



# Oregon

Kate Brown, Governor

Department of Land Conservation and Development

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## NOTICE OF ADOPTED CHANGE TO A COMPREHENSIVE PLAN OR LAND USE REGULATION

Date: December 21, 2015  
Jurisdiction: Morrow County  
Local file no.: AC-091-15, AC(M)-092  
DLCD file no.: 003-15

The Department of Land Conservation and Development (DLCD) received the attached notice of adopted amendment to a comprehensive plan or land use regulation on 12/17/2015. A copy of the adopted amendment is available for review at the DLCD office in Salem and the local government office.

Notice of the proposed amendment was submitted to DLCD 35 days prior to the first evidentiary hearing.

### Appeal Procedures

Eligibility to appeal this amendment is governed by ORS 197.612, ORS 197.620, and ORS 197.830. Under ORS 197.830(9), a notice of intent to appeal a land use decision to LUBA must be filed no later than 21 days after the date the decision sought to be reviewed became final. If you have questions about the date the decision became final, please contact the jurisdiction that adopted the amendment.

A notice of intent to appeal must be served upon the local government and others who received written notice of the final decision from the local government. The notice of intent to appeal must be served and filed in the form and manner prescribed by LUBA, (OAR chapter 661, division 10).

If the amendment is not appealed, it will be deemed acknowledged as set forth in ORS 197.625(1)(a). Please call LUBA at 503-373-1265, if you have questions about appeal procedures.

### DLCD Contact

If you have questions about this notice, please contact DLCD's Plan Amendment Specialist at 503-934-0017 or [plan.amendments@state.or.us](mailto:plan.amendments@state.or.us)



# NOTICE OF ADOPTED CHANGE TO A COMPREHENSIVE PLAN OR LAND USE REGULATION

**FOR DLCD USE**  
File No.: 003-15 {23982}  
Received: 12/17/2015

Local governments are required to send notice of an adopted change to a comprehensive plan or land use regulation **no more than 20 days after the adoption.** (See [OAR 660-018-0040](#)). The rules require that the notice include a completed copy of this form. **This notice form is not for submittal of a completed periodic review task or a plan amendment reviewed in the manner of periodic review.** Use [Form 4](#) for an adopted urban growth boundary including over 50 acres by a city with a population greater than 2,500 within the UGB or an urban growth boundary amendment over 100 acres adopted by a metropolitan service district. Use [Form 5](#) for an adopted urban reserve designation, or amendment to add over 50 acres, by a city with a population greater than 2,500 within the UGB. Use [Form 6](#) with submittal of an adopted periodic review task.

Jurisdiction: Morrow County

Local file no.: **AC-091-15, AC(M)-092-15**

Date of adoption: 12/16/15                      Date sent: 12/17/2015

Was Notice of a Proposed Change (Form 1) submitted to DLCD?

Yes: Date (use the date of last revision if a revised Form 1 was submitted): 08/25/15  
No

Is the adopted change different from what was described in the Notice of Proposed Change?    Yes    No  
If yes, describe how the adoption differs from the proposal:

**Minor text changes that occurred through the hearings process.**

Local contact (name and title): Carla McLane, Planning Director

Phone: 541-922-4624

E-mail: [cmclane@co.morrow.or.us](mailto:cmclane@co.morrow.or.us)

Street address: 205 NE 3<sup>rd</sup> Street

City: Irrigon

Zip: 97844-

## PLEASE COMPLETE ALL OF THE FOLLOWING SECTIONS THAT APPLY

### For a change to comprehensive plan text:

Identify the sections of the plan that were added or amended and which statewide planning goals those sections implement, if any:

Morrow County Comprehensive Plan Natural Hazards Element

### For a change to a comprehensive plan map:

Identify the former and new map designations and the area affected:

- Change from \_\_\_\_\_ to \_\_\_\_\_ acres.    A goal exception was required for this change.
- Change from \_\_\_\_\_ to \_\_\_\_\_ acres.    A goal exception was required for this change.
- Change from \_\_\_\_\_ to \_\_\_\_\_ acres.    A goal exception was required for this change.
- Change from \_\_\_\_\_ to \_\_\_\_\_ acres.    A goal exception was required for this change.

Location of affected property (T, R, Sec., TL and address): No specific property

The subject property is entirely within an urban growth boundary

The subject property is partially within an urban growth boundary

**If the comprehensive plan map change is a UGB amendment** including less than 50 acres and/or by a city with a population less than 2,500 in the urban area, indicate the number of acres of the former rural plan designation, by type, included in the boundary.

|   |  |
|---|--|
| Exclusive Farm Use – Acres:             | Non-resource – Acres:                        |
| Forest – Acres:                         | Marginal Lands – Acres:                      |
| Rural Residential – Acres:              | Natural Resource/Coastal/Open Space – Acres: |
| Rural Commercial or Industrial – Acres: | Other: – Acres:                              |

**If the comprehensive plan map change is an urban reserve** amendment including less than 50 acres, or establishment or amendment of an urban reserve by a city with a population less than 2,500 in the urban area, indicate the number of acres, by plan designation, included in the boundary.

|   |  |
|---|--|
| Exclusive Farm Use – Acres:             | Non-resource – Acres:                        |
| Forest – Acres:                         | Marginal Lands – Acres:                      |
| Rural Residential – Acres:              | Natural Resource/Coastal/Open Space – Acres: |
| Rural Commercial or Industrial – Acres: | Other: – Acres:                              |

**For a change to the text of an ordinance or code:**

Identify the sections of the ordinance or code that were added or amended by title and number:

**For a change to a zoning map:**

Identify the former and new base zone designations and the area affected:

|             |    |        |
|-------------|----|--------|
| Change from | to | Acres: |
| Change from | to | Acres: |
| Change from | to | Acres: |
| Change from | to | Acres: |

Identify additions to or removal from an overlay zone designation and the area affected:

|                           |              |                |
|---------------------------|--------------|----------------|
| Overlay zone designation: | Acres added: | Acres removed: |
|---------------------------|--------------|----------------|

Location of affected property (T, R, Sec., TL and address):

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List affected state or federal agencies, local governments and special districts: Morrow County Public Works, Emergency Management (County and State), DOGAMI

Identify supplemental information that is included because it may be useful to inform DLCD or members of the public of the effect of the actual change that has been submitted with this Notice of Adopted Change, if any. If the submittal, including supplementary materials, exceeds 100 pages, include a summary of the amendment briefly describing its purpose and requirements.

BEFORE THE MORROW COUNTY COURT  
OF MORROW COUNTY

AN ORDINANCE AMENDING THE MORROW  
COUNTY COMPREHENSIVE PLAN,  
SPECIFICALLY REPLACING THE NATURAL  
HAZARDS ELEMENT.

COUNTY ORDINANCE

NO. ORD-2015-5

WHEREAS, ORS 203.035 authorizes Morrow County to exercise authority within the County over matters of County concern; and

WHEREAS, Morrow County adopted a Comprehensive Land Use Plan which was acknowledged by the Land Conservation and Development Commission on January 15, 1986; and

WHEREAS, Morrow County adopted a Pre-Disaster Mitigation Plan in 2006 and is working to complete a Natural Hazard Mitigation Plan to replace it in 2016; and

WHEREAS, the Morrow County Court appointed Steering Committee for the pending Natural Hazard Mitigation Plan supports the Comprehensive Plan amendment; and

WHEREAS, the Comprehensive Plan amendment to update the Natural Hazards Element is identified as an Action Item in both the 2006 Pre-Disaster Mitigation Plan and the pending 2016 Natural Hazard Mitigation Plan; and

WHEREAS, the Morrow County Planning Commission held a public hearing to consider the Comprehensive Plan Natural Hazards Element on September 29, 2015, at the Heppner City Hall in Heppner, Oregon; and

WHEREAS, the Morrow County Planning Commission considered the request, and after deliberation adopted Planning Commission Final Findings of Fact; and

WHEREAS, the Morrow County Court held a public hearing to consider the recommendation of the Morrow County Planning Commission on November 4, 2015, at the Port of Morrow Riverfront Center in Boardman, Oregon; and

WHEREAS, the Morrow County Court accepted the Planning Commission recommendation.

NOW THEREFORE THE COUNTY COURT OF MORROW COUNTY ORDAINS AS FOLLOWS:

Section 1 Title of Ordinance:

This Ordinance shall be known, and may be cited, as the 2015 Comprehensive Plan Natural Hazards Element amendment.

Section 2 Affected Document:

Morrow County Comprehensive Plan - Natural Hazards Element.

Section 3 Attached Document:

Morrow County Comprehensive Plan Natural Hazards Element. Repeal and replace this Element of the Comprehensive Plan.

Section 4 Effective Date:

The Morrow County Court declares the effective date for this Ordinance to be at least 90 days after its Second Reading, or March 31, 2016.

Date of First Reading: December 9, 2015


Date of Second Reading: December 16, 2015

DONE AND ADOPTED BY THE MORROW COUNTY COURT THIS 16<sup>th</sup> DAY OF DECEMBER, 2015

MORROW COUNTY COURT:

ATTEST:

  
Terry K. Tallman, Judge

  
Bobbi Childers  
County Clerk



  
Leann Rea, Commissioner

  
Don Russell, Commissioner

## NATURAL HAZARDS ELEMENT

A natural disaster occurs when a natural hazard impacts people or property and creates adverse conditions within a community. In Morrow County, there are 8 identified natural hazards that can occur infrequently, but with disastrous impacts, or occur frequently, with often milder, but nevertheless significant impacts. Development standards can mitigate for some hazards, such as flooding and landslide hazard areas, but for other, more widespread or random hazards such as drought, wildfire, winter storm, or windstorms, effective mitigation must come in the form of public awareness, preparedness and participation. In association with the Federal Emergency Management Agency and the Oregon Emergency Management, the County has, as a guiding document for natural hazard mitigation, the Morrow County Natural Hazard Mitigation Plan, which was first adopted by the County in 2006. In this Plan, the eight natural hazards are:

- Drought
- Earthquake
- Flood
- Landslide
- Volcano
- Wildfire
- Windstorm
- Winter storm

### DROUGHT

Drought is a normal, recurrent feature of the climate in eastern Oregon. The environment and economy of Morrow County is vulnerable to the impact drought can have when there is a deficiency of precipitation over an extended period of time, usually a season or more. Also, the impacts of drought are often exacerbated by the demand placed on the water supply in the region's aquifers, high temperatures, high winds and low humidity. These are all conditions that exist in Morrow County during the summer months. Drought in Morrow County has a serious effect on the local agricultural economy and the associated businesses that depend on the success of the local economy. During times of low regional snowpack in the mountains the resulting restrictions on water wells for irrigation cause losses to farmers who cannot irrigate their crops as usual, as well as for dryland wheat farmers who are coping with lack of local rainfall.

#### Regions of Drought Hazard:

Although the Climate Prediction Center gives one set of drought data for the region, drought has variable risks across the County:

South: The conifer forests of southern Morrow County suffer in drought conditions and become more vulnerable to pests and wildfire. Drought affects the recreation economy in that summertime visitors who come to the Off-Road Vehicle Park and other recreation facilities are restricted from full use of the facility due to fire bans.

North: Drought in this region of Morrow County has a clearly detrimental effect on agriculture, which must adjust to low water tables and irrigation restrictions or rely on government support programs and crop insurance. Ranges and pastures become stressed and often over grazed in drought conditions. The usual watering areas may disappear or be negatively affected. Wildfire risks are elevated and reservoir levels and aquifers diminish. During drought conditions the wildfire risk becomes elevated in the

agricultural lands set aside as conservation reserve areas, extensive pastures and ranges, undeveloped shrub-steppe, the Boardman Bombing Range and on the former Army Depot.

## EARTHQUAKE

The earthquake hazard in Morrow County has been evaluated by the State and the USGS. There are no identified fault lines lying in the County but residents have felt shaking from nearby fault activity and new fault lines have been discovered not far away to the north in Washington State. Still, a major earthquake hazard event has been determined to have a small likelihood of occurrence in Morrow County.

The Pacific Northwest Seismograph Network records roughly 1,000 earthquakes per year in Washington and Oregon. Between one and two dozen of these cause enough ground shaking to be felt by residents. Most are located in the western side of the Cascade Mountains. This part of Oregon has experienced four historic earthquakes of significance that were centered in the eastern Oregon region: the 1893 Umatilla earthquake, the 1936 Milton-Freewater earthquake, the 1951 Hermiston earthquake, and the 1976 Deschutes Valley earthquake. All were shallow crustal earthquakes. There are also identified faults in the region that have been active in the last 20,000 years. The region has also been shaken historically by crustal and intraplate earthquakes and prehistorically by subduction zone earthquakes centered outside the area.

## FLOOD

According to the National Oceanographic and Atmospheric Agency (NOAA), flash floods in the United States are responsible for more deaths than any other storm event phenomena. Flash flooding usually is the byproduct of very heavy rains in a short period of time over a small geographic area, all of which combine to cause small streams to turn violent. Flooding as a natural hazard is a long-recognized and historically significant event in parts of Morrow County. Flash flooding, which is the prevalent flooding event in Morrow County, can be poorly predicted by weather reports because most often the floods are a result of a microburst, which simply overwhelms both natural and constructed drainage systems. These failures can cause damage to downtowns and farms in the floodplain areas. Emergency services, transportation, power, water and wastewater services, business and hazardous materials storage may be substantially disrupted and can affect the population located in or near the flooded area.

South Morrow County. The Willow Creek in southern portion of the County is famous in Oregon for the 1903 flash flood that caused the death of more than 200 people. It was a summer thunderstorm flood and was caused by a large amount of concentrated rainfall and a lack of vegetation in the watershed to slow it down. The City of Heppner, where the flood occurred, lies in a valley surrounded by steep slopes and sits at the confluence of four streams: Willow Creek, Hinton Creek, Balm Fork, and Shobe Creek. The steep slopes of the hills surrounding these creeks, along with the prevalence of severe thunderstorms in the area, contribute to the likelihood of flash flooding. According to the Heppner City Plan (1999), there was one flood per 4.6 years on average between 1883 and 1971. Due to this high incidence of flash flooding on the Willow Creek and other streams, the City of Heppner and the U.S. Army Corps of Engineers built the Willow Creek Dam across Willow Creek. This dam was completed in 1982 and the area subject to flooding was significantly reduced. However, since the Willow Creek Dam was constructed to intercept the waters from Willow Creek and Balm Fork only, the major flood hazard reduction occurred between the face of the dam and the confluence with Shobe Creek. Below Shobe Creek, an extensive area of the valley floor is still considered by FEMA as a

designated flood hazard area. The flooding that occurred in 1971 was documented to have originated in the Shobe Creek watershed. As a result of the 1971 Shobe Creek flood, extensive work was done to construct a series of diversions in the Shobe Creek drainage, along with the conversion of cropland to the Conservation Reserve Program (CRP) under a program sponsored by the Soil Conservation Service. Since the construction of the Willow Creek Dam and the work done on the Shobe Creek drainage, no significant flooding has been documented within the City of Heppner.

Lexington and Lone are also located on Willow Creek and experience localized flash flooding events. The U.S. Army Corps of Engineers has indicated that several of the tributaries of Willow Creek below the Willow Creek dam have the potential for flash floods and warrant consideration toward providing a degree of flood protection. The drainages are Blackhorse Creek at Lexington, Reitmann and Lorraine Canyons at Lone, and Rhea Creek at Ruggs.

North Morrow County. The Columbia River is not one of concern as far as extreme flood conditions because it is regulated by up-stream dams that it does not present a problem in Morrow County. There are, however, other flash flooding incidents in the northern portion of the County that do cause damage and disruption for the citizens and businesses of the County. The May 19, 2006 storm event is a good example of how a summer thunderstorm event can cause damage. The storm precipitated record-breaking hail and rain enough to wash out areas of local roads such as Bombing Range Road and portions of Highway 730.

#### LANDSLIDE

Landslides, including rock fall and other debris flow, as a natural hazard exist in every state in the U.S., and can be a serious geologic hazard. They sometimes present a threat to human life, but most often result in a disruption of everyday services, including emergency response capabilities. Landslides can and do block transportation routes, dam creeks and drainages and contaminate water supplies. When these hazards affect transportation routes they are frequently expensive to clean up and can have significant economic impact to the county. The Federal Emergency Management Agency (FEMA) describes debris flows, sometimes referred to as mudslides, mudflows, lahars, or debris avalanches, as common types of fast-moving landslides. These flows most frequently occur during or after periods of intense rainfall or rapid snow melt and have been linked to forest management practices, soil types and the underlying soil structure.

Morrow County Public Works Department clears the County roads from landslide debris in the rugged terrain of the south County areas. These landslides often occur after rain events and are generally not significant enough to block traffic, although along Rhea Creek and Willow Creek Roads landslide events have been most numerous and have been known to temporarily block traffic.

According to the Oregon Department of Geology and Mineral Industries (DOGAMI) map of the historic landslide areas in Morrow County, the landslide risk areas are in the southern portion of the County where the terrain is rugged and forested. DOGAMI has also mapped a large alluvial fan in the north-central portion of the County. This large alluvial fan is located in a farming area, but there are a few farm homes located on it.

#### VOLCANO

The western boundary of the Cascade Range is within 150 miles of Morrow County. The Cascade Range has been an active volcanic area for about 36 million years as a result of the



convergence between the North American and Juan de Fuca crustal plates. According to most interpretations, volcanism in the Cascades has been discontinuous in time and space, with the most recent episode of activity beginning about 5 million years ago and resulting in more than 3,000 vents. This activity is observable today as scientists monitor closely ongoing activity at Mount. St. Helens in Washington, the South Sister in Oregon and other locations.

As evidenced by all of the basalt that underlies Morrow County, this region has been mightily influenced by volcanic activity. Despite the scary image of liquid basalt flowing over the central basin area, there has been no such activity since more than 15 million years ago. Today, any risk to Morrow County is perceived as coming from the volcanic Cascade Range to the west. There is no history of volcanic impacts in Morrow County, although volcanic history in the wider region, notably the Mt. St. Helens eruption in 1980, does show that a volcano could affect the County if a volcano in the Cascade Range were to erupt.

## WILDFIRE

Morrow County, along with much of eastern Oregon has had experience with wildfires throughout time. The prevailing easterly wind and the drought conditions, which exist off and on throughout the western U.S., have exacerbated wildfires in this region. The number of fires in Morrow County, from 1984 to 2003, ranged from 13 in 1993 to 105 in 1999 with a total of 873 fires during this time period burning more than 213,000 acres. Twenty-nine fires burned 300 acres or more during that period and of those, six were 5,000 acres or more. In July and August of 2000 the Governor signed a Determination of Emergency Conflagration Act Due to Fire in Morrow County. The fire that occurred at this time was the "Willow Creek Fire" which started at the junction of Eight Mile Road and Four Mile Canyon in Gilliam County and spread out of control to Morrow County.

### Wildfire Impacts in Morrow County Regions

The southern one-third of the County is forested with the southeast corner of the County within the Umatilla National Forest. The topography of this part of the County is rugged as it is a part of a northwest spur of the Blue Mountains. The precipitation over this higher portion of the County does support conifer forests. These conifer stands, which cover some 205,000 acres, form an almost solid cover over the ridges and slopes of this area. About one thousand acres is juniper or scrub timber. The major species of conifers are ponderosa pine, Douglas-fir and western larch. The fire protection officials in this area characterize the fuel for wildfire potential in this region as very high. There are residential developments in the forested zone, which are the Blake Ranch area and the residential development around Penland Lake and around Cutsforth Park. The potential for life and property loss is high in the event of a fire due to lack of proximity to any rural fire protection district. Increasingly, people are using this area for recreational use at the County run Off-Highway-Vehicle Park and more people spend holiday time during weekends and vacation periods here. The residents and visitors to these areas are often inadequately educated or prepared for the inferno that could sweep through the brush and timber, affecting safety and destroying property in minutes.

In the middle third of the County, precipitation is too low for tree growth without the support of irrigation. Nevertheless, the fire protection districts respond to fires in this area more than in the forested southern region. The middle region of the County is mostly dryland ranges for the pasture of cattle and dryland wheat. The fire protection districts respond to wildfires in this location as a result of lightning strike (70 percent) and human caused (30 percent) fires. The fires generally burn range land, Conservation Reserve Program (CRP) fields, and pastures. Heppner, Lexington and Lone are located within this area.

The northern third of the County contains most of the County's economic infrastructure to include the Boardman Coal-fire plant, Finley Buttes Regional Landfill, the Port of Morrow with its associated industries, Bonneville Power Administration power lines, natural gas pipelines, to name a few. The potential for wildfire in this portion of the County is less than the rest of the County for the following reasons. The farms and fields are irrigated, which means that water is available to keep the crops green and to lessen the ability of wildfire to spread and the area is more populated and contains two fire protection districts to respond to fires in the undeveloped shrub-steppe regions of the County. The ability of firefighters to protect this portion of the County is hampered, however, by the limited transportation network, which does not allow for quick coverage of the undeveloped areas of this portion of the County.

#### WIND STORM

Morrow County is subject to often intense gusts of high winds and windstorms. Typically the greatest damage caused by severe windstorms, thunderstorms and tornadoes in Morrow County are damages to structures of light construction such as manufactured homes, road blockages and other damage due to downed trees, flooding in low areas, and blowing debris. Although not usually life-threatening, high winds can disrupt daily activities and increase the potential of other hazards. Some areas with little or no ground cover such as open agricultural fields experience blinding gusts of dust and road debris, including tumbleweeds, which become a hazard for travelers and an occasional disruption of local services. High winds sometimes cause severe transportation disruptions due to localized roadways blocked with debris, downed trees over roadways, and low areas completely filled with windblown tumbleweeds. Wildfires can be accelerated and made unpredictable by windstorms, which can cause grave danger to firefighters, emergency response personnel and residences or other structures that happen to be in the path of a wayward wildfire. Effects of the windstorms may be seen in damage to agricultural systems such as circle irrigation units, to structures such as roof damage and cracked windows, and damage to trees and landscaping. Power outages due to downed or damaged power supply lines have the potential to disrupt emergency response during and after a destructive windstorm.

#### WINTER STORM

Morrow County is vulnerable to the whims of winter storms and the associated problems. Roads can become temporarily impassable due to snow accumulation, although primary roads such as Interstate 84 are rarely closed due to snow and ice accumulation.

The most common impacts of winter storms are temporary road closures and flooding due to storm events, to include mud flowing across a road from nearby agricultural fields, ice storms and tumbleweeds blocking roadways. In addition to actual stormy conditions in the winter, dense, freezing fog can be a real hazard, especially on roadways and bridges.

#### NATURAL HAZARD FINDINGS

The following are the Goals from the Natural Hazard Mitigation Plan as recommended by the Advisory Committee and adopted by Resolution by the Morrow County Court. In the context of the Comprehensive Plan these could also be called Findings.

1. Protection of Property. Lessen impact from natural disaster on individual properties, businesses and public facilities by increasing awareness at the individual level and encouraging activities that can prevent damage and loss of life from natural hazards;

2. Outreach and Education. Further the public's awareness and understanding of natural hazards and potential risk, including economic vulnerability and mitigation efforts;
3. Prevention. Reduce the threat of loss of life and property from natural hazards by making hazard mitigation planning a priority in land use policies and decisions, including Natural Hazard Mitigation Plan implementation.
4. Partnership and Coordination. Identify mitigation or risk reduction measures that address multiple areas (i.e. environment, transportation, telecommunications); Coordinate public/private sector participation in planning and implementing mitigation projects throughout the County; seek funding and resource partnerships for future mitigation efforts; and strengthen communication and coordinate participation among and within public agencies, citizens, non-profit organizations, business, and industry.
5. Structural Projects. When applicable, utilize structural mitigation activities to minimize risks associated with natural hazards.
6. Natural Resources. Preserve and rehabilitate and enhance natural systems to serve natural hazard mitigation functions (i.e. floodplains, wetlands, watersheds and urban interface areas; and balance watershed planning, natural resource management, and land use planning with natural hazard mitigation to protect life, property, and the environment.
7. Emergency Services. Minimize life safety issues by promoting, strengthening and coordinating emergency response plans; and coordinate and integrate natural hazard mitigation activities, where appropriate, with emergency operations plans and procedures.

#### NATURAL HAZARD POLICIES

1. Flood risk will be managed by limiting or regulating development in areas identified by the Federal Emergency Management Agency Flood Insurance Rate Maps or in areas identified by the County to be at risk to life or property due to flooding. County regulations will be compliant with National Flood Insurance Program requirements for development in flood prone areas.
2. County land use regulations will assure proposed developments will receive a review of potential natural hazards and that sufficient authority exists to modify or deny applications where such hazards exist. Such provisions shall, at a minimum, require specific information clearly determining the degree of hazard present from applicants who seek approval to develop residential, commercial, or industrial uses within known areas of natural disasters and hazards.
3. It shall be recognized that problem areas or hazards do not necessitate disapproval of development, but that higher development standards can be expected in order to mitigate potential natural disasters.
4. Incorporate land use and development considerations into the planning and building phase for development in the forest use zone in order to minimize the impacts of wild fires. Consideration should go beyond defensible space requirements by including

transportation and location issues, topographical features, site location and design, fire history, weather conditions, forest health, and adjacent land uses.

5. Use data provided by Oregon Department of Geology and Mineral Resources for parcel-specific information to provide support to limit or restrict development of unstable sites due to landslide risk. Abate landslide risk by using strict enforcement of grading and building codes.
6. Support the Natural Resources Conservation Service in their efforts to mitigate soil erosion and drought impacts through their drought resiliency and other conservation programs.

**Final Findings of Fact  
Comprehensive Plan Update  
Natural Hazards Element  
AC-091-15 and AC(M)-092-15**

**REQUEST:** To replace the Natural Hazards Element. The FEMA required non-regulatory Natural Hazard Mitigation Plan, originally adopted in 2006 and undergoing an update currently, is the basis for most of the information in the proposed Natural Hazards Element.

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**APPLICANT:** Morrow County Planning Department  
P.O. Box 40  
Irrigon, OR 97844

**LOCATION:** Morrow County

**I SUMMARY OF APPLICATION AND PROCESS:**

The Morrow County Comprehensive Plan was originally adopted in 1980 and finally acknowledged in January of 1986. The Natural Hazards Element, as is the case with most of the original Comprehensive Plan, is based upon inputs from the 1970s and is woefully out of date. It became evident during the development of the first Natural Hazard Mitigation Plan in 2006, then called the Pre-Disaster Mitigation Plan, that the Comprehensive Plan Natural Hazard Element did not address all eight of the now known hazard areas, nor did it fully articulate the hazard concerns for those areas that were discussed. Over the 35 years since the Comprehensive Plan was first adopted and acknowledged there have been a number of changes that should be further vetted within the Comprehensive Plan, and appropriate Goals and Policies should be adopted to support regulation that is in place and regulation that should be considered.

**II SUMMARY OF APPLICABLE CRITERIA**

**MORROW COUNTY COMPREHENSIVE PLAN: CRITERIA.** The following criteria must be considered before approval of an amendment to the Comprehensive Plan is given:

1. **Address the Criteria found in the Morrow County Zoning Ordinance Article 8 Amendments; and**
2. **Show how the request complies with the relevant statewide land use planning Goals. Include evidence of coordination and compliance with State agencies regarding the statewide planning Goals. (MC OR-1-2013)**

The Morrow County Zoning Ordinance criteria follow with the necessary analysis. This update directly implements Goal 7 Natural Hazards, utilizing inputs from the Pre-Disaster Mitigation Plan adopted in 2006 which is currently being updated as a Natural Hazard Mitigation Plan with adoption planned for early 2016. The Natural Hazard Mitigation Plan has been and is currently being done with the assistance of the Department of Land Conservation and Development (DLCD), Oregon Department of Geology and Mineral Industries (DOGAMI), and Oregon Emergency Management (OEM).

Attached to these Findings of Fact is a Natural Hazard Mitigation Plan Historic Landslide Data map that provides a window to past activity. It is anticipated that within the next year DOGAMI will make available a map looking forward identifying potential landslide

risk within Morrow County. A draft map from the 2006 era identified some areas of concern that should be further investigated and appropriate goals and policies should be adopted that would support regulation if deemed needed. When the 35-day Notice for this action was submitted to the DLCD it included a local file number for a map. However no map is currently ready for adoption, so that portion of this action is tabled, or withdrawn. When those prospective maps are made available additional work will be initiated. The attached map is for historical and informational purposes only.

Morrow County has coordinated with DLCD on our current Floodplain regulations as required by the Federal Emergency Management Agency (FEMA) in support of the Federal Insurance Rate Map program (FIRM). Since the Comprehensive Plan was first adopted the Willow Creek dam just outside of Heppner has been built, the local FIRM maps were amended in 2007, and the floodplain regulations within the Morrow County Zoning Ordinance were amended also in 2007.

The current Natural Hazard Mitigation Plan draft is being reviewed by OEM, and once changes are completed it will be forwarded to FEMA for final review prior to adoption. Future updates to the Natural Hazard Mitigation Plan will be done in five (5) year rotations, with appropriate review of various Comprehensive Plan and Zoning Ordinance amendments to follow each update.

**MORROW COUNTY ZONING ORDINANCE: SECTION 8.040.** The proponent of the application or permit has the burden of proving justification for its approval. The more drastic the request or the greater the impact of the application or permit on the neighborhood, area, or county, the greater is the burden on the applicant. The following criteria shall be considered by the Planning Commission in preparing a recommendation and by the County Court in reaching their decision.

- A. The local conditions have changed and would warrant a change in the zoning of the subject property(ies).**  
No changes in zoning are proposed. It should be noted that the current Natural Hazard Element does not address all eight of the hazards called out in the Natural Hazard Mitigation Plan. The proposed update to the Natural Hazards Element will be both broader and more in depth relative to the hazards it will address.
- B. The public services and facilities are sufficient to support a change in designation including, but not limited to, water availability relevant to both quantity and quality, waste and storm water management, other public services, and streets and roads.**
  - 1. Amendments to the zoning ordinance or zone changes which significantly affect a transportation facility shall assure that land uses are consistent with the function, capacity, and level of service of the facility identified in the Transportation System Plan. This shall be accomplished by one of the following:**
    - a. Limiting allowed land uses to be consistent with the planned function of the transportation facility or roadway;**
    - b. Amending the Transportation System Plan to ensure that existing, improved, or new transportation facilities are adequate to support the proposed land uses consistent with the requirement of the Transportation Planning Rule; or,**

- c. **Altering land use designations, densities, or design requirements to reduce demand for automobile travel to meet needs through other modes.**

No land use designations are changing and this amendment will not directly affect any transportation system. Planning staff would find these criteria not applicable to this action.

- 2. **A plan or land use regulation amendment significantly affects a transportation facility if it:**
  - a. **Changes the functional classification of an existing or planned transportation facility;**
  - b. **Changes standards implementing a functional classification;**
  - c. **Allows types or levels of land use that would result in levels of travel or access that are inconsistent with the functional classification of a transportation facility; or**
  - d. **Would reduce the level of service of the facility below the minimal acceptable level identified in the Transportation System Plan. (MC-C-8-98)**

See above analysis.

- C. **That the proposed amendment is consistent with unamended portions of the Comprehensive Plan and supports goals and policies of the Comprehensive Plan, that there is a public need for the proposal, and that the need will be best served by allowing the request. If other areas in the county are designated for a use as requested in the application, then a showing of the necessity for introducing that use into an area not now so zoned and why the owners there should bear the burden, if any, of introducing that zone into their area.**

This amendment is part of a larger overarching update and amendment of the Comprehensive Plan. When completed the entire Comprehensive Plan will be reviewed and updated as deemed necessary and appropriate. For the Natural Hazard Element specifically this update will increase the number of hazard areas addressed, and acknowledge the goals and policies that were the outcome of the development, adoption and current update of the Natural Hazard Mitigation Plan, a FEMA required non-regulatory planning document.

- D. **The request addresses issues concerned with public health and welfare, if any.** This entire planning process can, in one way or another, directly impact public health and welfare in preparing for and responding to natural hazards. While both the Natural Hazards Mitigation Plan and the Natural Hazards Element do not regulate, they both provide goals and policies that will direct current and future regulation.

- III **DLCD 35 DAY NOTICE:** August 25, 2015
- IV **PROPERTY OWNER NOTICE:** Not applicable as no maps are being adopted and no regulations are being put in place.
- V **LEGAL NOTICE:** Heppner Gazette Times and East-Oregonian September 9, 2015





## Oregon's Statewide Planning Goals and Guidelines

### GOAL 7: AREAS SUBJECT TO NATURAL HAZARDS

To protect people and property from natural hazards.

#### A. NATURAL HAZARD PLANNING

1. Local governments shall adopt comprehensive plans (inventories, policies and implementing measures) to reduce risk to people and property from natural hazards.

2. Natural hazards for purposes of this goal are: floods (coastal and riverine), landslides,<sup>1</sup> earthquakes and related hazards, tsunamis, coastal erosion, and wildfires. Local governments may identify and plan for other natural hazards.

#### B. RESPONSE TO NEW HAZARD INFORMATION

1. New hazard inventory information provided by federal and state agencies shall be reviewed by the Department in consultation with affected state and local government representatives.

2. After such consultation, the Department shall notify local governments if the new hazard information requires a local response.

3. Local governments shall respond to new inventory information on natural hazards within 36 months after being notified by the Department of Land Conservation and Development, unless extended by the Department.

#### C. IMPLEMENTATION

Upon receiving notice from the Department, a local government shall:

1. Evaluate the risk to people and

property based on the new inventory information and an assessment of:

- a. the frequency, severity and location of the hazard;
- b. the effects of the hazard on existing and future development;
- c. the potential for development in the hazard area to increase the frequency and severity of the hazard; and
- d. the types and intensities of land uses to be allowed in the hazard area.

2. Allow an opportunity for citizen review and comment on the new inventory information and the results of the evaluation and incorporate such information into the comprehensive plan, as necessary.

3. Adopt or amend, as necessary, based on the evaluation of risk, plan policies and implementing measures consistent with the following principles:

a. avoiding development in hazard areas where the risk to people and property cannot be mitigated; and

b. prohibiting the siting of essential facilities, major structures, hazardous facilities and special occupancy structures, as defined in the state building code (ORS 455.447(1)(a)(b)(c) and (e)), in identified hazard areas, where the risk to public safety cannot be mitigated, unless an essential facility is needed within a hazard area in order to provide essential emergency response services in a timely manner.<sup>2</sup>

4. Local governments will be deemed to comply with Goal 7 for coastal and riverine flood hazards by adopting and

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<sup>1</sup> For "rapidly moving landslides," the requirements of ORS 195.250-195.275 (1999 edition) apply.

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<sup>2</sup> For purposes of constructing essential facilities, and special occupancy structures in tsunami inundation zones, the requirements of the state building code - ORS 455.446 and 455.447 (1999 edition) and OAR chapter 632, division 5 apply.

implementing local floodplain regulations that meet the minimum National Flood Insurance Program (NFIP) requirements.

#### **D. COORDINATION**

1. In accordance with ORS 197.180 and Goal 2, state agencies shall coordinate their natural hazard plans and programs with local governments and provide local governments with hazard inventory information and technical assistance including development of model ordinances and risk evaluation methodologies.

2. Local governments and state agencies shall follow such procedures, standards and definitions as may be contained in statewide planning goals and commission rules in developing programs to achieve this goal.

#### **GUIDELINES**

##### **A. PLANNING**

1. In adopting plan policies and implementing measures to protect people and property from natural hazards, local governments should consider:

- a. the benefits of maintaining natural hazard areas as open space, recreation and other low density uses;
- b. the beneficial effects that natural hazards can have on natural resources and the environment; and
- c. the effects of development and mitigation measures in identified hazard areas on the management of natural resources.

2. Local governments should coordinate their land use plans and decisions with emergency preparedness, response, recovery and mitigation programs.

##### **B. IMPLEMENTATION**

1. Local governments should give special attention to emergency access when considering development in identified hazard areas.

2. Local governments should consider programs to manage stormwater runoff as a means to help address flood and landslide hazards.

3. Local governments should consider nonregulatory approaches to help implement this goal, including but not limited to:

- a. providing financial incentives and disincentives;
- b. providing public information and education materials;
- c. establishing or making use of existing programs to retrofit, relocate, or acquire existing dwellings and structures at risk from natural disasters.

4. When reviewing development requests in high hazard areas, local governments should require site-specific reports, appropriate for the level and type of hazard (e.g., hydrologic reports, geotechnical reports or other scientific or engineering reports) prepared by a licensed professional. Such reports should evaluate the risk to the site as well as the risk the proposed development may pose to other properties.

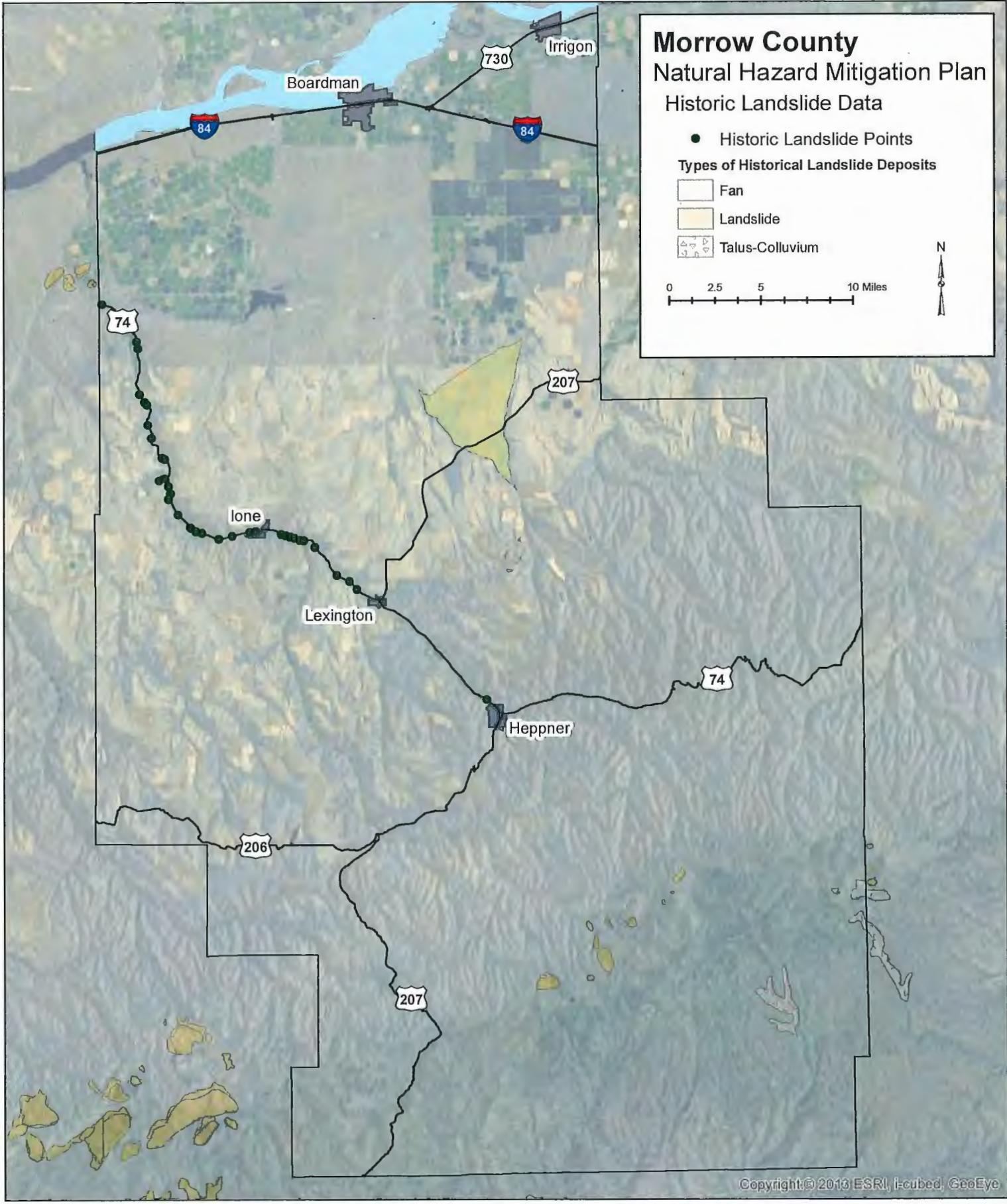
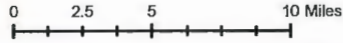
5. Local governments should consider measures that exceed the National Flood Insurance Program (NFIP) such as:

- a. limiting placement of fill in floodplains;
- b. prohibiting the storage of hazardous materials in floodplains or providing for safe storage of such materials; and
- c. elevating structures to a level higher than that required by the NFIP and the state building code.

Flood insurance policy holders may be eligible for reduced insurance rates through the NFIP's Community Rating System Program when local governments adopt these and other flood protection measures.

# Morrow County Natural Hazard Mitigation Plan Historic Landslide Data

- Historic Landslide Points
- Types of Historical Landslide Deposits
- Fan
- Landslide
- Talus-Colluvium



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Morrow County Planning Department  
October 2015  
Map for reference purposes only  
Source: Oregon Department of Geology and Mineral Industries



## NATURAL HAZARDS ELEMENT

### Introduction

Natural hazards areas are defined as areas that are subject to natural events that are known to result in death or endanger the works of man, such as stream flooding, ocean flooding, ground water, erosion and deposition, landslides, earthquakes, weak foundation soils and other hazards unique to local or regional areas:

The general goal of this element is, therefore, to protect life and property from natural disasters and hazards:

Developments subject to damage or that could result in loss of life, therefore should not be planned nor located in known areas of natural disasters and hazards without appropriate safeguards. Proposed developments must be keyed to the degree of hazard and to the limitations on use imposed by such hazard in the planning areas:

In planning for flood plain areas, uses that will not require protection through dams, dikes and levies must certainly be preferred over uses that will require such protection:

Low density and open space uses that are least subject to loss of life or property damage such as open storage, forestry, agriculture and recreation are preferred in flood plains, especially the floodway portion. The floodway portion must be given special attention to avoid development that is likely to cause an impediment to the flow of floodwaters:

### Natural Hazard Description

**Flood Plains.** A flood plain is the area outside a normal river or creek channel that is susceptible to flooding. The probability of flooding in these areas makes them unsuitable for intensive development:

All creeks, and some dry canyons, in Morrow County are susceptible to flooding. For example, Willow Creek, Shobe Creek, and Hinton Creek have all flooded Heppner in the past. The county's worst flood occurred along Willow Creek and the most recent along Shobe Creek. Lexington has been flooded by water from Black Horse Canyon and Ione by Rietmann Canyon. Reference is made to the Department of Housing and Urban Development "Flood Hazard Maps" for the County:

### Steep Slopes

The topography of Morrow County varies from steep slopes in the mountains in the south to gently rolling flat land in the north according to U.S. Geological Survey Maps. The County has a policy (Planning Department) of reviewing specific site information to determine the degree of hazard present from applicants seeking to build residential, commercial, or industrial structures in known hazard areas. This is done in cooperation with the Oregon Building Codes Agency, Building Inspection Division, Pendleton, Oregon, which acts as the building inspection department for the County:

### Earthquake Faults

There are no identified faults in Morrow County according to U.S. Geographical Survey information:

## Wind Erosion

Morrow County has approximately 282,000 acres that are subject to damage by wind erosion. Normally, about 3,000 acres are damaged each year in the problem area. Land subject to wind erosion damage include the urban areas of Boardman and Irrigon; rangeland; and both dry and irrigated crop land from the Baseline to the Columbia River.

## Sheet and Rill Erosion

Sheet and rill erosion, of varying intensities, occurs on approximately 311,000 acres in Morrow County. High intensity summer convection storms and rapid runoff on frozen soil cause severe erosion whenever these situations occur.

## Road Erosion

Morrow County has 691 miles of unpaved roads ranging from unimproved routes with no public maintenance to those which have been surfaced with gravel (400 miles). There are 350 miles of road which have an asphalt surface. Road and right of way erosion through natural and manmade causes results in damage to the roads and increases maintenance costs, contributes to in-stream water quality problems such as sedimentation and excessive runoff, and can create problems which are hazardous to the traveling public.

## Wildfire

Another obvious natural hazard is wildfire. Each year, fires occur locally. Some are nature-caused (lightning) but many are man-caused. If subdivisions are scattered throughout the timbered and grassland areas, there is an increase in not only the risk of people being hurt or killed but also an increase in the likelihood of a fire. Inadequate access, inappropriate building materials, insufficient fire-fighting equipment and personnel, a naturally dry climate and prevailing wind patterns all point to wildfire being a serious threat to residents of Morrow County.

## Findings

1. The areas within Morrow County subject to natural disasters are the flood and flash flood conditions found within its drainage basins, their major streams and tributaries. Reference is made to the Department of Housing and Urban Development "Flood Hazard Boundary Maps" for the County.
2. Another area of concern within the County is the result of high winds, resulting in erosion problems. However, proper farming and development practices have greatly reduced this problem in the last few years.
3. County topography (slopes) and soil condition presenting hazard and/or limitations for construction buildings, roads and drainfields, have and are being identified and supporting ordinances and controls will be accomplished to meet these conditions.
4. The use of conservation practices that maintain a cover-up crop residues or other materials on the soil surface or management techniques that provide a growing crop during the critical erosion period of March and April are the most effective means of

minimizing damage from wind erosion.

5. Continuan~~ce~~ of an active information program combines with increased cost-share assistance to accelerate the installation of conservation practice systems which include terraces, diversions, grassed waterways, minimum tillage, contour farming, stubble mulch farming, outlet structures, chemical fallow, and critical area seedings would help reduce sheet and rill erosion.
6. Practices such as seeding critical areas; proper sizing and location of culverts; implementing a borrow ditch maintenance program; graveling dirt roads; closures on some roads; and a cooperative program on terrace outlets are some means that can be used to reduce erosion on county roads.
7. Severe floods and sediment damage is caused by late spring and summer convection storms as well as rapid snow melt in the winter and early spring. Flooding generally occurs one year out of five, with approximately 8,000 acres affected. Damage occurs to buildings, equipment, roads, bridges, fences, land, irrigation systems, crops, and community facilities. Human life can be endangered in severe conditions. The communities of Heppner, Lexington, and Ione all lie within the Willow Creek flood plain.

#### Natural Hazard Policies

1. The County shall recognize the development limitations imposed by the carrying capacities of natural resources; i.e. surface and ground water capacities, soils, geology, etc.
2. Natural resource physical limitations shall be one of the primary evaluation factors for development approval. The carrying capacities thereof shall not be exceeded.
3. It shall be recognized that problem areas or hazards do not necessitate disapproval of development, but that higher development standards can be expected in order to minimize problems or hazards.
4. To maintain development costs at a minimum and to encourage the most efficient use of resources by guiding development to low hazard or physical limitation areas.
5. To discourage development in flood plains, natural drainage ways, on steep slopes, and other hazardous areas.
6. To limit development within the flood plain to open space, agriculture, recreation or other appropriate uses which minimize the potential loss of life or property and which comply with federal and state regulations. Thereof, minimum standard Flood Plain Zoning shall be enacted.
7. Provision shall be made in County land use regulations to assure proposed developments will receive a review of potential natural hazards (stream flooding, flash flooding, landslides, wildfire, etc.), and that sufficient authority exists to modify or deny applications where such hazards exist. Such provisions shall, at a minimum, require site inspection and require specific information clearly determining the degree of hazard present from applicants who seek approval to develop residential, commercial, or

~~industrial uses within known areas of natural disasters and hazards.~~

- ~~8. It shall be the developer/builder's burden of proof for determining the degree of hazard or physical resource carrying capacity.~~
- ~~9. Consideration of development in forested areas shall take into account factors set forth in the guide published by the Northwest Inter Agency Fire Prevention Group entitled "Fire Safety Considerations for Developments in Forested Areas."~~
- ~~10. Programs designed to minimize wind erosion damage shall be encouraged.~~

A natural disaster occurs when a natural hazard impacts people or property and creates adverse conditions within a community. In Morrow County, there are 8 identified natural hazards that can occur infrequently, but with disastrous impacts, or occur frequently, with often milder, but nevertheless significant impacts. Development standards can mitigate for some hazards, such as flooding and landslide hazard areas, but for other, more widespread or random hazards such as drought, wildfire, winterstorm, or windstorms, effective mitigation must come in the form of public awareness, preparedness and participation. In association with the Federal Emergency Management Agency and the Oregon Emergency Management, the County has, as a guiding document for natural hazard mitigation, the Morrow County Natural Hazard Mitigation Plan, which was first adopted by the County in 2006. In this Plan, the 8 natural hazards are:

- Drought
- Earthquake
- Flood
- Landslide
- Volcano
- Wildfire
- Windstorm
- Winter storm

#### DROUGHT

Drought is a normal, recurrent feature of the climate in eastern Oregon. The environment and economy of Morrow County is vulnerable to the impact drought can have when there is a deficiency of precipitation over an extended period of time, usually a season or more. Also, the impacts of drought are often exacerbated by the demand placed on the water supply in the region's aquifers, high temperatures, high winds and low humidity. These are all conditions that exist in Morrow County during the summer months. Drought in Morrow County has a serious effect on the local agricultural economy and the associated businesses that depend on the success of the local economy. During times of low regional snowpack in the mountains the resulting restrictions on water wells for irrigation cause losses to farmers who cannot irrigate their crops as usual, as well as for dryland wheat farmers who are coping with lack of local rainfall.

#### Regions of Drought Hazard:

Although the Climate Prediction Center gives one set of drought data for the region, drought has variable risks across the County:

South: The conifer forests of southern Morrow County suffer in drought conditions and become more vulnerable to pests and wildfire. Drought affects the recreation economy in that summertime visitors who come to the Off-Road Vehicle Park and other recreation facilities are restricted from full use of the facility due to fire bans.

North: Drought in this region of Morrow County has a clearly detrimental effect on agriculture, which must adjust to low water tables and irrigation restrictions or rely on government support programs and crop insurance. Ranges and pastures become stressed and often over grazed in drought conditions. The usual watering areas may disappear or be negatively affected. Wildfire risks are elevated and reservoir levels and aquifers diminish. During drought conditions the wildfire risk becomes elevated in the agricultural lands set aside as conservation reserve areas, extensive pastures and ranges, undeveloped shrub-steppe, the Boardman Bombing Range and on the former Army Depot.



## EARTHQUAKE

The earthquake hazard in Morrow County has been evaluated by the State and the USGS. There are no identified fault lines lying in the County but residents have felt shaking from nearby fault activity and new fault lines have been discovered not far away to the north in Washington State. Still, a major earthquake hazard event has been determined to have a small likelihood of occurrence in Morrow County.

The Pacific Northwest Seismograph Network records roughly 1,000 earthquakes per year in Washington and Oregon. Between one and two dozen of these cause enough ground shaking to be felt by residents. Most are located in the western side of the Cascade Mountains. This part of Oregon has experienced four historic earthquakes of significance that were centered in the eastern Oregon region: the 1893 Umatilla earthquake, the 1936 Milton-Freewater earthquake, the 1951 Hermiston earthquake, and the 1976 Deschutes Valley earthquake. All were shallow crustal earthquakes. There are also identified faults in the region that have been active in the last 20,000 years. The region has also been shaken historically by crustal and intraplate earthquakes and prehistorically by subduction zone earthquakes centered outside the area.

## FLOOD

According to the National Oceanographic and Atmospheric Agency (NOAA), flash floods in the United States are responsible for more deaths than any other storm event phenomena. Flash flooding usually is the byproduct of very heavy rains in a short period of time over a small geographic area, all of which combine to cause small streams to turn violent. Flooding as a natural hazard is a long-recognized and historically significant event in parts of Morrow County. Flash flooding, which is the prevalent flooding event in Morrow County, can be poorly predicted by weather reports because most often the floods are a result of a microburst, which simply overwhelms both natural and constructed drainage systems. These failures can cause damage to downtowns and farms in the floodplain areas. Emergency services, transportation, power, water and wastewater services, business and hazardous materials storage may be substantially disrupted and can affect the population located in or near the flooded area.

South Morrow County. The Willow Creek in southern portion of the County is famous in Oregon for the 1903 flash flood that caused the death of more than 200 people. It was a summer thunderstorm flood and was caused by a large amount of concentrated rainfall and a lack of vegetation in the watershed to slow it down. The City of Heppner, where the flood occurred, lies in a valley surrounded by steep slopes and sits at the confluence of four streams: Willow Creek, Hinton Creek, Balm Fork, and Shobe Creek. The steep slopes of the hills surrounding these creeks, along with the prevalence of severe thunderstorms in the area, contribute to the likelihood of flash flooding. According to the Heppner City Plan (1999), there was one flood per 4.6 years on average between 1883 and 1971. Due to this high incidence of flash flooding on the Willow Creek and other streams, the City of Heppner and the U.S. Army Corps of Engineers built the Willow Creek Dam across Willow Creek. This dam was completed in 1982 and the area subject to flooding was significantly reduced. However, since the Willow Creek Dam was constructed to intercept the waters from Willow Creek and Balm Fork only, the major flood hazard reduction occurred between the face of the dam and the confluence with Shobe Creek. Below Shobe Creek, an extensive area of the valley floor is still considered by FEMA as a designated flood hazard area. The flooding that occurred in 1971 was documented to have originated in the Shobe Creek watershed. As a result of the 1971 Shobe Creek flood, extensive work was done to construct a series of diversions in the Shobe Creek drainage, along

with the conversion of cropland to the Conservation Reserve Program (CRP) under a program sponsored by the Soil Conservation Service. Since the construction of the Willow Creek Dam and the work done on the Shobe Creek drainage, no significant flooding has been documented within the City of Heppner.

Lexington and Lone are also located on Willow Creek and experience localized flash flooding events. The U.S. Army Corps of Engineers has indicated that several of the tributaries of Willow Creek below the Willow Creek dam have the potential for flash floods and warrant consideration toward providing a degree of flood protection. The drainages are Blackhorse Creek at Lexington, Reitmann and Lorraine Canyons at Lone, and Rhea Creek at Ruggs.

#### North Morrow County

The Columbia River is not one of concern as far as extreme flood conditions because it is regulated by up-stream dams that it does not present a problem in Morrow County. There are, however, other flash flooding incidents in the northern portion of the County that do cause damage and disruption for the citizens and businesses of the County. The May 19, 2006 storm event is a good example of how a summer thunderstorm event can cause damage. The storm precipitated record-breaking hail and rain enough to wash out areas of local roads such as Bombing Range Road and portions of Highway 730.

#### LANDSLIDE

Landslides, including rock fall and other debris flow, as a natural hazard exist in every state in the U.S., and can be a serious geologic hazard. They sometimes present a threat to human life, but most often result in a disruption of everyday services, including emergency response capabilities. Landslides can and do block transportation routes, dam creeks and drainages and contaminate water supplies. When these hazards affect transportation routes they are frequently expensive to clean up and can have significant economic impact to the county. The Federal Emergency Management Agency (FEMA) describes debris flows, sometimes referred to as mudslides, mudflows, lahars, or debris avalanches, as common types of fast-moving landslides. These flows most frequently occur during or after periods of intense rainfall or rapid snow melt and have been linked to forest management practices, soil types and the underlying soil structure.

Morrow County Public Works Department clears the County roads from landslide debris in the rugged terrain of the south County areas. These landslides often occur after rain events and are generally not significant enough to block traffic, although along Rhea Creek and Willow Creek Roads landslide events have been most numerous and have been known to temporarily block traffic.

According to the Oregon Department of Geology and Mineral Industries (DOGAMI) map of the historic landslide areas in Morrow County, the landslide risk areas are in the southern portion of the County where the terrain is rugged and forested. DOGAMI has also mapped a large alluvial fan in the north-central portion of the County. This large alluvial fan is located in a farming area, but there are a few farm homes located on it. ~~Further study should determine whether this alluvial fan is active or inactive, and whether more stringent land use regulations should apply there.~~

#### VOLCANO

The western boundary of the Cascade Range is within 150 miles of Morrow County. The Cascade Range has been an active volcanic area for about 36 million years as a result of the

convergence between the North American and Juan de Fuca crustal plates. According to most interpretations, volcanism in the Cascades has been discontinuous in time and space, with the most recent episode of activity beginning about 5 million years ago and resulting in more than 3,000 vents. This activity is observable today as scientists monitor closely ongoing activity at Mount. St. Helens in Washington, the South Sister in Oregon and other locations.

As evidenced by all of the basalt that underlies Morrow County, this region has been mightily influenced by volcanic activity. Despite the scary image of liquid basalt flowing over the central basin area, there has been no such activity since more than 15 million years ago. Today, any risk to Morrow County is perceived as coming from the volcanic Cascade Range to the west. There is no history of volcanic impacts in Morrow County, although volcanic history in the wider region, notably the Mt. St. Helens eruption in 1980, does show that a volcano could affect the County if a volcano in the Cascade Range were to erupt.

## WILDFIRE

Morrow County, along with much of eastern Oregon has had experience with wildfires throughout time. The prevailing easterly wind and the drought conditions, which exist off and on throughout the western U.S., have exacerbated wildfires in this region. The number of fires in Morrow County, from 1984 to 2003, ranged from 13 in 1993 to 105 in 1999 with a total of 873 fires during this time period burning more than 213,000 acres. Twenty-nine fires burned 300 acres or more during that period and of those, six were 5,000 acres or more. In July and August of 2000 the Governor signed a Determination of Emergency Conflagration Act Due to Fire in Morrow County. The fire that occurred at this time was the "Willow Creek Fire" which started at the junction of Eight Mile Road and Four Mile Canyon in Gilliam County and spread out of control to Morrow County.

### Wildfire Impacts in Morrow County Regions

The southern one-third of the County is forested with the southeast corner of the County within the Umatilla National Forest. The topography of this part of the County is rugged as it is a part of a northwest spur of the Blue Mountains. The precipitation over this higher portion of the County does support conifer forests. These conifer stands, which cover some 205,000 acres, form an almost solid cover over the ridges and slopes of this area. About one thousand acres is juniper or scrub timber. The major species of conifers are ponderosa pine, Douglas-fir and western larch. The fire protection officials in this area characterize the fuel for wildfire potential in this region as very high. There are residential developments in the forested zone, which are the Blake Ranch area and the residential development around Penland Lake and around Cutsforth Park. The potential for life and property loss is high in the event of a fire due to lack of proximity to any rural fire protection district. Increasingly, people are using this area for recreational use at the County run Off-Highway-Vehicle Park and more people spend holiday time during weekends and vacation periods here. The residents and visitors to these areas are often inadequately educated or prepared for the inferno that could sweep through the brush and timber, affecting safety and destroying property in minutes.

In the middle third of the County, precipitation is too low for tree growth without the support of irrigation. Nevertheless, the fire protection districts respond to fires in this area more than in the forested southern region. The middle region of the County is mostly dryland ranges for the pasture of cattle and dryland wheat. The fire protection districts respond to wildfires in this location as a result of lightning strike (70 percent) and human caused (30 percent) fires. The fires generally burn range land, Conservation Reserve Program (CRP) fields, and pastures.

Heppner, Lexington and Lone are located within this area.

The northern third of the County contains most of the County's economic infrastructure to include the Boardman Coal-fire plant, Finley Buttes Regional Landfill, the Port of Morrow with its associated industries, Bonneville Power Administration power lines, natural gas pipelines, to name a few. The potential for wildfire in this portion of the County is less than the rest of the County for the following reasons. The farms and fields are irrigated, which means that water is available to keep the crops green and to lessen the ability of wildfire to spread and the area is more populated and contains two fire protection districts to respond to fires in the undeveloped shrub-steppe regions of the County. The ability of firefighters to protect this portion of the County is hampered, however, by the limited transportation network, which does not allow for quick coverage of the undeveloped areas of this portion of the County.

#### WIND STORM

Morrow County has experienced great loss of life as the result of a severe thunderstorm that occurred on June 14, 1903. Called the Heppner Flood, it was the worst flood caused by a severe thunderstorm, in terms of loss of life, ever to occur in Oregon. Typically the greatest damage caused by severe windstorms, thunderstorms and tornadoes in Morrow County are damages to structures of light construction such as manufactured homes, road blockages and other damage due to downed trees, flooding in low areas, and blowing debris.

Morrow County is subject to often intense gusts of high winds and windstorms. Although they are not usually life-threatening, high winds can disrupt daily activities, cause damage to buildings and structures, and increase the potential of other hazards. Some areas with little or no ground cover such as open agricultural fields experience blinding gusts of dust and road debris, including tumbleweeds, which become a hazard for travelers and an occasional disruption of local services. High winds sometimes cause severe transportation disruptions due to localized roadways blocked with debris, downed trees over roadways, and low areas completely filled with windblown tumbleweeds. Wildfires can be accelerated and made unpredictable by windstorms, which can cause grave danger to firefighters, emergency response personnel and residences or other structures that happen to be in the path of a wayward wildfire. Effects of the windstorms may be seen in damage to agricultural systems such as circle irrigation units, to structures such as roof damage and cracked windows, and damage to trees and landscaping. Power outages due to downed or damaged power supply lines have the potential to disrupt emergency response during and after a destructive windstorm.

#### WINTER STORM

Morrow County is vulnerable to the whims of winter storms and the associated problems. Roads can become temporarily impassable due to snow accumulation, although primary roads such as Interstate 84 are rarely closed due to snow and ice accumulation.

The most common impacts of winter storms are temporary road closures and flooding due to storm events, to include mud flowing across a road from nearby agricultural fields, ice storms and tumbleweeds blocking roadways. In addition to actual stormy conditions in the winter, dense, freezing fog can be a real hazard, especially on roadways and bridges.

#### NATURAL HAZARD FINDINGS

The following are the Goals from the Natural Hazard Mitigation Plan as recommended by the

Advisory Committee and adopted by Resolution by the Morrow County Court. In the context of the Comprehensive Plan these could also be called Findings.

1. Protection of Property. Lessen impact from natural disaster on individual properties, businesses and public facilities by increasing awareness at the individual level and encouraging activities that can prevent damage and loss of life from natural hazards;
2. Outreach and Education. Further the public's awareness and understanding of natural hazards and potential risk, including economic vulnerability and mitigation efforts;
3. Prevention. Reduce the threat of loss of life and property from natural hazards by making hazard mitigation planning a priority in land use policies and decisions, including Natural Hazard Mitigation Plan implementation.
4. Partnership and Coordination. Identify mitigation or risk reduction measures that address multiple areas (i.e. environment, transportation, telecommunications); Coordinate public/private sector participation in planning and implementing mitigation projects throughout the County; seek funding and resource partnerships for future mitigation efforts; and strengthen communication and coordinate participation among and within public agencies, citizens, non-profit organizations, business, and industry.
5. Structural Projects. When applicable, utilize structural mitigation activities to minimize risks associated with natural hazards.
6. Natural Resources. Preserve and rehabilitate and enhance natural systems to serve natural hazard mitigation functions (i.e. floodplains, wetlands, watersheds and urban interface areas; and balance watershed planning, natural resource management, and land use planning with natural hazard mitigation to protect life, property, and the environment.
7. Emergency Services. Minimize life safety issues by promoting, strengthening and coordinating emergency response plans; and coordinate and integrate natural hazard mitigation activities, where appropriate, with emergency operations plans and procedures.

#### NATURAL HAZARD POLICIES

1. Flood risk will be managed by limiting or regulating development in areas identified by the Federal Emergency Management Agency Flood Insurance Rate Maps or in areas identified by the County to be at risk to life or property due to flooding. County regulations will be compliant with National Flood Insurance Program requirements for development in flood prone areas.
2. County land use regulations will assure proposed developments will receive a review of potential natural hazards and that sufficient authority exists to modify or deny applications where such hazards exist. Such provisions shall, at a minimum, require specific information clearly determining the degree of hazard present from applicants who seek approval to develop residential, commercial, or industrial uses within known areas of natural disasters and hazards.
3. It shall be recognized that problem areas or hazards do not necessitate disapproval of

development, but that higher development standards can be expected in order to mitigate potential natural disasters.

4. Incorporate land use and development considerations into the planning and building phase for development in the forest use zone in order to minimize the impacts of wild fires. Consideration should go beyond defensible space requirements by including transportation and location issues, topographical features, site location and design, fire history, weather conditions, forest health, and adjacent land uses.
5. Use data provided by Oregon Department of Geology and Mineral Resources for parcel-specific information to provide support to limit or restrict development of unstable sites due to landslide risk. Abate landslide risk by using strict enforcement of grading and building codes.
6. Support the Natural Resources Conservation Service in their efforts to mitigate soil erosion and drought impacts through their drought resiliency and other conservation programs.



## PLANNING DEPARTMENT

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### NOTICE OF DECISION

December 17, 2015

AC-091-15, AC(M)-092-15  
Morrow County Comprehensive Plan  
Natural Hazards Element

This notice is to inform you that on December 16, 2015, the Morrow County Court adopted Ordinance Number ORD-2015-5 amending the Morrow County Comprehensive Plan. Specifically the amendment updates the Natural Hazards Element, basing this new Element on the Natural Hazard Mitigation Plan. Enclosed is the adopted ordinance and other support documents.

The requirements for filing an appeal of the decision to the Land Use Board of Appeals (LUBA) are set forth in ORS 197.830 to 197.845. State law and associated administrative rules promulgated by LUBA describe the period within which any appeal must be filed and the manner in which such an appeal must be commenced. Presently, ORS 197.830(9) requires that a notice of intent to appeal plan or land use regulation amendments adopted pursuant to ORS 197.610 to 197.625 "shall be filed not later than 21 days after notice of the decision sought to be reviewed is mailed or otherwise submitted to parties entitled to notice under ORS 197.615." Notice of this decision was emailed on December 17, 2015. The deadline to appeal is January 7, 2016.

Cordially,

A handwritten signature in cursive script that reads "Carla McLane".

Carla McLane  
Planning Director

I certify that on June 17, 2015, I will email a copy of this Notice of Decision to all persons entitled to notice of this decision.

A handwritten signature in cursive script that reads "Carla McLane".  
Signature 12/17/15  
Date