (July) in Wasco County.²⁹ These peaks typically respond to the slowing of the primary tourist season along the Columbia River, as well as most agricultural operations, with the approach of fall and winter in the region.

Figure C.6: Seasonally Adjusted Unemployment Rates, 2005-2011



Source: Oregon Employment Department, "Local Area Employment Statistics".
<http://www.qualityinfo.org/olmisj/labforce>.

As opposed to measurements of the labor force and total employment, Covered Employment provides a quarterly count of all employees covered by Unemployment Insurance. Table C.16 displays the County Covered Employment and payroll figures for Hood River and other nearby counties in 2010.

²⁹ Oregon Employment Department, "Local Area Employment Statistics",
<http://www.qualityinfo.org/olmisj/labforce>

Table C.16: 2010 County Covered Employment and Payroll

| County | Employees | Annual Payroll | Average Pay |
|-------------------|---------------|----------------------|-----------------|
| Hood River | 12,435 | \$353,319,141 | \$28,413 |
| Wasco | 10,674 | \$334,221,890 | \$31,312 |
| Sherman | 723 | \$26,039,961 | \$36,017 |
| Gilliam | 896 | \$35,673,719 | \$39,814 |
| Clackamas | 136,805 | \$5,766,675,559 | \$42,153 |
| Multnomah | 421,452 | \$19,898,507,268 | \$47,214 |
| Oregon | 1,598,642 | \$66,613,214,679 | \$41,669 |

Source: Oregon Employment Department, County Covered Employment and Wages.

In 2009, there were 934 employment establishments operating in Hood River County, and 92.4% of those establishments had fewer than 20 employees.³⁰ The prevalence of small businesses in the county is a partial indication of sensitivity to natural hazards, because small businesses are typically more susceptible to financial uncertainty. If a business is financially unstable before a natural disaster occurs, financial losses (resulting from both damage caused and the recovery process) may have a bigger impact than they would for larger and more financially stable businesses.³¹

Industry

MAJOR REGIONAL INDUSTRY

Key industries are those that represent major employers and are significant revenue generators. Different industries face distinct vulnerabilities to natural hazards, as illustrated by the industry specific discussions below. Identifying key industries in the region enables communities to target mitigation activities towards those industries' specific sensitivities. It is important to recognize that the impact that a natural hazard event has on one industry can reverberate throughout the regional economy.³²

This is of specific concern when the businesses belong to the basic sector industry. Basic sector industries are those that are dependent on sales outside of the local community. The farm and ranch, information, and wholesale trade industries are all examples of basic industries. Non-basic sector industries are those that are dependent on local sales for their business, such as retail trade, construction, and health and social assistance.³³

EMPLOYMENT BY INDUSTRY

Economic resilience to natural disasters is particularly important for the major employment industries in the region. If these industries are negatively impacted by a natural hazard, such that employment is affected, the impact will be felt throughout the regional economy.³⁴

³⁰ U.S. Census Bureau - 2009 County Business Patterns, <http://censtats.census.gov/cgi-bin/cbpnaic/cbpsect.pl>

³¹ State of Oregon Natural Hazards Mitigation Plan, Region 4 Southwest Oregon Regional Profile

³² Ibid.

³³ Ibid.

³⁴ Ibid.

Thus, understanding and addressing the sensitivities of these industries is a strategic way to increase the resiliency of the entire regional economy.

The economy of Hood River County has historically been based on agriculture, forestry, and recreation. Orchard crops constitute the major share of the agricultural sector (covering 15,000 acres), and form a keystone of the county's economy.

Local agriculture and forestry industries are quite stable, and do not expect great future expansion. They are characterized by seasonal employment fluctuations which historically have caused the county to have a high unemployment rate. However, some orchards have turned their real estate into housing subdivisions, and others have sought alternative markets. The scenic and recreational attributes of the Gorge also attract many tourists and recreationalists to the area, especially during spring and summer months.³⁵

Table C.17 identifies Covered employment in Hood River County by industry. The four industries with the most employees, as of 2010, are natural resources and mining (19.3%), leisure and hospitality (14.9%), health and social assistance (14.4%) and government (10.8%). While Hood River County has considerable employment in some non-basic industries, such as health and social assistance as well as government, the county's largest industry (natural resources and mining) is of the basic nature and thus dependent to a large degree on sales outside of the local community. Basic industries encourage growth in non-basic industries and bring wealth into communities from outside markets. However, a high dependence on basic industries can lead to severe difficulties when recovering from a natural disaster if vital infrastructure or primary resource concentrations have been greatly damaged.

³⁵ Hood River County Comprehensive Land Use Plan

Table C.17: 2010 Total Covered Employment by Industry

| Industry | Number Employed | Percent of Employment |
|-----------------------------------------|------------------------|------------------------------|
| Natural Resources and Mining | 2,405 | 19.3% |
| Leisure and Hospitality | 1,850 | 14.9% |
| Health & Social Assistance | 1,792 | 14.4% |
| Government | 1,339 | 10.8% |
| Retail | 1,235 | 9.9% |
| Manufacturing | 1,220 | 9.8% |
| Professional and Business Services | 853 | 6.9% |
| Wholesale | 526 | 4.2% |
| Construction | 326 | 2.6% |
| Other Services | 287 | 2.3% |
| Financial Activities | 223 | 1.8% |
| Transportation, Warehousing & Utilities | 151 | 1.2% |
| Information | 138 | 1.1% |
| Education | 87 | 0.7% |
| Private Non-Classified | 3 | 0.1% |
| Total | 12,435 | |

Source: Oregon Employment Department, Hood River County Covered Employment and Wages.

The Oregon Employment Department estimates net employment growth between 2001 and 2010. In that time period, two of the county's four largest industries (not including agriculture), leisure and hospitality, as well as education and health services, experienced considerable employment growth (22.7% and 75.9% respectively). Only three industries experienced net losses during the time period: government (-4.7%), retail (-1.6%) and mining, logging and construction (-5.4%).³⁶ This equated to the loss of 110 jobs, including 20 from mining, logging and construction, 20 more from retail, and 70 from government. Employment losses in the government sector came mostly from state level positions, though some federal positions were also lost. Notably, government jobs still made up 13.7% of the county's nonfarm employment, primarily at the local level.

³⁶ Oregon Employment Department, Hood River County Covered Employment and Wages. 2011

Table C.18: Total Nonfarm Employment by Industry, 2001 & 2010

| Industry | 2001 | 2010 | Change 2001-2010 | | |
|------------------------------------------------|--------------|---------------|------------------|--------------|----------------------------|
| | | | Number | Percent | Average Annual Growth Rate |
| Mining, logging and construction | 370 | 350 | -20 | -5.4% | -0.6% |
| Manufacturing | 1,010 | 1,230 | 220 | 21.8% | 2.2% |
| Wholesale | 430 | 560 | 130 | 30.2% | 3.0% |
| Retail | 1,270 | 1,250 | -20 | -1.6% | -0.2% |
| Transportation, Warehousing, and Utilities | 170 | 200 | 30 | 17.7% | 1.8% |
| Information | 90 | 140 | 50 | 55.6% | 5.0% |
| Financial activities | 230 | 310 | 80 | 34.8% | 3.4% |
| Professional and business services | 750 | 840 | 90 | 12.0% | 1.3% |
| Education and health services | 1,080 | 1,900 | 820 | 75.9% | 6.5% |
| Leisure and hospitality | 1,590 | 1,870 | 280 | 17.6% | 1.8% |
| Other Services | 220 | 270 | 50 | 22.7% | 2.3% |
| Government | 1,480 | 1,410 | -70 | -4.7% | -0.5% |
| Total Annual Average Nonfarm Employment | 8,680 | 10,310 | 1,630 | 18.8% | 1.9% |

Source: Oregon Labor Market Information System - Current Employment Statistics

As shown in Table C.18, all sectors that experienced positive growth increased overall employment by at least 12% between 2001 and 2010, with professional and business services experiencing the slowest annual average growth rate at 1.3%. Health and social assistance grew substantially both in sheer number of people employed (increased by 820) and the percent that the sector represents of total employment (12.4% in 2001 to 18.4% in 2010). A significant number of additional jobs became available in the leisure and hospitality, and manufacturing sectors, which together created an additional 500 jobs in the county.

Overall, there was an 18.8% increase in Hood River County non-farm employment between 2001 and 2010, equating to an overall increase of 1,630 jobs during the nine year period.

HIGH REVENUE SECTORS

The three nonfarm sectors with the highest revenue in 2007 were retail (35.7%), manufacturing (30%), and health care and social assistance (13.1%). Table C.19 shows the revenue generated by each economic sector. All of the sectors combined generated more than \$823 million in revenue for the county in 2007, the most recent year for which data is available.

Table C.19: Revenue of Nonfarm Sectors in Hood River County

| Sectors | Sector Revenue (\$1,000) | Percent of Total Revenue |
|--------------------------------------------------------------------------|--------------------------|--------------------------|
| Retail | 293,665 | 28.0% |
| Manufacturing | 245,734 | 23.5% |
| Wholesale | 224,366 | 21.4% |
| Health care and social assistance | 107,566 | 10.3% |
| Accommodation and food services | 55,651 | 5.3% |
| Professional, scientific, and technical services | 54,256 | 5.2% |
| Arts, entertainment, and recreation | 25,808 | 2.5% |
| Other services (except public administration) | 20,669 | 2.0% |
| Real estate and rental and leasing | 9,282 | 0.9% |
| Administrative and Support and Waste Management and Remediation Services | 8,553 | 0.8% |
| Educational services | 2,087 | 0.2% |
| Total Revenue (\$1,000) | 1,047,637 | |

Source: U.S. Census Bureau, 2007 Economic Census. Economy-Wide Key Statistics, EC0700A1.

The retail trade sector of Hood River County brought in the most revenue during 2007, generating more than \$293 million.³⁷ The sector is highly dependent on tourism and importing of goods for sale in commercial establishments, tying it directly to the conditions of the county's transportation infrastructure, particularly Interstate 84. Depending on the severity of a natural disaster and the pace of recovery, revenue generated from this sector could be greatly impacted during a natural hazard event.

Manufacturing generated over \$245 million in revenue for Hood River County in 2007. The sector is slightly volatile and dependent on demand for goods nationally and internationally, but recent military contracting with INSITU and other companies has leant some stability to the industry. In the event that a disaster occurs, this sector may be negatively impacted by damage to the county's infrastructure, which could inhibit transportation of goods or affect the basic working conditions required for normal production levels.

In 2007, the *health care and social assistance* sector generated \$107 million, making it the third largest earning sector in Hood River County. The sector is a relatively stable revenue generator, and relies largely on the local presence of older residents and elderly facilities. It is likely that the populations that require such services on a daily basis will continue requiring assistance, such as those living in residential care facilities. However, in the event of a disaster medical needs may increase due to physical or stress induced injuries and trauma. The physical infrastructure of this sector will be essential for maintaining the capacity of service that it currently provides.

Accommodation and food services generated over \$55 million in revenue during 2007. A large portion of the sector's revenue is generated through leisure and hospitality, serving regional residents with disposable income and tourists, and could be adversely affected by a

³⁷ U.S. Census Bureau, 2007 Economic Census. Table 1 Selected Statistics by Economic Sector.

disaster. The behavior of both demographics would be disrupted if tourists deter from visiting the impacted area, or local residents concentrate spending on essential items rather than luxury expenditures (e.g. dining out).

The majority of Hood River County's revenue generating sectors are highly dependent upon transportation networks in order to receive shipped goods (e.g. food supplies and products), export goods to outside markets, and maintain accessibility to traveling motorists. Therefore disruption of the transportation system could have severe consequences for all of the before mentioned sectors.

In the event that any of the county's primary sectors are impacted by a disaster, particularly the manufacturing and retail sectors, Hood River County may experience a significant disruption of economic productivity and should therefore plan accordingly.

REGIONAL INDUSTRY EMPLOYMENT FORECAST

Sectors that are anticipated to be major employers in the future also warrant special attention in the hazard mitigation planning process. Between 2010 and 2020, the largest employment growth in the region is anticipated in educational and healthcare services, which are expected to grow by 26% and add 1,000 new positions. The trade, transportation and utilities sector is expected to grow by 16% and add 670 new positions during the same time period, while leisure and hospitality are projected to create 630 new positions and grow by 20%. Professional and business services have the highest projected growth rate at 33%, and the sector is expected to create around 500 new jobs by 2020.³⁸ Considering these projected industries are relatively reflective of the highest revenue generating industries in Hood River County as of 2007, and all play a vital role in the resilience of the regional economy, the sensitivities of these industries should be incorporated into future hazard mitigation planning.

Labor and Commute Shed

Most hazards can happen at any time during the day or night. It may be possible to give advance warning to residents and first responders who can take immediate preparedness and protection measures, but the variability of hazards is one part of why they can have such varied impact. A snow storm during the work day will have different impacts than one that comes during the night. During the day, a hazard has the potential to segregate the population by age or type of employment (e.g., school children at school or office workers in downtown areas). This may complicate some aspects of initial response such as transportation or the identification of wounded or missing. Conversely, a hazard at midnight may occur when most people are asleep and unable to receive an advance warning through typical communication channels. The following labor shed and commute shed analysis is intended to document where county residents work and where people who work in Hood River County reside.

As shown in Table C.20, overall the workforce is highly mobile between Hood River, Wasco, Clackamas and Multnomah Counties. While the majority of Hood River County residents are

³⁸ Oregon Employment Department, Regional Employment Projections by Industry and Occupation - <http://www.qualityinfo.org/olmisj/PubReader?itemid=00003217>

employed within the county (65.3%), there are also a significant number of workers who commute to locations outside the county to work. Over 12% of workers who live in Hood River County travel eastward to Clackamas, Multnomah and Washington Counties for their job. Similarly, nearly 6% of workers who reside in Hood River County travel eastward to Wasco County for their job, primarily to The Dalles. Interestingly, a significant number (8.1%) of county residents are employed further afield in locations including Salem, Eugene, and in communities along the Oregon coast. It is possible that these workers do not physically commute every day or on a regular basis and instead telecommute or otherwise have remote locations.

Table C.20: Commute Shed (Where workers are employed who live in Hood River County), 2009

| Location | Number | Percent |
|----------------------|---------------|----------------|
| Hood River County | 6,319 | 65.3% |
| Hood River | 2,831 | 29.3% |
| Odell CDP | 482 | 5.0% |
| Cascade Locks | 32 | 0.3% |
| Multnomah County | 701 | 7.2% |
| Portland | 441 | 4.6% |
| Wasco County | 569 | 5.9% |
| The Dalles | 502 | 5.2% |
| Clackamas County | 287 | 3.0% |
| Skamania County, WA | 263 | 2.7% |
| Washington County | 200 | 2.1% |
| Marion County | 169 | 1.7% |
| Klickitat County, WA | 144 | 1.5% |
| Umatilla County | 127 | 1.3% |
| Deschutes County | 104 | 1.1% |
| All Other Locations | 787 | 8.1% |
| Total | 9,670 | |

Source: U.S. Census Bureau, OnTheMap, All Jobs Area Profile Analysis, 2009

Table C.21 below tells the statistical story about where workers live who are employed in Hood River County. The majority of workers employed in the county are also residents (59.8%). The location outside of Hood River County where the highest numbers of workers come from is neighboring Wasco County. However a substantial number of workers live west of Hood River in Multnomah, Clackamas and Washington Counties (8.8%), while many others live across the river in Klickitat and Skamania Counties (8.6%).

Table C.21: Labor Shed (Where workers live who are employed in Hood River County), 2010

| Location | Number | Percent |
|----------------------|---------------|----------------|
| Hood River County | 6,319 | 59.8% |
| Hood River | 2,156 | 20.4% |
| Odell CDP | 618 | 5.8% |
| Cascade Locks | 260 | 2.5% |
| Wasco County | 980 | 9.3% |
| The Dalles | 642 | 6.1% |
| Klickitat County, WA | 690 | 6.5% |
| Multnomah County | 469 | 4.4% |
| Portland | 373 | 3.5% |
| Clackamas County | 246 | 2.3% |
| Skamania County, WA | 226 | 2.1% |
| Washington County | 217 | 2.1% |
| Umatilla County | 135 | 1.3% |
| Marion County | 118 | 1.1% |
| Cowlitz County | 111 | 1.0% |
| Clark County | 101 | 1.0% |
| All Other Locations | 960 | 9.1% |
| Total | 10,572 | |

Source: U.S. Census Bureau, OnTheMap, All Jobs Area Profile Analysis, 2009

In summary, the Labor Shed analysis and Commute Shed analysis reveal that there is a great deal of commuting and worker exchange between communities in the region. While 35% of Hood River County workers maintain employment outside of the county, nearly 40% of Hood River County workers live elsewhere, both east and west of Hood River, as well as to the north across the Columbia River in various Washington Counties.

Synthesis

Regional economic capacity refers to the present financial resources and revenue generated in the community to achieve a higher quality of life. Forms of economic capital include income equality, housing affordability, economic diversification, employment, and industry. The current and anticipated financial conditions of a community are strong determinants of community resilience, as a strong and diverse economic base increases the ability of individuals, families and the community to absorb disaster impacts for a quick recovery.

Considering its comparatively low unemployment rate, and the moderate diversity of its economy (though heavily dependent on basic industries for revenue generation), Hood River County may experience a less difficult time in recovering from a natural disaster than one with a less diverse economic base, or one already suffering from unemployment at levels around or higher than the state and national averages.³⁹ However it is important to consider what might happen to the county economy if the largest revenue generators and

³⁹ State of Oregon Natural Hazards Mitigation Plan, Region 4 Southwest Oregon Regional Profile.

employers (the natural resources, leisure and hospitality, and health care and social assistance industries), were heavily impacted by a disaster. To an extent, and to the benefit of Hood River County, these particular industries are a mix of basic and non-basic industries, dependent on both external markets and local residents.

It is imperative however that Hood River County continue to recognize that economic diversification is a long-term issue. More immediate strategies and actions to reduce vulnerability from an economic perspective should focus on risk management for the county’s dominant industries (e.g. business continuity planning) as well as the county’s dependence on main transportation arteries.

Built Capacity

Housing Building Stock

Housing characteristics are an important factor in hazard mitigation planning, as some housing types tend to be less disaster resistant than others, and therefore warrant special attention. Table C.22 identifies the type of housing most common throughout Hood River County. Of particular interest are mobile homes and other non-permanent housing structures, which account for 9.7% of the housing in Hood River County. Mobile structures are particularly vulnerable to certain natural hazards, such as windstorms, and special attention should be given to securing the structures as they are typically more prone to damage than wood-frame construction.⁴⁰

It is also important to consider multi-unit structures, as they are more vulnerable to the impacts from natural disasters due to the increased number of people living in close proximity. In short, a structural weakness in a multiunit structure will have an amplified impact on the population. According to the data presented in Table C.22, roughly 14% of housing in Hood River County is made up of multi-family dwellings.

Table C.22: Hood River County Housing Type Summary, 2009

| Housing Type | Number | Percent |
|---------------------|--------------|---------|
| 1 unit | 6,946 | 76.3% |
| 2 to 10 units | 725 | 8.0% |
| 10 to 19 units | 162 | 1.8% |
| 20 or more units | 388 | 4.3% |
| Mobile home | 887 | 9.7% |
| Boat, RV, van, etc. | 0 | - |
| Total | 9,108 | |

U.S. Census Bureau, American Community Survey, 5 year Estimates, 2006-2010; B25024

Table C.22 also indicates that the overwhelming majority of Hood River County’s housing stock is single-family homes. This trend is continuing with new construction, as approximately 89% of residential permits issued in 2010 were for single-family units.⁴¹ This

⁴⁰ State of Oregon Natural Hazards Mitigation Plan, Region 4 Southwest Oregon Regional Profile.

⁴¹ U.S. Census Bureau, Annual Building Permits, <http://censtats.census.gov/bldg/bldgprmt.shtml>

suggests that hazard mitigation and outreach should specifically address preparedness for detached housing structures.

Table C.23 below shows that residential construction activity has experienced a general pattern of decline over the past decade. Between 2001 and 2004 the issuance of permits increased by 34.2%; however the number of permits steadily decreased between 2004 and 2010. Residential activity is a key indicator in community stability, and can demonstrate positive community growth. However, in recent years with the downfall of the residential market, this is less of an accurate indicator since activity all across the nation has been impacted.

Table C.23: Annual Privately-Owned Residential Building Permits

| Unite Type | 2010 | | 2007 | | 2004 | | 2001 | |
|----------------------------------|---------------|-----------|--------------|------------|--------------|------------|------------|------------|
| | Buildings | Units | Buildings | Units | Buildings | Units | Buildings | Units |
| Single Family | 48 | 48 | 151 | 151 | 155 | 155 | 109 | 109 |
| Two Family | 0 | 0 | 0 | 0 | 2 | 4 | 7 | 14 |
| Three and Four Family | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 3 |
| Five or More Family | 6 | 40 | 0 | 0 | 0 | 0 | 0 | 0 |
| Total | 54 | 88 | 151 | 151 | 157 | 159 | 117 | 126 |
| Percent Change of Permits | -64.2% | | -3.8% | | 34.2% | | -- | |

U.S. Census Bureau, Reported Annual Building Permits. <http://censtats.census.gov/bldg/bldgprmt.shtml>

Age of housing is another characteristic that influences a structure’s vulnerability to hazards. Generally the older a home is, the greater the risk of damage from natural disasters. This is because stricter building codes have only been implemented in recent decades, following improved scientific understanding of plate tectonics and earthquake risk. In Oregon, many structures built after the late 1960’s began utilizing earthquake resistant designs and construction. Similarly, communities in the northwest began implementing flood elevation ordinances in the 1970’s.⁴² In 1990 Oregon again upgraded to stricter seismic standards that included earthquake loading in the building design.⁴³ Table C.24 shows that just nearly 33% of the housing stock in Hood River County was built after 1990 when the more stringent building codes were put in place, leaving about 67% with questionable seismic stability, and nearly 34% with very questionable seismic stability (percentage of homes built before 1960).⁴⁴ Thus knowing the age of the structure is helpful in targeting outreach regarding retrofitting and insurance for owners of older structures.⁴⁵

⁴² State of Oregon Natural Hazards Mitigation Plan, Region 4 Southwest Oregon Regional Profile.

⁴³ Wang Yumei and Bill Burns. “Case History on the Oregon GO Bond Task Force: Promoting Earthquake Safety in Public Schools and Emergency Facilities.” National Earthquake Conference. January 2006.

⁴⁴ Source: U.S. Census Bureau, 2005-2009 American Community Survey. B25034 Year Structure Built 5 Year Estimate.

⁴⁵ State of Oregon Natural Hazards Mitigation Plan, Region 4 Southwest Oregon Regional Profile.

Table C.24: Hood River County Housing Stock by Age, 2010

| Year Structure Built | Number | Percent |
|-----------------------------|---------------|----------------|
| Built 2005 or later | 494 | 5.4% |
| Built 2000 to 2004 | 1,114 | 12.2% |
| Built 1990 to 1999 | 1,382 | 15.2% |
| Built 1980 to 1989 | 810 | 8.9% |
| Built 1970 to 1979 | 1,416 | 15.6% |
| Built 1960 to 1969 | 815 | 9.0% |
| Built 1950 to 1959 | 860 | 9.4% |
| Built 1940 to 1949 | 544 | 6.0% |
| Built 1939 or earlier | 1,673 | 18.4% |
| Total housing units | 9,108 | |

Source: U.S. Census, American Community Survey, 5 Year Estimates, 2006-2010; B25034

Mitigation and preparedness planning should also consider type of occupancy when developing outreach projects or educational campaigns. Residents who own their own home are more likely to take steps to reduce the impact of natural hazards through mitigation or insurance methods. Renters may be less invested in physical improvements to the unit, but outreach around personal preparedness or renters insurance would benefit this population. As demonstrated in Table C.25 below approximately 33% or one third of the occupied housing units in Hood River County are renter-occupied.

Table C.25: Hood River County Housing Unit Occupancy Summary, 2010

| Housing Units | Number | Percent |
|----------------------|---------------|----------------|
| Occupied housing | 8,173 | 88.2% |
| Owner-occupied | 5,140 | 55.4% |
| Renter-occupied | 3,033 | 32.7% |
| Vacant housing | 1,098 | 11.8% |
| Total | 9,271 | |

Source: U.S. Census, American Community Survey, 2010; Census Summary File1, QT-H1

Physical Infrastructure

Physical infrastructure such as dams, roads, bridges, railways and airports support Hood River County communities and economies. Critical facilities are facilities that are crucial to government response and recovery activities; however the term may also refer to facilities or infrastructure that could cause serious secondary impacts when disrupted. Many things can be counted as critical infrastructure and facilities depending on the social, environmental, economic, and physical makeup of the area under consideration. Some examples include: Agriculture and food systems; communications facilities; critical manufacturing; dams; emergency services; energy generation and transmission; government facilities; healthcare and public health; information technology; transportation systems; and water. Due to the fundamental role that physical infrastructure plays both in

pre and post-disaster, they deserve special attention in the context of creating resilient communities.⁴⁶

DAMS

Dam failures can occur at any time and are quite common. Fortunately most failures result in minor damage and pose little or no risk to life safety.⁴⁷ However, the potential for severe damage still exists. The Oregon Water Resources Department has inventoried all dams located in Oregon and Hood River County. There is one high hazard dam in the county as well as two others with significant hazard threat potential. The dam with the high hazard threat potential is the Clear Branch Creek Dam, Hood River County's largest, which was last inspected in 1989.

Table C.26: Hood River County Dam Inventory and Threat Summary

| Threat Potential | Number of Dams |
|-------------------------|-----------------------|
| High | 1 |
| Significant | 2 |
| Low | 8 |

Oregon water Resources Department, Dam Inventory, Query.
http://apps.wrd.state.or.us/apps/misc/dam_inventory/

RAILWAYS

Railroads are major providers of regional and national cargo trade flows. The Mount Hood and the Union Pacific Railroad run through Hood River County.⁴⁸ The Union Pacific Line in Hood River County is limited to the stretch of tracks that follow I-84 and the Columbia River on the northern border of the county. The Mount Hood Line runs south along Highway 281 and several others from Hood River to Parkdale.

Rails are sensitive to icing from winter storms that can occur in the Columbia Gorge region. For industries in the region that utilize rail transport, these disruptions in service can result in economic losses. The potential for rail accidents caused by natural hazards can also have serious implications for the local communities if hazardous materials are involved.⁴⁹

AIRPORTS

Hood River County has no commercial service airports, but has two privately owned airports, and three that are publicly owned, including a helipad at the Hood River Fire Department.⁵⁰ The Portland International Airport in Portland is the only major commercial service airport near Hood River and surrounding Counties. However a small regional airport, The Dalles Municipal Airport, is located in Dallesport, WA, just across the Columbia River from The Dalles. Larger airports are located in Yakima, WA to the northeast and in

⁴⁶ State of Oregon Natural Hazards Mitigation Plan, Region 4 Southwest Oregon Regional Profile.

⁴⁷ Ibid.

⁴⁸ Oregon Department of Transportation, State of Oregon, Oregon Railways.
<http://www.oregon.gov/ODOT/TD/TDATA/gis/docs/statemaps/railroads.pdf?ga=t>

⁴⁹ State of Oregon Natural Hazards Mitigation Plan, Region 4 Southwest Oregon Regional Profile.

⁵⁰ FAA Airport Master Record. 2011. http://www.faa.gov/airports/airport_safety/airportdata_5010/

Redmond, OR to the southeast. Access to these airports faces the potential for closure from a number of natural hazards, including wind and winter storms common to the region.⁵¹

ROADS AND BRIDGES

The region's major expressway is Interstate 84. It runs East/West through Hood River County and is the main passage for automobiles, buses and trucks traveling along the Oregon side of the Columbia River. Other major highways that service this region include:

- Oregon Route 35 connects I-84 east of the City of Hood River with the communities of Pine Grove, Odell and Mt. Hood before merging with US Highway 26 near Government Camp to the Southwest.
- Oregon Route 281 runs south from US Highway 30 at the City of Hood River, passing through the communities of Windmaster and Parkdale before merging with Oregon Route 35 at the community of Mt. Hood.
- Oregon Route 282 splits from Oregon Route 281 between the City of Hood River and Parkdale, passing through the community of Odell and providing an alternate route to Oregon Route 35.
- US Highway 30 runs East/West along the northern border of Hood River County, sharing the same roadbed with I-84 except for a short section where US 30 travels through the City of Hood River.

⁵¹ State of Oregon Natural Hazards Mitigation Plan, Region 4 Southwest Oregon Regional Profile.

Figure C.7: Hood River County Bridge Inventory, ODOT



Source: 2011 Bridge Condition Report, Oregon Department of Transportation

Daily transportation infrastructure capacity in the Columbia Gorge region is only moderately stressed by maintenance, congestion, and oversized loads, however peak loads and congestion can materialize during holiday and recreational seasons, as well as during major construction projects. Natural hazards tend to further disrupt automobile traffic and create gridlock; this is of specific concern in periods of evacuation during an emergency.⁵²

The existing condition of bridges in the region is also a factor that affects risk from natural hazards. Bridge failure can have immediate and long term implications in the response and recovery of a community. Incapacitated bridges can disrupt traffic and exacerbate economic losses due to the inability to transport products and services in and out of the area.⁵³ The Hood River County Public Works Department is responsible for maintenance of 29 bridges around the county (includes 15 National Bridge Inventory (NBI) bridges (20' or longer), and

⁵² Ibid.

⁵³ Ibid.

14 non-NBI bridges and large culverts (less than 20').⁵⁴ Table C.27 represents the condition of nearby NBI bridges, and highlights the number of distressed bridges in ODOT's Region 4, District 9. The region encompasses all of Wasco, Sherman and Gilliam Counties.

The NBI identifies 4 distressed bridges, and concludes that nearly 45% of all the bridges in the region exhibit some form of structural or other deficiency. The classification of a distressed bridge does not imply the bridge is unsafe; however in the event of seismic activity these bridges are of higher vulnerability to failure.

Table C.27: ODOT Region 1, District 2C Bridge Condition and Deficiency Overview

| Deficiency | Number | Percent |
|---------------------------------------------|-----------|---------|
| Structurally Deficient – Distressed Bridges | 4 | 4.1% |
| Other Deficiency – Distressed Bridges | 39 | 40.2% |
| Not Distressed | 54 | 55.7% |
| Total | 97 | |

Oregon Department of Transportation, 2011 Bridge Condition Report; Region 1, District 2C

Utility Lifelines

Utility lifelines are the resources that the public relies on daily, (i.e., electricity, fuel and communication lines). If these lines fail or are disrupted, the essential functions of the community can become severely impaired. Utility lifelines are closely related to physical infrastructure, (i.e., dams and power plants) as they transmit the power generated from these facilities.

The network of electricity transmission lines running through the Columbia Gorge region is operated by Pacific Power and Light, and the Bonneville Power Administration, the two entities that primarily facilitate local energy production and distribution in the area. Power is delivered at numerous sites throughout the county at BPA and PacifiCorp substations. It is further disseminated into the area through local utility (PP and L and Hood River Electric Co-op) distribution lines.

Power Generation

The majority of electrical power in the region is generated through hydropower; these dams are primarily situated on the Columbia River. There was one major hydroelectric dam in Hood River County, the Powerdale Dam, which was located on the Hood River in the City of Hood River; however the dam was recently decommissioned and removed. Hood River County has no power plants, and though there is potential, there are no large wind power installations or other renewable energy facilities located within the county.

⁵⁴ Hood River County Public Works Department, http://www.co.hood-river.or.us/index.asp?Type=B_BASIC&SEC={BA3D2221-83E1-4F61-B92E-ACF409AD74A1}

PACIFIC POWER

Pacific Power serves customers in Southern Washington, Oregon, Northern California, Eastern Idaho, Utah and Wyoming, including parts of Hood River County and other communities in the Columbia Gorge.

HOOD RIVER COUNTY ELECTRIC CO-OP

Hood River County Electric Co-op, a not-for-profit customer-owned utility company, provides electricity to customers in Hood River County, administering electricity produced by The Bonneville Power Administration.

Gas Service

A gas distribution line crosses the Columbia River into Hood River County near the City of Hood River. The distribution line is fed by a larger natural gas transmission line that borders the northern bank of the Columbia River in Washington, which is controlled by Cascade Natural Gas. Most of the natural gas Oregon uses originates in Alberta, Canada, and Avista Utilities owns the main natural gas transmission pipeline.⁵⁵ These lines may be vulnerable to severe, but infrequent natural hazards, such as earthquakes, which could disrupt service to natural gas consumers across the region. NW Natural Gas also distributes natural gas to communities in Oregon and southwest Washington. They operate a service center in The Dalles, which also serves Hood River and surrounding communities.

Telecommunications

There are many telecommunication providers in Hood River County, including CenturyLink and Charter Communications, the third and fourth largest telecommunications companies in the United States. Comcast, gorge.net and most major cell phone service providers also operate throughout the region.

Sewage and Landfill

There are four community sewer systems in the county. The cities of Hood River and Cascade Locks each have a community sewer system, as do the rural unincorporated communities of Parkdale and Odell.

Hood River County residents are served by Hood River Garbage, Inc. Hood River Garbage picks up garbage and recycling. Recyclables are sent to a Materials Recovery Center in Portland, while garbage is brought to the Northern Wasco County Sanitary Landfill.

Critical Facilities

Critical facilities are those facilities that are essential to government response and recovery activities (e.g., hospitals, police, fire and rescue stations, school districts and higher education institutions).⁵⁶ The interruption or destruction of any of these facilities would have a debilitating effect on incident management. Critical facilities in Hood River County are identified in Table C.28 below.

⁵⁵ Loy, W. G., ed. 2001. Atlas of Oregon, 2nd Edition. Eugene, OR: University of Oregon Press.

⁵⁶ State of Oregon Natural Hazards Mitigation Plan, Region 4 Southwest Oregon Regional Profile.

Table C.28: Hood River County Critical Facilities

| | County Total |
|-----------------------------|-------------------------------------------|
| Hospitals (# of beds) | 1 (25) |
| Police / Sheriff's Offices | 2 |
| Fire & Rescue Stations | 7 |
| Dams | 11 |
| Bridges | 29 |
| School Districts & Colleges | 1 district, 2 community college districts |
| Airports | 5 |
| Public Airport | 2 |
| Private Airport | 2 |
| Private Helipad | 1 |

Source: Providence Hood River Memorial Hospital, Hood River County Sheriff's Office, Oregon Department of Forestry, Oregon Water Resources Department, Hood River County Public Works Department, Oregon Department of Education, Mt. Hood Community College, Columbia Gorge Community College, FAA Airport Master Record

Hood River County is served by the Hood River Police Department and the Hood River County Sheriff's Office. The Oregon State Police Department also provides services throughout the County. There are five fire response districts of various geographical extent and coverage operating in Hood River County. The districts are a mixture of municipal and county centric special districts. The Oregon Department of Forestry and the US Forest Service also maintain fire equipment and personnel in the County during the summer fire season.

The County Courthouse, Public Works, Forestry, and County Business Administration Buildings are all located in the City of Hood River. The Hood River County 911 Office is located at the County Administrative Building.

Dependent Facilities

In addition to the critical facilities mentioned in Table C.28, there are other vital services delivered in the county that must be accounted for when planning for natural disaster response and recovery. Assisted living centers, nursing homes, residential mental health facilities, and psychiatric hospitals are important to identify within a community because of the dependent nature of the residents. Such facilities can also serve as secondary medical facilities during an emergency, as they are equipped with nurses, medical supplies and beds.

In Hood River County there are four assisted living centers, one registered nursing home, one retirement facility, and a live-in care facility that has a single resident capacity. There is one mental health clinic, the Mid-Columbia Center for Living. All of these facilities are located in the City of Hood River.⁵⁷ There are no psychiatric hospitals in Hood River County, but counseling services are offered at the Providence Hood River Memorial Hospital.

⁵⁷ Seniors and People with Disabilities Service – Wasco County Office

Correctional Facilities

Correctional facilities are incorporated into physical infrastructure as they play an important role in everyday society by maintaining a safe separation of the public from potentially dangerous human elements. Hood River County has partnered with Wasco, Gilliam and Sherman Counties to form a regional jail. The Northern Oregon Regional Corrections services the four counties with both adult and juvenile detention facilities, which are both located in The Dalles, OR.⁵⁸ While correctional facilities are built to code to resist structural failure and typically have back up power to sustain regulation of inmates following the immediate event of an emergency, logistical planning becomes more of a challenge when the impacts of the event continue over a long duration.

Synthesis

Built capacity refers to the built environment and infrastructure that supports a community. The various forms of built capital mentioned throughout this section play significant roles in the event of a disaster. Physical infrastructure, including utility and transportation lifelines, are critical to maintain during a disaster and are essential for proper functioning and response. Community resilience is directly affected by the quality and quantity of built capital and lack of or poor condition of infrastructure can negatively affect a community's ability to cope, respond and recover from a natural disaster. Initially following a disaster, communities may experience isolation from surrounding cities and counties due to infrastructure failure. These conditions force communities to rely on local and immediate resources.

Around 10% of Hood River County's housing stock is made up of mobile homes, and roughly 14% is made up of multi-family dwellings, types of housing that may significantly amplify the human costs of natural hazards and disasters due to the density of occupants. Likewise over 67% of the county's housing was built before 1990, the year Oregon upgraded its seismic building standards to include seismic loading. In terms of infrastructure, only one of Hood River County's eleven dams is classified as a high threat potential, however the dam with the high hazard threat potential is the Clear Branch Creek Dam, Hood River County's largest, which was last inspected in 1989. Nearly 56% of bridges in the region are not distressed, but four are structurally deficient, and thirty nine exhibit some other form of deficiency. Most of the county's critical facilities and vital infrastructure are located in the City of Hood River. Aside from I-84, there are a number of alternative highways and roads that may provide service access to people outside of the city, or serve as evacuation routes away from Hood River in case of an emergency.

Community Connectivity Capacity

Social Organizations

Social organizations can play an important role in promoting hazard mitigation and in aiding recovery efforts following a natural disaster. These organizations are uniquely suited to reach vulnerable populations, which have a tendency to be more at-risk in the event of a disaster. Social organizations take a number of forms, but are often community oriented programs that provide social and community-based services for the public. In promoting

⁵⁸ Hood River County Sheriff's Office, <http://www.hoodriversheriff.com/Jail.php>

hazard awareness, Counties should work with such programs to help distribute information and educate the public as to proper hazard mitigation practices.

Below are a few methods that social organizations located throughout Hood River County can use to become involved in hazard mitigation.

- Education and Outreach – Organizations can partner with the community to educate the public or provide outreach assistance and materials on natural hazard preparedness and mitigation.
- Information Dissemination – Organizations can partner with the community to provide and distribute hazard-related information to target audiences.
- Plan/Project Implementation – Organizations may have plans and/or policies that may be used to implement mitigation activities or the organization can serve as the coordinating or partner organization to implement mitigation actions.

Civic Engagement

Civic engagement and involvement are important indicators of community connectivity. Whether it is engagement through volunteerism or through local, state, and national politics, you can gauge the connection people have to their community by their willingness to help out.

Residents who want to become involved in their community through volunteering have a number of opportunities available to them throughout the region. Using Gorge Search⁵⁹ and other programs, residents can search online through a variety of volunteer opportunities around the region and choose one that fits their skills, interests and schedule. These programs, among many others, allow residents to give back to their community.

Those who are more invested in their community may also have a higher tendency to vote in political elections. Below, Table C.29 outlines voter participation and turnout percentages from the 2008 Presidential General Election compared to the 2010 State Representative General Election. The 2008 Presidential General Election resulted in an 86.6% voter turnout in the county, while the 2010 State Representative General Election resulted in a turnout of about 78.1% voter participation.⁶⁰ These results are fairly synonymous with voter participation reported across the State; however Hood River County had a considerably higher turnout in the 2010 General Election than the state as a whole.⁶¹

⁵⁹ Gorge Search - <http://www.gorgesearch.com/volunteer.htm>

⁶⁰ Hood River County Elections, Past Elections, Accessed 8 January 2012.
http://www.hoodriveror.govoffice2.com/index.asp?Type=B_BASIC&SEC={B3760B28-AC32-4807-B236-6309313184F8}

⁶¹ Oregon Blue Book. Accessed 15 December 2011.
<http://bluebook.state.or.us/state/elections/elections04.htm>.

Table C.29: Hood River County Election Results, 2008 and 2010

| | 2008 Presidential General Election | | 2010 State Representative General Election | |
|---------------------------|------------------------------------|-----------|--------------------------------------------|-----------|
| | Hood River County | Oregon | Hood River County | Oregon |
| Total - Registered Voters | 11,355 | 2,153,914 | 11,089 | 2,068,798 |
| Total - Ballots Cast | 9,830 | 1,845,251 | 8,660 | 1,487,210 |
| Voter Turnout Percentage | 86.6% | 85.7% | 78.1% | 71.9% |

Source: Hood River County Elections: Past Elections; Oregon Blue Book Election Results

Cultural Resources

Cultural resources provide residents with a sense of belonging and can be used to teach current residents about the histories and lives of past residents. Historic sites, museums, and libraries are just a few of the resources that give residents and visitors a sense of cultural connectivity to a place. These resources celebrate history and help define an area that people call *home*.

Historic Places

The National Register of Historic Places lists all types of facilities and infrastructure that help define a community. Whether it is the first schoolhouse in town or even just the home of a resident who played a vital role in the success of the community, the *Register* lists all types of historic features that characterize the area. Table C.30 categorizes the 36 different National Historic Sites located throughout Hood River County by their distinction and function.

These places provide current residents, youth, and visitors with a sense of community. Because of the history behind these sites, and their role in defining a community, it is important to protect these *historic sites* from the impacts natural disasters might have on them.

Table C.30: National Register of Historic Sites in Hood River County

| Type of Structure | Number of Structures |
|----------------------------------------------------------|----------------------|
| Parks | 1 |
| Cabins, Estates, Farms, Houses, Huts, Lodges, Log Cabins | 15 |
| Banks | 2 |
| Ranger Stations | 1 |
| Hotels | 5 |
| Churches | - |
| Schools | 3 |
| Historic Districts | 2 |
| Buildings, Halls, City Structures | 7 |
| Total | 36 |

Source: National Register of Historic Places - <http://nrhp.focus.nps.gov/natregadvancedsearch.do>

Libraries and Museums

Libraries and Museums are other facilities which a community can use to stay connected. The Hood River Library is the main facility in the county; with their main facility in the City of Hood River and satellite facilities in Cascade Locks and Parkdale. These facilities serve a critical function in maintaining a sense of community, however library buildings should also be considered as a common place for members of communities to gather during a disaster.

Museums can also function in maintaining a sense of community as they provide residents and visitors with the opportunity to explore the past and develop cultural capacity. The primary museum in Hood River County is the History Museum, located in the City of Hood River.⁶² The museum is overseen by the Hood River County, and has three stated purposes: to hold in trust a collection of artifacts and documents relevant to Hood River County heritage, share the stories of these items through education, exhibits and discussion, and expand the understanding of Hood River County's heritage as it relates to the county's past, present and future.⁶³ As with public libraries, it is important to consider museums in the mitigation process for community resilience. These structures should be protected in critical times to preserve cultural heritage, but may also serve as a place of refuge for community members during a disaster event.

Community Stability

RESIDENTIAL GEOGRAPHIC STABILITY

Geographic stability often results in a feeling of connectedness to one's community and is a measure of one's rootedness. A person's place attachment refers to this sense of community and can often magnify efforts to help revitalize a community.⁶⁴ Regional residential stability is important to consider in the mitigation process as those who have been in one place for awhile are more likely to have a vested interest in the area and should be more likely to help with hazard mitigation efforts. Table C.31 estimates residential stability across the region. It is calculated by the number of people who have lived in the same house and/or county for more than a year, compared to the percentage of people who have not. Hood River County is estimated to have 94.8% of its residents live in the same house or within county boundaries generally for more than a year as of 2010, higher than all nearby counties as well as the state average. Aside from Hood River, the figures of community stability below are relatively consistent across the region and in comparison to the State average.

⁶² Hood River County History Museum - http://www.co.hood-river.or.us/index.asp?Type=B_BASIC&SEC={94EE25E6-A0ED-4521-9A58-17B850492220}

⁶³ Ibid

⁶⁴ Susan Cutter, Christopher Burton, and Christopher Emrich, "Disaster Resilience Indicators for Benchmarking Baseline Conditions," *Journal of Homeland Security and Emergency Management* 7, no. 1 (2010): 9.

Table C.31: Regional Residential Stability

| County | Geographic Stability |
|-------------------|----------------------|
| Hood River | 94.8% |
| Clackamas | 92.8% |
| Gilliam | 91.2% |
| Multnomah | 92.1% |
| Sherman | 91.9% |
| Wasco | 91.8% |
| Oregon | 92.5% |

Source: US Census Bureau, American Community Survey, 2006-2010; B07003

HOMEOWNERSHIP

Another measure of community stability and place attachment is homeownership. One does not seek to be a homeowner in a place they don't feel safe and secure. Residents who become homeowners search for a place in which they are happy, protected, and can afford. Homeownership is an indicator that residents will most likely return to a community post-disaster, as these people are economically and socially invested in the community. Similarly, homeowners are more likely to take necessary precautions in protecting their property. Table C.32 identifies the percentage of homeownership across the region, where the remaining households are renters. Hood River County's home ownership rate is close to other counties in the region, but notably higher than the state average.

Table C.32: Regional Homeownership

| County | Home Owners |
|-------------------|--------------|
| Hood River | 68.3% |
| Clackamas | 70.7% |
| Gilliam | 66.6% |
| Multnomah | 56.2% |
| Sherman | 67.0% |
| Wasco | 67.5% |
| Oregon | 63.8% |

Source: US Census Bureau, American Community Survey, 2006-2010; B25003

Synthesis

Community connectivity capacity places a strong emphasis on social structure, trust and norms, and the cultural resources within a community. In terms of community resilience, these emerging elements of social and cultural capital will be drawn upon to stabilize the recovery of the community. Social and cultural capitals are present in all communities; however, it is dramatically different from one town to the next as they reflect the specific needs and composition of the community residents. A community with low residential stability may hinder the full potential of social and cultural resources, adversely affecting the community's coping and response mechanisms in the event of a disaster.

Place attachment can be determined through a variety of outlets. Hood River County has a wide range of resources in the form of social organizations, civic engagement, and cultural

capital that help retain a sense of community and add to regional stability. Hood River County residents typically exceed state levels of voter turnout, regional stability and regional homeownership, suggesting that the county is on the right path in supporting its residents to build more resilient and better prepared communities, making them more likely to return in the event of a disaster. Likewise, it is important to consider the roles such services and facilities can and will provide to residents during a disaster event.

Political Capital

Government Structure

Hood River County is governed by the Board of Commissioners. The County Administrator's Office works for the Board of Commissioners to facilitate service delivery in all county programs. The County Administrator serves as the Chief Executive Officer of the county and is responsible for providing overall direction to county departments and programs consistent with the policy established by the Board of Commissioners. The Board of Commissioners has five seats, including a chair and representatives from four county districts. All Commissioners are part time, and all are elected positions. The Board of County Commissioners normally meets on the third Monday of each month at 601 State Street in the City of Hood River to conduct county business.

The building at 601 State Street houses many of the departmental offices for Hood River County including the County Administrator, Community Development, Budget and Finance, Human Resources, Records and Assessment, and space for public meetings. The County Courthouse houses the district attorney, the Juvenile Department, Community Corrections Department, Hood River County Commission on Children and Families, the Sheriff's office, and the State offices for the Circuit Court. Public Works and the County Parks and Building Services departments are also located in Hood River in separate buildings at 918 18th street.⁶⁵

Beyond Emergency Management and Community Development, all the departments within the county governance structure have some degree of responsibility in building overall community resilience. Each plays a role in ensuring that the county functions, and that normal operations resume and the needs of the population are met after an incident. Some divisions and departments of Hood River County government that have a more prevalent role in hazard mitigation include:

- **Commission on Children and Families:** The Hood River County Commission on Children & Families plans, advocates, and mobilizes the community to act on behalf of children, youth, and families; promoting their health, safety, and well being. In addition, the Commission receives and manages grant resources, such as state, federal, and private foundation grants for distribution to community based agencies, organizations, and individuals. Because this department is in frequent contact with families and children, often thought of as vulnerable populations due to increased sensitivity to the impacts of hazard incidents, it

⁶⁵ Hood River County Website, Departments - http://www.co.hood-river.or.us/index.asp?Type=B_BASIC&SEC={3B7F9DDE-AE35-46E8-8D6E-C3AA5E658CD0}

should be a natural partner in mitigation actions for outreach efforts and to build the county's awareness of the needs of children and families.

- **Emergency Management:** Hood River County's Emergency Management prepares for, coordinates response, logistical support and mitigation for all natural and man-made emergencies and disasters. The system requires coordination of activities to mitigate, prepare for, respond to and recover from major emergencies or disasters. The Emergency Management program is jointly administered by the County Sheriff's Office and Administrators Office, and is overseen by an Emergency Management Coordinator. The scope of the emergency management system includes cities, service districts, volunteer agencies, schools, and other organizations with emergency responsibilities.
- **Fair Grounds:** Serves as a year round entertainment venue but should also be considered as a staging site for response efforts. Mitigation could include specific actions to ensure the facilities can be used during an emergency response; such as extra power should it need to be used as a shelter.
- **Health and Human Services:** The mission of the Hood River County Health Department is to protect the health of all Hood River County residents by preventing disease, injury, premature death, and disability; promoting healthy lifestyles, behaviors and environment; and responding to disasters, disease outbreaks and epidemics through organized community efforts. The department conducts activities necessary for the preservation of health, prevention of disease, and protection of the public by following the three core public health functions: *assessment, monitoring, and policy development*. Furthermore, the Health Security, Preparedness and Response Program (HSPRP) develops plans and procedures to better prepare local communities to respond, mitigate, and recover from all public health emergencies.⁶⁶
- **Community Development:** The Hood River County Community Development Department strives to promote economic prosperity and diversity while maintaining the county's environmental quality. The Department is primarily responsible for comprehensive land use planning and zoning in Hood River County, as well as for county building codes, economic development, information technology, and veterans services. The department's policies give a direction to planning, establish priorities for action, serve as a basis for future decisions, provide a standard by which progress can be measured, and promote a sense of community for an improved quality of life. The department also helps all levels of government and private enterprise to understand the wants and needs of all Hood River County citizens.⁶⁷
- **Public Works:** Hood River County's Public Works department has a variety of responsibilities including: routine road and bridge maintenance; emergency response to road hazards and disasters; engineering; surveying; regulation, inspection and administration of work and development within or associated

⁶⁶ North Central Public Health District Website - <http://www.wshd.org/wshd/default.htm>

⁶⁷ Hood River County Planning and Building Services - http://www.co.hood-river.or.us/index.asp?Type=B_BASIC&SEC={35FD7121-3560-49AD-A344-3E6608B17CBC}

with the public road right of way; fleet management and maintenance; as well as geographic information system (GIS) maintenance and mapping. The department is responsible for the construction and maintenance of 225 miles of roadway, 29 bridges and culverts, and a myriad of other related items, such as signs and guardrail. Road maintenance activities involve pavement maintenance, gravel road grading, ditch and culvert cleaning, brushing, snow and ice removal, bridge maintenance, and sign maintenance. The Public Works Department and its employees have important information about the resilience of the physical aspects of the community. The Department can help to prioritize projects for mitigation and should be a key partner in implementation as well.⁶⁸

- **Sheriff's Office:** The Sheriff's Office currently has twelve sworn positions, with a mission to consistently earn the public's trust by providing the highest quality public safety services with the resources provided to them. The Hood River County Sheriff's Office provides primary law enforcement services throughout Hood River County with the exception of the City of Hood River. The Office oversees Patrol (including marine), Criminal Investigations, Animal Control, 911 Communications, and Search and Rescue.⁶⁹

Existing Plan & Policies

Communities often have existing plans and policies that guide and influence land use, land development and population growth. Such existing plans and policies can include comprehensive plans, zoning ordinances and technical reports or studies. Plans and policies already in existence have support from local residents, businesses and policy makers. Many land-use, comprehensive, and strategic plans get updated regularly, and can adapt easily to changing conditions and needs.⁷⁰ The Hood River County Natural Hazards Mitigation Plan includes a range of recommended action items that, when implemented, should reduce the county's vulnerability to natural hazards. Many of these recommendations are consistent with the goals and objectives of the county's existing plans and policies. Linking existing plans and policies to the Natural Hazards Mitigation Plan helps identify what resources already exist that can be used to implement the action items identified in the Plan. Implementing the natural hazards mitigation plan's action items through existing plans and policies increases their likelihood of being supported and getting updated, and maximizes the county's resources. The following are a list of plans and policies already in place in Hood River County:

- Hood River County Comprehensive Land use Plan
Adopted: February 21, 1984, Amended: September 18, 2006
- Hood River County Emergency Operations Plan
Original Release: 2006, Updated: December, 2011
- Hood River County Hazard Identification and Vulnerability Analysis
Developed: November 2011
- Hood River County Zoning Ordinances

⁶⁸ Hood River County Website, Departments, Public Works - http://www.co.hood-river.or.us/index.asp?Type=B_BASIC&SEC={BA3D2221-83E1-4F61-B92E-ACF409AD74A1}

⁶⁹ Hood River County Sherriff Office - <http://www.hoodriversheriff.com/Jail.php>

⁷⁰ Burby, Raymond J., ed. 1998. Cooperating with Nature: Confronting Natural Hazards with Land-Use Planning for Sustainable Communities.

Adopted: February 21, 1984, Revised: June, 2012

- Interchange Area Management Plan

Prepared September 2011

- Columbia Gorge National Scenic Area Management Plan

Prepared: June 2005

- Hood River County Transportation System Plan

Adopted: July 2003, Amended: June 26, 2009

- Hood River County Community Wildfire Protection Plan

Adopted: 2006

- Mt. Hood Coordination Plan

Prepared: September, 2005

- Parks and Recreation Capital Facilities Master Plan

Adopted: November 1998, Revised: April 8, 2005

- Hood River County Bike Plan

Adopted: February, 2010

Synthesis

Political capital is recognized as the government and planning structures established within the community. In terms of hazard resilience, it is essential for political capital to encompass diverse government and non-government entities in collaboration; as disaster losses stem from a predictable result of interactions between the physical environment, social and demographic characteristics and the built environment.⁷¹

⁷¹ Mileti, D. 1999. *Disaster by Design: a Reassessment of Natural Hazards in the United States*. Washington D.C.: Joseph Henry Press.

Appendix D: Economic Analysis of Natural Hazard Mitigation Projects

This appendix was developed by the Oregon Partnership for Disaster Resilience at the University of Oregon's Community Service Center. It has been reviewed and accepted by the Federal Emergency Management Agency as a means of documenting how the prioritization of actions shall include a special emphasis on the extent to which benefits are maximized according to a cost benefit review of the proposed projects and their associated costs.

The appendix outlines three approaches for conducting economic analyses of natural hazard mitigation projects. It describes the importance of implementing mitigation activities, different approaches to economic analysis of mitigation strategies, and methods to calculate costs and benefits associated with mitigation strategies. Information in this section is derived in part from: The Interagency Hazards Mitigation Team, *State Hazard Mitigation Plan*, (Oregon State Police – Office of Emergency Management, 2000), and Federal Emergency Management Agency Publication 331, *Report on Costs and Benefits of Natural Hazard Mitigation*. This section is not intended to provide a comprehensive description of benefit/cost analysis, nor is it intended to evaluate local projects. It is intended to (1) raise benefit/cost analysis as an important issue, and (2) provide some background on how economic analysis can be used to evaluate mitigation projects.

Why Evaluate Mitigation Strategies?

Mitigation activities reduce the cost of disasters by minimizing property damage, injuries, and the potential for loss of life, and by reducing emergency response costs, which would otherwise be incurred. Evaluating possible natural hazard mitigation activities provides decision-makers with an understanding of the potential benefits and costs of an activity, as well as a basis upon which to compare alternative projects.

Evaluating mitigation projects is a complex and difficult undertaking, which is influenced by many variables. First, natural disasters affect all segments of the communities they strike, including individuals, businesses, and public services such as fire, police, utilities, and schools. Second, while some of the direct and indirect costs of disaster damages are measurable, some of the costs are non-financial and difficult to quantify in dollars. Third, many of the impacts of such events produce "ripple-effects" throughout the community, greatly increasing the disaster's social and economic consequences.

While not easily accomplished, there is value, from a public policy perspective, in assessing the positive and negative impacts from mitigation activities, and obtaining an instructive benefit/cost comparison. Otherwise, the decision to pursue or not pursue various

mitigation options would not be based on an objective understanding of the net benefit or loss associated with these actions.

What are some Economic Analysis Approaches for Evaluating Mitigation Strategies?

The approaches used to identify the costs and benefits associated with natural hazard mitigation strategies, measures, or projects fall into three general categories: benefit/cost analysis, cost-effectiveness analysis and the STAPLE/E approach. The distinction between the three methods is outlined below:

Benefit/Cost Analysis

Benefit/cost analysis is a key mechanism used by the state Office of Emergency Management (OEM), the Federal Emergency Management Agency, and other state and federal agencies in evaluating hazard mitigation projects, and is required by the Robert T. Stafford Disaster Relief and Emergency Assistance Act, Public Law 93-288, as amended.

Benefit/cost analysis is used in natural hazards mitigation to show if the benefits to life and property protected through mitigation efforts exceed the cost of the mitigation activity. Conducting benefit/cost analysis for a mitigation activity can assist communities in determining whether a project is worth undertaking now, in order to avoid disaster-related damages later. Benefit/cost analysis is based on calculating the frequency and severity of a hazard, avoiding future damages, and risk. In benefit/cost analysis, all costs and benefits are evaluated in terms of dollars, and a net benefit/cost ratio is computed to determine whether a project should be implemented. A project must have a benefit/cost ratio greater than 1 (i.e., the net benefits will exceed the net costs) to be eligible for FEMA funding.

Cost-Effectiveness Analysis

Cost-effectiveness analysis evaluates how best to spend a given amount of money to achieve a specific goal. This type of analysis, however, does not necessarily measure costs and benefits in terms of dollars. Determining the economic feasibility of mitigating natural hazards can also be organized according to the perspective of those with an economic interest in the outcome. Hence, economic analysis approaches are covered for both public and private sectors as follows.

INVESTING IN PUBLIC SECTOR MITIGATION ACTIVITIES

Evaluating mitigation strategies in the public sector is complicated because it involves estimating all of the economic benefits and costs regardless of who realizes them, and potentially to a large number of people and economic entities. Some benefits cannot be evaluated monetarily, but still affect the public in profound ways. Economists have developed methods to evaluate the economic feasibility of public decisions which involve a diverse set of beneficiaries and non-market benefits.

INVESTING IN PRIVATE SECTOR MITIGATION ACTIVITIES

Private sector mitigation projects may occur on the basis of one or two approaches: it may be mandated by a regulation or standard, or it may be economically justified on its own merits. A building or landowner, whether a private entity or a public agency, required to conform to a mandated standard may consider the following options:

1. Request cost sharing from public agencies;
2. Dispose of the building or land either by sale or demolition;
3. Change the designated use of the building or land and change the hazard mitigation compliance requirement; or
4. Evaluate the most feasible alternatives and initiate the most cost effective hazard mitigation alternative.

The sale of a building or land triggers another set of concerns. For example, real estate disclosure laws can be developed which require sellers of real property to disclose known defects and deficiencies in the property, including earthquake weaknesses and hazards to prospective purchases. Correcting deficiencies can be expensive and time consuming, but their existence can prevent the sale of the building. Conditions of a sale regarding the deficiencies and the price of the building can be negotiated between a buyer and seller.

STAPLE/E APPROACH

Considering detailed benefit/cost or cost-effectiveness analysis for every possible mitigation activity could be very time consuming and may not be practical. There are some alternate approaches for conducting a quick evaluation of the proposed mitigation activities which could be used to identify those mitigation activities that merit more detailed assessment. One of those methods is the STAPLE/E approach.

Using STAPLE/E criteria, mitigation activities can be evaluated quickly by steering committees in a synthetic fashion. This set of criteria requires the committee to assess the mitigation activities based on the Social, Technical, Administrative, Political, Legal, Economic and Environmental (STAPLE/E) constraints and opportunities of implementing the particular mitigation item in your community. The second chapter in FEMA's How-To Guide "Developing the Mitigation Plan – Identifying Mitigation Actions and Implementation Strategies" as well as the "State of Oregon's Local Natural Hazard Mitigation Plan: An Evaluation Process" outline some specific considerations in analyzing each aspect. The following are suggestions for how to examine each aspect of the STAPLE/E approach from the "State of Oregon's Local Natural Hazard Mitigation Plan: An Evaluation Process."

Social: Community development staff, local non-profit organizations, or a local planning board can help answer these questions.

- Is the proposed action socially acceptable to the community?
- Are there equity issues involved that would mean that one segment of the community is treated unfairly?
- Will the action cause social disruption?

Technical: The city or county public works staff, and building department staff can help answer these questions.

- Will the proposed action work?
- Will it create more problems than it solves?

- Does it solve a problem or only a symptom?
- Is it the most useful action in light of other community goals?

Administrative: Elected officials or the city or county administrator, can help answer these questions.

- Can the community implement the action?
- Is there someone to coordinate and lead the effort?
- Is there sufficient funding, staff, and technical support available?
- Are there ongoing administrative requirements that need to be met?

Political: Consult the mayor, city council or county planning commission, city or county administrator, and local planning commissions to help answer these questions.

- Is the action politically acceptable?
- Is there public support both to implement and to maintain the project?

Legal: Include legal counsel, land use planners, risk managers, and city council or county planning commission members, among others, in this discussion.

- Is the community authorized to implement the proposed action? Is there a clear legal basis or precedent for this activity?
- Are there legal side effects? Could the activity be construed as a taking?
- Is the proposed action allowed by the comprehensive plan, or must the comprehensive plan be amended to allow the proposed action?
- Will the community be liable for action or lack of action?
- Will the activity be challenged?

Economic: Community economic development staff, civil engineers, building department staff, and the assessor's office can help answer these questions.

- What are the costs and benefits of this action?
- Do the benefits exceed the costs?
- Are initial, maintenance, and administrative costs taken into account?
- Has funding been secured for the proposed action? If not, what are the potential funding sources (public, non-profit, and private?)
- How will this action affect the fiscal capability of the community?
- What burden will this action place on the tax base or local economy?
- What are the budget and revenue effects of this activity?

- Does the action contribute to other community goals, such as capital improvements or economic development?
- What benefits will the action provide? (This can include dollar amount of damages prevented, number of homes protected, credit under the CRS, potential for funding under the HMGP or the FMA program, etc.)

Environmental: Watershed councils, environmental groups, land use planners and natural resource managers can help answer these questions.

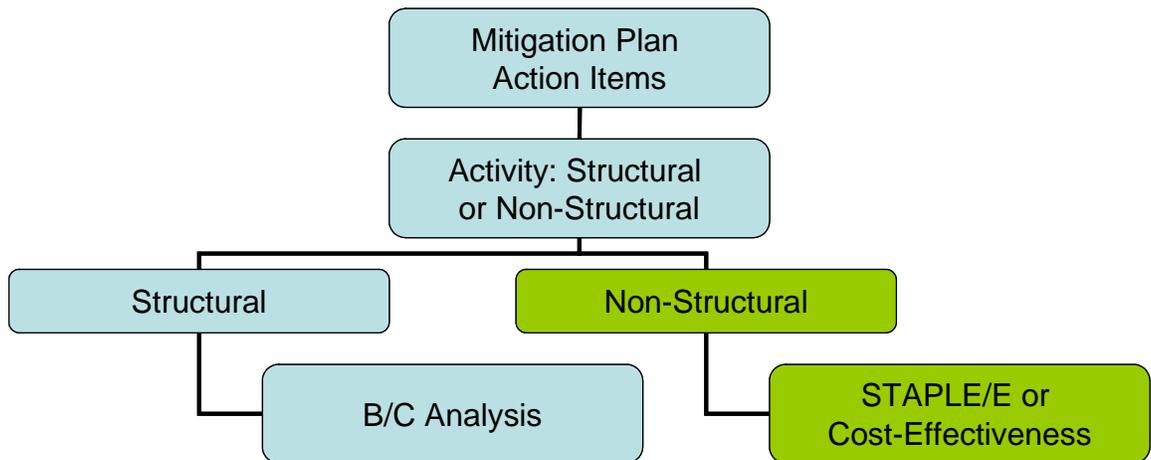
- How will the action impact the environment?
- Will the action need environmental regulatory approvals?
- Will it meet local and state regulatory requirements?
- Are endangered or threatened species likely to be affected?

The STAPLE/E approach is helpful for doing a quick analysis of mitigation projects. Most projects that seek federal funding and others often require more detailed benefit/cost analyses.

When to use the Various Approaches

It is important to realize that various funding sources require different types of economic analyses. The following figure is to serve as a guideline for when to use the various approaches.

Figure D.1: Economic Analysis Flowchart



Source: Oregon Partnership for Disaster Resilience at the University of Oregon’s Community Service Center, 2005

Implementing the Approaches

Benefit/cost analysis, cost-effectiveness analysis, and the STAPLE/E are important tools in evaluating whether or not to implement a mitigation activity. A framework for evaluating

mitigation activities is outlined below. This framework should be used in further analyzing the feasibility of prioritized mitigation activities.

1. IDENTIFY THE ACTIVITIES

Activities for reducing risk from natural hazards can include structural projects to enhance disaster resistance, education and outreach, and acquisition or demolition of exposed properties, among others. Different mitigation projects can assist in minimizing risk to natural hazards, but do so at varying economic costs.

2. CALCULATE THE COSTS AND BENEFITS

Choosing economic criteria is essential to systematically calculating costs and benefits of mitigation projects and selecting the most appropriate activities. Potential economic criteria to evaluate alternatives include:

- ***Determine the project cost.*** This may include initial project development costs, and repair and operating costs of maintaining projects over time.
- ***Estimate the benefits.*** Projecting the benefits, or cash flow resulting from a project can be difficult. Expected future returns from the mitigation effort depend on the correct specification of the risk and the effectiveness of the project, which may not be well known. Expected future costs depend on the physical durability and potential economic obsolescence of the investment. This is difficult to project. These considerations will also provide guidance in selecting an appropriate salvage value. Future tax structures and rates must be projected. Financing alternatives must be researched, and they may include retained earnings, bond and stock issues, and commercial loans.
- ***Consider costs and benefits to society and the environment.*** These are not easily measured, but can be assessed through a variety of economic tools including existence value or contingent value theories. These theories provide quantitative data on the value people attribute to physical or social environments. Even without hard data, however, impacts of structural projects to the physical environment or to society should be considered when implementing mitigation projects.
- ***Determine the correct discount rate.*** Determination of the discount rate can just be the risk-free cost of capital, but it may include the decision maker's time preference and also a risk premium. Including inflation should also be considered.

3. ANALYZE AND RANK THE ACTIVITIES

Once costs and benefits have been quantified, economic analysis tools can rank the possible mitigation activities. Two methods for determining the best activities given varying costs and benefits include net present value and internal rate of return.

- ***Net present value.*** Net present value is the value of the expected future returns of an investment minus the value of the expected future cost expressed in today's dollars. If the net present value is greater than the projected costs, the project may be determined feasible for implementation. Selecting the discount rate, and

identifying the present and future costs and benefits of the project calculates the net present value of projects.

- **Internal rate of return.** Using the internal rate of return method to evaluate mitigation projects provides the interest rate equivalent to the dollar returns expected from the project. Once the rate has been calculated, it can be compared to rates earned by investing in alternative projects. Projects may be feasible to implement when the internal rate of return is greater than the total costs of the project. Once the mitigation projects are ranked on the basis of economic criteria, decision-makers can consider other factors, such as risk, project effectiveness, and economic, environmental, and social returns in choosing the appropriate project for implementation.

Economic Returns of Natural Hazard Mitigation

The estimation of economic returns, which accrue to building or land owners as a result of natural hazard mitigation, is difficult. Owners evaluating the economic feasibility of mitigation should consider reductions in physical damages and financial losses. A partial list follows:

- Building damages avoided
- Content damages avoided
- Inventory damages avoided
- Rental income losses avoided
- Relocation and disruption expenses avoided
- Proprietor's income losses avoided

These parameters can be estimated using observed prices, costs, and engineering data. The difficult part is to correctly determine the effectiveness of the hazard mitigation project and the resulting reduction in damages and losses. Equally as difficult is assessing the probability that an event will occur. The damages and losses should only include those that will be borne by the owner. The salvage value of the investment can be important in determining economic feasibility. Salvage value becomes more important as the time horizon of the owner declines. This is important because most businesses depreciate assets over a period of time.

ADDITIONAL COSTS FROM NATURAL HAZARDS

Property owners should also assess changes in a broader set of factors that can change as a result of a large natural disaster. These are usually termed "indirect" effects, but they can have a very direct effect on the economic value of the owner's building or land. They can be positive or negative, and include changes in the following:

- Commodity and resource prices
- Availability of resource supplies
- Commodity and resource demand changes

- Building and land values
- Capital availability and interest rates
- Availability of labor
- Economic structure
- Infrastructure
- Regional exports and imports
- Local, state, and national regulations and policies
- Insurance availability and rates

Changes in the resources and industries listed above are more difficult to estimate and require models that are structured to estimate total economic impacts. Total economic impacts are the sum of direct and indirect economic impacts. Total economic impact models are usually not combined with economic feasibility models. Many models exist to estimate total economic impacts of changes in an economy. Decision makers should understand the total economic impacts of natural disasters in order to calculate the benefits of a mitigation activity. This suggests that understanding the local economy is an important first step in being able to understand the potential impacts of a disaster, and the benefits of mitigation activities.

Additional Considerations

Conducting an economic analysis for potential mitigation activities can assist decision-makers in choosing the most appropriate strategy for their community to reduce risk and prevent loss from natural hazards. Economic analysis can also save time and resources from being spent on inappropriate or unfeasible projects. Several resources and models are listed on the following page that can assist in conducting an economic analysis for natural hazard mitigation activities.

Benefit/cost analysis is complicated, and the numbers may divert attention from other important issues. It is important to consider the qualitative factors of a project associated with mitigation that cannot be evaluated economically. There are alternative approaches to implementing mitigation projects. With this in mind, opportunity rises to develop strategies that integrate natural hazard mitigation with projects related to watersheds, environmental planning, community economic development, and small business development, among others. Incorporating natural hazard mitigation with other community projects can increase the viability of project implementation.

Resources

CUREe Kajima Project, *Methodologies for Evaluating the Socio-Economic Consequences of Large Earthquakes*, Task 7.2 Economic Impact Analysis, Prepared by University of California, Berkeley Team, Robert A. Olson, VSP Associates, Team Leader; John M. Eiding, G&E Engineering Systems; Kenneth A. Goettel, Goettel and Associates, Inc.; and Gerald L. Horner, Hazard Mitigation Economics Inc., 1997

Federal Emergency Management Agency, *Benefit/Cost Analysis of Hazard Mitigation Projects*, Riverine Flood, Version 1.05, Hazard Mitigation Economics, Inc., 1996

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Goettel & Horner Inc., Earthquake Risk Analysis Volume III: The Economic Feasibility of Seismic Rehabilitation of Buildings in the City of Portland, Submitted to the Bureau of Buildings, City of Portland, August 30, 1995.

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Horner, Gerald, *Benefit/Cost Methodologies for Use in Evaluating the Cost Effectiveness of Proposed Hazard Mitigation Measures*, Robert Olsen Associates, Prepared for Oregon State Police, Office of Emergency Management, July 1999.

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Risk Management Solutions, Inc., *Development of a Standardized Earthquake Loss Estimation Methodology*, National Institute of Building Sciences, Volume I and II, 1994.

VSP Associates, Inc., *A Benefit/Cost Model for the Seismic Rehabilitation of Buildings*, Volumes 1 & 2, Federal Emergency management Agency, FEMA Publication Numbers 227 and 228, 1991.

VSP Associates, Inc., *Benefit/Cost Analysis of Hazard Mitigation Projects: Section 404 Hazard Mitigation Program and Section 406 Public Assistance Program*, Volume 3: Seismic Hazard Mitigation Projects, 1993.

VSP Associates, Inc., *Seismic Rehabilitation of Federal Buildings: A Benefit/Cost Model*, Volume 1, Federal Emergency Management Agency, FEMA Publication Number 255, 1994.

Appendix E: Grant Programs

Post-Disaster Federal Programs

Hazard Mitigation Grant Program

- The Hazard Mitigation Grant Program (HMGP) provides grants to States and local governments to implement long-term hazard mitigation measures after a major disaster declaration. The purpose of the HMGP is to reduce the loss of life and property due to natural disasters and to enable mitigation measures to be implemented during the immediate recovery from a disaster. The HMGP is authorized under Section 404 of the Robert T. Stafford Disaster Relief and Emergency Assistance Act.

<http://www.fema.gov/hazard-mitigation-grant-program>

Physical Disaster Loan Program

- When physical disaster loans are made to homeowners and businesses following disaster declarations by the U.S. Small Business Administration (SBA), up to 20% of the loan amount can go towards specific measures taken to protect against recurring damage in similar future disasters.

<http://www.sba.gov/category/navigation-structure/loans-grants/small-business-loans/disaster-loans>

Pre-Disaster Federal Programs

Pre-Disaster Mitigation Grant Program

- The Pre-Disaster Mitigation (PDM) program provides funds to states, territories, Indian tribal governments, communities, and universities for hazard mitigation planning and the implementation of mitigation projects prior to a disaster event. Funding these plans and projects reduces overall risks to the population and structures, while also reducing reliance on funding from actual disaster declarations. PDM grants are to be awarded on a competitive basis and without reference to state allocations, quotas, or other formula-based allocation of funds.

<http://www.fema.gov/pre-disaster-mitigation-grant-program>

Flood Mitigation Assistance Program

- The overall goal of the Flood Mitigation Assistance (FMA) Program is to fund cost-effective measures that reduce or eliminate the long-term risk of flood damage to buildings, manufactured homes, and other National Flood Insurance Program (NFIP) insurable structures. This specifically includes:

- Reducing the number of repetitively or substantially damaged structures and the associated flood insurance claims;

- Encouraging long-term, comprehensive hazard mitigation planning;
 - Responding to the needs of communities participating in the NFIP to expand their mitigation activities beyond floodplain development activities; and
 - Complementing other federal and state mitigation programs with similar, long-term mitigation goals.
- <http://www.fema.gov/flood-mitigation-assistance-program>

Detailed program and application information for federal post-disaster and pre-disaster programs can be found in the f, available at :
<https://www.fema.gov/library/viewRecord.do?id=4225>

For Oregon Emergency Management grant guidance on Federal Hazard Mitigation Assistance, visit: http://www.oregon.gov/OMD/OEM/pages/all_grants.aspx - Hazard_Mitigation_Grants

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State Programs

Community Development Block Grant Program

- Promotes viable communities by providing: 1) decent housing; 2) quality living environments; and 3) economic opportunities, especially for low and moderate income persons. Eligible Activities Most Relevant to Hazard Mitigation include: acquisition of property for public purposes; construction/reconstruction of public infrastructure; community planning activities. Under special circumstances, CDBG funds also can be used to meet urgent community development needs arising in the last 18 months which pose immediate threats to health and welfare.
http://portal.hud.gov/hudportal/HUD?src=/program_offices/comm_planning/communitydevelopment/programs

Oregon Watershed Enhancement Board

- While OWEB's primary responsibilities are implementing projects addressing coastal salmon restoration and improving water quality statewide, these projects can sometimes also benefit efforts to reduce flood and landslide hazards. In addition, OWEB conducts watershed workshops for landowners, watershed councils, educators, and others, and conducts a biennial conference highlighting watershed efforts statewide. Funding for OWEB programs comes from the general fund, state lottery, timber tax revenues, license plate revenues, angling license fees, and other sources. OWEB awards approximately \$20 million in funding annually.
<http://www.oregon.gov/OWEB/Pages/index.aspx>

Federal Mitigation Programs, Activities & Initiatives

Basic & Applied Research/Development

- National Earthquake Hazard Reduction Program (NEHRP), National Science Foundation. Through broad based participation, the NEHRP attempts to mitigate the effects of earthquakes. Member agencies in NEHRP are the US Geological Survey (USGS), the National Science Foundation (NSF), the Federal Emergency Management Agency (FEMA), and the

National Institute for Standards and Technology (NIST). The agencies focus on research and development in areas such as the science of earthquakes, earthquake performance of buildings and other structures, societal impacts, and emergency response and recovery. <http://www.nehrp.gov/>

- Decision, Risk, and Management Science Program, National Science Foundation. Supports scientific research directed at increasing the understanding and effectiveness of decision making by individuals, groups, organizations, and society. Disciplinary and interdisciplinary research, doctoral dissertation research, and workshops are funded in the areas of judgment and decision making; decision analysis and decision aids; risk analysis, perception, and communication; societal and public policy decision making; management science and organizational design. The program also supports small grants for exploratory research of a time-critical or high-risk, potentially transformative nature. http://www.nsf.gov/funding/pgm_summ.jsp?pims_id=5423

Hazard ID and Mapping

- National Flood Insurance Program: Flood Mapping; FEMA. Flood insurance rate maps and flood plain management maps for all NFIP communities. <http://www.fema.gov/national-flood-insurance-program-flood-hazard-mapping>
- National Digital Orthophoto Program, DOI – USGS. Develops topographic quadrangles for use in mapping of flood and other hazards. <http://www.ndop.gov/>
- Mapping Standards Support, DOI-USGS. Expertise in mapping and digital data standards to support the National Flood Insurance Program. <http://ncgmp.usgs.gov/standards.html>
- Soil Survey, USDA-NRCS. Maintains soil surveys of counties or other areas to assist with farming, conservation, mitigation or related purposes. http://soils.usda.gov/survey/printed_surveys/

Project Support

- Coastal Zone Management Program, NOAA. Provides grants for planning and implementation of non-structural coastal flood and hurricane hazard mitigation projects and coastal wetlands restoration. <http://coastalmanagement.noaa.gov/>
- Community Development Block Grant Entitlement Communities Program, HUD. Provides grants to entitled cities and urban counties to develop viable communities (e.g., decent housing, a suitable living environment, expanded economic opportunities), principally for low- and moderate- income persons. http://portal.hud.gov/hudportal/HUD?src=/program_offices/comm_planning/communitydevelopment/programs/entitlement
- National Fire Plan (DOI – USDA) Provides technical, financial, and resource guidance and support for wildland fire management across the United States. Addresses five key points: firefighting, rehabilitation, hazardous fuels reduction, community assistance, and accountability. <http://www.forestsandrangelands.gov/>
- Assistance to Firefighters Grant Program, FEMA. Grants are awarded to fire departments to enhance their ability to protect the public and fire service personnel from fire and related hazards. Three types of grants are available: Assistance to Firefighters Grant (AFG), Fire

Prevention and Safety (FP&S), and Staffing for Adequate Fire and Emergency Response (SAFER). <http://www.fema.gov/welcome-assistance-firefighters-grant-program>

- Emergency Watershed Protection Program, USDA-NRCS. Provides technical and financial assistance for relief from imminent hazards in small watersheds, and to reduce vulnerability of life and property in small watershed areas damaged by severe natural hazard events. <http://www.nrcs.usda.gov/wps/portal/nrcs/main/national/programs/landscape/ewpp>
- Rural Development Assistance – Utilities, USDA. Direct and guaranteed rural economic loans and business enterprise grants to address utility issues and development needs. http://www.rurdev.usda.gov/Utilities_Programs_Grants.html
- Rural Development Assistance – Housing, USDA. Grants, loans, and technical assistance in addressing rehabilitation, health and safety needs in primarily low-income rural areas. Declaration of major disaster necessary. <http://www.rurdev.usda.gov/HAD-HCFPGrants.html>
- Public Assistance Grant Program, FEMA. The objective of the Federal Emergency Management Agency's (FEMA) Public Assistance (PA) Grant Program is to provide assistance to State, Tribal and local governments, and certain types of Private Nonprofit organizations so that communities can quickly respond to and recover from major disasters or emergencies declared by the President. <http://www.fema.gov/public-assistance-local-state-tribal-and-non-profit>
- National Flood Insurance Program, FEMA. Makes available flood insurance to residents of communities that adopt and enforce minimum floodplain management requirements. <http://www.fema.gov/national-flood-insurance-program>
- HOME Investments Partnerships Program, HUD. Grants to states, local government and consortia for permanent and transitional housing (including support for property acquisition and rehabilitation) for low-income persons. <http://www.hud.gov/offices/cpd/affordablehousing/programs/home/>
- Disaster Recovery Initiative, HUD. Grants to fund gaps in available recovery assistance after disasters (including mitigation). http://portal.hud.gov/hudportal/HUD?src=/program_offices/comm_planning/communitydevelopment/programs/dri
- Emergency Management Performance Grants, FEMA. Helps state and local governments to sustain and enhance their all-hazards emergency management programs. <http://www.fema.gov/fy-2012-emergency-management-performance-grants-program>
- Partners for Fish and Wildlife, DOI – FWS. Financial and technical assistance to private landowners interested in pursuing restoration projects affecting wetlands and riparian habitats. <http://www.fws.gov/partners/>
- North American Wetland Conservation Fund, DOI-FWS. Cost-share grants to stimulate public/private partnerships for the protection, restoration, and management of wetland habitats. <http://www.fws.gov/birdhabitat/Grants/index.shtm>
- Federal Land Transfer / Federal Land to Parks Program, DOI-NPS. Identifies, assesses, and transfers available Federal real property for acquisition for State and local parks and recreation, such as open space. <http://www.nps.gov/ncrc/programs/flp/index.htm>

- Wetlands Reserve program, USDA-NCRS. Financial and technical assistance to protect and restore wetlands through easements and restoration agreements.
<http://www.nrcs.usda.gov/wps/portal/nrcs/main/national/programs/easements/wetlands>
- Secure Rural Schools and Community Self-Determination Act of 2000, US Forest Service. Reauthorized for FY2012, it was originally enacted in 2000 to provide five years of transitional assistance to rural counties affected by the decline in revenue from timber harvests on federal lands. Funds have been used for improvements to public schools, roads, and stewardship projects. Money is also available for maintaining infrastructure, improving the health of watersheds and ecosystems, protecting communities, and strengthening local economies. <http://www.fs.usda.gov/pts/>

