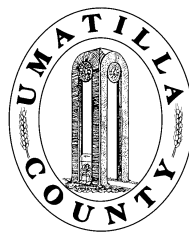


Natural Hazard Mitigation Plan



Draft Report for:

Pilot Rock, Oregon

September 1, 2009

Prepared by:

Umatilla County Emergency Management

and

Oregon Natural Hazards Workgroup

Community Service Center
University of Oregon

Section 1

Introduction

The City of Pilot Rock developed this Natural Hazards Mitigation Plan in an effort to reduce future loss of life and property resulting from natural disasters. The plan recommends actions and identifies resources to assist local citizens, public agencies, and private sector organizations within the community in reducing their risk to natural hazards. The plan additionally helps the city become eligible to apply for Federal funding for natural hazard mitigation and recovery activities. The city's plan assists the region's multi-jurisdictional planning effort by serving as an addendum to the Umatilla County Natural Hazard Mitigation Plan.

The City of Pilot Rock is exposed to many hazards, all of which have the potential for disrupting the community, causing damage, and creating casualties. Possible natural disasters include droughts, floods, rangeland fires, and winter storms ... [which pose] such a significant threat that advanced planning is warranted.

City of Pilot Rock Emergency Response Plan, [date], p.1

How was the Plan Developed?

The City of Pilot Rock is committed to assisting the regional planning effort by working collaboratively with other jurisdictions to reduce the region's risk to future natural hazard events. Natural hazard events have the ability to affect multiple jurisdictions and cross jurisdictional boundaries. Additionally, the costs associated with natural disasters have increased dramatically over the past decades. These factors have helped foster interest in collaborative natural hazard mitigation planning efforts. The city, along with the county, is participating in a regional mitigation planning initiative that covers over 1/3 of the geographic area of Oregon and nearly 1/3 of the counties. Oregon Emergency Management established eight natural hazards planning regions; this initiative includes the Mid-Columbia and the Southeast Oregon Regions. The planning effort was developed and facilitated by the Oregon Natural Hazards Workgroup at the University of Oregon's Community Service Center, and Oregon Emergency Management.

Who Participated in Developing the Plan?

Once the final draft of the Umatilla County Natural Hazards Mitigation Plan became available in January 2007, the Pilot Rock City Council began development of a draft NHMP, based upon a template provided by the County NHMP planner.

Planning Process

- In January, 2004 the County notified the City of the requirement of the National Disaster Mitigation Act of 2000 that all jurisdictions eligible for FEMA mitigation project grants must develop and implement a natural hazards mitigation plan.
- Pilot Rock City Administrator Jackie Cary and Fire Chief Ron Neeley were appointed as the City's liaisons for the County's NHMP process.
- Pilot Rock City Councilman and former mayor John Standley was appointed the NHMP Steering Committee.
- In June, 2004 city staff members participated in a hazards mapping workshop hosted by the County.
- On March 13, 2007 the County NHM Planner provided a template draft plan to the City staff to provide the basic information required for the plan.
- The Board of Commissioners adopted the Umatilla County Natural Hazards Mitigation Plan on June 30, 2009.
- FEMA approved the Umatilla County Natural Hazards Plan on July 9, 2009.
- The City of Pilot Rock Natural Hazards Plan was discussed and formulated at City Council meetings on April 17, 2007, June 5, 2007, June 16, 2009 and September 1, 2009, as well as with city staff and city residents on numerous occasions.
- On September 1, 2009, the Pilot Rock City Council approved the final draft of the NHMP and directed the NHMP Planner to forward it to OEM/FEMA for review and approval before the Council adopts the Plan.
- Section 1-3 of the Umatilla County NHMP provides a summary of the larger regional planning process.

Section 2:

Mitigation Action Plan

What is the Plan Mission?

The mission of the city of Pilot Rock's Natural Hazards Mitigation Plan is to prevent loss and protect life, property and the environment from the risk of natural hazards through coordination and cooperation among public and private partners.

What are the Plan Goals?

The plan goals help to guide the direction of future activities aimed at reducing risk and preventing loss from future natural hazard events.

The plan goals of the Pilot Rock Mitigation Plan are broad statements to help focus future mitigation efforts. Plan goals act as a bridge between the overall mission of the Mitigation Plan and the specific action items identified to reduce the City's risk from seven identified hazards (wildfire, flood, windstorms, severe winter storms, earthquake, volcano, and drought).

The plan goals include those previously adopted by the City in the Comprehensive Plan, those applicable and adopted in the Umatilla County Natural Hazards Mitigation Plan, as well as those determined by staff research and input from stakeholders and the City Council.

The six goals of the County Mitigation Plan include:

Goal #1: Property Protection

"GOAL: To protect life and property from disasters and hazards.

It shall be City Policy:

1. To encourage development to locate floodplains, natural drainageways, steep slopes, and other hazardous areas.
2. To limit the use of land in the floodplain within the urban growth area to open space, recreation or other appropriate uses which the potential loss to life or property and which comply with federal and state regulations.
3. To investigate alternative ways to resume the flood hazard within the city limits.
4. To require site 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."

City of Pilot Rock Comprehensive Plan, p. 4 [date]

Goal #2: Public Outreach

Goal #3: Planned Prevention

Goal #4: Agency/Citizen Coordination

Goal #5: Natural Resource Protection

Goal #6: Emergency Service Planning

What are the Plan Action Items?

The plan identifies action items developed through different plan inputs, such as data collection, research, and the public participation process. The action items identified by the plan are intended to help the city move toward achieving the plan goals. Action items address both multi-hazard and hazard-specific issues for the hazards addressed in this plan. For more information on the action items identified by the plan, see *Section 4: Pilot Rock Action Items*.

Each action item has a corresponding action item worksheet describing the activity, identifying the rationale for the project, identifying potential ideas for implementation, and assigning coordinating and partner organizations. These action item worksheets are located in Section 5 of this addendum. To facilitate implementation, worksheets have been filled out describing each action item with the following information:

Rationale or Key Issues Addressed:

Action items should be fact based and tied directly to issues or needs identified throughout the planning process. Action items can be developed from a number of sources including participants of the planning process, noted deficiencies in local capability, or issues identified through the risk assessment.

Ideas for Implementation:

The ideas for implementation offer a transition from theory to practice. Ideas for implementation include things such as collaboration with relevant organizations, grant programs, tax incentives, human resources, education and outreach, research, and physical manipulation of buildings and infrastructure.

The City looked at existing plans and policies that might be used to implement action items identified by the plan. This can help maximize resources for project implementation. For example, the natural hazard

mitigation actions can be added to projects identified in the City Transportation Plan.

Coordinating Organization:

The City Council is the coordinating organization with regulatory responsibility to address natural hazards, or that is willing and able to organize resources, find appropriate funding, or oversee activity implementation, monitoring, and evaluation.

Internal Partners:

Internal partner organizations are departments within the city that may be able to assist in the implementation of action items by providing relevant resources to the coordinating organization.

External Partners:

External partner organizations can assist the coordinating organization in implementing the action items in various functions and may include local, regional, state, or federal agencies, as well as local and regional public and private sector organizations.

The internal and external partner organizations listed in the Action Item Worksheets are potential partners recommended by the project steering committee, but not necessarily contacted during the development of the plan. The coordinating organization should contact the identified partner organizations to see if they are capable of and interested in participation. This initial contact is also to gain a commitment of time and/or resources towards completion of the action items.

Plan Goals Addressed

The plan goals addressed by each action item are identified as a means for monitoring and evaluating how well the mitigation plan is achieving its goals following implementation.

Timeline:

Action items include both short and long-term activities. Each action item includes an estimate of the timeline for implementation. *Short-term action items* (ST) are activities that may be implemented with existing resources and authorities within one to two years. *Long-term action items* (LT) may require new or additional resources and/or authorities, and may take between one and five years to implement.

How Will the Plan be Implemented?

The City Council will be responsible for adopting the City of Pilot Rock Natural Hazard Mitigation Addendum.

The city will follow the plan implementation and maintenance process outlined below. The City will designate a coordinating body, a convener, and develop a strategy for continued public involvement, but will utilize the project prioritization and plan maintenance methodology outlined in the county's plan.

Convener

The City Recorder shall act as the convener, i.e., the primary contact, for the city's plan revisions and addendum and will schedule meetings of the City Council when necessary to discuss NHMP issues.

Coordinating Body

The Pilot Rock City Council will serve as the coordinating body and will be responsible for coordinating the implementation of plan action items and undertaking the plan review process. The Council may task the City Planning Commission with periodic review and update recommendations for the Plan.

Continued Public Participation

Keeping the public informed of the city's efforts to reduce the city's risk to future natural hazards events is important for successful plan implementation and maintenance. The City is committed to involving the public in the plan review and update process by:

- keeping a copy of the plan for public viewing at a city agency/agencies office;
- keeping a copy of the plan at the city library;
- providing public comment times at Planning Commission and City Council review meetings;
- posting updates and new information regarding the plan on the NHWS website [www.OregonShowcase.org]; and
- providing a contact e-mail and phone number for public feedback.

There may be opportunities for the city to partner with the county to conduct joint participating and outreach efforts.

Project Prioritization Process

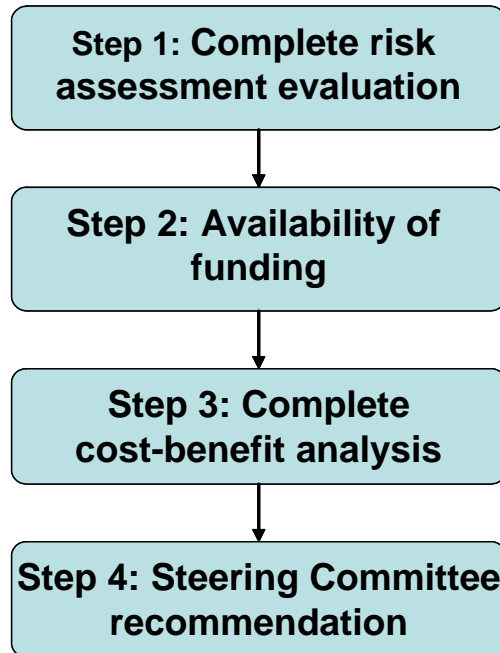
Establishing and implementing a project prioritization process is important because it: (1) is a required element of the Disaster Mitigation Act of 2000, (2) can assist the Steering Committee make decisions about how to move forward and (3) can assist in directing the effective use of limited mitigation dollars.

The following prioritization process was developed by the Oregon Natural Hazard Workgroup at the University of Oregon's Community Service Center. The four step process described below results in a priority score of high, medium, or low for each action. The priority scores are based on the following three factors:

1. the risk assessment;
2. the availability of funding; and
3. a cost benefit analysis.

This methodology will be used by the steering committee to initially prioritize the plan's action items during the development of the plan and will also be used to update the action items during the plan's annual review and update.

Figure 2.1: Project Prioritization Process Overview



Source: ONHW/CPW, 2005

Step 1: Complete Risk Assessment Evaluation

The first step in prioritizing the plan's action items is to review the plan's risk assessment. The committee will determine whether or not the plan's Risk Assessment supports the implementation of the mitigation activity. This determination will be based on the location of the potential activity and the proximity to known hazard areas, historic hazard occurrence, and the probability of future occurrence documented in the plan. To rank the hazards, community's natural hazard risk assessment will be utilized.

Step 2: Availability of Funding

The committee will examine potential funding sources available for the proposed mitigation activity. Potential funding stream requirements will be assessed to ensure that the mitigation activity would be eligible through the funding source. The committee may consult with the funding entity, Oregon Emergency Management, or other appropriate state or regional organization about the project's eligibility.

Step 3: Complete Cost-Benefit Analysis

Depending on the type of project and the funding source, a quantitative assessment of cost effectiveness might be necessary. Conducting cost effectiveness analysis for a mitigation activity can assist communities in determining whether a project is worth undertaking now, in order to

avoid disaster-related damages later. Cost-effectiveness analysis evaluates how best to spend a given amount of money to achieve a specific goal. Determining the economic feasibility of mitigating natural hazards provides decision-makers with an understanding of the potential benefits and costs of an activity, as well as a basis upon which to compare alternative projects.

If the activity is seeking federal funding for a structural project the committee will use a FEMA-approved cost-benefit analysis tool to evaluate the appropriateness of the activity. A project must have a benefit cost ratio of greater than 1 in order to be eligible for FEMA funding.

Step 4: Steering Committee Recommendation

The steering committee will assign the action a priority score of high, medium, or low based on the three steps above. The coordinating organization designated for the activity will be responsible for taking further action and document success upon project completion.

The steering committee and the community's leadership have the option to implement any of the action items at any time, (regardless or the prioritized order). This allows the committee to consider mitigation strategies as new opportunities arise, such as funding for action items that may not be of highest priority.

Plan Maintenance and Update

This plan will be updated every five years in accordance with the update schedule outlined in the Disaster Mitigation Act of 2000. During this plan update, the following questions should be asked to determine what actions are necessary to update the plan. The convener will be responsible for convening the Committee to address the questions outlined below.

- Are the plan goals still applicable?
- Do the plan's priorities align with State priorities?
- Are there new partners that should be brought to the table?
- Are there new local, regional, state, or federal policies influencing natural hazards that should be addressed?
- Has the community successfully implemented any mitigation activities since the plan was last updated?
- Have new issues or problems related to hazards been identified in the community?
- Do existing actions need to be reprioritized for implementation?
- Are the actions still appropriate given current resources?
- Have there been any changes in development patterns that could influence the effects of hazards?

- Have there been any significant changes in the community's demographics that could influence the effects of hazards?
- Are there new studies or data available that would enhance the risk assessment?
- Has the community been affected by any disasters? Did the plan accurately address the impacts of this event?

The questions above will help the committee determine what components of the mitigation plan need updating. The Committee will be responsible for updating any deficiencies found in the plan based on the questions above.

Umatilla County Natural Hazards Mitigation Plan Maintenance and Update

The Umatilla County Natural Hazards Mitigation Plan states [Section 1-8] that it will be evaluated on an annual basis to determine opportunities for making the Mitigation Plan more effective and to reflect changes that may effect mitigation and planning priorities. The Umatilla County Department of Resource Services & Development will be responsible for contacting the Mitigation Plan Steering Committee members to organize an evaluation meeting.

Also, the Umatilla County Department of Resource Services & Development will update the Mitigation Plan every five years. Resource Services & Development will also coordinate with all holders of the Mitigation Plan when changes have been made. Every five years the updated plan will be submitted to the Oregon State Mitigation Officer and FEMA for review.

Umatilla County NHMP also notes that the:

...County has taken great strides to involve the general public throughout the planning process of the Mitigation Plan, and is dedicated to involving the public directly in review and updates of the Mitigation Plan. The Steering Committee is responsible for participating in the annual review of the Mitigation Plan and stakeholder members, including *agency and city representatives will be encouraged to participate either directly or through additional surveys and public presentations.*[emphasis added].

A public meeting will be held for each annual evaluation of the Mitigation Plan. The meetings will provide a public forum for expressing concerns, opinions or ideas about the Mitigation Plan. The Umatilla County Department of Resource Services & Development will be responsible for publicizing the public meetings and maintaining public involvement. [Section 1-8, pp. 11-12.]

The City of Pilot Rock convener [City Recorder] will be responsible to insure that the City Council and city residents will participate in any aspect of the County's review that would impact the City's NHMP and that the city review process, described above, is coordinated with the County's.

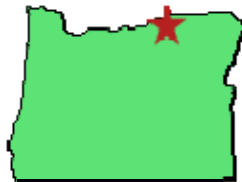
Section 3

Pilot Rock, Oregon Community Profile

PO Box 130, Pilot Rock, OR 97868
Phone 541-443-2811 • Fax 541-443-2253
Web Page <http://www.cityofpilotrock.org/> • E-Mail: cityofpr@centurytel.net

City Location

County: Umatilla Incorporated in 1912
Location: Northeast Oregon



Nearest Major Highway and Distance: I-84 | 13 miles
Nearest Major City and Distance:
Pendleton | 13 miles, Estimated Drive Time: 15 minutes

Climate

Elevation: 1,637' Measurement Location: Pilot Rock

Temperature:

Monthly Ave. Low: 25°F Monthly Ave. High: 89°F

Hottest Month July Coldest Month January

Driest Month July Wettest Month January

Average annual precipitation: 13.640"

Humidity (Hour 10, local time):

Average July afternoon humidity: 34%

Average January afternoon humidity: 77%

Population:

<u>1980</u>	<u>1990</u>	<u>2000</u>	<u>2001</u>	<u>2006</u>	<u>2007</u>	<u>2008</u>
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1,630	1,478	1,532	1,540	1,560	1,560	1,560
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Housing:

<u>1980</u>	<u>1990</u>	<u>2000</u>
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547	575	626
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Public School District:

Pilot Rock School District 2

Public Safety/Emergency Services

Fire Station(s) serving community: Pilot Rock RFPD, 1 station

Number of paid and volunteer firefighters: 25

Police Department: Pilot Rock Police Department

Number of paid and reserve officers: 5

Nearest Hospital and distance: St. Anthony Hospital, 13 miles in Pendleton

Communications Resources

Telephone Service Provider(s): Century Tel, Unicom

Available Cable Television: Charter Communications

Library System

1 public libraries

Territory Covered by Zoning

Municipality Yes

Water Supply

Operator: City of Pilot Rock

Source: Ground Water; Wells

Supply: Capacity (MGD)–4.00; Pressure (PSI)– 100 lb

Wastewater Treatment System

Operator: City of Pilot Rock

Age of Wastewater Collection System: 1958

Storm Drain: No

Utilities

Natural Gas—Provider: Cascade Natural Gas

Electrical—Provider: Pacific Power & Light

Solid Waste Management: Pilot Rock Sanitation

Transportation

Highways: Hwy 395 N/S route, local access

Community Air Service: Eastern Oregon Regional Airport

Rail Service: Yes

Bus Service Available in the Community: No

Sources: Oregon Department of Transportation, State of Oregon Map; Oregon Blue Book; Oregon Climate Service; 1980, 1990, 2000 US Census; 1998, 1999, 2001 Center for Population Research and Census, Portland State University; 2001 PSU population estimates; Oregon Department of Education; Oregon State Fire Marshal, Oregon Fire Service Resource Directory 2000; City Administration.

Critical Facilities

Critical facilities are those facilities that are essential to government response and recovery activities (e.g., police and fire stations, public hospitals, public schools). Critical facilities in the City of Pilot Rock are displayed below.

Pilot Rock Community Assets

Economic Resources:

1. – Kinzua Resources
2. – Masonite Industrial Site
3. – Gaelectric NW

Cultural And Historic Resources:

1. - Community Days Reunion Weekend
2. – Farmers Market

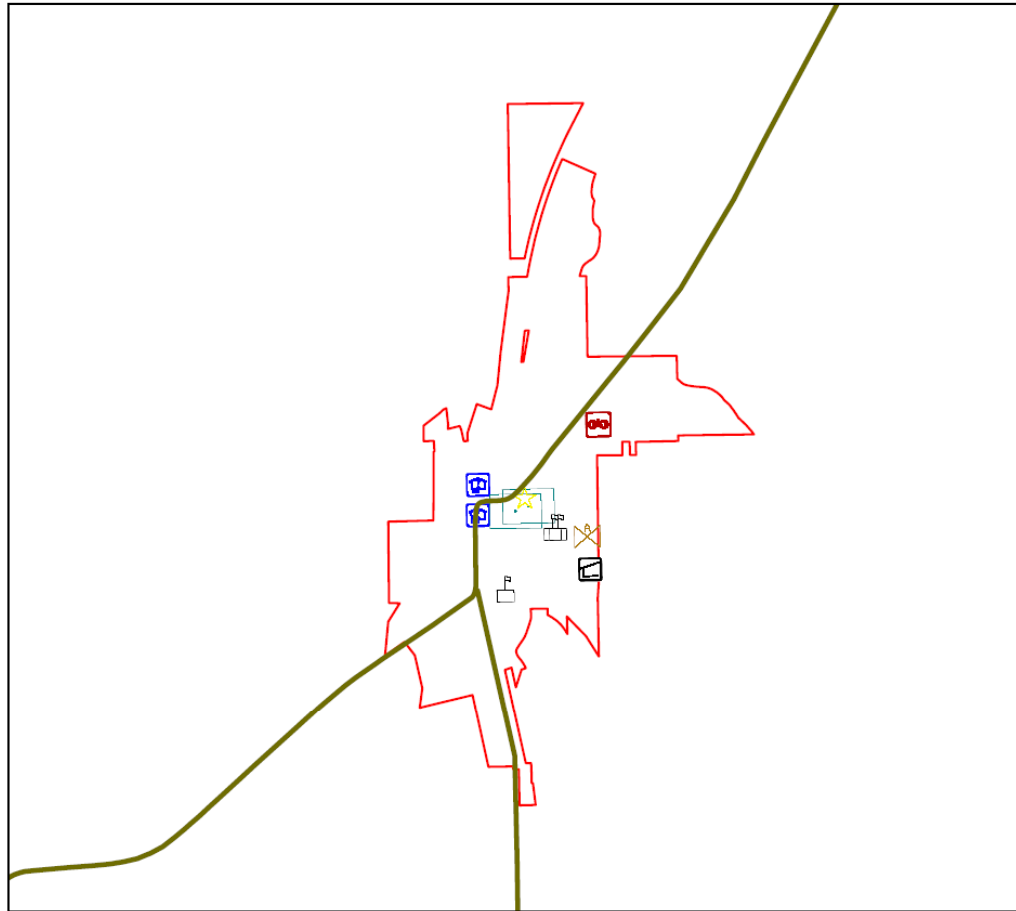
Critical Physical Facilities and Infrastructure:

1. – City Hall
2. – Water System
3. – Waster Water Treatment Facility
4. – Pilot Rock Elementary School
5. – Pilot Rock High School
6. –Post Office
7. –Police Department
8. –Library
9. – Pilot Rock RFPD
10. - Senior Center
11. – Birch Creek Manor

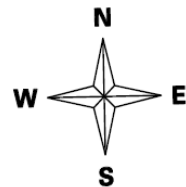
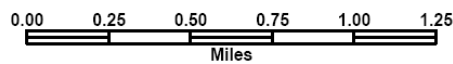
Natural Resources and Environmental Resources:

1. – City Park
2. – Veterans Memorial Park
3. – East and West Birch Creek
4. – Motocross and OVP Park

Pilot Rock Critical Facilities



Legend



Umatilla County GIS Dept
216 SE 4th St
Pendleton, OR 97801
541-278-6232

2-27-07

Sources: Roads by ODOT, City Limits limits downloaded from State Service Center for GIS Facilities from FEMIS, Umatilla County Emergency Management

Section 4

Risk Assessment

An important component of the Pilot Rock Natural Hazards Mitigation Plan is the Risk Assessment. This section provides information on the process used to develop the City of Pilot Rock's Risk Assessment, which addresses the following hazards: drought, earthquake, flood, landslide, volcanic event, wildfire, windstorm, and winter storm.

How was the Risk Assessment Developed?

On June 5, 2007, the City of Pilot Rock's Steering Committee [City Council] met to develop the city's Risk Assessment. To accomplish this task, Steering Committee completed the following tasks:

1. Gathered appropriate local hazard data for the hazards addressed in the plan;
2. Reviewed the county's risk assessment for each of the hazards addressed in the plan;
3. Determined whether or not the county's risk assessment accurately described the risk faced by the city;
4. If the county's risk assessment accurately described the risk in the city, the Council documented this in the hazard specific sections below;
5. If the city's risk is greater than that described in the county's plan, the Council documented the differences in the hazard specific sections below; and
6. The Council created potential action items for noted deficiencies in local risk assessment data.

Hazard Specific Risk Assessments

This section provides information for the risk assessments for the hazards affecting Pilot Rock. The accompanying tables depict the

hazards, history, vulnerability, maximum threat, probability and possible mitigation measures, as determined by Umatilla County Emergency Management, in collaboration with Pilot Rock city staff and citizens,

City staff participated in a multi-jurisdictional hazard/resource mapping workshop and mitigation action item brainstorming session hosted by Umatilla County Emergency Management on June 17, 2004.



Community Hazard Risk Assessment Summary

As noted, the City used the same hazard risk assessment methodology that the County used for its Natural Hazard Mitigation Plan and the Umatilla County Emergency Operations Plan.

In analyzing the risk posed by specific hazards, rating criteria and weighting factors have been used. This point-value formula is based on the followingⁱ:

- High = 10 points
- Moderate = 5 points
- Low = 1 point

Weighting factors are determined by the following:

1. **Event History** is based on the number of incidents equivalent to a major emergency. **Weighting Factor is 2.**
 - **High** = 4 or more events in last 100 years = 20
 - **Moderate** = 2 or 3 events in last 100 years = 10
 - **Low** = 1 or 0 events in last 100 years = 2

2. **Vulnerability** is based on the percentage of population or property likely to be affected. **Weighting Factor is 5.**
 - **High** = More than 10% of population affected = 50
 - **Moderate** = 1-10% of population affected = 25
 - **Low** = Less than 1% of population affected = 5
3. **Maximum Threat** is based on the percentage of population or property that could be affected in a worst-case incident. **Weighting Factor is 10.**
 - **High** = > 25% of population potentially affected = 100
 - **Moderate** = 5-25% of population potentially affected = 50
 - **Low** = < 5% of population potentially affected = 10
4. **Probability** is based on the likelihood of an occurrence happening within a specified period of time. **Weighting Factor is 7.**
 - **High** = One incident within a 10-year period = 70
 - **Moderate** = One incident within a 50-year period = 35
 - **Low** = One incident within a 100-year period = 7

Natural Hazards Risk Analysis for Umatilla County, Oregon

Natural Hazard and Risk Score	History	Vulnerability	Max Threat	Probability
Weather (240)	High 20	High 50	High 100	High 70
Hazmat (165)	High 20	Moderate 25	Moderate 50	High 70
Flood (165)	High 20	Moderate 25	Moderate 50	High 70

Natural Hazard and Risk Score	History	Vulnerability	Max Threat	Probability
Fire (165)	High 20	Moderate 25	Moderate 50	High 70
Earthquake (162)	Low 2	Moderate 25	High 100	Moderate 35

From: Umatilla County Emergency Operations Plan, December 17, 2003, p.11.

Natural Hazards Risk Analysis for Pilot Rock, Oregon

Drought

Hazard	Location	History	Vulnerability	Maximum Threat	Probability	Risk Score
Drought	City-wide	Moderate 10	Low 5	High 50	Moderate 35	100

City-County Hazards Analysis, 2004

Drought involves a period of prolonged dryness resulting from a lack of precipitation or diversion of available water supplies. Umatilla County has suffered periods of drought in the past; however the main impact of drought has been on agriculture, fish, and wildlife, as well as an increased fire risk. A severe drought could require strict water conservation/regulatory measures to ensure adequate supplies of raw and treated/potable water.

Umatilla County Natural Hazards Mitigation Plan, 2006, [draft]

Additional information regarding the drought risk assessment for the Mid-Columbia Region of Oregon can be found in Appendix F, pp. 3-4.

The City of Pilot Rock has determined that Umatilla County's NPHP accurately identifies the community's risk to the drought hazard which is basically the same as that for the County.

Risk assessment information for drought can be found in Section 3 of the county plan. . [Drought related Action Items are located in Section 4-9 of the county plan and are included herein as part of Appendix C.]

Earthquake

Hazard	Location	History	Vulnerability	Maximum Threat	Probability	Risk Score
Earthquake	City-wide	Low 2	High 50	High 100	Moderate 35	187

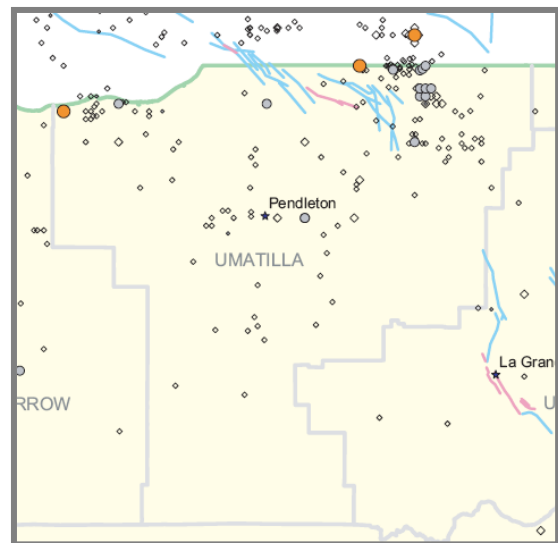
City-County Hazards Analysis, 2004

Additional information regarding the risk assessment for earthquakes in the Mid-Columbia Region of Oregon can be found in Appendix F, pp 5-10.

Oregon Senate Bill 2 (2005) directed the Oregon Department of Geology and Mineral Industries (DOGAMI) to develop a statewide seismic needs assessment that included seismic safety surveys of K-12 public school buildings and community college buildings that have a capacity of 250 or more persons, hospital buildings with acute inpatient care facilities, fire stations, police stations, sheriffs' offices and other law enforcement agency buildings.

The statewide needs assessment consisted of rapid visual screenings (RVS) of these buildings in accordance with FEMA guidelines or an equivalent standard adopted by DOGAMI; information gathering to supplement RVS; and ranking of RVS results into risk categories.

Four facilities in Pilot Rock are assessed. They are the Pilot Rock RFPD, NE 4th and NE Elm Streets; Pilot Rock Police Department, 144 N. Alder Place; the Elementary School, Vern McGowan Drive; and the High School, 101 NE Cherry Street. The Police Department and part of the High School have a “high (>10%)” collapse potential rating, Parts of the Elementary School and the High School have “Moderate (>1%)” collapse potential, but the fire department as a “low” rating. A copy of the assessment is included in Appendix B.



Map of Earthquakes in Umatilla County, 1814 – 2002 [DOGMI, 2002]

The City of Pilot Rock has determined that Umatilla County's NPHP accurately identifies the community's risk to the earthquake hazard which is basically the same as that for the County.

Risk assessment information for earthquakes can be found in Section 3 of the county plan. [Earthquake related Action Items are located in Section 4-6 of the county plan and are included herein as part of Appendix C.]

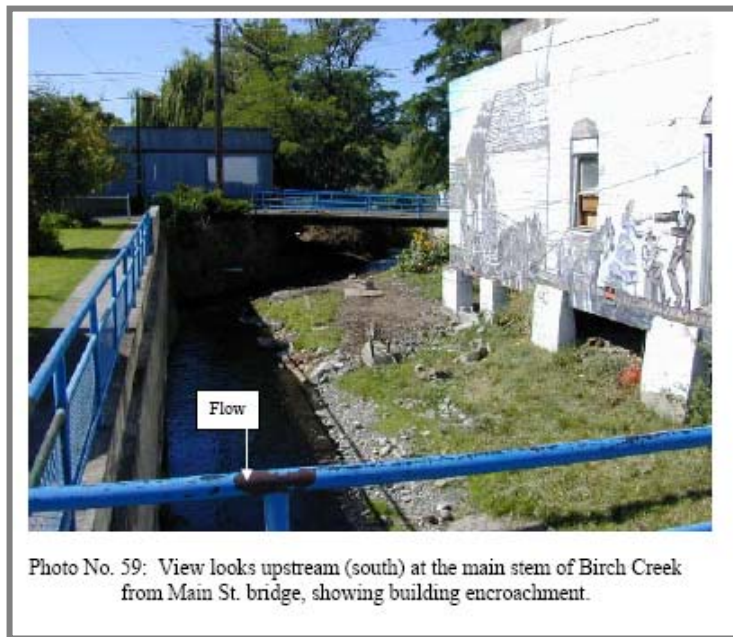
Flood

Hazard	Location	History	Vulnerability	Maximum Threat	Probability	Risk Score
Flood	City Park	High 20	Low 5	Low 10	High 70	105
Flood	Main Street; alley; bridges	High 20	Moderate 25	Moderate 50	High 70	165
Flood	SW 3 rd ; Delwood	High 20	Moderate 25	Moderate 50	High 70	165
Flood	SW 2 nd	High 20	Low 5	Low 10	High 70	105

City-County Hazards Analysis, 2004



Birch Creek, Pilot Rock, Oregon, January 1965
US Army Corps of Engineers, Walla Walla District



Report of Flood Fight Potential Sites in Umatilla County, Oregon Rev. 1, U^S CENWP-EC-DC 11/3/03, pp. 32..



The top photo was taken in 2003. The photo above of the same area was taken in 2009.

The City of Pilot Rock is a participant in the National Flood Insurance Program (NFIP), with 15 policies in force at a value of \$2,247,900. The written premium in force is \$11,776. The City's initial Flood Insurance Rate Map was completed on August 4, 1988, and the map has not been updated since. There have been zero losses and zero repetitive losses

in the City of Pilot Rock. The community's last Community Assistance Visit (CAV) was on Sept. 30, 1992.

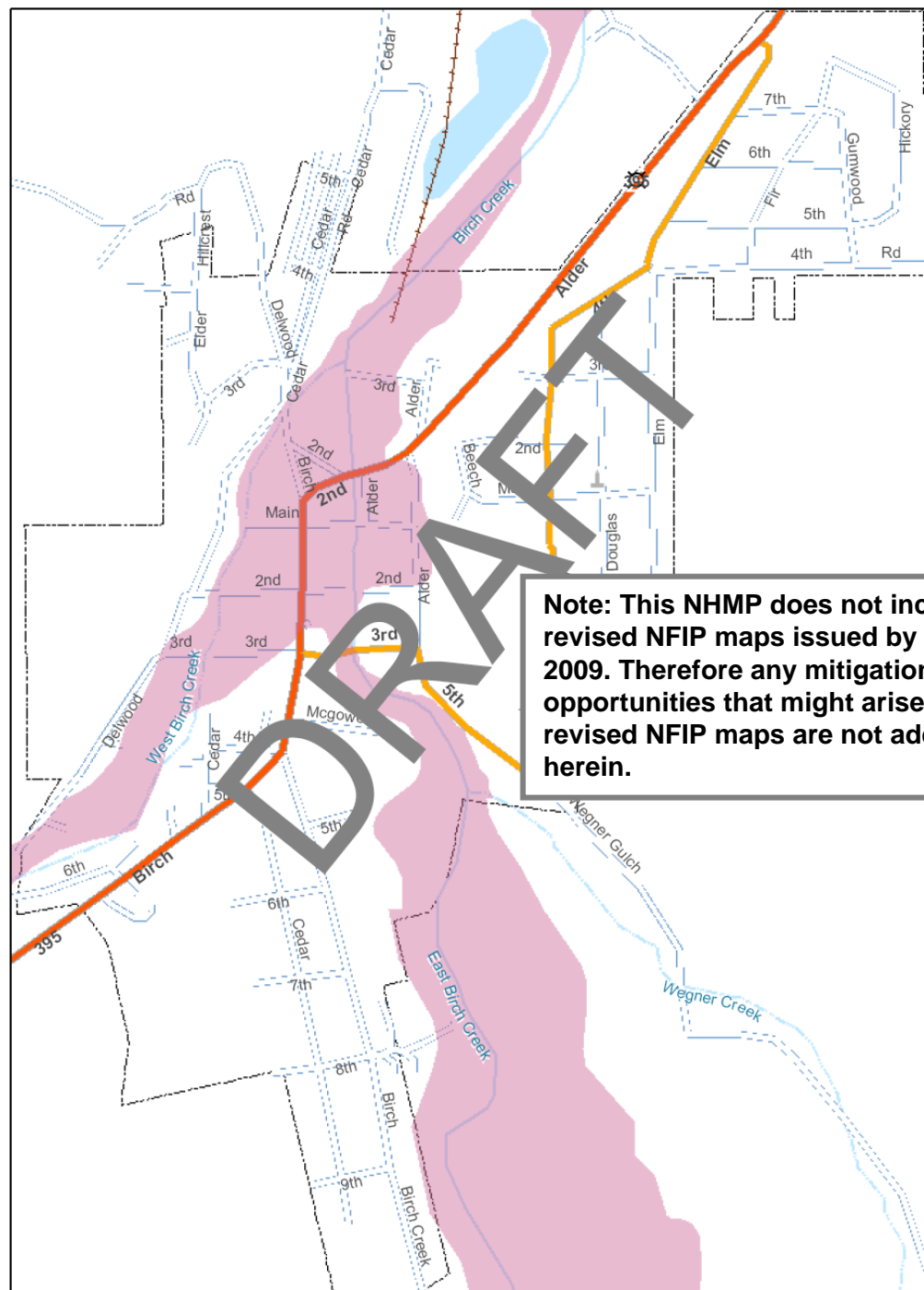


The Alley Street Bridge needs to be replaced. See Action Item F-LT #5



Replacement the pedestrian bridge over West Birch Creek between Delwood Street and South 6th Street is Action Item F-LT #4

PRELIMINARY map of 100 and 500 year flood zones in Umatilla County
Pilot Rock



0 0.05 0.1 0.2 Miles
100 and 500 year flood zone

Q3 Flood Data provided by FEMA

“Areas along East Birch Creek, West Birch Creek, and Birch Creek are subject to flooding. The Federal Insurance Administration...and the Corps of Engineers...have mapped flood prone areas. Downtown Pilot Rock is within the flood area.” *Pilot Rock Comprehensive Plan*, p. III-3, 19xx

“During the major flood of February 1996, Pilot Rock was seriously impacted by flooding along the East Fork of Birch Creek and to a lesser extent the West Fork. High water damaged both public and private property throughout the community.

Public facilities and private homes were impacted by the floodwaters. The City Park had damaged and at least one home reported floodwater in the basement. Flooding of the central business district and other parts of the city has been recorded in the 1965-66 and 1938 winters.”

Flood Contingency Plan, Pilot Rock, Oregon, Birch Creek/East and West Forks, p.1, 4/12/2004

Flood Plain Description: Pilot Rock is affected by three flood plains. One is from the West Fork of Birch Creek. The second flood plain is from the East Fork of Birch Creek. The third flood plain is from Birch Creek downstream from the confluence of the two forks. The main stem of Birch Creek has a concrete bridge at the US Highway 395 crossing and passes by a trailer park on the east bank, which experiences flooding. There is a relatively new (3 years old) fish ladder adjacent to the trailer park. The West Fork has a bridge the Main Street crosses. Buildings were constructed right on the creek banks, eliminating any possible flood fighting construction along the banks. The East Fork has a bridge near the junction of Cedar Street and US Highway 395. Houses were built very close to the creek banks, also eliminating any flood fighting construction along this fork of Birch Creek.

Type of Flooding: Flooding from the two forks of Birch Creek can be characterized as *limited*, until they merge to form Birch Creek, where it becomes *widespread* flooding. ...Without major moving of buildings and the bridges, flooding in Pilot Rock probably can't be prevented.

Report of Flood Fight Potential Sites in Umatilla County, Oregon Rev. 1, USACE CENWP-EC-DC 11/3/03, pp. 10-11.

Additional information regarding the flood risk assessment for the Mid-Columbia Region of Oregon can be found in Appendix F, pp. 16-19.

The City of Pilot Rock has determined that the County's plan accurately identifies the community's risk to the flood hazard but refers to the 1997 County Flood Mitigation Plan. Risk assessment information for flood can be found in Section 3 of the county plan.

Flood related County Action Items are located in Section 4-3 of the county plan and are included herein as part of Appendix C. The County Flood Mitigation Plan specifically addresses Birch Creek flooding problems in the Pilot Rock area. See Section 3.3.3, p. 56.

Volcanic Event

Hazard	Location	History	Vulnerability	Maximum Threat	Probability	Risk Score
Volcanic Ash	City-wide	Low 2	Low 5	Low 10	Low 7	24

City-County Hazards Analysis, 2004

On June 18, 1980 Mount St. Helens erupted with a major lateral blast that claimed several lives and forever changed the landscape around the Mountain. While Mount St. Helens is more than 200 miles from Umatilla County it remains a potential hazard that could affect the lives of residents of Umatilla County.

At the present time, volcanic eruptions are random events, while the likely hood of an eruption can be predicted, the exact time and volume of such an event is unknown. While Mount St Helens continues to vent steam and occasionally produce lava flows with in the crater the likely hood of ash or Tephra Fall in Umatilla County is relatively remote...The Hazard Assessment for Volcanic Eruption is “moderate”.*

Umatilla County NHMP, 2006 p.

* Wolfe, Edward W. and Pierson, Thomas C. 1995 Volcanic-Hazards Zonation for Mount St. Helens, Washington, 1995 Open-File Report 95-497

Additional information regarding the volcano-related hazards for the Mid-Columbia Region of Oregon can be found in Appendix F, pp. 23-24.

The City of Pilot Rock has determined that the county’s plan accurately identifies the community’s risk to the volcanic hazard which is basically the same as that for the County. Risk assessment information for volcanic events can be found in Section 3 of the county plan.

[Volcano related County Action Items are located in Section 4-7 of the county plan and are included herein as part of Appendix C.]

Wildfire

Hazard	Location	History	Vulnerability	Maximum Threat	Probability	Risk Score
Wildfire	Fields surrounding city	High 20	High 50	High 100	High 70	240

City-County Hazards Analysis, 2004

Umatilla County NHMP Action Items:

Note: The *Umatilla County Community Wildfire Protection Plan* [2005] lays out action items to deal with pre-fire disaster mitigation planning.

Short-Term Fire #1	Work with agriculture and conservation groups to establish fire buffers between developed and resource lands
Long-Term Fire #1	Work with citizens of Umatilla County to assure that all areas are protected under a rural fire district

Additional information regarding the wildfire risk assessment for the Mid-Columbia Region of Oregon can be found in Appendix F, pp. 11-15.

The City of Pilot Rock has determined that Umatilla County's NHMP accurately identifies the community's risk to the wildfire hazard which is basically the same as that for the County. Risk assessment information for wildfire can be found in Section 3 of the county plan.

[Wildfire related County Action Items are located in Section 4-2 of the county plan and are included herein as part of Appendix C.]

Windstorm

	Location	History	Vulnerability	Maximum Threat	Probability	Risk Score
Windstorm	City-wide	Moderate 10	High 50	Moderate 50	Moderate 35	145

City-County Hazards Analysis, 2004

Additional information regarding the windstorm risk assessment for the Mid-Columbia Region of Oregon can be found in Appendix F, pp. 26-28.

The City of Pilot Rock has determined that the county's plan accurately identifies the community's risk to the windstorm hazard which is basically the same as that for the County.

Risk assessment information for windstorm can be found in Section 3 of the county plan. Windstorm related County Action Items are located in Section 4-4 of the county plan and are included herein as part of Appendix C.

Winter Storm

Hazard	Location	History	Vulnerability	Maximum Threat	Probability	Risk Score
Winter Storm	City-wide	High 20	High 50	High 100	High 70	240

City-County Hazards Analysis, 2004

Additional information regarding the winter storm risk assessment for the Mid-Columbia Region of Oregon can be found in Appendix F, pp. 30-31.

The City of Pilot Rock has determined that the county's plan accurately identifies the community's risk to the winter storm hazard which is basically the same as that for the County.

Risk assessment information for winter storm can be found in Section 3 of the county plan. [Severe Winter Storm related County Action Items are located in Section 4-5 of the county plan and are included herein as part of Appendix C.]

Tumbleweeds

Hazard	Location	History	Vulnerability	Maximum Threat	Probability	Risk Score
Winter Storm	City-wide	High 20	High 50	Moderate 50	High 70	190

Staff Review March 13, 2007

As noted in the news article below, Tumbleweeds [Russian Thistle], can create dangerous situations by blocking streets and clogging streams under bridges, etc. This has lead to serious access problems for emergency services and could block orderly and timely evacuation of neighborhoods during wildfire or flooding events.

Town struggles to disentangle from tumbleweed

Hazard : Thousands of dry, 10-foot shrubs roll into Pilot Rock, blocking roads and littering yards

THE ASSOCIATED PRESS

PILOT ROCK — The Sons of the Pioneers' song "Tumbling Tumbleweeds" is not without its charms, but the folks in Pilot Rock aren't singing along.

The unwelcome rolling shrubs blocked traffic in the town, south of Pendleton, for more than a mile last spring.

"We burned tumbleweeds for about three days," said Hal Phillips, director of the Umatilla County Road Department.

He estimated it cost \$11,000 for crews to bunch up the weeds with graders and a backhoe, then set the piles afire.

The dried shrubs blow with the wind and land by the thousands in the northeast section of Pilot Rock, especially along Stewart Creek Road.

The traditional tumbleweeds that blocked Stewart Creek are the round, shrub-like skeletons that can grow to 10 feet in diameter and scatter up to 250,000 seeds per plant as they roll across the country.

More common this fall has been tumble mustard, also known as Jim Hill mustard. When the plants mature the finely branched yellow stems break off at ground level and tumble with the wind — hence the name — spreading their seeds.

Both kinds have plagued Pilot Rock in recent years. In November, after two days of heavy winds, citizens crowded into a City Council meeting to complain and show photographs and videos of yards choked with weeds.

Mayor Virginia Carnes said 17 families that she knows of have been hit especially hard. The city's maintenance crews deal with the weeds on streets and city property, but private landowners are on their own.

Residents worry about fire hazards from the highly flammable weeds, about flooding when they jam culverts during rainstorms and about blocked

roads. The weeds damage personal property, shredding boat covers and scratching vehicles. And the cleanup can be overwhelming.

"It's been a real hassle," said Pilot Rock resident Gloria Miller, who attended the City Council meeting. "This last storm completely filled our back yard. My husband got it cleaned up after the first storm, and then the next day it blew again. It took him two or three days to get it cleaned up."

Carnes and others say the bulk of the weeds originate on farmland recently entered into the Conservation Reserve Program.

Kent Willett agrees. He is the executive director for the Farm Service Agency in Umatilla County, which manages the local reserve program.

The program pays farmers to establish long-term, resource-conserving vegetation on land previously devoted to crops. The intent is to reduce soil erosion, improve water quality and provide wildlife habitat. Pheasants benefit most from the program in Umatilla County, Willett said.

As part of their contract with the FSA, farmers plant the enrolled ground with a mix of forage species that often includes alfalfa. The newly planted ground is especially susceptible to infestations of both tumbleweed and tumble mustard.

But reserve program regulations limit the type and timing of weed control available to farmers.

"We can't use most sprays because they will kill the alfalfa," Willett said. "In many cases we have weeds growing unchecked that first year, then we hope for a late mowing in the fall to break up the weeds so they have less impact when the wind blows."

Willett's office has received about a dozen complaints regarding tumbleweeds in the past couple of years. The FSA occasionally runs spot checks and has asked farmers to mow in certain areas.

"Most people want to do the right thing," Willett said. "This is a difficult situation because there is no simple answer that is best for all parties."

THE OREGONIAN • WEDNESDAY, DECEMBER 6, 2006

Natural Hazards Risk Analysis for the City of Pilot Rock and Umatilla County

CITY OF PILOT ROCK HAZARD	CITY SCORE	COUNTY SCORE
1. Drought	100	240*
2. Earthquake	187	162
3. Flood	165	165
4. Volcanic Event	24	-
5. Wildfire	240	165
6. Windstorm	145	240*
7. Winter Storm	240	240*
8. Tumbleweeds	190	-

* Drought, Windstorm and Winter Storm were combined in the County NHMP hazards analysis.

Section 5

Mitigation Action Items

This section lists the city's action items and provides information on the process used to develop the city's action items. Action items are detailed recommendations for activities that local departments, citizens and others could engage in to reduce risk to the natural hazards addressed by this plan.

How Were the Action Items Developed?

The Pilot Rock City Council acted as the Steering Committee. The Council held several public meetings [as part of their regular agendas] where citizens were encouraged to provide pertinent information.

The NHMP Planner provided several drafts of the Plan to the Council [and the public, as requested] as the process proceeded and additional supportive data and action items were developed.

The Action Item Form developed by the Oregon Natural Hazards Workgroup was used to document the background and implementation components of the potential action item. The forms were also useful in pulling together the Action Item Matrix described Mitigation Plan Action Items.

The City of Pilot Rock concurs with and adopts the Umatilla County Action Items adopted by Umatilla County on June 30, 2009 and included herein as Appendix C. Specifically, the City adopts, and will actively support, the following County NHMP Action Items:

Umatilla County NHMP Action Items Specifically Adopted by the City of Pilot Rock										
Action Item Number	Action Item	Coord. Org.	Partner Organizations	Timeline	Plan Goal Addressed					
					Property Protection	Public Outreach	Planned Prevention	Agency Coordination	Nat. Resource Protection	Emerg. Serv. Planning
ST-MH 1	Complete	UCEM	...includes	1	X	X	X	X	X	X

	City Addendums		Cities	Year						
ST-MH 2	Public Awareness Program	UCEM	...includes Cities	1-2 Years	X	X	X	X		
ST-MF 3	Hazard Safety Education	UCEM	...includes city response agencies	Ongoing	X	X	X	X	X	X
ST-Flood 3	Develop FIRM Database	UCEM	...includes Cities	5 Years		X	X	X		
LT-Flood 3	Identify Susceptible Bridges	Umatilla County Road Department	ODOT, USACE, CTUIR, FEMA, DSL	5 Years	X		X	X		X
LT-WS 3	Assess Snow Removal Capabilities	UCEM	Cities, Response Agencies, Special Districts	5 Years	X		X	X		X
ST- Earthquake 1	Survey Vulnerable Structures	UCEM	OEM, FEMA, Cities, Special Districts	1 Year Ongoing	X		X	X		X
ST-Volcano 1	Volcano Response Protocols	UCEM	...includes Cities	1 Year Ongoing	X		X	X		X

Proposed Action Item: Flood - Long Term #1 [F-LT 1]	Alignment with Plan Goals:
Mitigation of substantially improved or substantially damaged properties (i.e., repair, rehabilitation, reconstruction, remodeling, and additions)	Goal #1 – Property Protection Goal #3 – Planned Protection Goal # 5 Natural Resource Protection
Rationale for Proposed Action Item:	
<p>The National Flood Insurance Program (NFIP) enables property owners to purchase flood insurance for homes and business properties. FEMA administers the NFIP, and communities that have joined the program have entered into an agreement with the federal government to manage and enforce minimum floodplain development standards in local floodplains. The implementation of the substantial improvement/substantial damage requirements of the NFIP can be a major concern for local NFIP administrators and elected officials. This is because compliance with these NFIP standards can require a major investment by the building owner and thus can be strongly opposed by the owner. Local NFIP administrators and local officials may find it particularly challenging to implement these NFIP standards in a post-disaster environment when building owners have experienced serious damages as a result of a flood or other disaster and are likely financially strapped and emotionally impacted. [Note that the City of Pilot Rock has no repetitive loss properties.]</p>	
Ideas for Implementation:	
<p>Implementation Regulations:</p> <p>The basic NFIP rule is: that if the cost of improvements or cost of repairs exceeds 50% of the market value of the structure, then the structure must be brought up to current floodplain development standards. If an improved property is substantially damaged by a flood event, the NFIP-participating community must ensure the structure is elevated to, minimally, one foot above the 100-year base flood elevation and the foundation properly flood-vented. Other mitigation options allow for the relocation of the improvement to higher ground, demolition or a federally-funded property acquisition where the acquired property is returned to open space in perpetuity. If the improved property is not mitigated, the community will jeopardize its standing in the NFIP and ultimately the non-mitigated property may be designated as no longer be eligible for NFIP flood insurance. Most importantly, the unmitigated property remains fully subject to future flood damages.</p> <p>Ideas for Post-Disaster Implementation of Substantial Damage:</p> <p>The City of Pilot Rock, through its City Council Planning Committee and city staff, is responsible for determining substantial damages as a result of a flood or other disaster. It is important for a local official to conduct field reconnaissance as soon as possible after the disaster and to talk with impacted property owners to gauge the level of damages. For the</p>	

purpose of determining the market value of the structure (values for land, landscaping, and accessory structures not considered), the local official will find the tax assessed Real Market Value reasonably reflects the property's value. (Other methods can be used to estimate market values, but the community must consistently apply its methodology to all properties.) If the estimates to repair the disaster damage exceed 50 percent of the value of the structure, the structure is substantially damaged. It is important to move quickly in making this determination as mitigation opportunities are often the best soon after the disaster occurs. Additional information on NFIP property damage claims can be obtained from the state NFIP coordinator. A detailed explanation of the substantial damage determination can be found in FEMA Publication 213, May 1991, *Answers to Questions About Substantially Damaged Buildings*.

Implementation strategy:

1. Within two weeks of a damaging flood event:
 - a. Identify, inspect, and photograph flood damaged properties, particularly those that have the potential to be substantially damaged.
 - b. Request NFIP flood loss claims from the state or FEMA Region 10.
 - c. Widely announce and promote mitigation opportunities and requirements for mitigation to substantially damaged properties.
 - d. Talk with impacted property owners if at all possible
 - e. Review incoming requests for building permits to track substantial improvements.
 - f. Promote coordination/cooperation between the local planner, building official, and emergency manager with respect to this work
2. Those properties that carry NFIP flood insurance could be eligible for the Increased Cost of Compliance (ICC) coverage (up to \$30,000) to help defray the cost of mitigation. This coverage is only available when the community has determined there is substantial damage and requires compliance with current flood development standards.
3. Contact Oregon Emergency Management to determine if federal grant funding might be available to mitigate substantially damage properties. Programs include the post-disaster Hazard Mitigation Grant Program, the Pre-Disaster Mitigation Grant Program and Flood Mitigation Assistance program. ICC funding can be used in conjunction with these mitigation grants. Mitigation treatments include elevation, relocation, demolition or property acquisition.

Coordinating Organization:		City Council
Internal Partners:		External Partners:
City Public Works		County, OEM, FEMA, USACE
Timeline:		If available, estimated cost:
<u>Short Term</u> (0-2 years)	<u>Long Term</u> (2-4 or more years)	
	On-going	

Proposed Action Item: Short-Term Fire #1 [ST-Wildfire-1]		Alignment with Plan Goals:
Work with agriculture and conservation groups to establish fire buffers between developed and resource lands		Goal #1 – Property Protection Goal # 2 – Planned Prevention Goal # 3 – Agency/Citizen Coordination Goal # 5 – Natural Resource Protection
Rationale for Proposed Action Item:		
The <i>Umatilla County Community Wildfire Protection Plan</i> [2005] lays out action items to deal with pre-fire disaster mitigation planning.		
Ideas for Implementation:		
<ul style="list-style-type: none"> • Map existing range/urban interface areas around Pilot Rock where buffering could be a mitigation tool. • Obtain funding to hire contractors to design and complete fire buffers. • Work with affected property owners to install buffers. • Work with federal agencies assigned to conservation programs to insure the landowners remain compensated even when agreeing to install fire buffers. 		
Coordinating Organization:	Pilot Rock Fire District and Umatilla County Emergency Management	
Internal Partners:		External Partners:
City Public Works		SWCD, NCRS, property owners
Timeline:		If available, estimated cost:
<u>Short Term</u> (0-2 years)	<u>Long Term</u> (2-4 or more years)	
<u>X</u>		

Proposed Action Item: Short Term – Tumbleweeds 1 [ST-Tumbleweeds 1]		Alignment with Plan Goals:
Work with agriculture and conservation groups to establish strategies and mitigation measures, such as buffers, between developed and resource lands to address the often dangerous tumbleweed issues within the city.		Goal #1 – Property Protection Goal #2 - Planned Prevention Goal # 3 – Agency/Citizen Coordination Goal # 5 Natural Resource Protection
Rationale for Proposed Action Item:		
At certain times of the year tumbleweeds [Russian Thistle] can clog city streets and under bridges causing dangerous situations for city residents.		
Ideas for Implementation:		
<ul style="list-style-type: none"> • Map existing range/urban interface areas around Pilot Rock where tumbleweed buffering could be a mitigation tool. • Obtain funding to hire contractors to design and complete tumbleweed buffer plan and other mitigation measures. • Work with affected property owners to install buffers and/or other mitigation measures. • Work with federal agencies assigned to conservation programs to insure the landowners remain compensated even when agreeing to install tumbleweed buffers. 		
Coordinating Organization:		
Internal Partners:	External Partners:	
City Public Works	County, OEM, FEMA, NRCS, SWCD	
Timeline:	If available, estimated cost:	

Proposed Action Item: Flood – Long Term #2		Alignment with Plan Goals:
For locations in town with reoccurring flooding and significant damages to streets or street closures, determine and implement measures such as upsizing culverts or storm water drainage ditches.		Goal #1 – Property Protection Goal #3 – Planned Protection
Rationale for Proposed Action Item:		
<ul style="list-style-type: none"> In its hazard analysis, Pilot Rock rated itself as having an above average flood risk rating of 165 out of 240. Improved hazard identification and mitigation can help the City to better reduce flood risks. 		
Ideas for Implementation:		
<ul style="list-style-type: none"> Use information gathered of recent flooding and develop a list of flood-prone streets in town that are in need of repair or maintenance. Inventories of culverts, storm water systems, and streets can be used to assist this process. Prioritize areas of high flood occurrence to secure funding to improve these areas. Identify already scheduled maintenance projects in areas of frequent flooding and incorporate flood mitigation measures. 		
Coordinating Organization:	City Public Works	
Internal Partners:		External Partners:
City Council		ODOT, County Emergency Management
Timeline:		If available, estimated cost:
<u>Short Term</u> (0-2 years)	<u>Long Term</u> (2-4 or more years)	
	X	

Proposed Action Item: Winter/Wind Storms – Short Term # 1		Alignment with Plan Goals:
Develop and implement strategies, or enhance strategies, for debris management due to severe storms.		Goal #1 – Property Protection Goal #3 – Planned Protection
Rationale for Proposed Action Item:		
<ul style="list-style-type: none"> • In its hazard assessment, the City rated itself as having a high winter and wind storm risk. • Tumbleweeds can block streets and clog streams under bridges. 		
Ideas for Implementation:		
<ul style="list-style-type: none"> • Develop coordinated management plans with County Public Works and ODOT for de-icing or plowing streets, roads and highways and for clearing streets of fallen trees, tumbleweeds, and other debris from public and private property. • Utilize the Pilot Rock Community Response Team (CERT) to attend to downed power lines until utility crews arrive, assist with clearing roads, and directing citizens away from hazards. This helps prevent a drain on emergency response personnel resources. 		
Coordinating Organization:	City Public Works	
Internal Partners:		External Partners:
Police, Fire		County Public Works, ODOT, CERT
Timeline:		If available, estimated cost:
<u>Short Term</u> (0-2 years)	<u>Long Term</u> (2-4 or more years)	
<u>X</u>		

Proposed Action Item: Flood - Long Term #3 [F-LT 3]		Alignment with Plan Goals:
Continue compliance with the NFIP through the implementation of local floodplain ordinances. Review and revise local ordinances for compliance with NFIP requirements		Goal #1 – Property Protection Goal #2 - Planned Prevention Goal # 5 Natural Resource Protection
Rationale for Proposed Action Item:		
<ul style="list-style-type: none"> This is required in order to meet the Flood Mitigation Assistance (FMA) requirement. 		
Ideas for Implementation:		
It is a requirement of this Plan that local hazard conditions, in this case flood hazards, be reviewed on regular basis. This would be a good opportunity to review the City flood plain ordinance for compliance and accuracy.		
Coordinating Organization:	City Council	
Internal Partners:		External Partners:
Public Works		FEMA
Timeline:		If available, estimated cost:
<u>Short Term</u> (0-2 years)	<u>Long Term</u> (2-4 or more years)	
	<u>X</u>	

Proposed Action Item: Flood – Long Term #4 [F-LT 4]		Alignment with Plan Goals:
Replace the pedestrian Bridge over West Birch Creek between Delwood Street and South 6 th Street		Goal #1 – Property Protection Goal #2 - Planned Prevention
Rationale for Proposed Action Item:		
<ul style="list-style-type: none"> • Recommendation #2 of the City Transportation Plan. “The city has been monitoring the degradation of this bridge over the years and has recommended its replacement...This bridge provides pedestrians with an alternate to walking downtown...” <i>Transportation Plan, 2001, p. 6-2</i> • Due to the build up of debris and vegetation under and around the bridge, along with tumbleweeds, water can back up and flood the area upstream of the bridge. 		
Ideas for Implementation:		
<ul style="list-style-type: none"> • Include in 20-year capital improvements budget • County Bicycle Path funds • Include in future city transportation budget 		
Coordinating Organization:	City Council	
Internal Partners:		External Partners:
Public Works		
Timeline:		If available, estimated cost:
<u>Short Term</u> (0-2 years)	<u>Long Term</u> (2-4 or more years)	\$7,500
	<u>X</u>	

Proposed Action Item: Flood - Long Term #5 [F-LT 5]		Alignment with Plan Goals:
Replace the vehicle bridge over East Birch Creek on Alley Street		Goal #1 – Property Protection Goal #2 - Planned Prevention Goal # 5 Natural Resource Protection
Rationale for Proposed Action Item:		
<ul style="list-style-type: none"> • Recommendation # 3 of the City Transportation Plan. • Due to the build up of debris and vegetation under and around the bridge, along with tumbleweeds, water can back up and flood the area upstream of the bridge. 		
Ideas for Implementation:		
<ul style="list-style-type: none"> • Apply for State and Federal grants [such as the Highway Bridge Rehabilitation or Replacement Program [HBRR] • Include in 20-year capital improvements budget • 		
Coordinating Organization:	City Council	
Internal Partners:		External Partners:
Public Works		FEMA
Timeline:		If available, estimated cost:
<u>Short Term</u> (0-2 years)	<u>Long Term</u> (2-4 or more years)	\$73,500 (1998 Dollars)
	<u>X</u>	

Proposed Action Item: Utilities – Long Term #1 [U-LT 1]		Alignment with Plan Goals:
Utility Protective Measures Develop Partnership Programs to Reduce Vulnerability of Public Infrastructure from natural hazards. Support/encourage electrical utilities to use underground construction methods where possible.		Goal #1 – Property Protection Goal #2 - Planned Prevention Goal # 4 – Agency Coord. Goal #5 – Emerg. Services Planning
Rationale for Proposed Action Item:		
<ul style="list-style-type: none"> • Reduce power outages from windstorms. • Partnerships between the City, County, and utilities distributes burdens of risk and cost • Partnerships facilitate participation in risk reduction activities in communities with little government resources 		
Ideas for Implementation:		
<ul style="list-style-type: none"> • Explore incentives to increase the use of underground utilities where possible. • Encourage the use of underground utilities where possible • Partner with responsible agencies and organizations to design and implement programs that reduce risk to life, property, and utility systems; • Develop partnerships between utility providers and county and local public works agencies to document known hazard areas and minimize risk. 		
Coordinating Organization:	Public Works	
Internal Partners:		External Partners:
City Council		Utility Companies, County, State
Timeline:		If available, estimated cost:
<u>Short Term</u> (0-2 years)	<u>Long Term</u> (2-4 or more years)	TBD
	<u>X</u>	

City of Pilot Rock NHMP Action Items										
Action Item Number	Action Item	Coord. Org.	Partner Organizations	Timeline	Plan Goal Addressed					
					Property Protection	Public Outreach	Planned Prevention	Agency Coordination	Nat. Resource Protection	Emerg. Serv. Planning
LT – Flood -1	Mitigation of substantially damaged properties	Pilot Rock City Council	County, OEM, FEMA, USACE	On-going	X		X		X	
ST-Widfire-1	Develop wildfire buffers	UCEM	County, OEM, NRCS, SWCD	1-2 years	X	X	X	X	X	
ST-Tumbleweeds -1	Tumbleweed mitigation	UCEM	Pilot Rock Public Works, SWCDs, NRCS	1-2 years	X		X	X	X	
LT – Flood - 2	Culverts, etc.	Public Works	County EM, ODOT	Long term	X		X	X		
ST – Winter/Wind Storms - 1	Debris management	Public Works	Couty PW, ODOT, CERT	Short term	X		X	X		X
LT – Flood - 3	NFIP compliance	City council	Public Works, FEMA	Long Term	X		X			
LT – Flood- 4	Pedestrian bridge	City Council	Public Works	Long Term	X		X			
LT – Flood -5	Alley Street bridge	City Council	Public Works, FEMA	Long Term	X		X			
LT – Utilities - 1	Utilities Protection	Public Works	City Council, County, Utility Companies	Long Term	X		X	X		X

Mitigation Plan Adoption

Mitigation Plan Appendices

Appendix A – Resolution of adoption by the City Council

Appendix B – Seismic Assessments, Maps and Aerial Photo of Pilot Rock, City Floodplain Comparison Graph

Appendix C - Umatilla County Natural Hazards Action Plan Matrix

Appendix D – Region 5 Mid-Columbia Natural Hazards Risk Profile

Appendix E – Economic Analysis of the Natural Hazards Mitigation Projects

Appendix F – Mid-Columbia Region Hazards Assessment

Appendix G – List of Acronyms

Appendix A

Resolution # _____

[Sample – Use City’s Format]

Adopting the Xxxx County

Natural Hazards Mitigation Plan

Whereas, (Name of Government /county or city/ seeking FEMA approval of Hazard Mitigation Plan) recognizes the threat that natural hazards pose to people and property within our community; and

Whereas, undertaking hazard mitigation actions will reduce the potential for harm to people and property from future hazard occurrences; and

Whereas, an adopted Natural Hazards Mitigation Plan is required as a condition of future funding for mitigation projects under multiple FEMA pre- and post-disaster mitigation grant programs; and

Whereas, (Name of Government /county or city/) fully participated in the FEMA-prescribed mitigation planning process to prepare this Natural Hazards Mitigation Plan; and

Whereas, the Oregon Office of Emergency Management and Federal Emergency Management Agency, Region X officials have reviewed the “Xxxx County, Oregon Multi-Hazard Mitigation Plan” (dated, 200X) and pre-approved it (dated, 200X) contingent upon this official adoption of the participating governments and entities;

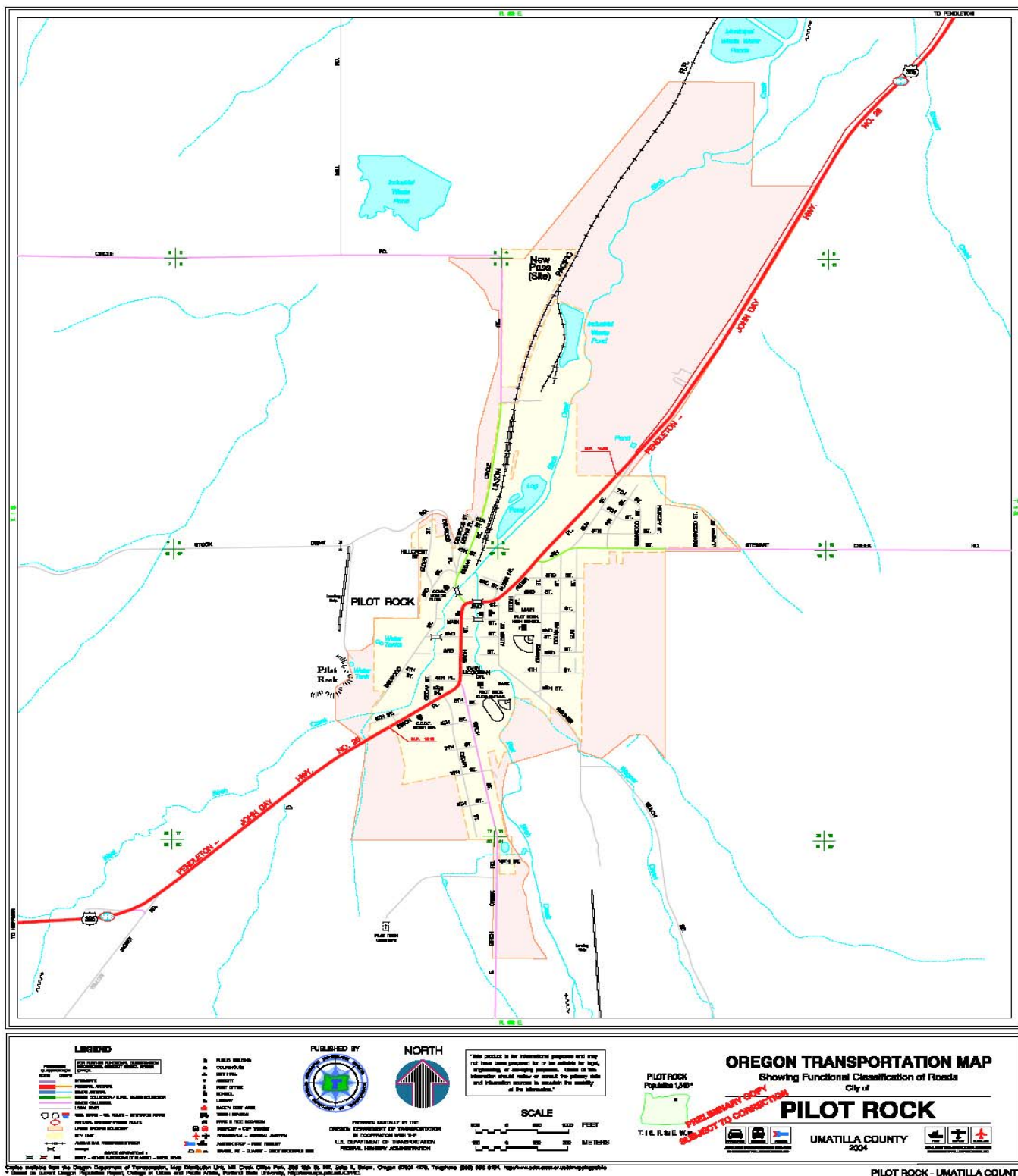
Now, therefore, be it resolved, that the (Name of Government /county or city/) adopts the “Xxxx County, Oregon Natural Hazards Mitigation Plan” as an official plan; and

Be it further resolved, (Name of Government /county or city/) will submit this Adoption Resolution to the Oregon Office of Emergency Management and Federal Emergency Management Agency, Region X officials to enable the Plan’s final approval.

Passed: _____ (date) _____

***_____
Certifying Official***

Appendix B



Pilot Rock Police Dept

Umat_pol09A

City of Pilot Rock

Building Type	County		
Police - City	Umatilla		
Street			
144 N Alder Pl			
City	State	Zip	
Pilot Rock	OR	97868	
Latitude	Longitude		
45.48289	118.83293		
Tracking Code	Inspection Date		
RVS in 2006	8/1/2006		



Seismicity Zone: Moderate

FEMA 154 Rapid Visual Screening Score Card

	Type	Basic Score	Vert Irreg	Plan Irreg	Pre-Code	Post-Bench	Soil C	Soil D	Soil E	RVS Score
Primary	RM1	3.6	-2	-0.5	0	0	-0.8	0	0	0.3
Secondary		0	0	0	0	0	0	0	0	0
Tertiary		0	0	0	0	0	0	0	0	0

Pilot Rock Police Dept

Final RVS Score

Final Type Final Score

RM1

0.3

FEMA-154 Collapse Potential

High (>10%)



Rapid Visual Screening - Senate Bill #2 - Seismic Needs Assessment
Oregon Department of Geology and Mineral Industries

Enrollment	Year Built (Field Verified)	Year Built (Alt. Source)	Est. Decade Built
		1930	1950
Total Area (square ft)	Number of Stories	Basement	Pounding Potential
2278	1	No	No

Plan Irregularities	Vertical Irregularities
Reentrant Corners: L Shaped	Steps in Elevation View: Single Change (Adjacent Building/Entity)
Reentrant Corners: Other	None
None	None

Falling Hazards	Poor Conditions
None	None
None	None
None	None



E Elevation View





E Elevation View

at_fir12A



Rapid Visual Screening - Senate Bill #2 - Seismic Needs Assessment
Oregon Department of Geology and Mineral Industries

RVS in 2006

8/1/2006

Seismicity Zone: Moderate										
FEMA 154 Rapid Visual Screening Score Card										
	Type	Basic Score	Vert Irreg	Plan Irreg	Pre-Code	Post-Bench	Soil C	Soil D	Soil E	RVS Score
Primary	S3	3.8	0	-0.5	0	0	-0.6	0	0	2.7
Secondary		0	0	0	0	0	0	0	0	0
Tertiary		0	0	0	0	0	0	0	0	0

Pilot Rock RFPD	
Final RVS Score	
Final Type	Final Score
S3	2.7
FEMA-154 Collapse Potential	
Low (<1%)	



Rapid Visual Screening - Senate Bill #2 - Seismic Needs Assessment
Oregon Department of Geology and Mineral Industries


Pilot Rock RFPD

Umat_fir12A

Enrollment	Year Built (Field Verified)	Year Built (Alt. Source)	Est. Decade Built
		1987	1970
Total Area (square ft)	Number of Stories	Basement	Pounding Potential
3626	1	No	No

Plan Irregularities	Vertical Irregularities
Torsion: Eccentric Stiffness	None
None	None
None	None

Falling Hazards	Poor Conditions
None	None
None	None
None	None



W Elevation View



OregonGeology

Rapid Visual Screening - Senate Bill #2 - Seismic Needs Assessment
Oregon Department of Geology and Mineral Industries

Pilot Rock Elementary School

Umat_sch21A

Pilot Rock SD 2

Building Type	County	
School	Umatilla	
Street		
Vern McGowan Dr		
City	State	Zip
Pilot Rock	OR	97868
Latitude	Longitude	
45.47954	118.83345	
Tracking Code	Inspection Date	
RVS in 2006	8/1/2006	



Seismicity Zone: Moderate										
FEMA 154 Rapid Visual Screening Score Card										
	Type	Basic Score	Vert Irreg	Plan Irreg	Pre-Code	Post-Bench	Soil C	Soil D	Soil E	RVS Score
Primary	RM1	3.6	0	-0.5	0	0	0	0	0	3.1
Secondary		0	0	0	0	0	0	0	0	0
Tertiary		0	0	0	0	0	0	0	0	0

Pilot Rock Elementary School	
Final RVS Score	
Final Type	Final Score
RM1	3.1

FEMA-154 Collapse Potential	
Low (<1%)	



Rapid Visual Screening - Senate Bill #2 - Seismic Needs Assessment
Oregon Department of Geology and Mineral Industries

Pilot Rock Elementary School

Umat_sch21A

Enrollment	Year Built (Field Verified)	Year Built (Alt. Source)	Est. Decade Built
209		1948	1940
Total Area (square ft)	Number of Stories	Basement	Pounding Potential
39385	1	No	No

Plan Irregularities	Vertical Irregularities
Reentrant Corners: L Shaped	None
None	None
None	None

Falling Hazards	Poor Conditions
None	None
None	None
None	None



SW Elevation View
attach w/building b




N Elevation View

Pilot Rock Elementary School

Umat_sch21B


Pilot Rock SD 2

Building Type		County	
School		Umatilla	
Street			
Vern McGowan Dr			
City		State	Zip
Pilot Rock		OR	97868
Latitude		Longitude	
45.47923		118.8332	
Tracking Code		Inspection Date	
RVS in 2006		8/1/2006	



Seismicity Zone: Moderate										
FEMA 154 Rapid Visual Screening Score Card										
	Type	Basic Score	Vert Irreg	Plan Irreg	Pre-Code	Post-Bench	Soil C	Soil D	Soil E	RVS Score
Primary	RM1	3.6	0	0	0	0	0	0	0	3.6
Secondary		0	0	0	0	0	0	0	0	0
Tertiary		0	0	0	0	0	0	0	0	0

Pilot Rock Elementary School	
Final RVS Score	
Final Type	Final Score
RM1	3.6
FEMA-154 Collapse Potential	
Low (<1%)	




Rapid Visual Screening - Senate Bill #2 - Seismic Needs Assessment
Oregon Department of Geology and Mineral Industries

Pilot Rock Elementary School

Umat_sch21B

Enrollment	Year Built (Field Verified)	Year Built (Alt. Source)	Est. Decade Built
209		1948	1950
Total Area (square ft)	Number of Stories	Basement	Pounding Potential
39385	1	No	No

Plan Irregularities	Vertical Irregularities
None	None
None	None
None	None

Falling Hazards	Poor Conditions
None	None
None	None
None	None



E Elevation View

Pilot Rock Elementary School

Umat_sch21C

Pilot Rock SD 2

Building Type	County	
School	Umatilla	
Street		
Vern McGowan Dr		
City	State	Zip
Pilot Rock	OR	97868
Latitude	Longitude	
45.47918	118.83375	
Tracking Code	Inspection Date	
RVS in 2006	8/1/2006	



Seismicity Zone: Moderate										
FEMA 154 Rapid Visual Screening Score Card										
	Type	Basic Score	Vert Irreg	Plan Irreg	Pre-Code	Post-Bench	Soil C	Soil D	Soil E	RVS Score
Primary	C2	3.6	-2	-0.5	0	0	0	0	0	1.1
Secondary	W2	4.8	-3	-0.5	0	0	0	0	0	1.3
Tertiary		0	0	0	0	0	0	0	0	0

Pilot Rock Elementary School	
Final RVS Score	
Final Type	Final Score
C2	1.1
FEMA-154 Collapse Potential	
Moderate (>1%)	



Rapid Visual Screening - Senate Bill #2 - Seismic Needs Assessment
Oregon Department of Geology and Mineral Industries

Pilot Rock Elementary School

Umat_sch21C

Enrollment	Year Built (Field Verified)	Year Built (Alt. Source)	Est. Decade Built
209		1948	1960
Total Area (square ft)	Number of Stories	Basement	Pounding Potential
39385	1	No	No

Plan Irregularities	Vertical Irregularities
Reentrant Corners: L Shaped	Steps in Elevation View: Single Change (Adjacent Building/Entity)
None	None
None	None

Falling Hazards	Poor Conditions
None	None
None	None
None	None



N Vertical Irregularity Primary

Pilot Rock Elementary School

Umat_sch21D

Pilot Rock SD 2

Building Type	County		
School	Umatilla		
Street	Vern McGowan Dr		
City	State	Zip	
Pilot Rock	OR	97868	
Latitude	Longitude		
45.47915	118.83409		
Tracking Code	Inspection Date		
RVS in 2006	8/1/2006		



Seismicity Zone: Moderate										
FEMA 154 Rapid Visual Screening Score Card										
	Type	Basic Score	Vert Irreg	Plan Irreg	Pre-Code	Post-Bench	Soil C	Soil D	Soil E	RVS Score
Primary	C2	3.6	-2	-0.5	0	0	0	0	0	1.1
Secondary		0	0	0	0	0	0	0	0	0
Tertiary		0	0	0	0	0	0	0	0	0

Pilot Rock Elementary School	
Final RVS Score	
Final Type	Final Score
C2	1.1

FEMA-154 Collapse Potential
Moderate (>1%)



OregonGeology

Rapid Visual Screening - Senate Bill #2 - Seismic Needs Assessment
Oregon Department of Geology and Mineral Industries


Pilot Rock Elementary School

Umat_sch21D

Enrollment	Year Built (Field Verified)	Year Built (Alt. Source)	Est. Decade Built
209		1948	1960
Total Area (square ft)	Number of Stories	Basement	Pounding Potential
39385	1	No	No

Plan Irregularities	Vertical Irregularities
Reentrant Corners: L shaped (Adjacent Build/Entity)	Steps in Elevation View: Single Change (Adjacent Building/Entity)
Reentrant Corners: T shaped	Steps in Elevation View: Single Change
None	None

Falling Hazards	Poor Conditions
None	None
None	None
None	None



S Elevation View



Rapid Visual Screening - Senate Bill #2 - Seismic Needs Assessment
Oregon Department of Geology and Mineral Industries

Pilot Rock High School

Umat_sch26A

Pilot Rock SD 2

Building Type	County		
School	Umatilla		
Street			
101 NE Cherry			
City	State	Zip	
Pilot Rock	OR	97868	
Latitude	Longitude		
45.48271	118.83106		
Tracking Code	Inspection Date		
RVS in 2006	8/1/2006		



Seismicity Zone: Moderate

FEMA 154 Rapid Visual Screening Score Card

	Type	Basic Score	Vert Irreg	Plan Irreg	Pre-Code	Post-Bench	Soil C	Soil D	Soil E	RVS Score
Primary	URM	3.4	-1.5	-0.5	-0.4	0	0	0	0	1
Secondary		0	0	0	0	0	0	0	0	0
Tertiary		0	0	0	0	0	0	0	0	0

Pilot Rock High School

Final RVS Score

Final Type Final Score

URM

1

FEMA-154 Collapse Potential

High (>10%)



Rapid Visual Screening - Senate Bill #2 - Seismic Needs Assessment
Oregon Department of Geology and Mineral Industries


Pilot Rock High School

Umat_sch26A


Enrollment	Year Built (Field Verified)	Year Built (Alt. Source)	Est. Decade Built
206	1919	1955	1910
Total Area (square ft)	Number of Stories	Basement	Pounding Potential
61073	2	Yes	No

Plan Irregularities	Vertical Irregularities
Reentrant Corners/Other (Adjacent Build/Entity)	Steps in Elevation View: 2 to 3 Changes (Adjacent Building/Entity)
None	None
None	None

Falling Hazards	Poor Conditions
None	None
None	None
None	None



W Field Verified Year Built



S Plan Irregularity Primary



OregonGeology

Rapid Visual Screening - Senate Bill #2 - Seismic Needs Assessment
Oregon Department of Geology and Mineral Industries

Pilot Rock High School

Umat_sch26B

Pilot Rock SD 2

Building Type		County	
School		Umatilla	
Street			
101 NE Cherry			
City		State	Zip
Pilot Rock		OR	97868
Latitude		Longitude	
45.48275		118.83086	
Tracking Code		Inspection Date	
RVS in 2006		8/1/2006	



Seismicity Zone: Moderate											Pilot Rock High School	
FEMA 154 Rapid Visual Screening Score Card											Final RVS Score	
	Type	Basic Score	Vert Irreg	Plan Irreg	Pre-Code	Post-Bench	Soil C	Soil D	Soil E	RVS Score	Final Type	Final Score
Primary	C2	3.6	-2	-0.5	-0.4	0	0	0	0	0.7	C1	0.5
Secondary	C1	3	-2	-0.5	0	0	0	0	0	0.5	FEMA-154 Collapse Potential	
Tertiary	URM	3.4	-1.5	-0.5	-0.4	0	0	0	0	1	High (>10%)	



OregonGeology

Rapid Visual Screening - Senate Bill #2 - Seismic Needs Assessment
Oregon Department of Geology and Mineral Industries

Pilot Rock High School

Umat_sch26C

Pilot Rock SD 2

Building Type		County	
School		Umatilla	
Street			
101 NE Cherry			
City		State	Zip
Pilot Rock		OR	97868
Latitude		Longitude	
45.48266		118.83066	
Tracking Code		Inspection Date	
RVS in 2006		8/1/2006	



Seismicity Zone: Moderate										
FEMA 154 Rapid Visual Screening Score Card										
	Type	Basic Score	Vert Irreg	Plan Irreg	Pre-Code	Post-Bench	Soil C	Soil D	Soil E	RVS Score
Primary	RM1	3.6	-2	-0.5	0	0	0	0	0	1.1
Secondary		0	0	0	0	0	0	0	0	0
Tertiary		0	0	0	0	0	0	0	0	0

Pilot Rock High School	
Final RVS Score	
Final Type	Final Score
RM1	1.1

FEMA-154 Collapse Potential
Moderate (>1%)




Rapid Visual Screening - Senate Bill #2 - Seismic Needs Assessment
Oregon Department of Geology and Mineral Industries

Pilot Rock High School

Umat_sch26C

Enrollment	Year Built (Field Verified)	Year Built (Alt. Source)	Est. Decade Built
206		1955	1950
Total Area (square ft)	Number of Stories	Basement	Pounding Potential
	1	No	No
Plan Irregularities		Vertical Irregularities	
Reentrant Corners: T shaped (Adjacent Build/Entity)		Steps in Elevation View: Single Change (Adjacent Building/Entity)	
None		None	
None		None	
Falling Hazards		Poor Conditions	
None		None	
None		None	
None		None	



W Plan Irregularity Primary



OregonGeology

Rapid Visual Screening - Senate Bill #2 - Seismic Needs Assessment
Oregon Department of Geology and Mineral Industries

Pilot Rock High School

Umat_sch26D

Pilot Rock SD 2

Building Type	County	
School	Umatilla	
Street	101 NE Cherry	
City	State	Zip
Pilot Rock	OR	97868
Latitude	Longitude	
45.48225	118.83075	
Tracking Code	Inspection Date	
RVS in 2006	8/1/2006	



Seismicity Zone: Moderate

FEMA 154 Rapid Visual Screening Score Card

	Type	Basic Score	Vert Irreg	Plan Irreg	Pre-Code	Post-Bench	Soil C	Soil D	Soil E	RVS Score
Primary	RM1	3.6	-2	-0.5	0	0	0	0	0	1.1
Secondary		0	0	0	0	0	0	0	0	0
Tertiary		0	0	0	0	0	0	0	0	0

Pilot Rock High School

Final RVS Score

Final Type Final Score

RM1

1.1

FEMA-154 Collapse Potential

Moderate (>1%)



OregonGeology

Rapid Visual Screening - Senate Bill #2 - Seismic Needs Assessment
Oregon Department of Geology and Mineral Industries

Pilot Rock High School

Umat_sch26D

Enrollment	Year Built (Field Verified)	Year Built (Alt. Source)	Est. Decade Built
206		1955	1960
Total Area (square ft)	Number of Stories	Basement	Pounding Potential
	1	No	No

Plan Irregularities	Vertical Irregularities
Reentrant Corners: T shaped (Adjacent Build/Entity)	Steps in Elevation View: 2 to 3 Changes (Adjacent Building/Entity)
None	None
None	None

Falling Hazards	Poor Conditions
None	None
None	None
None	None



E Elevation View



S Elevation View



Rapid Visual Screening - Senate Bill #2 - Seismic Needs Assessment
Oregon Department of Geology and Mineral Industries

Pilot Rock High School

Umat_sch26E

Pilot Rock SD 2

Building Type		County	
School		Umatilla	
Street			
101 NE Cherry			
City		State	Zip
Pilot Rock		OR	97868
Latitude		Longitude	
45.48223		118.83145	
Tracking Code		Inspection Date	
RVS in 2006		8/1/2006	



Seismicity Zone: Moderate

FEMA 154 Rapid Visual Screening Score Card										
	Type	Basic Score	Vert Irreg	Plan Irreg	Pre-Code	Post-Bench	Soil C	Soil D	Soil E	RVS Score
Primary	C2	3.6	-2	-0.5	0	0	0	0	0	1.1
Secondary	RM1	3.6	-2	-0.5	0	0	0	0	0	1.1
Tertiary		0	0	0	0	0	0	0	0	0

Pilot Rock High School

Final RVS Score

Final Type

Final Score

C2

1.1

FEMA-154 Collapse Potential

Moderate (>1%)



OregonGeology

Rapid Visual Screening - Senate Bill #2 - Seismic Needs Assessment
Oregon Department of Geology and Mineral Industries

Pilot Rock High School

Umat_sch26E

Enrollment	Year Built (Field Verified)	Year Built (Alt. Source)	Est. Decade Built
206		1955	1950
Total Area (square ft)	Number of Stories	Basement	Pounding Potential
	1	Yes	No

Plan Irregularities	Vertical Irregularities
Reentrant Corners: Other	Steps in Elevation View: Single Change
Reentrant Corners: Other	Steps in Elevation View: Single Change (Adjacent Building/Entity)
None	Building On Hill or Sloped Site

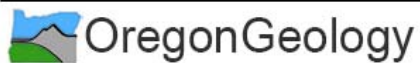
Falling Hazards	Poor Conditions
None	None
None	None
None	None



W Elevation View



NW Elevation View



Rapid Visual Screening - Senate Bill #2 - Seismic Needs Assessment
Oregon Department of Geology and Mineral Industries

Umatilla County

