

Appendix 4:

City of West Linn

Addendum to the Clackamas County Natural Hazards Mitigation Plan 2012 Amendments and Update

The Oregon Partnership for Disaster Resilience prepared this Appendix to the City of West Linn Addendum to the Clackamas County Natural Hazard Mitigation Plan (West Linn Addendum) as part of the 2011-12 update to the Clackamas County Natural Hazard Mitigation Plan. Upon local adoption, the appendix will become part of the West Linn Addendum and will ensure that the City of West Linn maintains FEMA Pre-Disaster Mitigation Program eligibility as well as compliance with the Clackamas County NHMP.

This appendix is organized according to the sections outlined in the West Linn Addendum. A description of each section is presented below with proposed changes and updates following each.

Section 1: Planning Process

The planning process section of the West Linn Addendum describes the activities used by the steering committee and community to develop the plan. Updates to the Planning Process section are as follows:

On Page 1, following Paragraph 2 of the “Planning Participants” subsection, insert the following:

2012 Update Planning Process

The RARE Participant and Clackamas County Emergency Management developed and facilitated one plan update meeting with the Hazard Mitigation Advisory Committee on June 6, 2012. Please see Appendix 3: Planning and Public Process for the meeting agenda and minutes.

2012 Committee members included:

- *Laura Comstock, Clackamas County Emergency Management/RARE*
- *Grant Oakes, WLPSAB*
- *Jeff Randall, City of West Linn – Transportation*
- *Ron Schwartz, West Linn Police Department*
- *Jay Wilson, Clackamas County Emergency Management*

NHMP Update Meeting – June 6, 2012: The participant worked with the city lead to convene the steering committee and meet to review and update the city’s Natural

Hazards Mitigation Plan Addendum. Because the county is in the process of updating their NHMP, each of the cities were required to update their addendums, regardless of when their plan was last updated or developed. This is to ensure that the county and all of the cities are on the same timeline, and will now all update their NHMP's in 5 years. As part of this meeting, the steering committee reviewed the county's updated hazard assessment and made necessary changes to their hazard assessment, if necessary. The committee also reviewed their list of community assets to determine if any new additions or changes needed to be made. The committee also reported on progress made to the action items listed in the current NHMP. The committee reviewed the mitigation strategy and plan implementation and maintenance pieces and made changes if necessary.

On Page 4, first paragraph following the “Formal Review Process” subsection, insert the following paragraphs:

Annual Meeting

The HMAC will meet once a year. The meeting will be coordinated by the convener. This meeting will debrief on the previous hazard seasons and prepare for the upcoming hazard seasons. In addition to debriefing and preparing for the upcoming hazard seasons, the committee will:

The convener, or city lead designee, will also be responsible for meeting annually with the county Hazard Mitigation Coordinator. This meeting will provide a chance for each of the city leads to meet together and discuss updates and progress with the Hazard Mitigation Coordinator. The convener will report back to the HMAC with information gathered. The Coordinator will be responsible for setting up the meeting, and providing the city leads with updates on new studies or potential funding opportunities for mitigation projects.

The convener will be responsible for documenting the outcome of the annual meeting, as well as the meeting with the county's Hazard Mitigation Coordinator.

On Page 5, at the end of the “City of West Linn Mitigation Strategies” subsection, edit the following sentence:

- ~~*The action items are organized within the following matrix, which lists all of the multi-hazard and hazard-specific action items included in the mitigation plan.*~~
- *The action items are organized in Appendix 2 and document the updated progress that has occurred from 2007 to 2012.*

On Pages 5-6, at the end of the “City of West Linn Mitigation Strategies” subsection, remove the action item matrix.

Section 2: Community Profile

The community profile section of the West Linn Addendum describes a variety of community characteristics specific to the City of West Linn. Based on new

information compiled during the Clackamas County NHMP update process, updates to the West Linn Addendum include the following:

On Page 10, Paragraph 1 of the “Population and Demographics” subsection insert the following sentence at the end:

By 2010, the census listed the population of West Linn at 25,109.

Section 3: Hazard Assessment

The hazard assessment section of the West Linn Addendum provides information on identifying hazards based on their geographic location, probability, and intensity; vulnerability assessment and inventory of community assets, and; a risk analysis estimating potential losses from each hazard. Based on new information compiled during the Clackamas County NHMP update process, updates to the West Linn Addendum include the following:

On Page 24, under the “Community Assets” subsection, insert the following sentence at the end:

An updated list of community assets is located in Appendix 1: Vulnerability Analysis Data Tables of this addendum.

Section 4: Natural Hazards

The risk assessment section of the West Linn Addendum describes the types, causes, characteristics and relative risk posed by natural hazards on the City of West Linn. Based on new information compiled during the Clackamas County NHMP update process, updates to the West Linn Addendum include the following:

On Page 40, insert a new subsection at the end of the “Flood Hazard Assessment” to include:

Hazard Scores

The HMAC determined that the probability of floods in West Linn is moderate, meaning one incident is likely to occur within 35 to 75 years. This is lower than the county’s high rating. Vulnerability of floods was determined to be moderate meaning 1% to 10% of the population and infrastructure are likely to be affected. This rating is the same as the county’s. There is a moderate history of flood events in West Linn with a low maximum threat. Both of these are lower than the county’s high and moderate rankings, respectively.

On Page 42 Paragraph 1 of the “Flood Mitigation Action Items” subsection, insert the following sentence at the end:

The action item worksheets with updated progress for 2012 are located in Appendix 2: Action Items of this addendum.

On Page 42-43, Remove all of the action items following Paragraph 1 of the “Flood Mitigation Action Items” subsection, and move them to Appendix 2: Action Items.

On Page 47, insert a new subsection at the end of the “Landslide Hazard Assessment” to include:

Hazard Scores

The HMAC determined that the probability of landslides in West Linn is low, meaning one incident is likely to occur within 75 to 100 years. This is lower than the county’s high rating. Vulnerability of landslides was determined to be high meaning more than 10% of the population and infrastructure is likely to be affected. This rating is higher than the county’s low ranking. There is a low history of landslides events in West Linn, which is lower than the county’s moderate rating and the maximum threat of landslides is moderate, which is higher than the county’s low rating.

On Page 49 Paragraph 1 of the “Landslide Mitigation Action Items” subsection, insert the following sentence at the end:

The action item worksheets with updated progress for 2012 are located in Appendix 2: Action Items of this addendum.

On Page 49, Remove all of the action items following Paragraph 1 of the “Landslide Mitigation Action Items” subsection, and move them to Appendix 2: Action Items.

On Page 55, insert a new subsection at the end of the “Earthquake Hazard Assessment” to include:

Hazard Scores

The HMAC determined that the probability of earthquakes in West Linn is low, meaning one incident is likely to occur within 75 to 100 years. This is in agreement with the county’s low rating. Vulnerability of earthquakes was determined to be high meaning more than 10% of the population and infrastructure is likely to be affected. This rating is the same as the county. There is a low history of earthquake events in West Linn with a high maximum threat. Both of these are in agreement with the county’s ratings.

On Page 55 Paragraph 1 of the “Earthquake Mitigation Action Items” subsection, insert the following sentence at the end:

The action item worksheets with updated progress for 2012 are located in Appendix 2: Action Items of this addendum.

On Page 55-56, Remove all of the action items following Paragraph 1 of the “Earthquake Mitigation Action Items” subsection, and move them to Appendix 2: Action Items.

On Page 59, remove the section, “Severe Storms” and replace with:

~~**Severe Storms**~~

Severe Weather

Page 59, remove Paragraph one of the “Severe Storm Profile” subsection and insert the following:

~~**Severe Storm Profile**~~

~~Wind, snow and ice storms (severe storms) are caused by severe weather conditions. Wind storms can occur at any time of the year, while ice storms are limited to the winter months. These storms produce linear winds rarely exceeding 90 miles per hour. An ice and/or snow storm can be accompanied by high winds. Wind and ice/snow storms are addressed together because they exhibit similar impacts, particularly in the form of damage to trees, power lines and utility lines.~~

~~**Severe Weather Profile**~~

Wind, snow and ice storms, and extreme heat (severe weather) are caused by severe weather conditions. Wind storms can occur at any time of the year, while ice storms are limited to the winter months. These storms produce linear winds rarely exceeding 90 miles per hour. An ice and/or snow storm can be accompanied by high winds. Wind and ice/snow storms are addressed together because they exhibit similar impacts, particularly in the form of damage to trees, power lines and utility lines. Extreme heat is characterized as several consecutive days with temperatures exceeding 100 degrees. With dangerous temperatures, the risk is especially high to vulnerable populations including young children and the elderly.

On Page 60, remove the section, “Severe Storms Hazard Assessment” and replace with:

~~**Severe Storm Hazard Assessment**~~

Severe Weather Hazard Assessment

On Page 61, insert a new subsection at the end of the “Severe Weather Hazard Assessment” to include:

Hazard Scores

The HMAC determined that the probability of windstorms and winter storm events in West Linn are moderate, meaning one incident is likely to occur within 35 to 75 years. These are in agreement with the county’s moderate ranking for windstorms, but lower than the county’s high ranking for winter storms. The HMAC determined the probability of extreme heat events was low, which is lower than the county’s

'high' rating. Vulnerability of windstorms and winter storm events were determined to be high meaning more than 10% of the population and infrastructure is likely to be affected. This rating is higher than the county's low rating for windstorms and moderate rating for winter storms. The vulnerability for extreme heat events in West Linn was determined to be moderate, which is in agreement with the county's rating. The HMAC determined the history of all three severe weather events was high. This is in agreement with the county's high rating for extreme heat events but higher than the county's moderate ratings for both windstorms and winter storms. The maximum threat of severe weather events was determined to be high for both windstorms and winter storms, which is higher than the county's moderate ranking for both; maximum threat for extreme heat events was determined to be moderate, which is in agreement with the county's rating.

On Page 62, remove the section, "Severe Storm Mitigation Action Items" and replace with:

~~Severe Storm Mitigation Action Items~~

Severe Weather Mitigation Action Items

On Page 62 Paragraph 1 of the "Severe Weather Mitigation Action Items" subsection, insert the following sentence at the end:

The action item worksheets with updated progress for 2012 are located in Appendix 2: Action Items of this addendum.

On Page 62-63, Remove all of the action items following Paragraph 1 of the "Severe Weather Mitigation Action Items" subsection, and move them to Appendix 2: Action Items.

On Page 67, insert a new subsection at the end of the "Wildfire Hazard Assessment" to include:

Hazard Scores

The HMAC determined that the probability of wildfires in West Linn is low, meaning one incident is likely to occur within 75 to 100 years. This is lower than the county's moderate rating. Vulnerability of wildfires was determined to be moderate meaning 1% to 10% of the population and infrastructure is likely to be affected. This rating is the same as the county. There is a moderate history of wildfire events in West Linn, which is higher than the county's low rating. Lastly, there is moderate maximum threat which is in agreement with the county's rating.

On Page 68 Paragraph 1 of the "Wildfire Mitigation Action Items" subsection, insert the following sentence at the end:

The action item worksheets with updated progress for 2012 are located in Appendix 1: Action Items of this addendum.

On Page 68-70, Remove all of the action items following Paragraph 1 of the “Wildfire Mitigation Action Items” subsection, and move them to Appendix 2: Action Items.

On Page 76, insert a new subsection at the end of the “Volcanic Eruption Hazard Assessment” to include:

Hazard Scores

The HMAC determined that the probability of volcanic eruptions in West Linn is low, meaning one incident is likely to occur within 75 to 100 years. This is in agreement with the county’s rating. Vulnerability of volcanic eruptions was determined to be moderate meaning 1% to 10% of the population and infrastructure is likely to be affected. This rating is the same as the county. There is a low history of volcanic eruptions events in West Linn, which is in agreement with the county’s rating and a low maximum threat, which is lower than the county’s moderate ranking.

On Page 77, following the “Volcano” subsection, insert the following new “Drought” subsection:

Drought Profile

The Clackamas County Multi-Jurisdictional Natural Hazards Mitigation Plan adequately describes the causes and characteristics, history, location, extent and impacts of drought affecting the city of West Linn. Descriptions of the drought hazard can be found on pages DR-1 to DR-6 of the 2012 Clackamas County Natural Hazards Mitigation Plan update.

The probability of drought in West Linn was determined using scientific data, historical occurrences, and local knowledge. The HMAC estimates the probability of drought to be ‘moderate’ meaning one incident is likely within a 35 to 75 year period. The HMAC estimates that West Linn has a ‘low’ vulnerability to drought conditions, meaning less than 1% of the population could be affected in a large-scale regional event. The HMAC determined that the history and maximum threat of drought events in West Linn was determined to be low. All four ratings are in agreement with the county’s.

Drought Mitigation Activities

The existing drought hazard mitigation activities are conducted at the county, regional, state, and federal levels and are described in the Clackamas County Natural Hazards Mitigation Plan. As such, the information will not be repeated here.

Drought Mitigation Action Items

The city of West Linn does not believe that implementing drought-related mitigation activities will be cost-effective at this time. As such, the city has not identified drought mitigation action items. West Linn will partner with Clackamas County,

however, on the implementation of mitigation strategies that benefit both jurisdictions.

On Page 79, Paragraph 1 of the “Multi-Hazard Action Items (MH)” subsection, edit the following sentence:

~~*Multi-hazard action items are those activities that pertain to all seven hazards in the mitigation plan: flood, landslide, wildfire, severe winter storm, windstorm, earthquake, and volcanic eruption.*~~

Multi-hazard action items are those activities that pertain to all nine hazards in the mitigation plan: flood, landslide, wildfire, severe winter storm, windstorm, extreme heat, earthquake, volcanic eruption, and drought.

On Page 79 Paragraph 1 of the “Multi-Hazard Mitigation Action Items” subsection, insert the following sentence at the end:

The action item worksheets with updated progress for 2012 are located in Appendix 2: Action Items of this addendum.

On Page 79-81, Remove all of the action items following Paragraph 1 of the “Multi-Hazard Mitigation Action Items” subsection, and move them to Appendix 2: Action Items.

Section 5: Mitigation Planning Priority System

The Mitigation Planning Priority Section of the West Linn Addendum describes the project review and prioritization process for the action items outlined for each hazard in Appendix 2: Action Items Worksheets. Based on new information compiled during the Clackamas County NHMP update process, updates to the West Linn Addendum include the following:

On Page 82, following Paragraph 2 of the “Mitigation Planning Priority System” subsection, insert the following:

Note: the City of West Linn does not believe that implementing drought and volcanic-related mitigation activities will be cost-effective at this time. As such, the city has not identified drought or volcanic-eruption mitigation action items.

On Page 84, replace “Table 5-1 Natural Hazards Prioritization Score” with the following updated Table:

Table 5-1 Natural Hazards Prioritization Score

Hazard	History	Vulnerability	Max. Threat	Probability	Total	Hazard Score
Weight Factor	2	5	10	7		
Multi-Hazard	-	-	-	-	-	10
Wind Storms	18	40	90	49	197	8
Winter Storms	18	40	90	49	197	8
Earthquake	2	50	100	14	166	7
Wildfire	8	35	50	14	107	6
Landslide	2	40	40	21	103	5
Flood	12	20	20	49	101	4
Extreme Heat	16	20	40	14	90	3
Volcano	2	25	30	14	64	2
Drought	2	10	20	28	60	1

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