

Appendix D:

City of Lake Oswego

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 Lake Oswego Addendum to the Clackamas County Natural Hazard Mitigation Plan (Lake Oswego 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 Lake Oswego Addendum and will ensure that the City of Lake Oswego 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 Lake Oswego 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 Lake Oswego 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 6, following Section 1.2 “2009 Plan Update,” insert the following section:

1.3 2012 Addendum Update

In accordance with the county’s Natural Hazards Mitigation Plan update, the City of Lake Oswego participated in the update of their addendum. By doing so, Lake Oswego will now be aligned with the county, and will update their NHMP’s together in five years.

2012 Committee members included:

- *Rob Amsberry, Lake Oswego Public Works – Engineering*
- *Laura Comstock, Clackamas County Emergency Management/RARE*
- *David Donaldson, City Manager*
- *Larry Goff, Lake Oswego Fire Department*
- *Leslie Hamilton, Lake Oswego Planning Department*
- *John Harris, Lake Oswego Public Works – Operations*
- *Bonnie Hirshberger, Lake Oswego City Manager’s Office – Public Affairs*
- *Dale Jorgensen, Lake Oswego Police Department*

- Phil Sample, Lake Oswego Fire Department, Fire Marshal
- Ed Wilson, Lake Oswego Fire Department

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 11, 2012. Please see Appendix A for the meeting agenda and minutes.

NHMP Update Meeting - June 11, 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. 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 9, second paragraph following the "Formal Review Process" subsection, delete the entire paragraph and replace with the following paragraph:

Semi Annual Meetings

~~The HMAAC will meet on a semi annual basis in the spring and fall of each year to review, implement and update information in the addendum. During the first meeting of each year, the HMAAC will:~~

Annual Meeting

The HMAAC 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:

On Page 9, set of bullets under the "Formal Review Process" subsection, delete these bullets and replace with the following bullets:

- ~~Document hazard events that occurred in the previous fall and winter months;~~
- ~~Prepare public education pieces for the upcoming spring and summer month hazards;~~
- ~~Document hazard events that occurred in the previous spring and summer months;~~
- ~~Prepare public education pieces for the upcoming fall and winter month hazards;~~

- Document hazard events that occurred in the previous year;
- Prepare public education pieces for the upcoming hazard seasons

On Page 9, first sentence following the first set of bullets under the “Formal Review Process” subsection, delete the following sentence:

During the second meeting of each year, the committee will:

On Page 9, first paragraph following the set of bullets under the “Formal Review Process” subsection, insert the following paragraph:

The convener, or city lead designee, will 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.

On Page 9, third paragraph following the “Formal Review Process” subsection, delete the first sentence and replace with the following sentence:

~~*The City Manager’s Office will be responsible for organizing, facilitation, and documenting the outcomes of semi-annual meetings.*~~

The City Manager’s Office will be responsible for documenting the outcomes of the annual meeting, as well as the meeting with the county’s Hazard Mitigation Coordinator.

Section 2: Community Profile

The community profile section of the Lake Oswego Addendum describes a variety of community characteristics specific to the City of Lake Oswego. Based on new information compiled during the Clackamas County NHMP update process, updates to the Lake Oswego Addendum include the following:

On Page 20, under the “Historic & Cultural Assets” subsection, delete the following bullets:

- ~~*Drew House*~~
- ~~*Platts House*~~

On Page 19, under the “Historic & Cultural Assets” subsection, add the following bullets:

- *Didzun House*
- *Lake Grove Fire Station*
- *Noel Dew House*
- *Trueblood House*
- *Headrick-Carothers House*

Section 3: Hazard Assessment

The hazard assessment section of the Lake Oswego 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 Lake Oswego Addendum include the following:

On Page 21, Paragraph 6 of the “Government Structure” subsection, delete the first sentence and replace with:

~~*Maintenance Services provides many of the basic urban services to the citizens of Lake Oswego, including water sanitary sewer and storm drainage systems, and their maintenance and repair.*~~

Public Works Operations provides many of the basic urban services to the citizens of Lake Oswego, including water sanitary sewer and storm drainage systems, and their maintenance and repair.

On Page 24, List of Critical Facilities under the “Community Assets: Vulnerability” section, delete the following and replace with:

~~*City Maintenance Facility*~~

Public Works Operations

On Page 24, List of Essential Facilities under the “Community Assets: Vulnerability” section, delete the following and replace with:

~~*Waluga Junior High*~~

~~*Bryant Elementary*~~

Bryant Campus

On Page 24, List of Essential Facilities under the “Community Assets: Vulnerability” section, delete the following:

~~*Palisades Elementary*~~

~~*Uplands Elementary*~~

On Page 24, List of Critical Infrastructure under the “Community Assets: Vulnerability” section, edit the following and replace with:

~~*Tryon Creek Wastewater Treatment Plant and main lines*~~

Tryon Creek Wastewater Treatment Plant, lift stations, and main lines

On Page 25, List of Environmental Assets under the “Community Assets: Vulnerability” section, edit the following and replace with:

~~*Millennium Park*~~

Millennium Plaza Park

On Page 25, List of Environmental Assets under the “Community Assets: Vulnerability” section, add the following assets:

Sundeleaf Park

Lusher Farm

On Page 25, following “Environmental Assets,” add a new subsection, “Vulnerable Populations”:

Vulnerable Populations: *Populations that have special needs or require special consideration.*

- *Child Care Facilities*
 - *Children’s Hour Academy*
 - *Touchstone School*
 - *Lake Oswego Montessori School*
 - *Exploration Learning School*
 - *Park Academy*
 - *Bethlehem Church Pre-School*
 - *NW Montessori*
 - *Lake Oswego Kindercare*
 - *Rockinghorse Day School*
 - *Sonshine Express Preschool*
 - *West Lake Montessori*
 - *Community Arts Pre-School*
 - *Maple Street Kids*
 - *Christ Church Episcopal Preschool*
 - *Mountain Park Kindercare*
 - *Mountain Park Playschool*
 - *Kings Kids*
 - *Kiddie Care Child Care*
 - *Village Montessori*
 - *Mayam’s Preschool*
 - *R D & S Daycare*
 - *Oswego Play School*
 - *Kiddie Care Child Care*
 - *Vermont Hills Family Life Center*
 - *International Leadership Academy*
- *Adult Care Facilities*
 - *Abby’s Adult Foster Care*
 - *Always Caring*
 - *Autumn Health Care II*
 - *Best Family Care*
 - *Carmen Oaks Assisted Living*
 - *Cherry Crest Adult Care Home*
 - *Daniel’s Adult Care Home*
 - *Eva & Gabriel Adult Care Home*

- Felicia's Adult Care Home
- Green Ridge Estates
- Greentree Adult Care Home
- Health For Life
- Hillside Home Adult Care
- Hope's Sweet Home
- Indian Springs Adult Care Home
- Lake Oswego Care Home
- Lake Oswego Comfort Living
- Loving Care Adult Care Home
- Lucky's Home
- Mary's Woods
- Oswego Care Home LTD.
- Oswego Place Assisted Living
- Oswego Pointe Adult Care Home
- Rosewood Inn Adult Foster Care
- Sunshine Adult Foster Care
- The Pearl at Kruse Way
- The Stafford

On Page 25, following "Vulnerable Populations," add a new subsection, "Economic Assets/Population Centers":

Economic Assets/Population Centers: *Economic Assets* are those businesses that employ large numbers of people, and provide an economic resource to the city of Lake Oswego. If damaged, the loss of these economic assets could significantly affect economic stability and prosperity. **Population Centers** usually are aligned with economic centers, and will be of particular concern for evacuation/notification during a hazard event.

- Lake Oswego School District
- Lake Oswego City Hall
- Meadows Road and Center Pointe Complex's

On Page 25, following "Economic Assets/Population Centers," add a new subsection, "Hazardous Materials":

Hazardous Materials: *Those sites that store, manufacture, or use potentially hazardous materials.*

- Portland Willamette Railroad
- City of Lake Oswego
- McCormack Coil Co Inc.
- Taylor Made Labels Inc.
- Cascade Pools
- Red Fox Hills Town Associate
- Lakeshore Concrete Co.
- Gage Industries
- Qwest Corporation

- Verizon Northwest Inc.
- Cascade Pools
- Portland Willamette Railroad
- Interstate 5
- State Highway 43

Section 4: Natural Hazards

The Natural Hazards section of the Lake Oswego Addendum describes the types, causes, characteristics and relative risk posed by each individual natural hazard for the city of Lake Oswego. Based on new information compiled during the Clackamas County NHMP update process, updates to the Lake Oswego Addendum include the following:

On Page 37, Insert the following sentence at the end of paragraph 1 under the “Flood Mitigation Projects” subsection:

The LOIS project was completed in winter of 2011-2012. Additionally, the City constructed seismic upgrades to the elevated wastewater main pipes that lead into the Tryon Creek Wastewater Treatment Plant.

On Page 37, Insert the following paragraph at the end of paragraph 1 under the “Flood Mitigation Projects” subsection:

Lake Oswego has currently been working with a consultant to incrementally model the flood levels of the Tualatin River. The final product of this effort will be the production of a series of flood inundation area maps that will be based upon the level of the river as measured at the USGS “West Linn” gage station. The city will use these maps to provide critical information to the Emergency Operation Center and crews in the field in an effort to better manage flood response. The maps will allow for strategic allocation of resources necessary to evacuate specific areas, close threatened roads, set up detours and deploy sand bagging materials.

On Page 38, Insert the following sentence at the end of paragraph 2 under the “Flood Mitigation Projects” subsection:

The FAN drainage plan was completed and identifies several projects. The projects have been included in the city CIP Plan, currently listed as unfunded.

On Page 38, Insert the following sentence at the end of paragraph 4 under the “Flood Mitigation Projects” subsection:

With improvements to the dam spillway in 2011-2012, the city will no longer need to consider blocking the flow path into Lakewood Bay. All flood flows (up to the 100-yr event) will spill over the dam.

On Page 39, Insert the following sentence at the end of paragraph 1 under the “Flood Mitigation Action Items” subsection:

Detailed Flood Mitigation Action Item worksheets with 2012 updates are located in Appendix A of this Addendum.

On Page 39, Remove all of the action items following Paragraph 1 of the “Flood Mitigation Action Items” subsection, and move them to Appendix C.

On Page 46, Insert the following sentence at the end of paragraph 2 of the “Landslide Mitigation Projects” subsection:

The city is currently working on a Capital Project to improve the surface water drainage in the area.

On Page 46, Insert the following sentence at the end of paragraph 1 under the “Landslide Mitigation Action Items” subsection:

Detailed Landslide Mitigation Action Item worksheets with 2012 updates are located in Appendix A of this Addendum.

On Page 46, Remove all of the action items following Paragraph 1 of the “Landslide Mitigation Action Items” subsection, and move them to Appendix C.

On Page 52, Insert the following sentence at the end of paragraph 1 under the “Wildfire Mitigation Action Items” subsection:

Detailed Wildfire Mitigation Action Item worksheets with 2012 updates are located in Appendix A of this Addendum.

On Page 52, Remove all of the action items following Paragraph 1 of the “Wildfire Mitigation Action Items” subsection, and move them to Appendix C.

On Page 55, edit Section 4.4 title, “Severe Storm: Wind and Winter” to be:

4.4 Severe Storm: Wind, Winter, and Extreme Heat

On Page 55, delete sentence 1 of the subsection, “Severe Storm Profile” and replace with the following:

~~*The historical severe windstorm and winter storm events are described in the County plan, and are applicable to Lake Oswego.*~~

The historical severe windstorm, winter storm, and extreme heat events are described in the County plan, and are applicable to Lake Oswego.

On Page 55, Paragraph 2 of the “Severe Storm Hazard Assessment” subsection, delete the second and third paragraphs, and replace with:

~~The HMAC estimates that the probability of severe winter storm and wind storms events is ‘high,’ meaning one incident is likely to occur in a 10 to 35 year period. The winter storm probability rating is in agreement with the County’s rating, however Lake Oswego’s wind storm rating is higher than the County’s ‘moderate’ rating.~~

The HMAC estimates that the probability of severe winter storm and wind storms events is ‘high,’ meaning one incident is likely to occur in a 10 to 35 year period, and ‘low’ for extreme heat events, meaning one incident likely within a 75 to 100 year period. The winter storm and extreme heat probability ratings are in agreement with the County’s ratings, however Lake Oswego’s wind storm rating is higher than the county’s ‘moderate’ rating.

On Page 55, Paragraph 4 of the “Severe Storm Hazard Assessment” subsection, delete the first and second paragraphs, and replace with:

~~The HMAC estimates a ‘moderate’ vulnerability to severe storms, meaning between 1% and 10% of the population and assets would be affected. This rating agrees with the County’s ‘moderate’ winter storm vulnerability rating, but is higher than the County’s ‘low’ vulnerability rating for wind storms.~~

The HMAC estimates a ‘moderate’ vulnerability to severe storms, meaning between 1% and 10% of the population and assets would be affected. This rating agrees with the County’s ‘moderate’ winter storm and extreme heat vulnerability ratings, but is higher than the county’s ‘low’ vulnerability rating for wind storms.

On Page 57, Paragraph 1 of the “Severe Wind and Winter Storm Mitigation Projects” subsection, delete the last sentence and replace with:

~~Each year, the City of Lake Oswego Maintenance Services conducts the following activities.~~

Each year, the City of Lake Oswego Public Works Operations conducts the following activities.

On Page 57, Insert a new bullet at the end of paragraph 1 of the “Severe Wind and Winter Storm Mitigation Projects”

- New weather stations and a webcam were installed to monitor storm systems.

On Page 57, delete the first sentence of the “Severe Storm Mitigation Action Items” subsection and replace with:

~~The severe wind and winter storm mitigation action item provides direction on specific activities that organizations and residents in Lake Oswego can undertake to reduce risk and prevent loss from severe winter storm events.~~

The severe extreme heat, wind and winter storm mitigation action item provides direction on specific activities that organizations and residents in Lake Oswego can undertake to reduce risk and prevent loss from severe winter storm events.

On Page 57, Insert the following sentence at the end of paragraph 1 under the “Severe Storm Mitigation Action Items” subsection:

Detailed Severe Storm Mitigation Action Item worksheets with 2012 updates are located in Appendix A of this Addendum.

On Page 57, Remove all of the action items following Paragraph 1 of the “Severe Storm Mitigation Action Items” subsection, and move them to Appendix C.

On Page 61, Paragraph 2 of the “Earthquake Hazard Assessment” subsection, delete the first two sentences of the paragraph and replace with the following:

~~*The HMAC estimates the probability of an earthquake occurring is ‘high,’ meaning one event is likely to occur within a 10-35 year period. This is in agreement with the County’s ‘high’ rating as well.*~~

The HMAC estimates the probability of an earthquake occurring is ‘high,’ meaning one event is likely to occur within a 10-35 year period. This is higher than the county’s ‘low’ rating.

On Page 63, Delete the last sentence at the end of paragraph 2 of the “Existing Earthquake Mitigation Activities” subsection and replace with the following:

~~*Seismic studies were completed for City Hall and the police station building, City maintenance facilities, and the sewer interceptor system.*~~

Seismic studies were completed for City Hall and the police station building, City maintenance facilities, and the sewer interceptor system and as a result, the wastewater (sewer) interceptor system was completely rebuilt and seismically upgraded with the LOIS Project, including the overhead mains into the treatment plant.

On Page 64, Insert the following sentence at the end of paragraph 1 under the “Earthquake Mitigation Action Items” subsection:

Detailed Earthquake Mitigation Action Item worksheets with 2012 updates are located in Appendix A of this Addendum.

On Page 65, Remove all of the action items following Paragraph 1 of the “Earthquake Mitigation Action Items” subsection, and move them to Appendix C.

On Page 70, Paragraph 5 of the “Volcanic Eruption Hazard Assessment” remove the following sentence and replace with:

~~The HMAC estimates that Lake Oswego has a ‘high’ vulnerability to volcanic eruptions, meaning more than 10% of the population could be affected in a large-scale event. This is in agreement with the County’s ‘high’ vulnerability rating as well.~~

The HMAC estimates that Lake Oswego has a ‘high’ vulnerability to volcanic eruptions, meaning more than 10% of the population and infrastructure is likely to be affected. This is higher than the county’s ‘moderate’ rating.

On Page 70, 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 Lake Oswego. 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 Lake Oswego 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. This is in agreement with the county’s ‘moderate’ rating. The HMAC estimates that Lake Oswego has a ‘low’ vulnerability to drought conditions, meaning less than 1% of the population could be affected in a large-scale regional event. This is in agreement with the county’s ‘low’ rating.

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 Lake Oswego 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. Lake Oswego will partner with Clackamas County, however, on the implementation of mitigation strategies that benefit both jurisdictions.

On Page 71, Insert the following sentence at the end of paragraph 1 under the “Multi-Hazard Mitigation Action Items” subsection:

Detailed Severe Storm Mitigation Action Item worksheets with 2012 updates are located in Appendix A of this Addendum.

On Page 71, Remove all of the action items following Paragraph 1 of the “Multi-Hazard Mitigation Action Items” subsection, and move them to Appendix C.

Section 5: Mitigation Planning Priority System

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

On Page 75, Paragraph 1 of the “Action Items” subsection, delete the second to last sentence of the paragraph and replace with the following:

~~Full action item descriptions are located in the corresponding hazard section of this addendum.~~

The full action item descriptions with the 2012 updated progress are located in Appendix C of this addendum.

On Page 76, Paragraph 2 of the “Action Items” subsection, delete the first two sentences of the paragraph and replace with the following:

~~Note: the City of Lake Oswego does not believe that implementing volcano-related mitigation activities will be cost-effective at this time. As such, the city has not identified volcanic eruption mitigation action items.~~

Note: the City of Lake Oswego 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.