

SECTION 3: MITIGATION STRATEGY

Section 3 outlines Polk County's strategy to reduce or avoid long-term vulnerabilities to the identified hazards. Specifically, this section presents a mission and specific goals and actions thereby addressing the mitigation strategy requirements contained in 44 CFR 201.6(c). The NHMP Steering Committee reviewed and updated the mission, goals and action items documented in this plan. Additional planning process documentation is in Appendix A.

Mitigation Plan Mission

The plan mission states the purpose and defines the primary functions of Polk County's NHMP. It is intended to be adaptable to any future changes made to the plan and need not change unless the community's environment or priorities change.

The mission of the Polk County NHMP is:

To assist in reducing risk, preventing loss, and protecting life, property, and the environment from future natural hazard events. The plan fosters collaboration and coordinated partnerships among public and private partners. This can be achieved by increasing public awareness and education and identifying activities to guide the county towards building a safer community.

The 2017 NHMP Steering Committee reviewed the previous plan's mission statement and agreed to retain it without modifications.

Mitigation Plan Goals

Mitigation plan goals are more specific statements of direction that Polk County citizens, and public and private partners can take while working to reduce the county's risk from natural hazards. These statements of direction form a bridge between the broad mission statement and particular action items. The goals listed here serve as checkpoints as agencies and organizations begin implementing mitigation action items.

Stakeholder participation was a key aspect in developing the original plan goals in 2006. Meetings with the project Steering Committee, stakeholder interviews and public workshops all served as methods to obtain input and priorities in developing goals for reducing risk and preventing loss for natural hazards in Polk County.

The 2017 Polk County NHMP Steering Committee reviewed the previous plan goals in comparison to the State Natural Hazard Mitigation Plan (2015) goals and determined that they would retain their goals without modifications.

All the plan goals are important and are listed below in no particular order of priority. Establishing community priorities within action items neither negates nor eliminates any goals, but it establishes which action items to consider to implement first, should funding become available.

Below is a list of the plan goals:

GOAL 1: PUBLIC EDUCATION AND AWARENESS

Provide public information and education/awareness to all residents of the county concerning natural hazard areas and mitigation efforts.

GOAL 2: PREVENTIVE AND IMPLEMENTATION

Develop and implement activities to protect human life, commerce, property and natural systems.

GOAL 3: COLLABORATION AND COORDINATION

Strengthen hazard mitigation by increasing collaboration and coordination among citizens, public agencies, non-profit organizations, businesses, and industry.

GOAL 4: FUNDING AND PARTNERSHIPS

Seek partnerships in funding and resources for future mitigation efforts.

GOAL 5: EMERGENCY OPERATIONS

Coordinate and integrate natural hazard mitigation activities, where appropriate, with emergency operations plans and procedures.

GOAL 6: NATURAL RESOURCES UTILIZATION

Link land use planning, development criteria, codes, and natural resources and watershed planning with natural hazard mitigation.

The participating cities agreed to retain the plan mission and goal statements.

Action Item Development Process

Development of action items was a multi-step, iterative process that involved brainstorming, discussion, review, and revisions. Action items can be developed through a number of sources. The figure below illustrates some of these sources.

Figure 3-I Development of Action Items



The majority of the action items were first created during the previous NHMP planning processes. During these processes, Steering Committees developed maps of local vulnerable populations, facilities, and infrastructure in respect to each identified hazard. Review of these maps generated discussion around potential actions to mitigate impacts to the vulnerable areas. The Oregon Partnership for Disaster Resilience (OPDR) provided guidance in the development of action items by presenting and discussing actions that were used in other communities. OPDR also took note of ideas that came up in Steering Committee meetings and drafted specific actions that met the intent of the Steering Committee. All actions were then reviewed by the Steering Committee, discussed at length, and revised as necessary before becoming a part of this document.

Priority Actions

Action items identified through the planning process are an important part of the mitigation plan. Action items are detailed recommendations for activities that local departments, citizens, and others could engage in to reduce risk. Due to resource constraints, Polk County and participating cities are listing a set of high priority actions (Table 3-2) in an effort to focus attention on an achievable set of high leverage activities over the next five-years. This plan identifies priority actions based on an evaluation of high impact hazards, resource availability and FEMA identified best practices.

Note 1: See Volume II, Jurisdictional Addenda, for the Priority Actions for each participating city.

Action Item Matrix

The action item matrix (Table 3-3) presents a pool of mitigation actions. The majority of these actions carry forward from prior versions of this plan. This expanded list of actions is available for local consideration as resources, capacity, technical expertise and/or political will become available.

Priority Actions

The county is listing a set of high priority actions in an effort to focus attention on an achievable set of high leverage activities over the next five-years. The county's priority actions are listed below in Table 3-1.

Action Item Pool

Table 3-2 presents a pool of mitigation actions. This expanded list of actions is available for local consideration as resources, capacity, technical expertise and/or political will become available.

The majority of these actions carry forward from prior versions of this plan.

See Volume II, *Jurisdictional Addenda*, for the Action Item Matrix for each participating city.

Table 3-1 Polk County Priority Action Items

Year Action Created	Action Item #	Description	Managing Department / Agency	Timeframe	Potential Funding Source(s)	Benefit- Costs / Technical Feasibility	Status
Priority Actions							
Multi-Hazard Actions (MH)							
2006 (Revised 2017)	MH #1	Identify primary and secondary transportation routes to interconnect critical facilities. Create a map with these emergency routes to be used in the event of a natural hazard.	Emergency Management - HMT	Ongoing	General Fund	BC: TBD TF: Yes	Implemented
2017	MH #2	Reduce potential isolation of critical facilities in the event of a natural hazard by creating redundancy. Create a map with alternatives transportation routes. Create a plan for multiple communication alternatives.	Public Works/Emergency Management	1-5 years	General Fund	BC: TBD TF: Yes	New
2017	MH #3	Utilize social media as a communication outlet in the event of a natural hazard.	Emergency Management	Ongoing	General Fund	BC: TBD TF: Yes	New
Windstorm Action (WS)							
2006 (Revised 2017)	WS #1	Develop and implement programs to keep trees from threatening lives, property, and public infrastructure during windstorm events. Identify hazard trees, encourage harvesting of hazard trees within utility and road corridors, and those blown down during storm events.	Emergency Management- HMT, Public Works, Community Development	Ongoing	General Fund, HMGP	BC: TBD TF: Yes	Implemented

Source Polk County NHMP Steering Committee, updated 2017

Table 3-2 Polk Action Items

Year Action Created	Action Item #	Description	Managing Department / Agency	Timeline	Potential Funding Source(s)	Benefit- Costs / Technical Feasibility	Status
Mitigation Action Pool							
Multi-Hazard Actions (MH)							
2006 (Revised 2017)	MH #4	Review and update Polk County Emergency Operations Plan on an annual basis. Balance the objectives of existing program's goals with natural hazard mitigation.	Emergency Management - (HMT) and Planning Division	Ongoing	General Fund	BC: TBD TF: Yes	Implemented
2006 (Revised 2017)	MH #5	Identify coordination and collaborative opportunities to maximize or leverage funding opportunities that address multi-jurisdictional projects. Consider opportunities for public and private partnerships.	Emergency Management- HMT	Ongoing	General Fund, HMGP, HMA, HSGP	BC: TBD TF: Yes	Implemented
2006	MH #6	Strengthen emergency services preparedness and response by linking emergency services with natural hazard mitigation programs, and enhance public education on a regional scale.	Emergency Management - HMT	Ongoing	General Fund, HSGP, HMGP	BC: TBD TF: Yes	Implemented
2006 (Revised 2017)	MH #7	Develop, enhance, implement, and sustain education programs aimed at mitigating natural hazards and reducing the risk to citizens, public agencies, private property owners, businesses, and schools. Include materials concerning mitigation, preparedness, and safety procedures for all natural hazards.	School districts, facility safety personnel; Willamette ESD; Emergency Management- HMT; County Admin	Ongoing	General Fund, HMGP, HMA, HSGP	BC: TBD TF: Yes	Implemented
2009 (Revised 2017)	MH #8	Develop, incorporate, and cross reference mitigation planning provisions into zoning ordinances and all community planning processes such as comprehensive, capital improvement, land use, transportation, and emergency operations plans, etc to demonstrate multi-benefit considerations and facilitate using multiple funding sources. Pay particular attention to maintaining the floodway, protecting critical infrastructure, and private residences.	Emergency Management- HMT, Planning, County Admin	Ongoing	General Fund, EOC, HMGP, HSGP, HMA	BC: TBD TF: Yes	Implemented
2009 (Revised 2017)	MH #9	Update and maintain critical facility list needing emergency back-up power systems. Prioritize critical facilities susceptible to short term power disruption. (i.e. first responder and medical facilities, schools, correctional facilities, and water and sewage pump stations, etc.). Purchase and install generators with main power distribution disconnect switches for identified and prioritized critical facilities as funding becomes available.	GIS, Community Development	Ongoing	General Fund, HSGP	BC: TBD TF: Yes	Implemented

Source Polk County NHMP Steering Committee, updated 2017.

MH=Multi-Hazard

Table 3-2 Polk Action Item Pool (continued)

Year Action Created	Action Item #	Description	Managing Department / Agency	Timeline	Potential Funding Source(s)	Benefit- Costs / Technical Feasibility	Status
Mitigation Action Pool							
2009 (Revised 2017)	MH #10	Install lightning rods and lightning grade surge protection devices on any new critical electronic components such as warning systems, communications equipment, and computers for critical facilities.	County Admin/ Public Works	Ongoing	General Fund, HMGP	BC: TBD TF: Yes	Implemented
2006 (Revised 2017)	MH #11	Update the county's debris management plan. Enhance strategies for debris management and/or removal after windstorm events.	Emergency Management - HMT	Ongoing	General Fund, PA	BC: TBD TF: Yes	Implemented
Drought Actions (DR) - including expansive soils							
2006 (Revised 2017)	DR #1	Encourage dissemination of ideas by county-based agencies on effective methods of water use curtailment and provide information about emergency water rights for domestic uses.	Community Development Department	Ongoing	General Fund, NRCS	BC: TBD TF: Yes	Implemented
2006	DR #2	Encourage water providers to inter-tie water systems	Community Development Department	Ongoing	General Fund	BC: TBD TF: Yes	Implemented
2006	DR #3	Support the technical service and low interest loans provided to farmers and ranchers so that they can develop livestock watering systems.	Polk SWCD	Ongoing	General Fund	BC: TBD TF: Yes	Implemented
2006	DR #4	Encourage storage of water, especially off stream storage.	Community Development Department	Ongoing	General Fund	BC: TBD TF: Yes	Implemented
2006	DR #5	Support agencies' plan for long-range water resources development that leads to additional water supplies and help determine funding sources for the studies.	Community Development Department/ OWRD	Ongoing	General Fund, NRCS	BC: TBD TF: Yes	Implemented
2006 (Revised 2017)	DR #6	Notify property owners when expansive soils are identified on their property.	County Community Development Department	Ongoing	General Fund, HMGP	BC: TBD TF: Yes	Implemented
2006 (Revised 2017)	DR #7	Require road design, engineering, and construction processes that address expansive soil conditions. Water absorption prevention, impermeable membrane, soil compaction, and drainage methods need to be considered once geologic studies determine soil composition. Develop revisions for and revise the Polk County Road Standards for areas of the county with expansive soils.	Public Works	Ongoing	General Fund	BC: TBD TF: Yes	Partially Implemented

Source Polk County NHMP Steering Committee, updated 2017
MH=Multi-Hazard, DR=Drought

Table 3-2 Polk Action Item Pool (continued)

Year Action Created	Action Item #	Description	Managing Department / Agency	Timeline	Potential Funding Source(s)	Benefit- Costs / Technical Feasibility	Status
Mitigation Action Pool							
Earthquake Actions (EQ)							
2006 (Revised 2017)	EQ #1	Encourage reduction of nonstructural and structural earthquake hazards in homes, schools, businesses, and government offices. Inform residents and business owners of the value of earthquake hazard insurance.	Emergency Management - HMT	Ongoing	General Fund, HMGP, NEHRP	BC: TBD TF: Yes	Implemented
2006 (Revised 2017)	EQ #2	Encourage seismic strength evaluations of critical facilities to identify vulnerabilities and to meet current seismic standards. Improve local capabilities to perform earthquake building safety evaluations.	Emergency Management - HMT	Ongoing	General Fund	BC: TBD TF: Yes	Implemented
2009 (Revised 2017)	EQ #3	Use priority transportation route map to identify and prioritize bridges that that are not seismically adequate. Retrofit these bridges as funding becomes available.	County Public Works	Ongoing	General Fund, FHWA	BC: TBD TF: Yes	Implemented
2009 (Revised 2017)	EQ #4	Implement and enforce the State Building Codes. Inspect and/or certify all new construction as applicable.	Community Development Department, Building	Ongoing	General Fund	BC: TBD TF: Yes	Implemented
Flood Actions (FL) - including erosion							
2006 (Revised 2017)	FL #1	Develop an outreach program to educate public concerning NFIP participation benefits, floodplain development, land use regulation, and NFIP flood insurance availability to facilitate continued compliance with the NFIP. Conduct workshops for target audiences on National Flood Insurance Programs, mitigation activities.	Community Development Department	Ongoing	General Fund, HMGP, HMA	BC: TBD TF: Yes	Implemented
2009 (Revised 2017)	FL #2	Identify and mitigate repetitively flooded structures and infrastructures, analyze the threat to these facilities, and prioritize mitigation actions to acquire, relocate, elevate, and/or flood proof to protect the threatened population. Prioritize most cost beneficial and feasible projects.	Community Development Department	Ongoing	General Fund, HMA, HMGP	BC: TBD TF: Yes	Implemented
2006 (Revised 2017)	FL #3	Continue to coordinate with appropriate agencies, and maintain an inventory of all aggregate operations adjacent to or within the floodplain.	Community Development Department	Ongoing	General Fund	BC: TBD TF: Yes	Implemented

Source Polk County NHMP Steering Committee, updated 2017

EQ=Earthquake, FL=Flood

Table 3-2 Polk Action Item Pool (continued)

Year Action Created	Action Item #	Description	Managing Department / Agency	Timeline	Potential Funding Source(s)	Benefit- Costs / Technical Feasibility	Status
Mitigation Action Pool							
2009 (Revised 2017)	FL #4	Prioritize locations along County Roads that have frequent flooding. Use this prioritized list to determine projects for reducing frequency of flooding such as: increase culvert sizes and drainage efficiency, construct concrete wing walls at culvert or bridge entrances and outlets to direct water flow into their openings, raise bridge height or convert bridge from a multi-span to a single span to increase water flow and reduce debris catchment.	Public Works	Ongoing	General Fund, HMGP, HMA, PA	BC: TBD TF: Yes	Implemented
2009	FL #5	Install new precipitation measuring gauges and develop monitoring and early warning program.	Public Works	Ongoing	General Fund, NOAA/ NWS, HMGP, HMA	BC: TBD TF: Yes	Implemented
2006	FL #6	Maintain public drainage systems and encourage property owners to maintain private drainage systems.	Public Works	Ongoing	General Fund	BC: TBD TF: Yes	Implemented
2009	FL #7	Develop and provide information to all residents on riverbank erosion and methods to prevent it in an easily distributed format.	Emergency Management - HMT	Ongoing	General Fund, HMGP, HMA	BC: TBD TF: Yes	Implemented
2009	FL #8	Install riprap, or pilings to harden or "armor" a stream bank where severe erosion occurs.	Public Works	Ongoing	General Fund, HMGP, HMA, NRCS	BC: TBD TF: Yes	Implemented
2009	FL #9	Install bank protection such as rock, concrete, asphalt, vegetation, or other armoring or protective materials to provide river bank protection.	Public Works	Ongoing	General Fund, HMGP, HMA, NRCS	BC: TBD TF: Yes	Implemented
2009	FL #10	Harden culvert entrance bottoms with asphalt, concrete, rock, to reduce erosion or scour.	Public Works	Ongoing	General Fund, HMGP, HMA, NRCS	BC: TBD TF: Yes	Implemented
2009 (Revised 2017)	FL #11	Coordinate with FEMA and state agencies to maintain and update Flood Insurance Rate Maps (FIRM) for Polk County as funding becomes available. Use information obtained to update flood ordinance and for feasibility determination and project design at the planning level.	Public Works	Ongoing	General Fund, HMGP, HMA	BC: TBD TF: Yes	Implemented
Landslide Action (LS)							
2006 (Revised 2017)	LS #1	Use LIDAR data to improve knowledge of landslide hazard areas and prioritize primary and secondary lifeline transportation routes based on this information.	GIS and Public Works	Ongoing	General Fund	BC: TBD TF: Yes	Implemented

Source Polk County NHMP Steering Committee, updated 2017
 FL=Flood, LS=Landslide

Table 3-2 Polk Action Item Pool (continued)

Year Action Created	Action Item #	Description	Managing Department / Agency	Timeline	Potential Funding Source(s)	Benefit- Costs / Technical Feasibility	Status
Mitigation Action Pool							
Volcano Action (VE)							
2006	VE #1	Increase awareness of volcanic eruptions and their potential impact to the county.	Emergency Management - HMT	Ongoing	General Fund, NOAA/ NWS, HMGP	BC: TBD TF: Yes	Implemented
Wildfire Actions (WF)							
2006 (Revised 2017)	WF #1	Work with Polk Fire Defense Board in the review of plans and inspection of structures, access, and water supply for fire code compliance. Promote FireWise building siting, design, and construction materials.	Building Division	Ongoing	General Fund, FMAP	BC: TBD TF: Yes	Implemented
2006	WF #2	Advocate accessible water storage facilities in developments not connected to a community water/hydrant system in the wildland/urban interface (WUI).	Community Development Department	Ongoing	General Fund, FMAP, HMA	BC: TBD TF: Yes	Implemented
2006 (Revised 2017)	WF #3	Enhance and promote existing outreach and education programs aimed at mitigating wildfire hazards and reducing or preventing the exposure of citizens, public agencies, private property owners, and businesses to natural hazards particularly those within the WUI. Consider updating maps related to fire hazards and encourage fire-safe construction practices.	Emergency Management - HMT, Community Development, Fire District Departments	Ongoing	General Fund, FMAP	BC: TBD TF: Yes	Implemented
2006 (Revised 2017)	WF #4	Inform citizens about programs that assist landowners in reducing fuel loads on private property. Encourage home landscape cleanup (defensible space) and define debris disposal programs. Identify, develop, implement, and enforce mitigation actions such as fuel breaks and reduction zones for potential wildland fire hazard areas.	Community Development, Emergency Management, Fire Departments	Ongoing	General Fund, FMAP	BC: TBD TF: Yes	Implemented
2006	WF #5	Look for solutions to protect structures located outside of fire districts through partnerships, grant funding, fire protection contracts, or expansion of fire district services.	Polk Fire Defense Board	Ongoing	General Fund, FMAP	BC: TBD TF: Yes	Implemented
2009	WF #6	Identify evacuation routes away from high hazard areas and develop outreach program to educate the public concerning warnings and evacuation procedures.	Emergency Management- HMT, Fire District Depts	Ongoing	General Fund, FMAP	BC: TBD TF: Yes	Implemented
2009 (Revised 2017)	WF #7	Maintain and periodically update Community Wildland Fire Protection Plans for all at-risk communities.	Emergency Management- HMT, Fire District Depts	Ongoing	General Fund, FMAP, HMGP	BC: TBD TF: Yes	Implemented

Source Polk County NHMP Steering Committee, updated 2017

VE=Volcano, WF=Wildfire

Table 3-2 Polk Action Item Pool (continued)

Year Action Created	Action Item #	Description	Managing Department / Agency	Timeline	Potential Funding Source(s)	Benefit- Costs / Technical Feasibility	Status
Mitigation Action Pool							
Windstorm Action (WS)							
2006 (Revised 2017)	WS #2	Increase and maintain public awareness of severe windstorms and the benefits of mitigation activities through education aimed at households and businesses and increase targeting of special needs populations.	Emergency Management - HMT	Ongoing	General Fund, HMGP	BC: TBD TF: Yes	Implemented
Winter Storm Actions (WT)							
2006	WT #1	Enhance strategies for management of debris from severe winter storms.	GIS and Planning, CAO, utilities, county residents, solid waste franchises, landfills	Ongoing	General Fund	BC: TBD TF: Yes	Implemented
2006	WT #2	Develop and implement programs to coordinate maintenance and mitigation activities to reduce risk to public infrastructure from severe winter storms.	Emergency Management - HMT	1-5 years	General Fund	BC: TBD TF: Yes	Implemented
2006 (Revised 2017)	WT #3	Develop, implement, and maintain public awareness of severe winter storms and the benefits of mitigation activities through education aimed at households and businesses, and increase targeting of special needs populations. Include strategies for debris management.	Emergency Management - HMT	Ongoing	General Fund	BC: TBD TF: Yes	Implemented
2006 (Revised 2017)	WT #4	Identify and harvest potential high-risk trees that could cause damage from a winter storm along utility and road corridors.	Public Works	Ongoing	General Fund	BC: TBD TF: Yes	Implemented
2009 (Revised 2017)	WT #5	Inform citizens about the most current Uniform International, and State, Building Codes to ensure structures can withstand winter storm hazards such as high winds, rain, water and snow.	County Admin, Community Development Department, Public Works	Ongoing	General Fund	BC: TBD TF: Yes	Implemented
2009	WT #6	Review critical facilities and government building energy efficiency, winter readiness, and electrical protection capability. Identify, prioritize, and implement infrastructure upgrade or rehabilitation project prioritization and development.	County Admin, Community Development Department, Public Works	Ongoing	General Fund, HMGP, HSGP	BC: TBD TF: Yes	Implemented

Source Polk County NHMP Steering Committee, updated 2017
WS=Windstorm, WT=Winter Storm

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