

PLANNING PROCESS

Planning Process

Introduction

Tillamook County and its seven cities were included, along with several other jurisdictions, in a Pre-Disaster Mitigation (PDM) grant application DLCD made to FEMA in 2014 to update the Tillamook County Multi-Jurisdictional Natural Hazards Mitigation Plan. After a significant delay, DLCD received grant approval and funding from FEMA. That was followed by another delay to obtain permission from Oregon’s legislature for accepting the grant. Because of these delays, DLCD requested and received from FEMA a one-year extension of the grant performance period to September 30, 2017. Also due to changing circumstances during the long delays and FEMA grant requirements, DLCD and the County determined that the most efficacious path forward was for DLCD to use the grant funding to lead the plan update, assisting the County and its cities as would a consultant. The County and cities provided in-kind services as part of the required cost-share.

During the long delays, DLCD learned that special districts are also required to have NHMPs in order to be eligible for certain pre- and post-disaster mitigation funding from FEMA. DLCD reached out to the three ports in Tillamook County and invited them to join the plan update. The Port of Tillamook Bay joined. The Ports of Garibaldi and Nehalem did not. However, both the City of Garibaldi and the Port of Garibaldi believed that because the Port is located within the City of Garibaldi and because the City and Port collaborate very closely on many issues including natural hazards mitigation and emergency management, the City’s participation covered the Port. Upon learning that belief was erroneous, the Port of Garibaldi immediately requested to join the effort and has been an active participant since. The full list of participating jurisdictions is:

- 1. Tillamook County
- 2. City of Bay City
- 3. City of Garibaldi
- 4. City of Manzanita
- 5. City of Nehalem
- 6. City of Rockaway Beach
- 7. City of Tillamook
- 8. City of Wheeler
- 9. Port of Tillamook Bay
- 10. Port of Garibaldi

DLCD and ODF discussed updating and integrating Tillamook County’s 2006 Community Wildfire Protection Plan (CWPP) into the updated NHMP. The CWPP update process did get underway, but soon was thwarted by circumstance and tabled. Information from the 2006 CWPP and its Wildland Urban Interface Map are referenced and incorporated into this Plan’s Wildfire Hazard chapter.

Fortuitously, the Oregon Department of Geology and Mineral Industries (DOGAMI) and the University of Oregon Community Service Center (UOCSC) also were recipients of FEMA grants to generate products for Tillamook County and its cities, and the timing was such that all three projects could be coordinated for the benefit of the communities.

(UOCSC) was conducting a review of the Tillamook County Development Code, focusing on supplementing and strengthening code associated with natural hazard mitigation. The task included reviewing a range of regulatory and non-regulatory standards that could be used by Tillamook County to mitigate the risk of natural hazards impacting the County. This information was reviewed for potential mitigation actions.

DOGAMI was producing a multi-hazard risk report with two goals: (1) provide a quantitative risk assessment that informs communities of their risks related to certain natural hazards; and (2) interpret the results to identify specific mitigation opportunities (i.e. areas of mitigation interest) upon which the communities may act. This report contains information and analysis providing the vulnerability and risk assessment (exposure, and where possible loss estimation) for coastal erosion, earthquakes, flooding, landslides, tsunamis, and wildfires. Mitigation actions suggested by the report's findings are also offered. They were considered by the communities in developing mitigation actions.

In addition, this update process was able to be coordinated with a FEMA Risk MAP process wrapping up new flood mapping. The new preliminary flood maps were used in DOGAMI's analysis and the NHMP. The Risk MAP program's Resilience Meeting took on a new complexion beginning with this project. Because the new preliminary flood maps were being issued as the communities were finishing up development of their mitigation actions, FEMA was able to use the Resilience Meeting as a springboard for the implementation phase of the Risk MAP program – the initiation of a long-term relationship between FEMA and the communities to advance implementation of the new flood mapping, the findings of the Multi-Hazard Risk Report, and the NHMP. Productive dialogue about the communities' concerns, mitigation priorities, and resource needs matched with FEMA's ability to provide resources to support mitigation actions set the stage for continued future engagement. Further, DLCDC has committed to assisting the communities with integrating the NHMP into their comprehensive plans and other planning mechanisms after the updated NHMP receives FEMA approval.

The degree of coordination that was able to be achieved for the benefit of Tillamook County, its cities, and the two ports was impressive. The success of this experiment on all fronts – administrative, fiscal, and organizational – is being leveraged for the next round of FEMA grant funding for mitigation planning efforts. We expect that it will lead to more efficient and effective projects statewide, far into the future.

Plan Format and Content Changes

The first Tillamook County Multi-Jurisdictional NHMP was approved by FEMA in 2006. The update, approved in 2012, was a laser-focused review and update. With that approach having been taken and ten years having passed since the first plan was completed, it was necessary to modernize the plan. Therefore, the entire plan was rewritten with new content and formatting. There are only a few pieces of information that remain from the previous update. This updated Plan addresses the hazards, mitigation strategy, and planning process more clearly.

The Steering Committee also determined that the plan would be stronger, better serving not only the individual jurisdictions but also the entire county, if it were integrated as much as possible, rather than being formatted as a very repetitive compilation of individual annexes to the County Plan. That approach has been taken, and where necessary, each jurisdiction has been addressed individually.

Planning Process and Participation

During the long delays, DLCDC began project planning. A Memorandum of Agreement with a Scope of Work (See Appendix) was developed and signed by the original eight participating jurisdictions. Later the MOA was amended to include the Ports. Because there was no funding flowing between DLCDC and the jurisdictions, the purpose of the MOA was to set expectations and establish responsibilities. Steering Committee members and technical advisors were identified, contacted, and invited to participate.

The Steering Committee comprises a member and at least one alternate from each jurisdiction. People with authority for land use policymaking such as County Commissioners and Mayors, City Managers, and Planning Directors were targeted for membership. In some cases, the primary member delegated responsibility to a particular staff member or two. Technical advisors were identified using FEMA’s six “whole community” sectors. Representatives of each sector were identified for each community. They were contacted individually, advised of the project, and invited to participate.

Table 127. Steering Committee Members (bolded) and Alternates by Community

Community	Member/Alternate	Title
Tillamook County	Bill Baertlein, Chair	County Commissioner
Tillamook County	Sarah Absher	Community Development Planner
Bay City	Shaena Peterson	Mayor
Bay City	Lin Downey	City Recorder
Bay City	Angie Cherry	City Planning Secretary
Garibaldi	Terry Kandle	City Emergency Preparedness Mgr.
Garibaldi	John O'Leary	City Manager
Manzanita	Linda Kozlowski	City Council Member
Manzanita	Jerry Taylor	City Manager
Manzanita	Cynthia Alamillo	Assistant City Manager
Nehalem	Jim Welch	City Council Member
Nehalem	Dale Shafer	City Manager & City Recorder
Rockaway Beach	Joanne Aagaard	Mayor
Rockaway Beach	Lars Gare	City Manager
Rockaway Beach	Terri Michel	City Recorder
Tillamook City	Suzanne Weber	Mayor
Tillamook City	Paul Wyntergreen	City Manager
Wheeler	Stevie Burden	Mayor
Wheeler	Geoff Wullschlager	City Manager
Port of Tillamook Bay	Michele Bradley	General Manager
Port of Tillamook Bay	Aaron Palter	Project Coordinator
Port of Garibaldi	Michael Saindon	General Manager

Table 128. Technical Advisors by “Whole Community” Sector and Jurisdiction

Sector/Jurisdiction	Name	Title
Emergency Management		
Tillamook County	Gordon McCraw	Emergency Management Director
Tillamook County Sheriff’s Office	Andy Long	Sheriff
Tillamook 911	Doug Kettner	Administrator
Emergency Volunteer Corps of Nehalem Bay	Linda Kozlowski	President
Manzanita Police	Erik Harth	Chief of Police
Rockaway Beach Police	Charlie Stewart	Chief of Police
CERT Representative	William Harshbarger	CERT Point of Contact
Tillamook Police	Terry Wright	Chief of Police
Bay City Fire	Daryl Griffith	Fire Chief
Garibaldi Fire	Jay Marugg	Fire Chief

Sector/Jurisdiction	Name	Title
Nehalem Bay Fire	Perry Sherbaugh	Fire Chief
Nestucca Fire	Kris Weiland	Fire Chief
Rockaway Beach Fire	Barry Mammano	Fire Chief
Tillamook County Fire	Rick Adams	Fire Chief
Economic Development		
Tillamook County Economic Development District	Mike Cohen	Director, Economic and Small Business Dev.
Port of Garibaldi	Mike Sainden	Manager
Port of Nehalem	Jim Peters	Commissioner
Port of Nehalem	Terry Fullan	Commissioner
Port of Tillamook Bay	Michelle Bradley	Manager
Tillamook Coast	Nan Devlin	Tourism Director
Tillamook Area Chamber of Commerce	Justin Aufdermauer	Executive Director
Pacific City-Nestucca Valley Chamber of Commerce		Manager
Land Use and Development		
Garibaldi	John O'Leary	City Manager
Bay City	Lin Downey	City Recorder
Bay City	Sabrina Pearson	City Planner
Manzanita	Jerry Taylor	City Manager
Nehalem	Dale Shafer	City Manager/Recorder
Tillamook County	Sarah Absher	Community Development Planner
Tillamook	Paul Wyntergreen	City Manager
Tillamook	David Mattison	City Planner
Rockaway Beach	Terri Michel	City Recorder
Rockaway Beach	Lars Gare	City Manager
Rockaway Beach	John Fregonese	President, Fregonese Associates
Wheeler	Geoff Wullschlager	City Manager
CAC - Barview/Watseco/Twin Rocks	Gary Albright	Chair
CAC – Cloverdale (Inactive)	Steve Dotson	Chair
CAC - Oceanside Neighborhood Association	Jud Randall	Chair
CAC - Neskowin	Richard Hook	Chair
CAC - Netarts	Jim Carlson	Chair
CAC - Pacific City-Woods	Sean Carlton	Chair Elect
Tillamook County Futures Council	David Yamamoto	Chair
Housing		
Neah Casa Community Housing Trust	Linda Kozlowski	Board Member
Northwest Oregon Housing Authority	Todd Johnston	Executive Director
Health and Social Services		
Tillamook County Health Department	Marlene Putman	Director
Tillamook School District #9	Randy Schild	Superintendent
Neah-Kah-Nie School District	Paul Erlebach	Superintendent
Nestucca School District	David Phelps	Superintendent
Adventist Health	David Butler	CEO
CARTM	Karen Reddick-Yurka	Executive Director
Community Action Resource Enterprises (CARE)	Erin Skaar	Executive Director
Infrastructure		
Tillamook County Road Department	Liane Welch	County Road Department Director
Tillamook County Solid Waste	David McCall	Solid Waste Director
Tillamook County Building	Mark Brien	Building Official

Sector/Jurisdiction	Name	Title
Bay City Public Works	Brian Bettis	Public Works Director
Garibaldi Public Works	Blake Lettenmaier	City Engineer
Garibaldi	Martin McCormick	Systems Operator
Manzanita Public Works	Dan Weitzel	Public Works Director
Nehalem Public Works	Donald D. Davidson	Superintendent
Rockaway Public Works	Luke Shepard	Public Works Director
Wheeler Public Works	Joe Velkinburg	Public Works Director
Tillamook Public Works	Timothy Lyda	Public Works Director
Tillamook Public Utility District	Ray Sieler	Manager
Nehalem Bay Wastewater Agency	Bruce Halverson	Manager
Neahkahnie Water District	Richard Felley	General Manager
Pacific City Joint Water-Sanitary Authority	Tony Owen	Authority Manager
Neskowin Regional Water District	Troy Trute	General Manager
Natural and Cultural Resources		
Tillamook County Pioneer Museum	Gary Albright	Director
Nehalem Valley Historical Society	Tom Mock	
Tillamook Estuary Partnership	Lisa Phipps	Executive Director
Tillamook County Creamery Association	Mark Wustenberg	
Confederated Tribes of Grand Ronde	Reyn Leno	Tribal Council Chair
Confederated Tribes of Siletz Indians	Delores Pigsley	Tribal Chairman
Clatsop-Nehalem Confederated Tribes	Roberta Basch	
Clatsop-Nehalem Confederated Tribes	Diane Collier	Tribal Council Chairman
Oregon Department of Forestry	Kate Skinner	District Forester
Tillamook Bay Flood Improvement District	Tilda Jones	Staff

DLCD attended two early-interest meetings and presented an introduction to the project at each meeting. The first, held April 6, 2016, was a joint meeting of Tillamook County Commissioners and Planning Commissioners. Its dual purposes were to (a) present and discuss OPDR’s Code Review Project; and (b) present and discuss the Risk MAP and Mitigation Plan Update projects and how all three projects related to one another. The second, held April 20, 2016, was a regular quarterly “Mayors Meeting” of the Mayors of Tillamook County cities. DLCD again presented an introduction to the mitigation plan update and discussed its relationship to the Risk MAP and Code Review Projects.

Work began in earnest with a Steering Committee meeting held June 6, 2016 to introduce and organize the project, and unfolded from there:

Table 129. Planning Process

Date(s)	Activity	Purpose
April 6, 2016	Joint Meeting of Tillamook County Board of Commissioners and Planning Commission	Present and discuss OPDR’s Code Review Project, Risk MAP Multi-Hazard Risk Report project, NHMP update project, their relationships to one another and how they would be integrated, and how they would benefit, separately and together, the County and its cities.
April 20, 2016	Quarterly Mayors Meeting	Present and discuss the NHMP update project and its relationship to the Risk MAP and Code Review projects.
June 6, 2016	Steering Committee Meeting	NHMP Update Project Initiation Meeting: Project overview, MOA, Plan content; Scope of Work and Project Schedule; Integration of NHMP with other planning documents

Date(s)	Activity	Purpose
September 23, 2016	Steering Committee Meeting	Plan structure and content; Multi-Hazard Risk Report; Community Hazard Risk Analysis
December 15, 2016	Steering Committee Meeting	Public Involvement; Post-Disaster Funding (FEMA & SHMO); Project Schedule; Multi-Hazard Risk Report
January 31, 2017	Steering Committee Meeting	Follow-up on Post-Disaster Funding; Resilience Meeting; Project Schedule; Draft Risk Assessment; Mitigation Goals
February 27 – March 3, 2017	Individual Jurisdiction Meetings with DLCD	Review goals, mitigation action status; Identify and prioritize mitigation actions for updated plan; Identify opportunities for integration; identify tools and assets; develop plan maintenance system including opportunity for public involvement
March 1 – 15, 2017	Public Comment Period	Review Draft Risk Assessment Chapter
March 7, 2017	Steering Committee Meeting	Review results of individual jurisdiction meetings; decide on multi-jurisdictional goals and mitigation actions; decide on multi-jurisdictional system for plan maintenance including opportunity for public involvement
April 4, 2017	Resilience Meeting	Share local mitigation concerns and resource needs; learn what FEMA can offer to assist with advancing mitigation actions; develop relationship between community leaders and FEMA for long-term collaboration on advancing hazard mitigation in Tillamook County
May 8 – 26, 2017	Public Comment Period	Review updated Draft Risk Assessment Chapter and Mitigation Strategy Chapter
May 16 – 18, 2017	Public Open Houses	Review updated Draft Risk Assessment Chapter and Mitigation Strategy Chapter
Late May 2017	OEM Review	Initial review to ensure Plan meets minimum requirements for approval
Mid-June 2017	FEMA Review/APA	Formal review resulting in “Approvable Pending Adoption” letter
August 2017	Local Adoption	Local governments adopt plan demonstrating commitment to natural hazards mitigation.
September 2017	FEMA Approval	FEMA approval affirms the local governments’ commitment to and plans for advancing natural hazards mitigation and confers eligibility for certain mitigation planning and project funding programs

Each of the original eight jurisdictions was present at the June 6, 2016 project initiation meeting. The Port of Tillamook Bay began attending at the first opportunity after it was invited with the September 23, 2016 meeting. Each jurisdiction strived to have at least one representative at each meeting; occasionally that was not possible and the representative caught up after the meeting. The December 15, 2016 meeting was especially challenging due to winter weather conditions, yet all jurisdictions but Rockaway Beach were ultimately able to have a representative there. The meeting time was changed to avoid rush hour and the iciest conditions, allowing more representatives to attend. Notably, DLCD and DOGAMI were unable to attend in person, so the meeting location was also changed to facilitate their remote participation. All the jurisdictions were represented at the January 31, 2017 Steering Committee meeting.

The June meeting was dedicated to initiation of the project: understanding the project scope, timelines, and Plan content; reviewing the MOA to facilitate agreement and approval as well as to establish expectations and responsibilities; and discuss integration of the approved plan with other planning documents.

The September meeting was focused on two items: DOGAMI’s presentation of the Draft Multi-Hazard Risk Report which would form the basis of most of the Risk Assessment, and performing local Hazard Vulnerability Assessments.

December's meeting agenda also had multiple items of significance. The State Hazard Mitigation Officer, Angie Lane, and representatives of FEMA Region X were present to discuss post-disaster funding in general and in light of the fact that the current Plan would expire in April 2017 which was a source of concern for the jurisdictions. FEMA representatives also asked how FEMA could support the jurisdictions in advancing natural hazard mitigation. Lively conversation sparked a number of ideas. Tillamook County introduced its NHMP update web page to which the other jurisdictions would drive their web traffic. And DOGAMI presented the revised and now Final Draft Multi-Hazard Risk Report on which most of the Plan's Risk Assessment would be based.

In January, the meeting again presented a number of substantive discussion items: FEMA's responses to the jurisdictions requests for support; review of the first Draft Risk Assessment which would be published for public review and comment on February 10; mitigation goals; and planning for the Resilience Meeting. The Resilience Meeting is an integral element of the Risk MAP process, and for the first time we would have the chance to leverage that meeting to serve both Risk MAP and NHMP process purposes. We reviewed agendas and other documents from previous Resilience Meetings in other jurisdictions; discussed options for the goals and character of the meeting; and identified the best (in fact, it turned out to be the only) date that would work for all the jurisdictions.

To proceed with the Resilience Meeting as re-imagined, it was necessary for the jurisdictions to have identified mitigation goals and actions in advance of the meeting. To that end, and for the purposes of the NHMP update schedule, DLCD planned and carried out a week of consecutive meetings, one with each jurisdiction (except the Port of Tillamook Bay and Tillamook County met together at their request), to develop elements of the mitigation strategy. DLCD requested that the jurisdictions cast a wide net, inviting anyone who they thought should be included in the conversation. The attendees generally included City Managers, Mayors, City Council Members or County Commissioners, Planners, Emergency Managers, Fire or Police Chiefs, and Public Works personnel. Some jurisdictions have all those positions and some do not. In some jurisdictions one person may perform multiple functions. The Cities of Tillamook, Wheeler, and Tillamook County cast wider nets. A representative of the local Chamber of Commerce attended the City of Tillamook's meeting. A number of Planning Commissioners and interested citizens attended the City of Wheeler's meeting. Representatives of the Pacific City Joint Water-Sanitary Authority, Oregon Department of Forestry, Neskowin CAC, and the Tillamook County Creamery Association attended the joint Tillamook County/Port of Tillamook Bay meeting. (Sign-in sheets are in the Appendix.) Each meeting lasted three hours during which the jurisdictions reviewed the current NHMP goals and mitigation actions; identified and prioritized mitigation actions (old, modified, or new) for the updated Plan; discussed the tools and assets they possessed for implementing the actions; discussed opportunities for integrating the updated Plan with other planning documents; and discussed how they would maintain the Plan over its five-year life, both internally and cooperatively countywide.

During that week, two more drafts of the Risk Assessment was released for public review and comment. The first, on March first, accidentally omitted some maps. That was rectified and the draft was re-released on March third.

The next week, the same people who were invited to the individual jurisdiction meetings the week before were invited to a multi-jurisdictional meeting held on March 7th to review the work of their colleagues; decide on multi-jurisdictional goals for the updated Plan; determine whether to include

multi-jurisdictional mitigation actions; and decide on a multi-jurisdictional system for plan maintenance. All the jurisdictions were represented at the meeting. This was also the first meeting in which the Port of Garibaldi participated separately from the City of Garibaldi. The Port of Garibaldi met separately with DLCD in late March to get caught up.

The information from the individual and multi-jurisdictional meetings was compiled and the mitigation actions provided to FEMA Region X for use in the Resilience Meeting. While highlighted, the discussion of mitigation actions during the meeting was limited and no changes were made based on this meeting. DLCD also provided all the NHMP update contacts (Steering Committee, Technical Advisors, individual meeting invitees, and other interested parties) to FEMA Region X to ensure they were all invited to participate in the Resilience Meeting. The Resilience Meeting was held on April 4, 2017 and was successful. All the jurisdictions except Rockaway Beach attended. The jurisdictions were able to meet FEMA personnel and discuss face-to-face their jurisdictions’ natural hazards, geographies, capabilities, constraints, concerns, desires, and opportunities. FEMA personnel were able to meet the people they would be working with over time to implement the Risk MAP program and natural hazards mitigation and learn more about how they could support the jurisdictions in those endeavors. FEMA provided literature for the taking on a wide range of hazards and mitigation topics. The meeting provided a positive beginning for what all hope will be a productive long-term relationship.

On May 8, 2017, a third draft of the Risk Assessment and first draft of the Mitigation Strategy were released for public review and comment. The following week, a series of three open houses was held – one in the north, one in the south, and one located centrally – to showcase the draft and solicit comments. The long, three-week comment period and open houses were advertised by all the jurisdictions through their websites and in a local paper. The northern open house drew the most interest and comments.

Public Outreach

The jurisdictions discussed and committed to various forms of outreach early on in the project, including deciding that Tillamook County would provide the main web presence for the project and each community would drive web traffic to Tillamook County’s website. However, uptake was slow and web presence was not fully operational until early December 2016. Once up and running, however, it drew public interest. Hits spiked with release of the first Risk Assessment draft in February 2017 and again with the Resilience Meeting in April, then stayed high with release of the Draft Risk Assessment and Mitigation Strategy in May.

Table 130. Public Interest as Gauged by Website Hits

Public Interest	
Month	Hits
January	148
February	225
March	174
April	281
May	248

The County posted the Draft Risk Assessment and notice of the comment period on its website in February 2017. Each jurisdiction posted a notice and drove web traffic to the County's website. In addition, notices were posted in each city hall, public libraries, and one of the local newspapers. No comments were received.

The February/March 2017 individual jurisdiction meetings were an opportunity for DLCD to spend time with each jurisdiction focusing on their specific situations and concerns, mitigation goals and actions, programs, codes, tools, and assets, as well as a method for maintaining the plan. Steering Committee members were asked to invite any and all people they thought should be involved in the discussion in their jurisdictions. Most jurisdictions invited planning, public works, law enforcement, and emergency management staff. Some jurisdictions also invited City Council members, Planning Commissioners, and other interested parties.

All those invited to participate in the individual jurisdiction meetings were also invited to participate in the Steering Committee meeting on March 7. This meeting was also open to the public, and some interested parties attended. At this meeting, the jurisdictions discussed their thoughts on goals and mitigation actions, and decided on a plan maintenance strategy with public involvement.

Again, all those invited to participate in the individual jurisdiction meetings and the March 7th multi-jurisdictional meeting as well as all the Technical Advisors were invited to attend the Resilience Meeting where FEMA and the communities laid the groundwork for a long and successful collaboration to reduce risk from natural hazards in Tillamook County. FEMA was responsible for the public outreach for the Resilience Meeting. DLCD provided contact information for all the local NHMP-related invitees.

An updated version of the Risk Assessment and a new draft of the Mitigation Strategy were issued for public review on May 8, 2017. Again, the document and notice of the extensive comment period (three weeks) was posted on Tillamook County's website and each jurisdiction drove its web traffic to that website. Notice of the review period was combined with notice of the upcoming open houses. Notice of the open houses was also published in one of the local newspapers. Email notices of the comment period and invitations to the public open houses were sent directly to Planning Directors or Managers and Emergency Managers in each of the neighboring counties: Clatsop, Columbia, Washington, Yamhill, Polk, and Lincoln. The same information was emailed to everyone who was invited to the Resilience Meeting, approximately 124 people. The open houses were held in three different parts of the County: Nehalem in the north; Tillamook Bay Community College centrally; and Pacific City in the south. The meeting in Nehalem was better attended than the others. Comments from four citizens were generated.

Table 131. Comments and Responses

#	COMMENTS	COMMENT	RESPONSE
1	Tom Bender Neahkahnie, OR	What is actual earthquake hazard being considered - what does "M 9.0" mean? Is that the same as R-9? XXL quake is R-9.5, with FIVE TIMES the lateral movement of R9.0. Triple confusion with other two ratings having MM wording!	The earthquake being considered is a Cascadia Subduction Zone (CSZ) event with a "moment magnitude" (M or Mw) of 9.0. The moment magnitude is more accurate for large earthquakes than the Richter scale which is often used for earthquakes that are up to a magnitude 6.5. Magnitude measures the energy released by an earthquake. Most people feel nearby earthquakes of M3.0 or greater. Shaking intensity is measured by the Modified Mercalli (MM) scale. It is based on observation and therefore subjective. Rather than an earthquake measurement, XXL (extra, extra large) is one of five sizes that express the extent of tsunami inundation expected from various CSZ event scenarios. The XXL line is used to depict the tsunami evacuation zone boundary.
2	Tom Bender Neahkahnie, OR	The use of a "Medium" CZE earthquake for Resilience Planning and location of essential facilities feels improper. A careful look at the quake history chart on page 156 of your study clearly shows that the next 3000 yr. XXL quake (last which was a "cluster") is 65 years "overdue", and should be used for planning as well as the smaller "Medium" size quakes.	The Oregon Resilience Plan uses the impact of a "Medium" Cascadia Subduction Zone (CSZ) earthquake and tsunami for planning purposes because this was judged the most likely CSZ event. (For explanation see DOGAMI Special Paper 43, http://www.oregongeology.org/pubs/sp/p-SP-43.htm .) The current regulatory tsunami inundation used by the Oregon Building Code to limit new construction of critical, essential, large occupancy, and hazardous facilities also uses a scenario similar to the "Medium" case.
3	Tom Bender Neahkahnie, OR	Neahkahnie is not included in unincorporated communities, and is shown as "grey" and not rated on most maps.	Of the unincorporated communities in Tillamook County, only Oceanside and Netarts together, Pacific City and Woods together, and Neskowin are addressed directly and separately from the rest of the unincorporated County. They were selected based on their population size and density which allowed responsible characterization of exposure to and potential loss from natural hazards relative to the cities and County.
4	Tom Bender Neahkahnie, OR	Essential facilities not shown on maps: Wheeler - skilled care center, clinic, pharmacy; Nehalem - NCRD evacuation center; Manzanita - Adventist Health, evac. center?; Falcon Cove - Fire Mountain School/evac. center.	Hospitals, schools, fire stations, police stations, emergency operations, and military facilities comprised the initial set of essential facilities included in this analysis. That set has been expanded somewhat based on conversations with the individual jurisdictions.
5	Tom Bender Neahkahnie, OR	The new Nehalem City Hall is located in tsunami inundation zone and flood zone. Although floor level is above current outdated "flood zone", its access is blocked every year by street flooding.	Thank you for this information.
6	Tom Bender Neahkahnie, OR	HAZARDS NOT ADDRESSED: <ul style="list-style-type: none"> Wildfires can also be caused by beach fires being reignited by late afternoon winds. At least 4 have occurred in the last 50-60 years in Neahkahnie, the last setting four homes on fire, the previous one luckily being blown north of residences. Another, after the one affecting 4 homes, was narrowly avoided when improper procedures by ODF intentionally burning beach wood almost caused another fire when the "wind changed". 	<ul style="list-style-type: none"> The Wildfire section notes that according to the Tillamook County Community Wildfire Protection Plan (CWPP), recreation is the leading cause of wildfires in Tillamook County. This may be augmented in future updates of this Plan and the CWPP. Geology at a statewide scale which may or may not include local units like this was used for this analysis. DOGAMI has recently received funding

#	COMMENTER	COMMENT	RESPONSE
		<ul style="list-style-type: none"> • "Blue clay" impervious soils from volcanic ash deposits on existing slopes increases landslide hazards. • Ground level drop after quake, ocean-rising, more storm severity impacts not addressed. 	<p>approval from FEMA to perform a detailed landslide study for Tillamook County. That study will address issues like this at a fine scale. The study timeline is not yet set, but it should be completed over approximately the next two to three years.</p> <ul style="list-style-type: none"> • Coastal subsidence is addressed briefly in the Tsunami section. Sea level rise is addressed briefly in the Coastal Erosion section. Increased impacts from coastal storms after a CSZ event is a secondary hazard and not addressed.
7	Tom Bender Neahkahnie, OR	<p>MITIGATION ACTIONS:</p> <ul style="list-style-type: none"> • Install solar PVs on emergency facilities, hospitals, fire stations, cow barns • Set up for heat at emergency facilities, potentially needed for months without power. • Similarly, what about food at emergency facilities? Nehalem, for example could tie NCRD Evac Center with the new grade school with cafeteria, which could cycle emergency food storage. • Seismic upgrades at emergency facilities have not been adequately addressed or implemented. • Where have "Tsunami Zone" signs on roads been updated or not updated for XXL quakes and tsunami inundation? • Develop access plans for military "bridges" to reestablish road access as soon as possible and long before permanent replacement bridges could occur. • Develop debris management plans. Wood-chipping for electric generation, separation of recyclable materials and those with toxic burning potential; tagging of buildings with asbestos and other hazardous materials that need to be avoided until proper treatment. • Local stockpiling of water mains, utility poles and transformers, etc. to allow more rapid repairs. • Emergency power supply for water pumping to storage facilities drained by broken water mains. • Mapping shutoffs for water service, etc. to allow most rapid phasing of repair and resupply. Similarly, distributed location of water shut-off wrenches to shut off lines to damaged homes so mains can supply remaining ones. • Nehalem Bay State Park continues, after 9 years, to post fraudulent "Evacuation Route" signs, though there is almost no possibility that any of 1500 visitors at a time could escape by those routes even if drivable. They continue to ignore signing of walkable escape routes to the high eastern parts of the park. Mitigation action: implement on-foot escape routes. • Another mitigation action is that "danger trees" growing at 30 - 45 degree angles out over Hwy 101 and other important roads can be removed BEFORE storms causing them to fall. 	<p>Thank you for these ideas. The jurisdictions chose not to adopt any for this update; however they may be considered for implementation over the five-year life of the Plan.</p>

#	COMMENTS	COMMENT	RESPONSE
		<ul style="list-style-type: none"> • Logging impacts on streams, flooding, landslides are not addressed, nor banning logging in areas with potential landslide impact on communities. • An important mitigation action not addressed for earthquakes and landslides is to prohibit additional construction in those impact areas, and to bring additional land outside impact zones into "buildable lands" category. The "value added" from such upzoning can be captured as is done in other jurisdictions, to pay for infrastructure serving those new areas, payments to development-banned properties, etc. • Another major issue not discussed is whether to ban rebuilding in Inundation Zone after the Big One. Seaview WA - Sou'wester Lodge is an example where building is not allowed out to the beach. Sendai, Japan, had rocks in place 300 years ago saying "do not build beyond this point because of tsunamis". Obviously ignored, causing major losses from Fukushima quake. 	
8	Guy Sievert Neskowin, OR	I worry that the county's plan stops at Neskowin's south beach....US101 is a major landslide risk.	The Draft Risk Assessment covers all of Tillamook County, including the area south of Neskowin to Lincoln County. The Landslide susceptibility map shows high and very high landslide susceptibility in the vast majority of the area south of Neskowin and along US 101.
9	Tilda Jones Tillamook Bay Flood Improvement District	Southern Flow Corridor Project (a public flood and environmental safety project) described on pages 105-106 rewritten (Rachael?) to be more factual, accurately described, and updated.	This section was reviewed and revised as requested.
10	John Coopersmith Pete Anderson Realty Manzanita, OR	<p>Residential Seismic Upgrading could be a cost effective method to preserve or minimize housing loss after a catastrophic earthquake.</p> <p>On the Oregon Construction Contractors Board website there is a page discussing Residential Seismic Upgrades. The information indicates a cost of between \$4000 and \$10,000 for an average upgrade.</p> <p>At the \$7,000 mid-point, for a \$10 million investment over 1400 could be seismically retrofitted. To preserve the state's capital investment these could be a part-grant part-loan to home owners. Loans could be in the form of perhaps 1% interest with no payments but due on sale of the property. The loan would be recorded as a lien on the property. In this way, over time, the capital investment would return to the state replenishing the fund thus allowing for more retro-fits.</p> <p>If the state would fund this at \$10 million per year over 10 years with loans being paid back a substantial fund would be created. Over time tens of thousands of homes could be saved.</p>	Thank you for this suggestion. We will follow-up with you.

Plan Maintenance

A system for plan maintenance that would include public participation was discussed with each jurisdiction at the February/March 2017 meetings, and with the Steering Committee at the multi-jurisdictional level. Plan maintenance is a process to facilitate periodic *monitoring* and *evaluation* of Plan performance, and *making adjustments* to better achieve plan goals.

Monitoring means tracking implementation of the Plan over time. This would include at a minimum and at regular intervals:

- Documenting the status of mitigation actions and the reasons for any no longer being pursued
 - Completed, Progressing, Not Yet Started, Not Being Pursued
- Documenting added mitigation actions
- Documenting whether the objectives associated with each goal have been implemented and to what degree
- Documenting mitigation success stories
- Documenting any disasters that have occurred, their nature, impacts, and costs
- Documenting and discussing how to employ any new hazards data
- Documenting the sources of mitigation funding that has been obtained or used
- Documenting the sources of mitigation funding, how much has been obtained, how fully it has been used, how well it was leveraged
- Documenting new sources of mitigation funding
- Documenting training opportunities, who attended, and how the information has been distributed and used
- Documenting any changes in tools, assets, and capability to implement the Plan
- Documenting whether and how each of the objectives related to each of the Plan goals has been advanced

Evaluating means assessing the effectiveness of the plan at achieving its stated purpose and goals. This would include assessing the monitoring data at regular intervals to determine at a minimum:

- The degree of progress that has been made developing and implementing effective mitigation initiatives, projects, and activities to reduce hazards to life, businesses, property, and environmental systems. (Goal 1)
- Whether the mitigation initiatives, projects, and activities have served to enhance emergency services and the capabilities of local first responders. (Goal 2)
- Whether regional coordination and communication has been improved. (Goal 3)

The next step is to determine the reasons that parts of the Plan were more or less successful, and to make adjustments to increase success during the next Plan implementation period.

Making adjustments or updating the plan occurs throughout the five-year life of the Plan as well as at the five-year mark. At each point that the plan monitoring documentation is evaluated, updates and adjustments to advance implementation and improve the Plan must be identified and documented. During the life of the Plan, adjustments are not subject to FEMA approval.

In addition, monitoring, evaluation, and adjustment must occur as soon as practical after a natural hazard event or disaster, both by the impacted jurisdiction and by all the jurisdictions together. In

addition to the regular monitoring and evaluation items, specifically with respect to the disaster, the following will be discussed and documented:

- The nature of the disaster
- The impacts of the disaster
- The costs of the disaster (life, property, business, environment)
- Whether any actions that had been taken to mitigate this type of disaster worked, and if not why not, and what improvements could be made
- If a mitigation action did help to lessen the impacts of the disaster, document the success story.
- What actions could be taken to mitigate this type of disaster in the future
- How to capture, store, and use data from this disaster
- Effectiveness of support for emergency services and first responders
- Effectiveness of regional coordination and communication
- Other lessons learned
- Public comments
- Summary of actions to be taken pursuant to this disaster to improve mitigation

Monitoring and Evaluation System

Monitoring and evaluation will be undertaken by the jurisdictions individually and together. Each jurisdiction will convene at least one meeting each year coordinated with the multi-jurisdictional meeting, both ahead of the spring budget cycle. The meetings will be duly advertised and open to the public. The jurisdictions will post meeting notices on their websites and employ other means that have proven effective at engaging their citizens (e.g., distributing flyers, media releases, newspaper ads, water bill inserts, social media strategies, email, etc.). A jurisdiction may choose to have an internal plan maintenance meeting to prepare for the public meeting.

Each jurisdiction will maintain a static copy of the Plan. Tillamook County will maintain a static copy of the Plan on its website and will maintain a dynamic copy that is updated pursuant to each year's multi-jurisdictional plan maintenance meeting. Tillamook County will also maintain a log of all changes to the Plan during its five-year life cycle. This will facilitate the five-year update.

Individual Jurisdictions

The Steering Committee member and at least one alternate for each jurisdiction will take joint responsibility for convening their own jurisdiction's plan maintenance meeting in January of each year. At a minimum, they will invite all the same people or positions who were invited to the February/March 2017 individual jurisdiction meetings. They will also invite the Technical Advisors with interests in their jurisdictions. The meeting will be duly advertised and open to the public. Each jurisdiction's convener will take responsibility for ensuring that meeting notices are posted on the jurisdiction's website and that other means that have proven effective at engaging their citizens (e.g., distributing flyers, media releases, newspaper ads, water bill inserts, social media strategies, email, etc.) are employed to provide the opportunity for citizens to engage in the plan maintenance process. The meeting will be held in conjunction with a Planning Commission, City Council, or Board of Commissioners meeting and the agenda will provide sufficient time for public comment. The conveners will take responsibility for ensuring that notes are taken at the meeting and seeing that the notes are finalized, distributed, and filed within two weeks of the meeting. One of the individual jurisdiction's conveners will provide the

filed notes to the multi-jurisdictional plan maintenance meeting convener (Steering Committee Chair who is a Tillamook County Commissioner) to be incorporated into the dynamic copy of the Plan maintained by Tillamook County and used for the next five-year plan update.

In addition, the conveners will take responsibility for convening a plan maintenance meeting as soon as practical after any natural hazard event or disaster impacting their jurisdiction. The same requirements and procedures apply to this meeting as to any other plan maintenance meeting.

This is a minimum process to which all jurisdictions have agreed. Additional meetings may be held. As an example, the Port of Garibaldi has committed to include discussion of the Tillamook County Multi-Jurisdictional NHMP on every regular monthly Port Commission meeting agenda and semi-annual Capital Improvement Plan workshop agendas. Opportunity for public comment is provided at all these meetings.

Table 132. Individual Jurisdiction Plan Maintenance Meeting Conveners

Jurisdiction	Convener Title/Position	Currently (2017)
Tillamook County	County Commissioner	Bill Baertlein, Chair
Tillamook County	Community Development Planner	Sarah Absher
Bay City	Mayor	Shaena Peterson
Bay City	City Recorder	Lin Downey
Bay City	City Planning Secretary	Angie Cherry
Garibaldi	City Emergency Preparedness Mgr.	Terry Kandle
Garibaldi	City Manager	John O'Leary
Manzanita	City Council Member	Linda Kozlowski
Manzanita	City Manager	Jerry Taylor
Nehalem	City Council Member	Jim Welch
Nehalem	City Manager & City Recorder	Dale Shafer
Rockaway Beach	Mayor	Joanne Aagaard
Rockaway Beach	City Manager	Lars Gare
Tillamook City	Mayor	Suzanne Weber
Tillamook City	City Manager	Paul Wyntergreen
Wheeler	Mayor	Stevie Burden
Wheeler	City Manager	Geoff Wullschlager
Port of Tillamook Bay	General Manager	Michele Bradley
Port of Tillamook Bay	Project Coordinator	Aaron Palter
Port of Garibaldi	General Manager	Michael Saindon

All Participating Jurisdictions

At the multi-jurisdictional level, the Steering Committee will meet each year ahead of the annual budget process so any funding necessary for accomplishing mitigation actions could be planned, requested, and to the extent possible leveraged to attract additional funds. Because all of the jurisdictions operate on a July 1 – June 30 fiscal year, their budget processes take place in the spring. Therefore, the annual multi-jurisdictional plan maintenance meeting would take place in February of each year. This schedule allows the jurisdictions to meet individually in January, and to bring the results of those meetings to the Steering Committee meeting. It would also allow for follow-up meetings or activities as necessary prior to initiation of the budget process.

The Chair of the Steering Committee, a County Commissioner (currently Commissioner Baertlein), will take responsibility for convening the meeting. Technical Advisors will be invited. The meeting will be duly advertised and open to the public. Tillamook County will post meeting notices on its website – on the home, Community Development, and Emergency Management web pages at a minimum – and employ other means that have proven effective at engaging citizens (e.g., distributing flyers, media releases, newspaper ads, water bill inserts, social media strategies, email, etc.) to provide the opportunity for citizens to engage in the plan maintenance process. The agenda will include sufficient time for public comment. The convener will take responsibility for having notes taken at the meeting and seeing that the notes are finalized, distributed, and filed within two weeks of the meeting. Filed notes will be used for the next five-year plan update.

In addition, the convener will take responsibility for convening a plan maintenance meeting as soon as practical after any natural hazard event or disaster impacting any one or more of the jurisdictions participating in the Plan. The same requirements and procedures apply to this meeting as to any other plan maintenance meeting.

This is a minimum process to which all jurisdictions have agreed. Additional meetings may be held.

Five-Year Plan Updates

This plan will be updated every five years, as required by the Disaster Mitigation Act of 2000. The Chair of the Steering Committee, a County Commissioner (currently Commissioner Baertlein), will take responsibility for convening a Steering Committee meeting three years prior to the Plan's expiration date to discuss securing funding for the update and to plan the update process.

The conveners for each individual jurisdiction will follow up by convening a meeting in their jurisdiction to organize for the update as agreed at the multi-jurisdictional meeting.

The steering committee will use the data from the regular plan maintenance meetings to address the following questions in planning the five-year update.

- Are the plan goals still applicable? If no, what modification should be made?
- Do the plan's priorities align with state priorities? If no, what steps do we take to align priorities?
- What new partners should be brought to the table?
- What new local, regional, state or federal policies influencing natural hazards should be addressed?
- What mitigation activities has the community successfully implemented since the plan was last updated?
- What new issues or problems related to hazards have been identified in the community?
- What existing actions need to be reprioritized for implementation?
- Are the actions still appropriate given current resources?
- What changes in development patterns could influence the effects of hazards?
- What significant changes in the community's demographics could influence the effects of hazards?
- What new studies or data would enhance the risk assessment?

- Has the community been affected by any disasters? How did the plan accurately or inaccurately address the impacts of these events?

Discussing these questions will help the committee determine what components of the mitigation plan need updating and establish an effective and efficient approach for the update.