Central Point Hazard Mitigation Plan

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This is the FEMA approved 2011 Central Point Hazard Mitigation Plan, which was adopted by the Central Point City Council by Resolution on October 27, 2011.

Comments, suggestions, and proposed additions are enthusiastically encouraged from all interested parties.

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EXECUTIVE SUMMARY

The 2011 Central Point Hazard Mitigation Plan is the City's first stand-alone hazard mitigation plan and covers each of the major natural hazards that pose risks to the community.

The primary objective of the mitigation plan is to reduce the negative impacts of future disasters on the City of Central Point: to protect life and safety, protect buildings and infrastructure (especially critical facilities), enhance emergency response capability, planning, and post disaster recovery, seek funding sources for mitigation action items, increase public awareness of natural hazards, and incorporate mitigation planning into natural resources management and land use planning. This mitigation plan is an educational and planning document, not a regulatory document.

This mitigation plan meets FEMA's planning requirements by addressing hazards, vulnerability and risk. Hazard means the frequency and severity of disaster events. Vulnerability means the value, importance, and fragility of buildings and infrastructure. Risk means the threat to people, buildings and infrastructure, taking into account the probabilities of disaster events. Adoption of a mitigation plan is required for communities to remain eligible for future FEMA mitigation grant funds.

This Hazard Mitigation Plan includes the following chapters:

Overview and Context

- Chapter 1: Introduction
- Chapter 2: Central Point Community Profile
- Chapter 3: Mitigation Planning Process
- Chapter 4: Mission Statement, Goals, Objectives and Action Items
- Chapter 5: Plan Adoption, Implementation, and Maintenance

Hazards

- Chapter 6: Floods
- Chapter 7: Earthquakes
- Chapter 8: Severe Weather
- Chapter 9: Other Hazards

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- Appendix 2: Principles of Benefit-Cost Analysis
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1.0 INTRODUCTION

Central Point is subject to a wide range of natural hazards including: floods, earthquakes, severe weather and others. The impact of potential future hazard events on Central Point may be minor - a few inches of water in a street - or it may be major - with damages and economic losses reaching millions of dollars, with substantial numbers of injuries and deaths. Some hazard events, such as earthquakes or windstorms may affect the entire city. Most of the other hazards, including floods will directly affect only portions of the city. The Central Point Hazard Mitigation Plan addresses each of the natural hazards that pose significant risk to the people, buildings and infrastructure of Central Point, and identifies actions that can be taken to reduce future risk.

The impacts of major disasters on a community can be devastating: the total damages, economic losses, casualties, disruption, hardships and suffering are often far greater than the physical damages alone. Furthermore, recovery from major disasters often takes many years and some heavily impacted communities may never fully recover. Completely eliminating the risk of future disasters in Central Point is neither technologically possible nor economically feasible; however, substantially reducing the negative impacts of future disasters is achievable with the implementation of a realistic hazard mitigation strategy.

1.1 What is a Hazard Mitigation Plan?

Hazard mitigation is defined as, “Any sustained action taken to reduce or eliminate the long-term risk to human life and property from hazards.” A hazard mitigation plan establishes the framework for mitigating hazards by assessing potential hazard impacts to a community and identifies actions that can be taken to reduce or eliminate risk to protect people and the built environment.

The hazard mitigation plan addresses hazards, such as severe weather, that may occur in some locations almost every year. The plan also addresses less frequent hazard events including floods and earthquakes. In addition to probability and frequency of occurrence of a hazard, it is also important to examine other characteristics, such as magnitude, to better understand potential impacts to a community. For example, major floods and earthquakes occur less frequently in Central Point, but still pose the greatest threats because of the severe consequences when they do occur.

The Central Point Hazard Mitigation Plan has three key elements.

1. Hazard Characterization: Each hazard that may impact Central Point significantly is reviewed to estimate the probability (frequency) and severity of likely hazard events.

2. Vulnerability Assessment: The vulnerability of Central Point to each hazard is evaluated to estimate the likely extent of physical damages, casualties, and economic impacts.

3. Mitigation Plan: A range of mitigation alternatives are evaluated to identify those with the greatest potential to reduce future damages and losses in Central Point, to protect facilities deemed critical to the community's well being, and that are desirable from the community's social and economic perspectives.

1.2 Why is Hazard Mitigation Planning Important for Central Point?

Mitigation is defined as any action that reduces potential negative impacts from future disasters. That is, mitigation actions reduce future damages, losses and casualties. Effective hazard mitigation planning will help the residents of Central Point deal with natural and manmade hazards realistically and rationally. This planning will identify specific locations in Central Point where the level of risk from one or more hazards may be unacceptably high and help the City find cost effective ways to reduce such risk. Mitigation planning allows a community to consider impacts of potential disasters and available risk reduction actions within the context of specific community values and resources.

Furthermore, the Federal Emergency Management Agency (FEMA) now requires each local government entity to adopt a hazard mitigation plan and to update the plan every five years in order to remain eligible for future pre- or post-disaster FEMA mitigation grant funding. Preparation of the Central Point Hazard Mitigation Plan aims to achieve eligibility for and enhance Central Point's ability to attract future FEMA mitigation funding. Regular updates to the plan will ensure that the Central Point Mitigation Plan evolves to reflect changes in the natural and built environment, as well as changes in community perspectives and demographics occur over time.

The Plan is specifically designed to help Central Point gather the data necessary to effectively mitigate natural hazards and compete successfully for future FEMA funding of mitigation projects. FEMA requires that all FEMA-funded hazard mitigation projects must be "cost-effective" (i.e., the benefits of a project must exceed the costs). Therefore, benefit-cost analysis is an important component of hazard mitigation planning, not only to meet FEMA requirements, but also to help evaluate and prioritize potential hazard mitigation projects in Central Point, regardless of whether funding is from FEMA, state or local government or from private sources.

1.3 The 2011 Central Point Hazard Mitigation Plan - Overview

The 2011 Central Point Hazard Mitigation Plan is the city's first mitigation plan. Although Jackson County developed a Hazard Mitigation Plan that includes actions that benefit the entire region, Central Point was not involved in the planning process and the identified mitigation actions did not specifically address Central Point's unique circumstances.

To be effective in reducing future risk to the community from natural hazards, the 2011 Central Point Hazard Mitigation Plan:

- Incorporates the latest hazard information for each of the major natural hazards,
- Completes vulnerability and risk assessments for each of the major natural hazards,
- Defines critical buildings and infrastructure,
- Focuses on and prioritizes hazard mitigation goals, objectives, and action items to emphasize pragmatic, implementable measures that address the highest risk situations in Central Point and that will significantly reduce risk.
- Identifies specific mitigation projects with the best likelihood of garnering FEMA mitigation project grants for implementation, and
- Presents information in a clear and understandable manner that is accessible to non-technical and technical readers alike.

1.4 The 2011 Central Point Hazard Mitigation Plan – Hazards, Vulnerability, and Mitigation

A review of hazards and potential impacts to Central Point serves as the foundation of the mitigation plan. From these vulnerability assessments, we identify specific locations where buildings, infrastructure, and/or people may be at high risk. These high risk situations then become priorities for future mitigation actions to reduce the negative impacts of future disasters on Central Point. The Central Point Hazard Mitigation Plan is built upon quantitative assessments, to the extent that data allows, of each of the significant natural hazards that may impact Central Point, including their frequency, severity, and areas of the city likely to be affected. Qualitative vulnerability assessment of buildings, infrastructure, and people for each of these hazards is also included for each hazard.

The Central Point Hazard Mitigation Plan deals with hazards realistically and rationally while striking a balance between suggested physical mitigation measures to eliminate or reduce the negative impacts of future disasters, and planning measures that better prepare the community to respond to and recover from disasters, for which physical mitigation measures are not possible or not economically feasible. Mitigation measures may also include temporary actions, such as enhanced flood fighting capabilities, until permanent mitigation measures

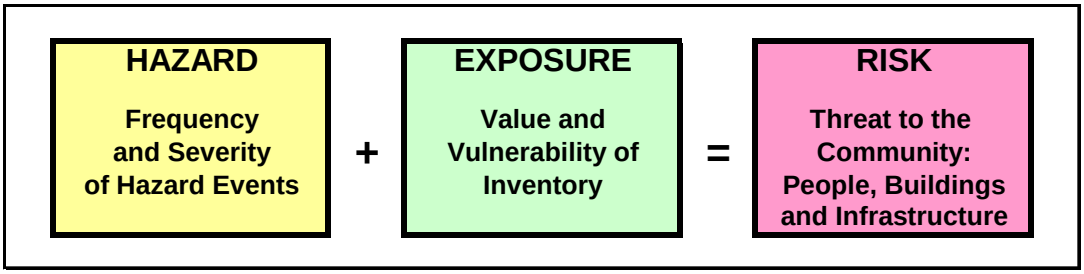
are implemented. In this context, mitigation planning is complementary to ongoing emergency and preparedness planning efforts.

1.5 Key Concepts and Definitions

The central concept of hazard mitigation planning is that mitigation reduces risk. **Risk** is defined as the threat to people and the built environment posed by the hazards being considered. Risk is the potential for damages, losses and casualties arising from the impact of hazards on the built environment. The essence of hazard mitigation planning is to identify high risk locations/situations in Central Point and to evaluate ways to mitigate (reduce) the impacts of future disasters on these high risk locations/situations.

The level of risk at a given location, building or facility depends on the combination of **hazard** and **exposure** as shown in Figure 1.1 below.

Figure 1.1
Hazard and Exposure Combine to Produce Risk



Risk is generally expressed in dollars (estimates of potential damages and other economic losses) and in terms of casualties (numbers of deaths and injuries).

There are four key concepts that govern hazard mitigation planning: hazard, exposure, risk and mitigation. Each of these key concepts is addressed in turn.

HAZARD refers to natural or manmade events that may cause damages, losses or casualties (e.g., floods, winter storms, landslides, earthquakes, hazardous material spills, etc.). Hazards are characterized by their frequency and severity and by the geographic area affected. Each hazard is characterized differently, with appropriate parameters for the specific hazard. For example, floods may be characterized by the frequency of flooding, along with flood depth and flood velocity. Winter storms may be characterized by the amount of rainfall in a 24-hour period, by the wind speed, or by the amount of snow or ice associated with a storm. Earthquakes may be characterized by the severity and duration of ground motions and so on.

A hazard event, by itself, may <u>not</u> result in any negative impacts on a community. For example, a flood-prone five-acre parcel may typically experience several

shallow floods per year, with several feet of water expected in a 50-year flood event. However, if the parcel is wetlands, with no structures or infrastructure, then there is no risk. In other words, there is no threat to people or the built environment and the frequent flooding of this parcel does not have any negative impacts on the community. In this case, the very frequent flooding (i.e., the high hazard) may be beneficial environmentally by providing wildlife habitat and recreational opportunities.

The important point here is that hazards do not produce risk to people and property, unless there is vulnerable inventory exposed to the hazard. Risk to people, buildings and/or infrastructure results when these features are exposed to hazards.

EXPOSURE is the quantity, value, and vulnerability of the community's inventory of people, buildings and infrastructure (built environment) in a particular location subject to one or more hazards. Inventory is described by the number, size, type, use, and occupancy of buildings and by the infrastructure present. Infrastructure includes roads and other transportation systems, utilities (potable water, wastewater, natural gas, and electric power), telecommunications systems and so on.

Inventory varies markedly in its importance to a community and thus varies markedly in its importance for hazard mitigation planning. Some types of facilities, "critical facilities," are especially important to a community, particularly during disaster situations. Examples of critical facilities include police and fire stations, hospitals, schools, emergency shelters, 911 centers, and other important buildings. Critical facilities may also include infrastructure elements that are important links or nodes in providing service to large numbers of people such as a potable water source, an electric power substation and so on. "Links" are elements such as water pipes, electric power lines, telephone cables that connect portions of a utility or transportation system. "Nodes" are locations with important functions, such as pumping plants, substations, or switching offices.

For hazard mitigation planning, inventory must be characterized not only by the quantity and value of buildings or infrastructure present but also by its vulnerability to each hazard under evaluation. For example, a given facility may or may not be particularly vulnerable to flood damages or earthquake damages depending on the details of its design and construction. Depending on the hazard, different measures of the vulnerability of buildings and infrastructure are often used.

RISK is the threat to people and the built environment - the potential for damages, losses and casualties arising from hazards. Risk results only from the combination of Hazard and Exposure as discussed above.

Risk is the potential for future damages, losses or casualties. A disaster event happens when vulnerable inventory is exposed to a hazard event. The highest

risk in a community occurs in high hazard areas (frequent and/or severe hazard events) with large inventories of vulnerable buildings or infrastructure.

However, high risk can also occur with only moderately high hazard if there is a large inventory of highly vulnerable inventory exposed to the hazard. Conversely, a high hazard area can have relatively low risk if the inventory is resistant to damages (e.g., elevated to protect against flooding or strengthened to minimize earthquake damages).

MITIGATION means actions to reduce the risk due to hazards. Mitigation actions reduce the potential for damages, losses, and casualties in future disaster events. Repair of buildings or infrastructure damaged in a disaster is not mitigation because repair restores a facility to its pre-disaster condition and does not reduce the potential for future damages, losses, or casualties. Hazard mitigation projects may be initiated proactively - before a disaster, or after a disaster has already occurred. In either case, the objectives of mitigation are always to reduce future damages, losses or casualties.

There are six broad categories of mitigation measures that can be implemented to reduce risk. They include:

- Prevention;
- Property protection;
- Public education and awareness;
- Natural resource protection;
- Emergency services; and
- Structural projects.

Some mitigation projects are more direct in their approach to reducing hazards by physically modifying the hazard, such as when a stream channel is modified to carry more water during a flood event and therefore reduce risk by decreasing the area inundated during a flood event and/or lessening the depth and velocity of floodwaters on impacted inventory. On the other hand, mitigation projects such as public outreach and education are more indirect in their approach to mitigating hazards. These projects do not physically modify a hazard but encourage individuals to modify their behavior to reduce risk exposure. One example of this approach includes implementation of an early warning system that notifies residents of the need to evacuate before a flood or fire threatens life and safety.

A few of the common types of mitigation projects are shown below in Table 1.1.

Table 1.1
Common Mitigation Projects

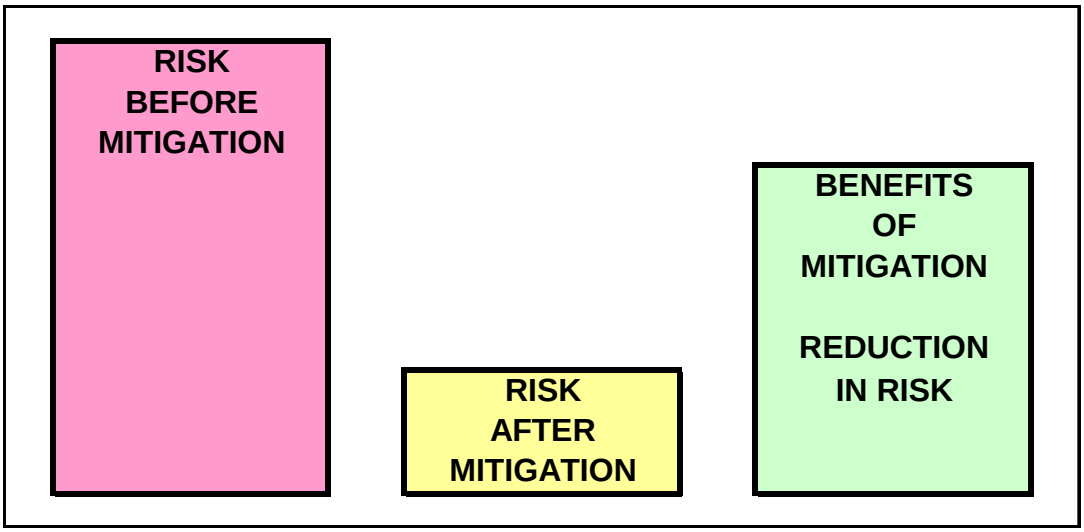
Hazard	Mitigation Project
Flood	Improve channels to increase conveyance and reduce flood levels
	Improve drainage systems and culvert capacities
	Create detention ponds for storage
	Relocate, elevate or floodproof flood-prone structures
	Acquire and demolish highly flood-prone structures
Earthquakes	Upgrade seismic performance of buildings
	Upgrade seismic performance of infrastructure
Severe Weather	Add emergency generators for critical facilities
	Improve redundancy of utility systems
	Trim trees to reduce failures of utility lines
Multi-Hazard	Enhance emergency planning and mutual aid
	Expand public education programs.

The mitigation project list above is representative of common mitigation projects, but is not comprehensive. Mitigation projects can encompass a broad range of other actions to reduce future damages, losses, and casualties.

1.6 The Mitigation Process

The mitigation process involves quantifying the impacts of disasters on a community, determining whether the level or risk is acceptable or unacceptable, identifying possible mitigation actions and prioritizing those actions based on the community's values. The key element for all hazard mitigation projects is that they reduce risk. The benefits of a mitigation project are the reduction in risk (i.e., the avoided damages, losses, and casualties attributable to the mitigation project). In other words, benefits are simply the difference in expected damages, losses, and casualties before mitigation (as-is condition) and after mitigation. These important concepts are illustrated below in Figure 1.2.

Figure 1.2
Mitigation Projects Reduce Risk



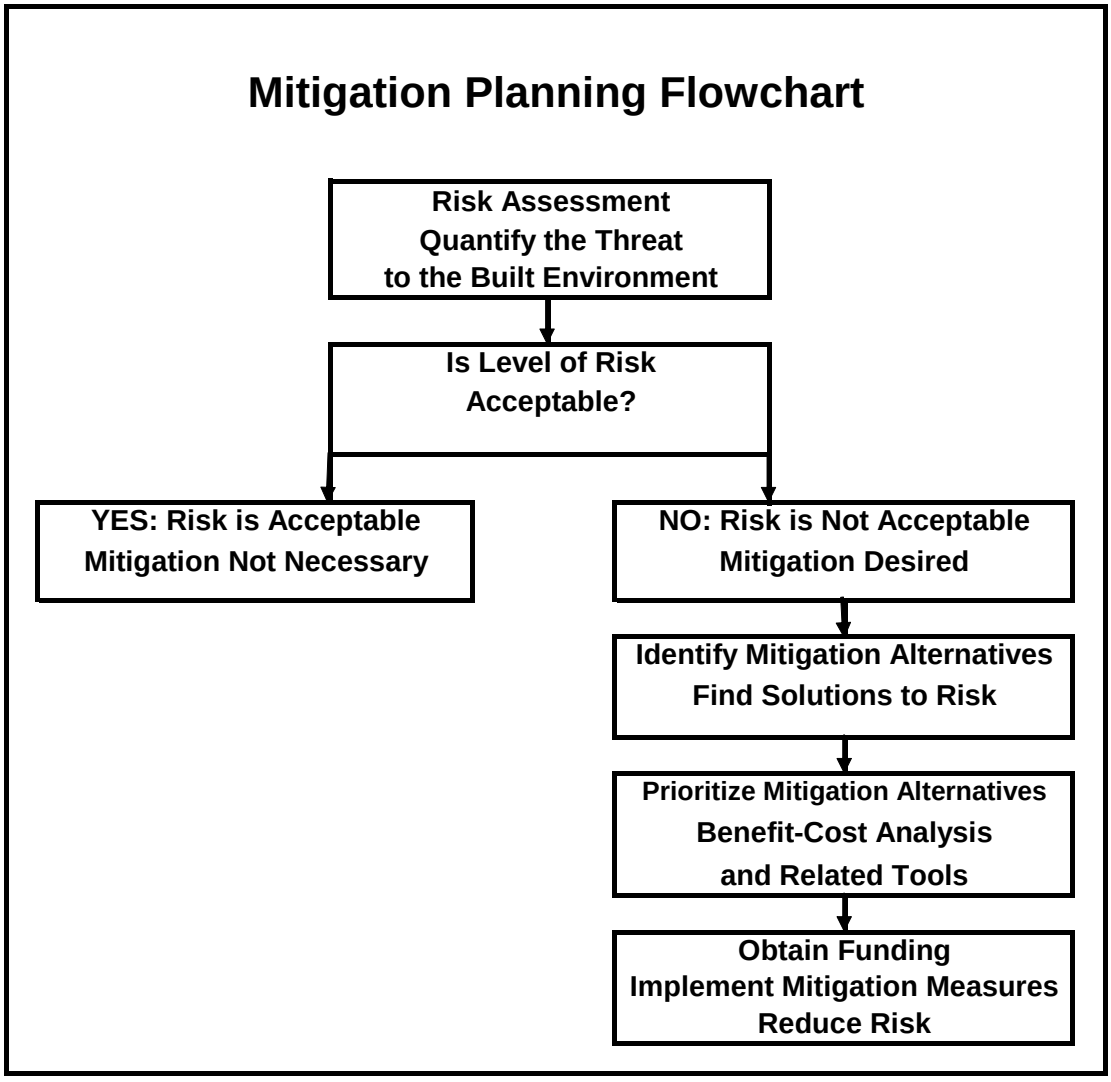
Quantifying the benefits of a proposed mitigation project is an essential step in hazard mitigation planning and implementation. Only by quantifying benefits is it possible to compare the benefits and costs of mitigation to determine whether or not a particular project is economically feasible. Real world hazard mitigation planning almost always involves choosing between a range of possible alternatives, often with varying costs and varying effectiveness in reducing risk.

Quantitative risk assessment is centrally important to hazard mitigation planning. When the level of risk is high, the expected levels of damages and losses are likely to be unacceptable and mitigation actions tend to have a high priority. Simply stated, the greater the risk, the greater the urgency of undertaking mitigation.

Conversely, when risk is moderate both the urgency and the benefits of undertaking mitigation are reduced. It is neither technologically possible nor economically feasible to eliminate risk completely. When levels of risk are low and/or the cost of mitigation is high relative to the level of risk, the risk may be deemed acceptable (or at least tolerable). Furthermore, proposed mitigation projects that address low levels of risk or where the cost of the mitigation project is large relative to the level of risk are generally poor candidates for implementation.

The overall hazard mitigation planning process is outlined in Figure 1.3 below.

Figure 1.3
The Hazard Mitigation Planning Process



The flow chart above outlines the major steps in hazard mitigation planning and implementation for Central Point.

The first steps are quantitative evaluation (frequency and severity) of the hazards impacting Central Point. The first steps also include evaluation of the inventory (people, buildings, infrastructure) exposed to these hazards. Together these hazard and exposure data determine the level of risk for specific locations, buildings or facilities in Central Point.

The next key step is to determine whether or not the level of risk posed by each of the hazards at a given location is acceptable or tolerable. Only the residents of Central Point can make this determination. If the level of risk is deemed acceptable or at least tolerable, then mitigation actions are not necessary or at

least not a high priority. On the other hand, if the level of risk is deemed not acceptable or tolerable, then mitigation actions are desired. In this case, the hazard mitigation planning process progresses to a more detailed evaluation of specific mitigation alternatives, prioritization, funding and implementation of mitigation measures. As with the determination of whether or not the level of risk posed by each hazard is acceptable or not, decisions about which mitigation projects to undertake can be made only by the City, other local government entities, and the residents of Central Point.

1.7 The Role of Benefit-Cost Analysis in Hazard Mitigation Planning

Benefit-cost analysis is a powerful tool that can help communities provide solid, defensible answers to difficult socio-political-economic-engineering questions about various risk reduction measures available to the community. Benefit-cost analysis is required for all FEMA-funded mitigation projects, under both pre-disaster and post-disaster mitigation programs. Thus, communities seeking FEMA funding must understand benefit-cost analysis. Even if FEMA funding is not involved, benefit-cost analysis provides a sound basis for evaluating and prioritizing possible mitigation projects for any natural hazard.

Communities, such as Central Point, that are considering whether or not to undertake mitigation projects must answer questions that don't always have obvious answers, such as:

What is the nature of the hazard problem?

How frequent and how severe are hazard events?

Do we want to undertake mitigation measures?

What mitigation measures are feasible, appropriate and affordable?

How do we prioritize between competing mitigation projects?

Are our mitigation projects likely to be eligible for FEMA funding?

Benefit-cost analysis software, technical manuals, and a wide range of guidance documents are available from FEMA at no cost to communities. The FEMA publications "*What is a Benefit? Guidance for Benefit-Cost Analysis"* and "*BCA Reference Guide"* are recommended as general references for benefit-cost analysis. These publications include guidance on the categories of benefits to count for mitigation projects for various types of buildings, critical facilities, and infrastructure and provide simple, FEMA-standard methods to quantity the full range of benefits for most types of mitigation projects. The FEMA standard values in the *BCA Reference Guide* are more current and should be used for analyses.

1.8 Synopsis of Hazards Affecting Central Point

Review of hazards that impact the communitiy is essential to the mitigation planning process. In Central Point, the major hazards of concern include floods, earthquakes, and severe weather. Minor hazards that impact the community to a lesser degree include wildland/urban interface fires, landslides, and volcanic eruptions. While some of these hazards affect the entire city, others are limited to isolated portions of the community. Overall, floods and earthquakes pose the greatest threats to Central Point.

Central Point has many structures mapped by FEMA as being within the 100-year regulatory floodplain, including quite a number within the floodway. Most of these at-risk structures are located within the Griffin Creek floodplain, including the overflow channel which flows from Griffin Creek to Jackson Creek and areas along Daisy Creek, a tributary to Griffin Creek. Central Point's highest priority mitigation project is to address the risk of flooding from Griffin Creek. Refer to Chapter 6 for a more in-depth analysis of flood hazards in the community.

All of Central Point is subject to the impacts of earthquakes from major earthquakes within the Cascadia Subduction Zone located off the Oregon coast, as well as from crustal faults within Jackson County. Earthquake damage will be concentrated in especially vulnerable (mostly older) buildings and infrastructure and in soft soil areas which amplify earthquake ground motions and/or may be subject to liquefaction or lateral spreading. Refer to Chapter 7 for more information about earthquake hazards.

All of Central Point is subject to severe weather including wind, snow and ice storms. Wind, snow and ice storms most commonly affect above ground utility lines with disruption of electric power but may also result in some damage to buildings and vehicles, especially from tree falls. The primary impacts of snow and ice storms include disruption of transportation systems as well as damage to above ground power lines and disruption of electric power.

The threats to Central Point from wildland/urban interface fires, landslides or mudslides and volcanic eruptions are very minor. However, these hazards are briefly addressed in the Central Point Hazard Mitigation Plan. These hazards are reviewed in Chapter 8.

The approximate level of risk posed to Central Point by each of the hazards covered in this mitigation plan is summarized below in Table 1.3. This ranking is based on quantitative/qualitative judgment about the likely long-term average annual damages and losses from each hazard, taking into account the probability of hazard events and the severity of damages and losses when such events do occur.

Table 1.3
Relative Risk to Central Point from Hazards

Hazard	Relative Risk to Central Point	Frequency[1]
Floods	High	Moderate-High
Earthquakes	High	Moderate
Severe Weather	Moderate	High
Wildland/Urban Interface Fires	Very Low	Low
Landslides	Very Low	Low
Volcanic Events	Very Low	Low

[1] Low frequency or low probability doesn't necessarily mean low risk - a fairly infrequent event such as a major earthquake can pose a high level of risk is the consequences are severe. Conversely, frequent events may pose low risk if the consequences are minor.

High Frequency: small events may happen every year or two, with progressively larger events having progressively longer return periods.

Moderate Frequency: small events may happen roughly every 5 to 25 years, with progressively larger events having progressively longer return periods.

Low Frequency: significant events likely roughly every 50 years or longer, with progressively larger events having progressively longer return periods.

The relative risk terms in Table 1.3 are defined as follows:

High: Potential impacts include all or large portions of Central Point, or may be very severe in localized areas, with significant risk of loss of life and/or with property damages exceeding $10 million.

Moderate: Little or no risk of loss of life and property damages typically below $10 million.

Low: Potential for loss of life is very low and property damage typically below $1 million.

Very Low: Potential impacts are almost negligible.

The remaining chapters of the Central Point Hazard Mitigation Plan include the following:

- Chapter 2 provides a brief community profile for the County of Central Point.
- Chapter 3 documents the community involvement and public process involved in developing this hazard mitigation plan.
- Chapter 4 outlines the hazard mitigation plan goals, mitigation strategies and action items.
- Chapter 5 documents the formal process of plan adoption, implementation and maintenance.
- Chapters 6 through 8 cover each of the major hazards addressed in this hazard mitigation plan, including: floods, earthquakes and severe weather, and other hazards.
- Chapter 9 briefly addresses hazards which pose only minor risks to Central Point, including wildland/urban interface fires, landslides and mudslides, volcanic eruptions and others.

The Appendices include:

- Appendix 1: Summary of FEMA and Oregon Mitigation Grant Programs.
- Appendix 2: Summary of benefit-cost analysis of mitigation projects. Benefit-cost analysis is required for almost all FEMA hazard mitigation grants.
- Appendix 3: Supplemental documentation of the public participation process during development of the Central Point Hazard Mitigation Plan.
- Appendix 4: References cited throughout the Central Point Hazard Mitigation Plan.

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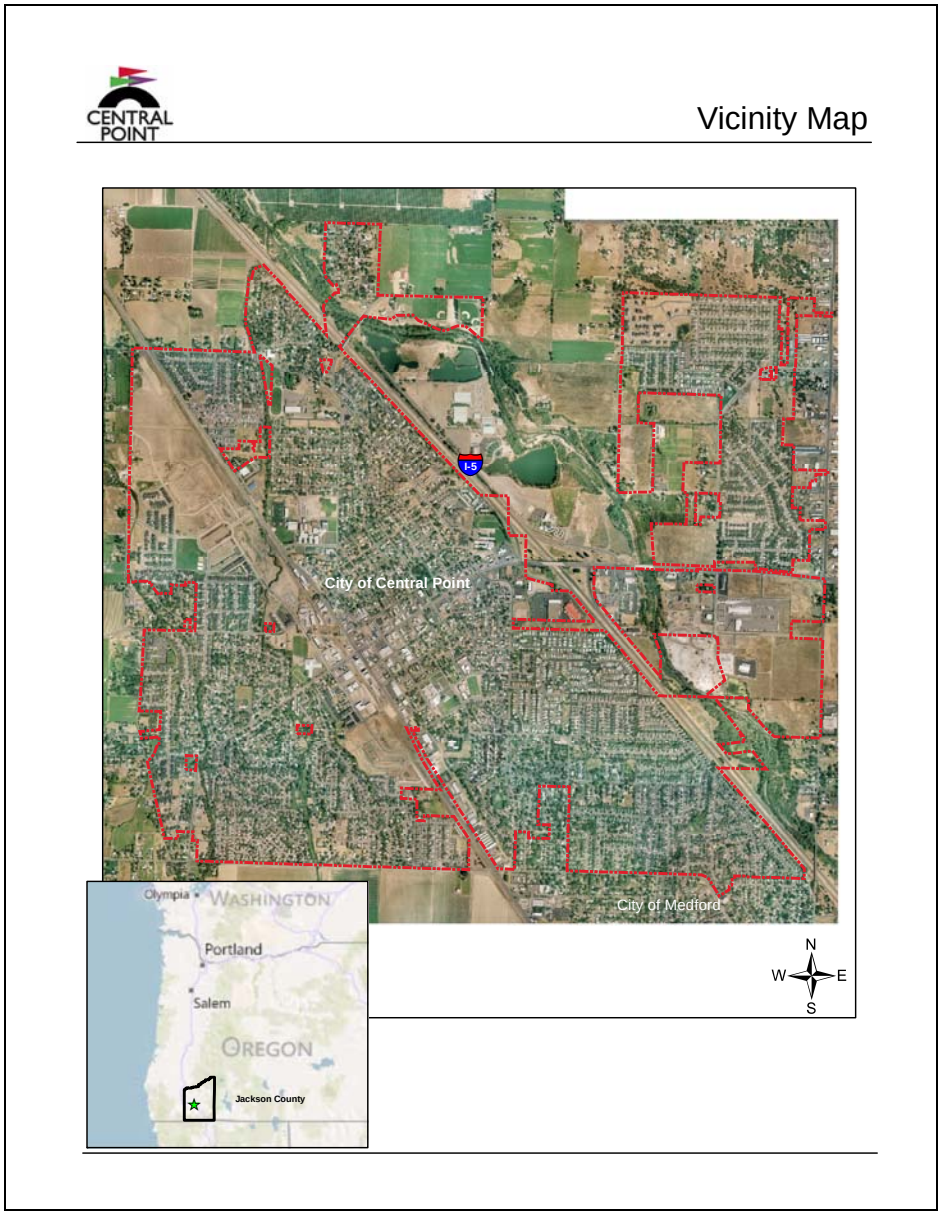
2.0 CENTRAL POINT COMMUNITY PROFILE

2.1 Overview

Central Point lies at the geographic center of the Rogue Valley and is the third largest City in Jackson County encompassing 2,880 gross acres of land area. The land in and around the city is rich in natural resources and the region boasts a pleasant climate characterized by four distinct seasons.



Due to the area's natural beauty, it has increased its popularity in recent decades resulting in increased population growth and development throughout the city. This

trend has been somewhat tempered by the economic crisis and housing market decline, as evidenced by the dramatic decrease in new development in the city.

As the community continues to grow, vulnerability to natural hazard events potentially increases. To better understand the community's hazard vulnerability, it is essential to evaluate exposure of community assets. Equipped with this knowledge, the community can take actions to minimize risk now and implement strategies that minimize risk associated with future development.

The information provided in this section provides an overview of the physical, social, and economic characteristics of Central Point, which establishes the context for mitigation planning. Specifically it addresses:

- Natural Resources
- Community History
- Population & Demographics
- Economic and Community Development
- Critical Facilities
- Educational Facilities

2.2 Natural Resources

2.2.1 Physical Geography

Central Point lies near the geographic center of Jackson County in the Bear Creek Valley, which is part of the Middle Rogue watershed (HUC 8 – 17100308). The Bear Creek Valley borders the Siskiyou Mountains, which are part of the Klamath Range that extends to the Pacific Ocean and divides southern Oregon from northern California. Elevation on the valley floor ranges from 1,075 feet to approximately 1,400 feet above sea level. Central Point sits at an elevation of approximately 1,200 feet above sea level. Surrounding mountains include the Siskiyous to the south, which rise up to an elevation of 7,600 feet; the Cascades to the east, which reach up to 9,500 feet; and, the Coast Range and Umpqua Divide to the west and north, which reach an elevation of 5,500 feet. The interior valley contains several urban areas, including Central Point, Medford, Ashland, Talent, Phoenix, Jacksonville, Gold Hill, Eagle Point and Shady Cove.

2.2.2 Geology

Situated near the downstream end of the Bear Creek Valley, Central Point is generally flat with gradual elevation changes with slopes ranging between zero and three percent with the exception of steep stream bank areas along Griffin and Jackson Creeks.

Table 2.1
Central Point Soil Resources

Soil Name	Slope	Permeability
Abin Silty Clay Loam	0 to 3 percent	Moderately slow
Agate-Winlow Complex	0 to 5 percent	Moderately slow (Agate) Slow (Winlow)
Barron Course Sandy Loam	0 to 7 percent	Moderately rapid
Camas-Newberg Evans	0 to 3 percent	Moderately rapid
Central Point Sandy Loam	0 to 3 percent	Moderately rapid
Coleman Loam	0 to 7 percent	Slow
Gregory Silty Clay Loam	0 to 3 percent	Slow
Kerby Loam	0 to 3 percent	Moderately slow
Kubli Loam	0 to 3 percent	Moderate to slow
Medford Silty Clay Loam	0 to 3 percent	Moderately slow
Newberg Fine Sandy Loam	0 to 3 percent	Moderately rapid
Provig-Agate Complex	5 to 15 percent	Slow

Characteristic of most river valleys, the Bear Creek Valley is comprised of soft sediments that overlie bedrock. According to the Jackson County Soil Survey, much of the soils in Central Point formed in floodplains and stream terraces. These are illustrated in Figure 2.1. Drainage characteristics of Central Point soils vary widely as shown in Table 2.1. The combination of poor drainage and little topographic contributes to localized flooding problems, which are discussed in Chapter 6.0, Floods.

2.2.3 Climate

Central Point and the greater Bear Creek Watershed are located in a transitional area of four vastly different climate zones: Pacific Maritime to the west, Oregon High Desert to the east, California Mediterranean to the south, and Northern Temperate to the north. The shifting boundary of the four climate zones results in highly variable and unpredictable weather patterns that tend to be more extreme and have large annual fluctuations within longer climatic cycles.

Although the region's climate is highly variable, Central Point typically experiences cool, wet winters and warm, dry summers. The average annual precipitation, as measured from the Medford Airport weather station, is approximately 18.85 inches.

Figure 2.1
Central Point Soil Resources Map

Soil Resources Map

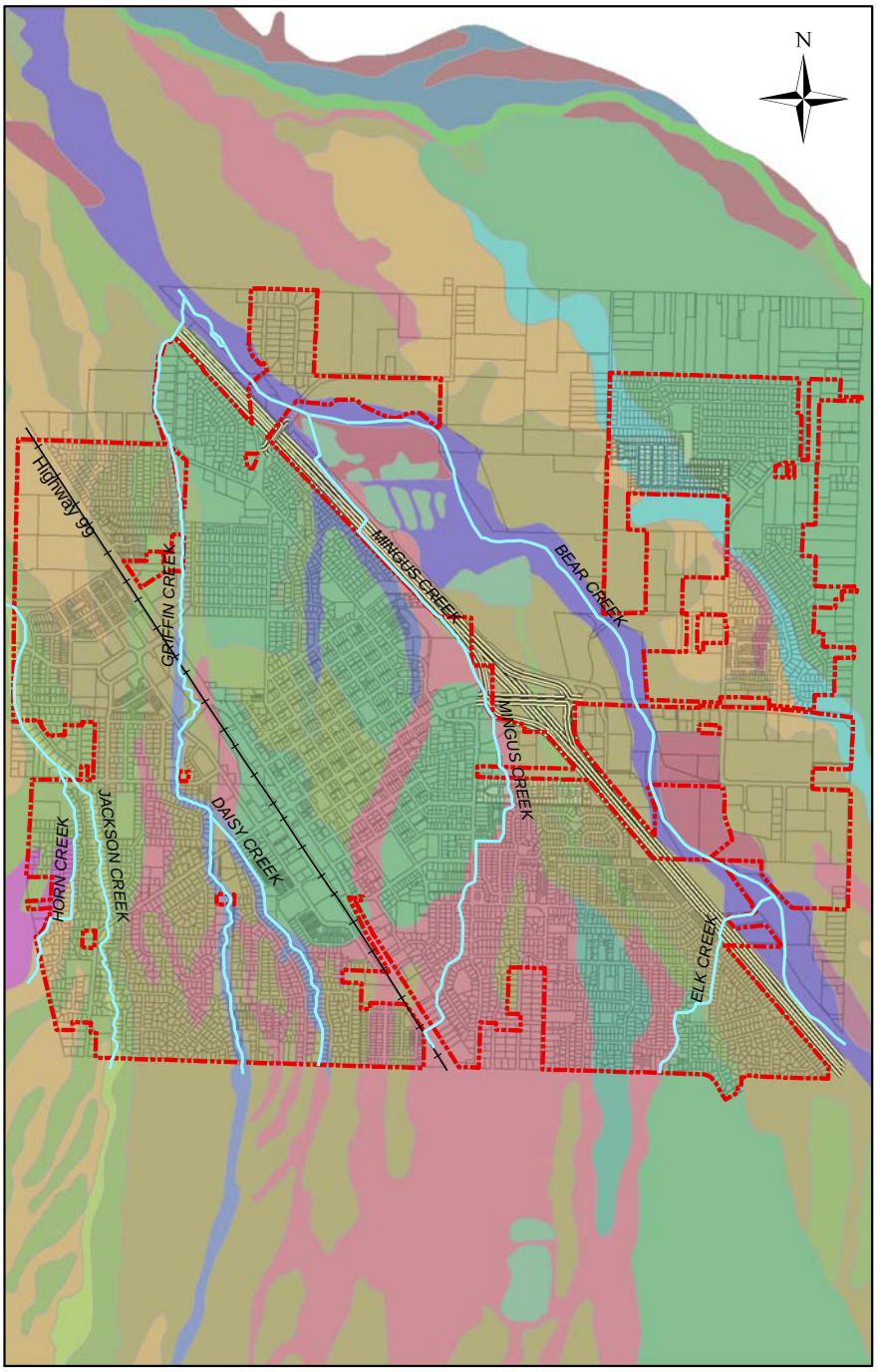
Legend

- Streams
- City Limits
- Interstate 5

Soil Resource

NAME

- Abin silty clay loam
- Agate-Winlo complex
- Barron Coarse Sandy Loam, 7 To 12 Percent Slopes
- Barron coarse sandy loam
- Brader-Debenger
- Brader-Debenger loams
- Camas gravelly sandy loam
- Camas-Newberg-Evans
- Carney clay
- Carney cobbly clay
- Central Point sandy loam
- Coker clay
- Coleman loam
- Cove clay
- Darow silty clay loam
- Debenger-Brader loams
- Evans loam
- Foehlin gravelly loam
- Gregory silty clay loam
- Heppsie clay
- Heppsie-McMullin complex
- Kerby loam
- Kubli loam
- Langellain-Brader loams
- Langellian-Brader loams
- Manita loam
- Manita-Vannoy complex
- McMullin gravelly loam
- McMullin-Medco complex
- McMullin-Rock outcrop complex
- McNull-Medco complex
- Medford clay loam, gravelly substratum
- Medford silty clay loam
- Newberg fine sandy loam
- Padigan clay
- Phoenix clay
- Pits, gravel
- Provig-Agate complex
- Riverwash
- Ruch gravelly silt loam
- Ruch silt loam
- Selmac loam
- Shefflein loam
- Tallowbox gravelly sandy loam
- Vannoy silt loam
- Vannoy-Voorhies
- Water
- Winlo very gravelly clay loam



Source Information:

Jackson County, Oregon
Soil Survey, 1993
http://soildatamart.nrcs.usda.gov/Manuscripts/OR632/0/or632_text.pdf

Climate Change in the Rogue Basin

There has been a growing focus at the State and Federal level regarding the potential impacts of climate change. A 2008 report prepared by the Oregon Climate Leadership Initiative in partnership with the National Center for Conservation and Policy and the MAPSS Team at the U.S. Forest Service Pacific Northwest Research Station presents the results of a climate change assessment for the Rogue River Basin. Based on climate models, the report predicts significant changes in temperature; precipitation and snowpack; storms, flooding and drought; and, wildfire.

Average annual temperatures are expected to increase between 1° to 3°F by 2020 and between 4° and 8°F by 2080 with more dramatic increases experienced during the summer months. Although the models predict that precipitation will remain similar to present day levels, temperature increases are expected to result in earlier snowmelt causing decreased stream flows during the summer months.

Flood hazards are anticipated to increase as more extreme storm events, variable weather, and flashier winter and spring runoff events impact the region. The climate change predictions mentioned so far contribute to the potential for increased wildfire threat in the Rogue River Basin. Although Central Point's wildfire risk is very low to nil, wildfire outbreaks in the area do contribute to a decline in air quality and associated public health concerns.

If the climate change predictions are correct, the consequences will have widespread effects on natural resources, as well as human and economic systems. The report recommends actions in the present to mitigate potential climate change impacts, including, *but not limited to*:

- Stream restoration and maintenance activities that focus on stream channel complexity and connectivity to mitigate impacts to aquatic species;
- Restoration and maintenance of critical landscapes, such as floodplains and tributary junctions and stream reaches with gravels and topographical complexity;
- Removal of permanent structures out of high risk floodplains, riparian areas if and when damaged by floods or fires and preservation of these critical landscape areas as open space;
- Link public transportation systems to improve mobility of equipment and people during emergency situations;
- Expand conservation and efficiency programs to reduce energy consumption and conserve water supply during warmer summer months; and,
- Including climate change adaptation strategies into community planning efforts.

2.2.4 Water Resources

Water resources in Central Point include surface and groundwater. Due to the lack of data available regarding groundwater quantity and quality, this section will focus primarily on surface water resources in the community.

Streams & Riparian Areas

Bear Creek, one of the Rogue River's primary tributaries, flows directly through eastern Central Point parallel to Interstate 5 in a northerly direction. Bear Creek is the primary discharge for floodwaters in Central Point. Several tributaries, including Griffin, Jackson, Daisy, Horn, Mingus and Elk Creeks also flow through the City limits and the Urban Growth Area. The confluence of Horn and Jackson Creek, as well as Daisy and Griffin Creek is located within the city limits.

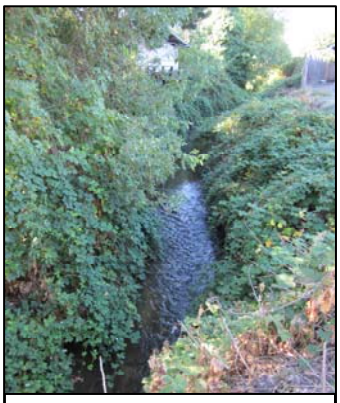


Photo 2.1: Griffin Creek

There are approximately 10.44 miles of streams that flow through the community. Although this resource is plentiful for a small community, the vast majority of Central Point's streams have been significantly modified and degraded through channelization projects, riparian habitat loss, and invasive species proliferation. Himalayan blackberry is particularly problematic along Central Point's streams.

The Oregon Department of Environmental Quality (DEQ) has identified Bear Creek and its tributaries as being water quality limited for phosphorus, pH, temperature and bacteria. Subsequently, there are two Total Maximum Daily Load (TMDL) allocation that require water quality improvement actions by local jurisdictions and irrigation districts. The first TMDL was issued in 1992 for pH and phosphorus, and the second in 2007 for temperature and bacteria. The City of Central Point has developed a water quality implementation plan and is actively engaged in water quality programs to address non-point pollution sources, including the National Pollution Discharge Elimination System (NPDES) Phase II program.

According to the Bear Creek Watershed Assessment, low base flows are a major limiting factor in the health of Bear Creek and many of its tributaries, including Griffin and Jackson Creek. Low summer time flows exacerbate water quality problems, particularly in the area of temperature, low dissolved oxygen and algae blooms from high nutrient content. These conditions can be lethal to juvenile and adult salmon species, as well as other aquatic organisms.

The Southern Oregon/Northern California Coast Coho salmon, *Oncorhynchus kisutch,* was listed as threatened on May 6, 1997 pursuant to the Endangered Species Act. Bear Creek and its tributaries, Griffin and Jackson Creeks, in Central Point are listed as critical habitat for the Coho. The Coho have a high level of threat due to a variety of factors, including water quality, in-stream barriers, low flows, and habitat degradation

due to irrigation diversions and urbanization, among others. Despite the high level of threat to anadramous fish, including Southern Oregon Coho, Chinook, Summer Steelhead, and trout, there is also a high potential of recovery. The history of Central Point channel modifications highlights altered conditions that contribute to the species' decline, as well as conditions that contribute to improved water quality and habitat.

During the late 1800's, channelization projects were conducted along Central Point streams for irrigation purposes to support the growing agricultural activity in the area. These projects resulted in straightened and constricted stream channels devoid of sinuosity and complexity necessary to support a healthy aquatic and riparian environment. Over time, urbanization and invasive species growth has contributed to the decline of riparian and aquatic conditions.

In more recent times, stream modification projects were conducted to accommodate development proposals, including the following:

- Mingus Creek realignment, Meadows Subdivision, 1979
- Horn Creek realignment, Country Meadows Subdivision (Unit 2, Phase 2 and Unit 3), 2001
- Griffin Creek, Twin Creeks Channel realignment/restoration, 2005
- Jackson Creek realignment/restoration, Twin Creeks, 2005

The Mingus and Horn Creek realignment projects moved 0.41 miles of stream channels from their original location, straightened, and made to occupy a narrower corridor. Adjacent development, including structures, fences and impervious areas, abuts the top of bank leaving little room for riparian habitat that is essential for shade, complexity, and wildlife shelter and foraging needs.

The Griffin and Jackson Creek realignment and restoration projects encompass 0.71 stream miles. Unlike other stream modifications, these projects were designed to restore the stream channel to a more natural condition by widening the corridor, adding some sinuosity, channel complexity and wildlife habitat by adding large woody debris and native vegetation to the stream corridor and surrounding upland riparian environment. In addition to improving the quality of the aquatic and riparian environment, this restorative model of channel modification also markedly reduced high risk flood hazards in parts of the surrounding developed areas.

Photo 2.2: Jackson Creek Realignment/Restoration

Riparian restoration in Central Point is needed to improve the quality of the local surface water resource base. The Rogue Valley Council of Governments (RVCOG) prepared the Bear Creek and Rogue Basin Riparian Planting Program Guide in 2010 that establishes a method of prioritizing riparian planting needs and provides guidelines for successful project implementation. Several projects have been completed along the

Bear Creek corridor pursuant to this regional plan; however, a more localized riparian assessment is needed to establish a baseline understanding of riparian habitat along each stream and restoration opportunities.

Wetlands & Vernal Pools

The U.S. Fish & Wildlife Services has mapped wetlands and vernal pools in Central Point (See Figure 2.2). Both resources are mapped in the city limits; however, most of wetlands and all vernal pool resources have been filled in and replaced with development. The only known wetland in the City is located in Blue Grass Downs. This wetland is about 0.95 acres in size and is part of ongoing wetland mitigation required by the Department of State Lands as a condition of approval for the Blue Grass Downs subdivision. The City of Central Point accepted ownership of the wetland and surrounding upland area and oversees all associated wetland mitigation activities.

Groundwater Resources

Groundwater resources in Central Point are not well understood due to the lack of available data. According to the Bear Creek Watershed Assessment, groundwater supply is greatly influenced by the amount of impervious surface area. Thus urbanization contributes to declines in groundwater supply and, in turn, the base flow contribution provided by this water resource.

2.3 Community History

Central Point found its beginnings as a highly active area due to its centralized location, trade supply store, and high quality agricultural products industry. From the beginning, the people were family-friendly and took great pride in their community, which is a trend that has continued to the present day.

Central Point was originally settled in the 1800's when Oregonians began migrating to California in search of financial wealth. Gold miners panned the Rogue River and, with the passing of the Donation Land Law, land claims in the Southern Oregon Territory were filed. This law encouraged settlement of the Oregon Territory by granting land to citizens who cultivated a land claim for four consecutive years.

By 1863 the first store was built in the core of Central Point, which is located on present day Pine Street. Due to its central location, the Magruder brother's store became a major trading center in the valley and was the impetus for new development in the community. As the community grew and developed a reputation for its exceptional agricultural products, many thought that Central Point would become the major trading post for southern Oregon, which resulted in the reorientation of the community to a proposed rail line that now runs parallel to Highway 99.

Despite efforts to meet the demands of the railroad, the region's railroad depot was located in the town of Medford, immediately south of Central Point. This decision was a great disappointment to Central Point residents and resulted in Medford becoming the major trading post for Southern Oregon.

Central Point was incorporated in 1889 and continued to be well known for its agriculture and its prime location for trade. The railroad eventually agreed to permit the construction of a new depot in Central Point, provided the community built it to railroad specifications and serviced it for at least two years. The finished depot became the biggest, finest depot in the Oregon Territory at the time (Genaw, 1989).

The early 1900's were a prosperous time for Central Point. Between 1905 and 1912, there was an orchard boom in the Rogue Valley with the planting of both apple and pear trees. During this period, the railroad companies put a great deal of effort into attracting potential orchardists to the valley. The national building boon that occurred in post-World War One America also proved to be an economic boon to the Rogue Valley, providing for the growth of lumber mills and expansion of agricultural activities.

The early years of the Twentieth Century were primarily growth years for the City of Central Point, but in 1929 this all changed with the approach of the Great Depression. Between the 1930 and 1940, population growth in Central Point was nearly static with only 10% growth during the period. As with most communities, Central Point was impacted through the loss of jobs and businesses. The depression ended with the start of World War Two. The Rogue Valley became the home of Camp White located approximately eight miles north east of the Central Point. The construction of the camp brought 10,000 jobs to the valley and trained up to forty thousand troops at a time. The war also provided markets for local produce and timber.

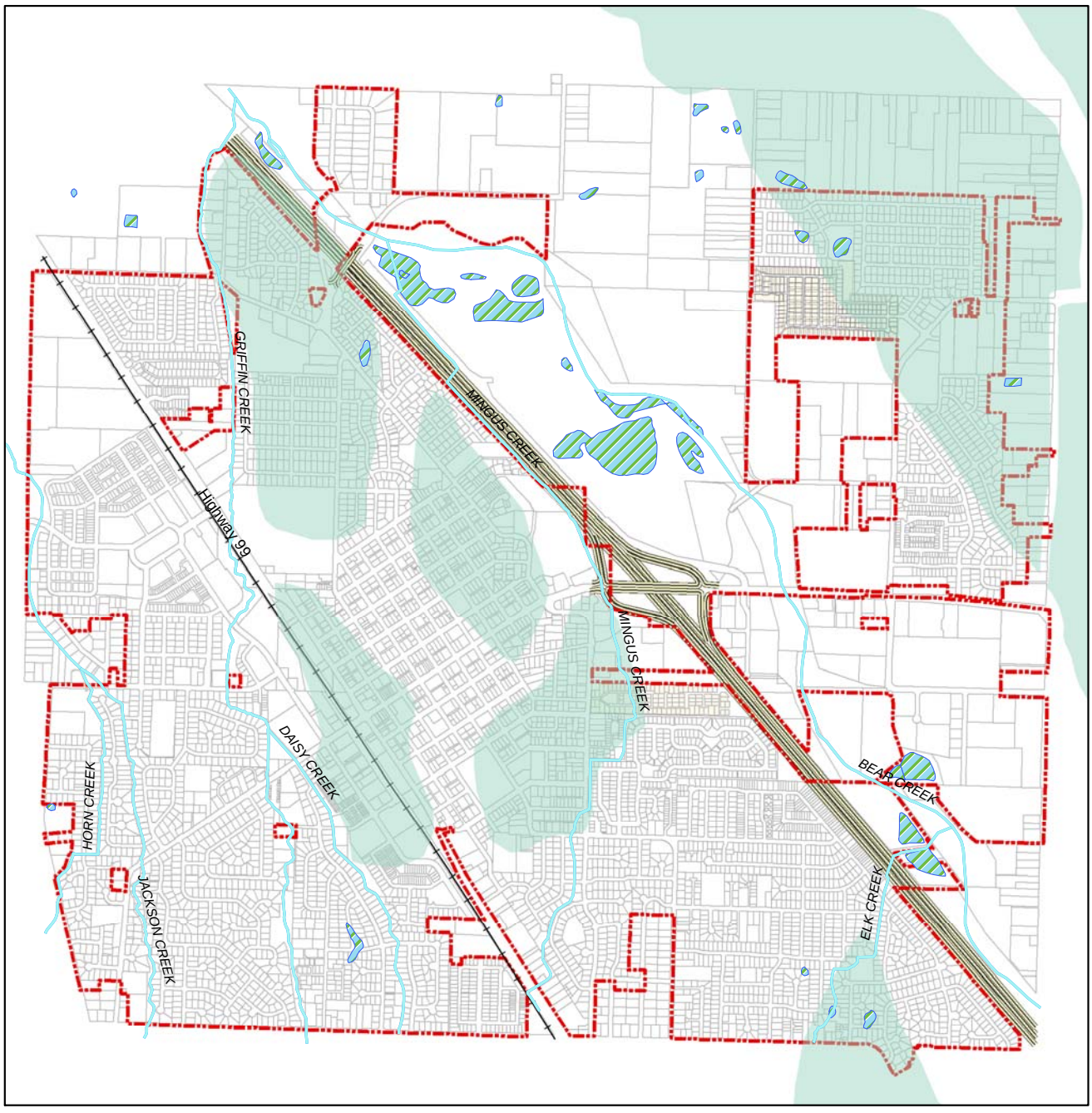
The post-war years were years of growth in the region and in Central Point. The building booms of the fifties, sixties, and seventies would not only provide for population growth within the city but would also provide jobs in both the timber and lumber production industries. During this period, there were several operating lumber mills within the city limits, but by the early 1980s the timber industry was in steep decline due to issues related to the endangered species act and over cutting on federal lands.

Even with the closure of the mills in the 1980s, Central Point would continue to grow dramatically. Between 1980 and 2000, the population nearly doubled from 6,357 to 12,493. During this period, Central Point's economic base shifted from lumber and agricultural support to an economy based in service, health care, and education. While not by definition a "bedroom community," most of those who lived in the community worked outside of the community. Currently the top employers in the city included Providence Health Care, Grange Co-Op, and School District #6.

Figure 2.2
Water Resources Map

CENTRAL POINT

Water Resources Map



Legend

- Streams
- Wetlands
- Vernal Pools
- City Limits
- Interstate 5

Source Information:

U.S. Fish & Wildlife Service
National Wetlands Inventory & Vernal Pool Habitat
Downloaded from Jackson County GIS Data webpage:
http://www.smartmap.org/portal/gis-data.aspx

N

2.4 Population and Demographics

Central Point is the third largest city in Jackson County with an estimated population of 17,185 (http://www.pdx.edu/prc/population-estimates-0). Since the 2000 census, the City of Central Point has continued to grow although the economic downturn has moderated growth significantly. Between 2000 and 2010, Central Point has added 4,676 new residents at an annual rate of 4.7%. In 2010, the Jackson County continued its trend toward a larger retirement age population base relative to the state. Roughly 17.6 % of the county's population is older than 65 years as compared to 13.9% at the state level (City of Central Point, 2008).

In contrast to the Southern Oregon region, the City of Central Point is characterized by a relatively young population as compared to both state and regional distributions. In 2010, 47.9% of Central Point's population was less than 35 years of age. Additionally, this composition is predominately driven by individuals under 19 years of age which comprise 29% of the population.

2.4.1 Vulnerable Populations

Vulnerable populations are comprised of individuals who experience increased risk to disasters due to factors such as age, disability and communication.

Children

Children tend to be more vulnerable to the impacts of natural disasters because they are dependent on adults (Peak, 2008). Children comprise a significant portion of the Central Point population according to the 2000 Census. Approximately 31 percent of the total population was comprised of persons under the age of 19 in 2009. Of those, 86.5 percent were enrolled in school and over half of all children were under 9 years old. Implications for risk to school aged children is significant, given that four out of five schools are located in an area subject to flood hazards and most Central Point schools were identified as having at least one or more buildings with moderate to very high collapse potential during a significant earthquake (Lewis, 2007).

Individuals with Mental and Physical Disabilities

Individuals with mental and physical disabilities may require special assistance during disasters. For that reason, the Rogue Valley Council of Governments (RVCOG) Senior and Disabilities Services collects information regarding vulnerable populations to support programs to assist these individuals, such as the Disaster Registry. According to the RVCOG, there are 36 vulnerable populations' facilities that serve 218 individuals in Central Point. These facilities include child and adult foster care homes, as well as facilities that cater to individuals with mental health and developmental disabilities.

This represents a small subset of the population reported to have disabilities in the 2000 Census. According to the Census, there are roughly 2,000 individuals with disabilities in

the City limits. The vast majority of these are elderly individuals followed by those between the ages of 21 to 64 years. Children represent the smallest segment of the populations with disabilities. Figure 2.4 shows the distribution of special populations that include large residential care facilities and mobile home parks. Small care facilities included in the RVCOG database are not shown for privacy protection purposes.

Non-English Speaking Population

The Central Point population demographic data indicates a generally low level of ethnic diversity with a small percentage of the population unable to speak English very well. According to the 2000 Census, only 4.2 percent of the population is of Hispanic or Latino origin (Bureau, 2000).

Most residents report themselves to be white and speak English and their primary language; however, approximately 5.4 percent speak a language other than English and less than 2 percent are unable to speak English very well. The data show that Spanish is the most common foreign language spoken; however, Asian and Pacific Island, and other Indo-European languages are spoken by residents as a primary language.

Communication with non-English speaking individuals is vital to ensure that preparedness and response activities are carried out to ensure the safety of all persons in the community during disasters.

2.5 Economic and Community Development

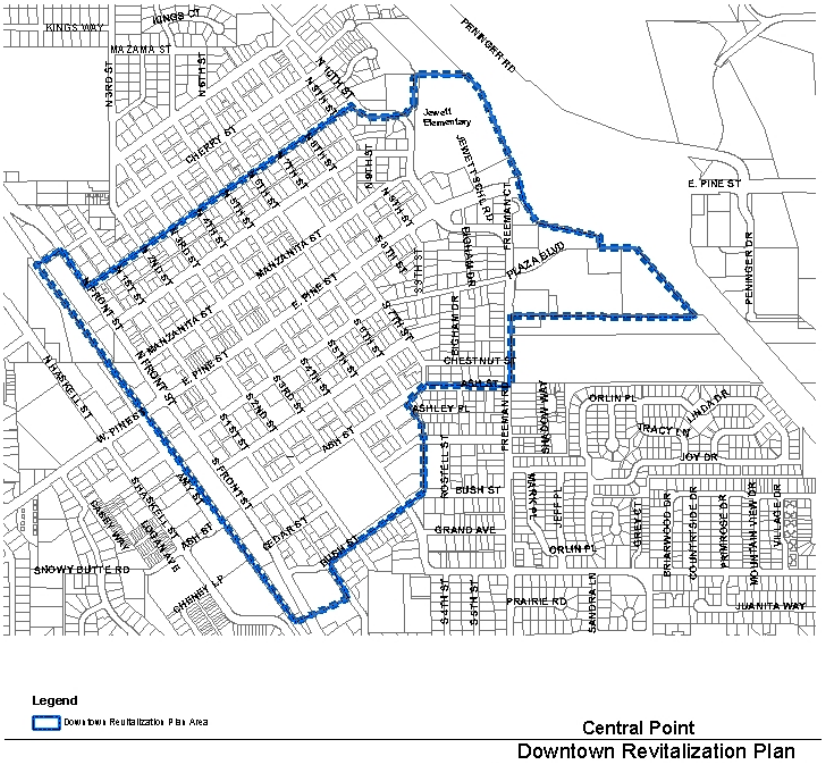
Central Point Forward, Fair City Vision 2020 is the city's strategic planning document that presents the community's vision for future growth based on the values and perspectives of residents at the time it was developed. The plan calls for the preservation of small town character and community values to enhance community life. Creation of Transit Oriented Development (TOD) zoning provisions, plans to revitalize downtown and the Highway 99 Gateway Plan are examples of planning activities that aim to achieve the *Central Point Forward* vision (City of Central Point, 2007).

Although viewed as a bedroom community for the surrounding area, Central Point has been changing dramatically over the last ten years as a result of increased light industrial development and a shift toward becoming an artisan corridor. Evidence of this trend is seen in the recent recruitment of businesses such as Microvellum, FedEx, and Lillie Belle Artisan Chocolates near the Rogue Creamery. This shift is consistent with the Central Point Strategic Plan's vision for the local economy, which is to diversify the city's local economic base and to develop Central Point businesses as destinations.

According to the Buildable Lands Inventory completed in September 2008, Central Point contains 2,880 gross acres. Currently land use designations allocate 31% of the land area to public right-of-way, open space, parks and civic uses; the remaining 69% is allocated to residential, commercial and industrial uses (City of Central Point, 2008).

Economic growth opportunities exist for commercial and light industrial development within the Central Point Business (See Figure 2.5). The business district is located between Interstate 5 and Highway 99 surrounding the Pine Street and Front Street corridors. Developable area east of Interstate 5 includes more automobile-oriented commercial development, as well as industrial land. Once the Twin Creeks Crossing is constructed to connect the Twin Creeks Transit Oriented District (TOD) and Highway 99 in the northwest portion of the city, a new multi-use commercial will become developable.

Figure 2.5
Central Point Business District

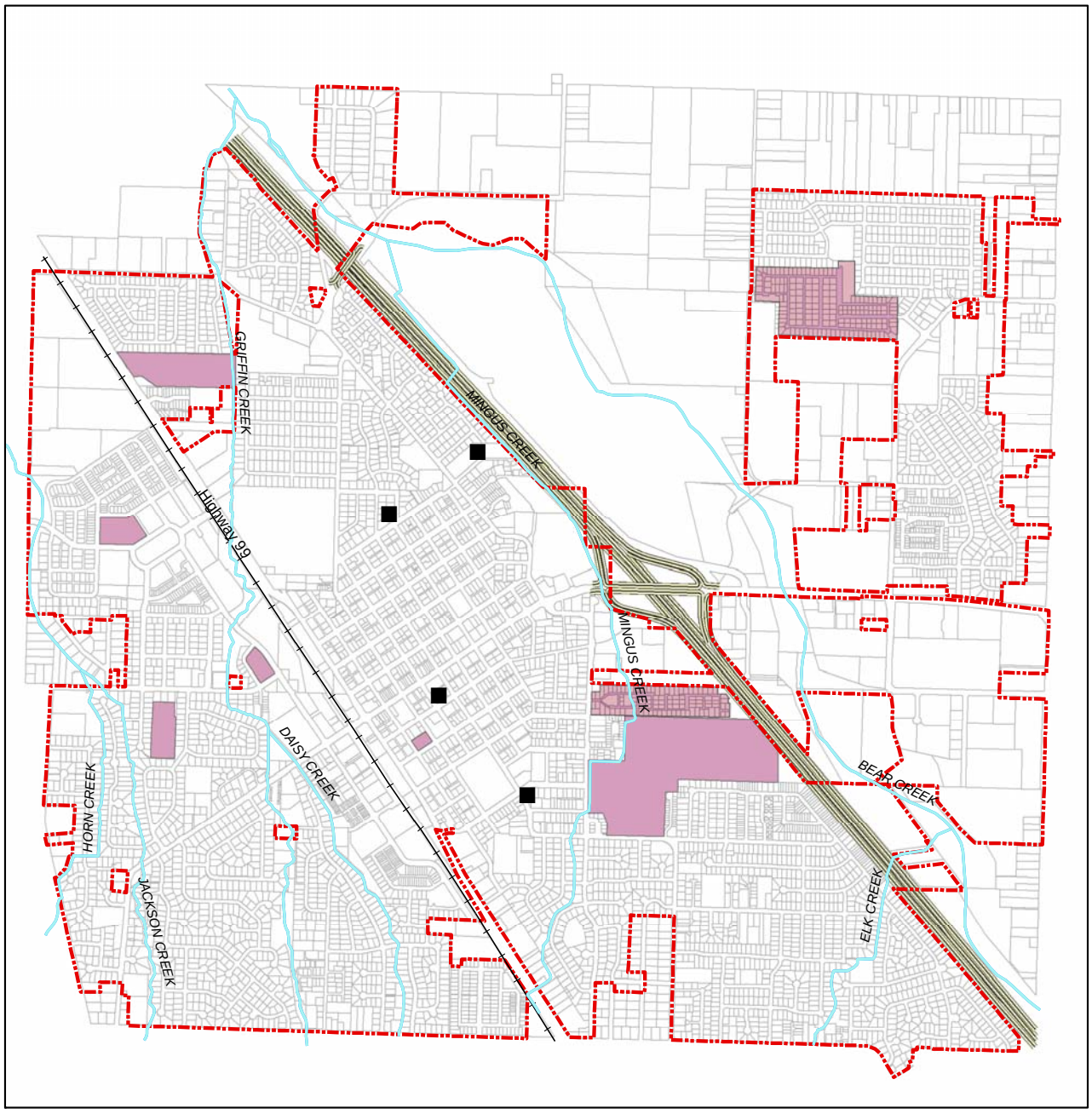


Central Point has many amenities to attract new economic development, as well as some challenges. Programs, such as urban renewal are setting the stage to address challenges in the Central Business District and are likely to include measures that calm traffic, improve walkability and connectivity, promote architectural projects to improve aesthetics, and others that revitalize the downtown and attract more visitors who will live, work and shop in the community.

As we move into the future, growth is anticipated in all sectors; however, the greatest growth projections in Central Point are likely to occur in Education and Health, and Professional and Business sectors. Moderate increases are expected in manufacturing and natural resources sectors.

Figure 2.4
Vulnerable Populations Map

Vulnerable Populations Map



Legend

- Streams
- City Limits
- Interstate 5

Source Information:

Rogue Valley Council of Governments
Senior & Disability Services Disaster Registry

N

2.6 Critical Facilities

Critical facilities are necessary for the day to day functions of the City, including basic services such as water and wastewater systems, electric and natural gas utilities, the transportation network, and government offices, including emergency services. Figure 2.5 displays the distribution of critical facilities throughout the community.

2.6.1 Utilities

Pacific Power and Light (PP&L), a subsidiary of PacifiCorp, supplies electrical power to the community; Avista Utilities supplies natural gas; and, Qwest provides telephone service. Each of these utilities operates under terms of a multi-year franchise agreement with the City for use of its right-of-way in supplying their respective utility services.

PacifiCorp is a vertically integrated utility, which means that it owns and operates generation, transmission and distribution assets. These assets are interconnected with many other utilities throughout PacifiCorp's six-state territory. The Federal Energy Regulatory Commission (FERC), a division of the US Department of Energy, regulates PacifiCorp's 8,400 megawatts of generation and interstate transmission lines.

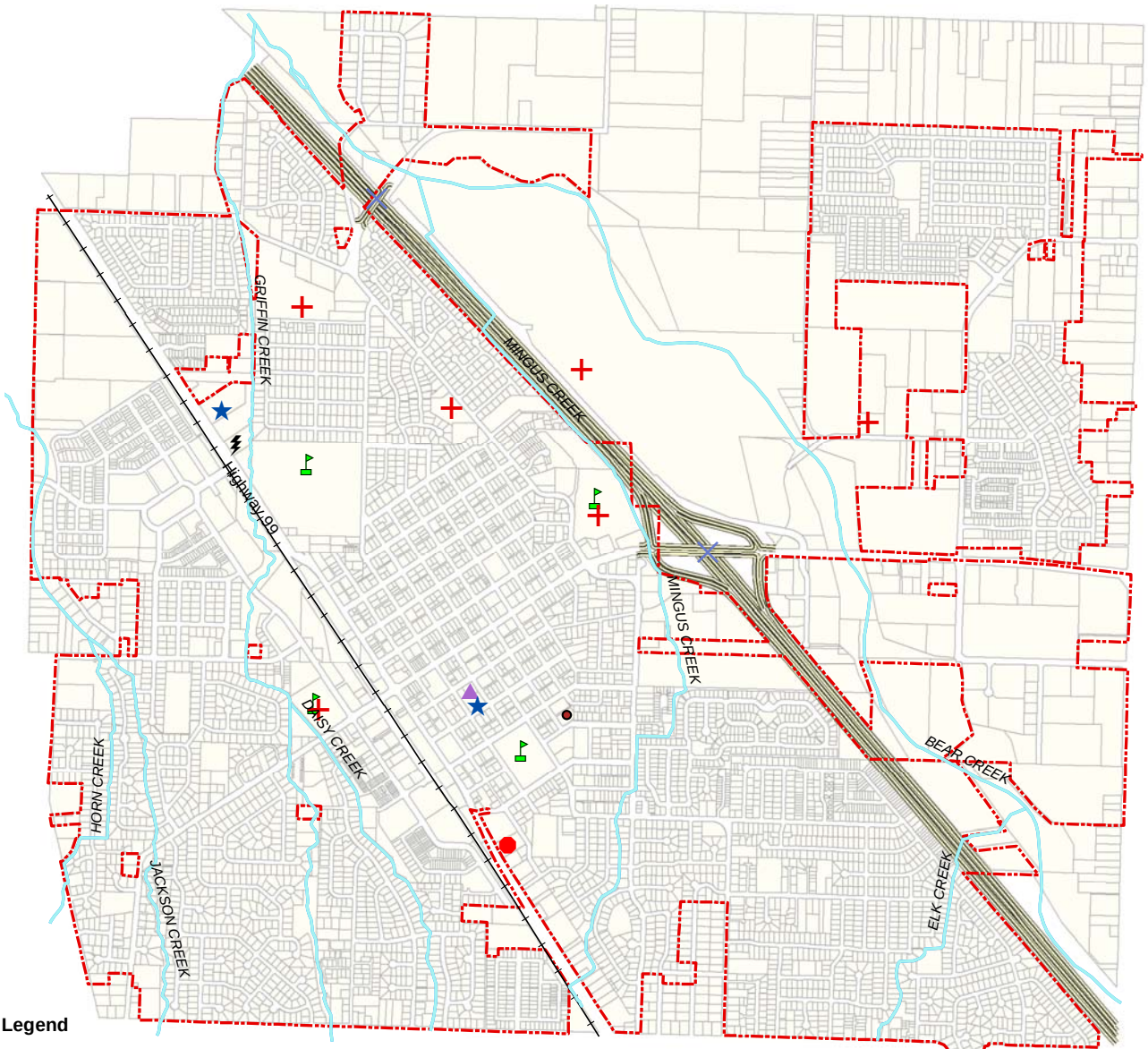
Pacific Power operates an electricity substation within the city limits. It is located on Highway 99 just north of Crater High School between the highway and Griffin Creek. This property is subject to the 1% annual chance flood and associated hazards, including erosion. The substation provides electric power to a majority of Central Point households. The primary distribution equipment used in Central Point includes overhead power lines; however, the City requires new development to locate all new and existing power underground.

Oregon, Washington and California operate within the Western Interconnection of the North American Power Grid under the jurisdiction of the Western Systems Coordinating Council (WSCC). The WSCC sets the standards and rules for reliable operation of the transmission system. To protect against loss of power across the entire region, each control area must maintain an operating reserve as a margin of system emergencies. Plants are protected by relays to isolate themselves from the grid when necessary to reduce the likelihood of extended outages. When major outages occur in southern Oregon and northern California, PacifiCorp's Medford District Operations Center serves as a Regional Emergency Action Center to coordinate materials, personnel and equipment.

Avista maintains an extensive network of natural gas pipeline in Central Point, as well as a regional transmission facility and pipeline. Avista transmission facilities are regulated by the Federal Energy Regulation Commission (FERC). Although natural gas is a colorless, odorless substance, Avista adds a component that gives their product a rotten egg smell as a safety precaution to detect leaks quickly.

Figure 2.6
Critical Facilities Map

Critical Facilities Map



Legend

Critial Facilities

Facility

- Bridge
- City Hall
- Fire Department
- Law Enforcement
- PPL Substation
- Red Cross Shelters
- School
- Water Pump Station
- Streams
- City Limits
- Interstate 5

Source Information:

Central Point Geographic Information Systems Database

N

2.6.2 Transportation Network

The City's transportation network includes regional, interstate and local infrastructure.

The state highway system and Interstate 5, overseen by the Oregon Department of Transportation (ODOT), are critical infrastructure in both a local and regional context. In the event of an accident or disaster affecting the I-5 corridor, Highway 99 could serve as a detour route for freeway traffic through Central Point.

Highway 99 is owned and operated by ODOT; however, a section that runs through Central Point, known as Front Street, was transferred to City ownership in 1996. It is currently a four lane highway with a center turn lane and limited sidewalks that runs west of and parallel to the Central Oregon and Pacific Railroad (CORP).

The local street network, described in the Central Point Transportation System Plan, 2008 – 2030, is comprised of over 60 miles of roadway serving a variety of functions from arterial and collector streets to local residential and commercial streets. Each street type has a specific functional classification, which is derived from the Federal Highway Administration's (FWHA) functional classification definitions. Each classification describes the role in serving the flow of trips through a community's street networks, as well as how it interfaces with regional, state and national street networks. There are seven street classifications in the City of Central Point, including:

- Principal arterials. These are designed to link major activity centers within the metro area. Principal arterials have the highest traffic volumes, serve the longest trip desires and should be integrated with local and regional arterial systems. Interstate 5, Hwy 99, East Pine and Biddle Road are the principal arterials located within the city limits.

- Minor arterials. Minor arterials are those not classified as a principal arterial and contain facilities that place more emphasis on land access and offer a lower level of traffic mobility. These may carry local bus routes and provide intra-community connectivity but ideally do not penetrate identifiable neighborhoods.

- Collector streets. These streets collect and distribute traffic from principal and minor arterials to the local street system or directly to local destinations. These street systems may go through residential neighborhoods, distributing trips from the arterials to their ultimate destination.

- Local streets. The local street system consists of all streets not classified as one of the higher order streets. As their name implies, local streets provide adjacent residential, commercial and industrial land uses with access to the City's higher order streets. They typically offer the lowest level of mobility.

- Residential streets. These access streets provide access to low and medium density residentially zoned lands.

- Commercial streets. Commercial streets provide direct access from the arterial network to local land uses. They provide access to commercial and industrial land uses and provide localized traffic circulation. They serve commercial, manufacturing and industrially zoned lands.

- Private streets. Privately owned streets provide direct access from the arterial network to local land uses. Private streets may serve both residential and commercial land uses and provide localized traffic circulation. They are no longer permitted by the City; however, there are a limited number of privately owned and maintained streets in existence.

Jurisdictional responsibilities for roadways within the City limits are divided between State, County, City and privately maintained facilities. The City maintains the majority of the streets within the Central Point urban area; however, the County maintains many roads within the Central Point Urban Growth Boundary (UGB), including 10th Street, Taylor, Freeman, Hanley, Grant, Beall, Beebe, Gebhard, and Upton Road. These county-owned roads have several stream crossings and are impacted by mapped Special Flood Hazard Areas. Due to the loss of federal timer revenues, the County has had difficulty maintaining these roadways and has not been able provide compensation for jurisdictional exchange of roads to city ownership for the past several years.

2.6.3 Government Offices

City government offices are clustered in the Central Business in City Hall and the Public Works Corporate Yard. The City employs a total of 75 personnel. Of these, 22 are sworn police officers and 18 are part of the public works crew, all of whom would be involved in any response to a disaster within the City (B. Robson, personal communication, March 30, 2009). The City utilizes the Emergency Action Plan adopted by Jackson County Emergency Services and is in the process of developing local annexes that are specific to Central Point to guide actions in response to emergency situations.

Fire District #3, the Jackson County Justice building and Oregon State Police have facilities located in the City. Fire District #3 has a fire station is located on Highway 99 south of Pine Street. Jackson County's Justice building is located on Oak Street near the downtown core. The Oregon State Police office is located on Highway 99, north of Pine Street, adjacent to Griffin Creek and the Labor Temple.

2.6.4 Water and Wastewater Systems

Two storage reservoirs store and distribute the domestic water supply for Central Point. Plans are in place to begin construction of a new 3 million gallon water reservoir on the east side of town near Don Jones Park. Completion of this facility will provide for the water storage needs of the community (City of Central Point, 2009).

The City of Central Point is the water purveyor for all the land within its jurisdictional boundaries. Prior to storage, the water is purchased wholesale from the Medford Water Commission. The primary water source is the Big Butte Springs, which has a capacity of over 26 million gallons per day. The Duff Treatment Plant is the secondary source.

Water from the Big Butte Springs is captured underground. The springs are enclosed which protects them from surface contamination. The 56,000 acre Big Butte Springs watershed on the westerly slopes of Mount McLoughlin is considered a "Drinking Water Protection Area" by the state of Oregon. The Medford Water Commission has operated a watershed protection program for many years, implementing a variety of measures to lessen potential vulnerabilities. There is very little development in the region of the springs; fecal coliform has never been found in the springs' waters. Nonetheless, the Medford Water Commission disinfects the spring waters. Two separate pipelines, built for purposes of redundancy, feed water from the springs to the water distribution system and pipelines bring water to town by gravity. Power needs for chlorination can be accommodated by an on-site generator in the event of a power outage.

In the event something should happen to disrupt the distribution system coming from the springs, the Duff Treatment Plant next to the Rogue River in the White City area would act as the backup source. Every year, from May through early October, the Commission draws water from the Rogue River at this plant. The plant is designed to operate optimally in the summer, but winter operations are possible.

Water from the Rogue River serves as a supplemental water supply during peak summer demand periods with a current plant capacity of 45 million gallons per day and an ultimate design capacity of 65 million gallons per day. The system has almost 32,000 connections. Cumulative storage in Central Point is currently 3 million gallons.

The Duff Treatment Plant is located outside of the floodplain. Back-up generation is sufficient to keep instrumentation running, but would not fully power the plant. The treatment plant has very high power demands; it would be unable to operate during a power outage.

Wastewater generated within the City is treated by a regional water recovery plant operated by the City of Medford and Rogue Valley Sewer Service Authority. The treatment plant is located on a bank of the Rogue River near White City. There are no known septic systems located within the City that could increase human health risk associated system failure due to natural hazards such as flooding.

2.6.5 Medical Facilities

Local hospitals are located in the City of Medford and include the Rogue Valley Medical Center (RVMC) with 305 beds and Providence Medical Center with 168 beds. Both hospitals provide emergency care services and have recently undergone multi-million dollar facility upgrades. The recent upgrade of RVMC added 136 additional private rooms, a larger short-stay surgery wing, a renovated imaging center and expanded

parking. RVMC is located in southeast Medford on Barnett Road and Providence is located off Crater Lake Avenue in central Medford.

Medical offices in Central Point include the newly constructed Providence Medical Group, which is the region's largest primary and specialty group of physicians. The group specializes in family practice, internal medicine, cardiology, obstetrics, and gynecology, pediatric and surgical services. The new office is located on South Front Street (old Highway 99) south of Pine Street.

In addition, Asante operates the Genesis Recovery Center for chemical dependency. This medical facility provides comprehensive services by physicians, nurses, counselors and licensed social workers. The facility is located on South 2nd Street in the south central part of town and is the only regional facility of its kind.

La Clinica de Valle has a health care facility on Hamrick Road near Don Jones Park that provides affordable healthcare for Latinos and low-income individuals and families.

2.7.6 Hazardous Materials Facilities

Facilities involved in manufacturing, transporting or storing of hazardous materials pose a risk to public health and safety in the event of an accident or natural disaster. Although the focus of this hazard mitigation plan is on natural hazards, secondary hazards could result from hazardous materials facilities following a natural hazard event such as an earthquake, flood or volcanic eruption.

The Grange Co-op operates a grain elevator and fertilizer plant located at the heart of the community at the intersection of Pine Street and Highway 99. The Grange has been a major employer in the community since 1934 when it found its beginnings as a fuel delivery cooperative. The grain elevator was built in 1947 and stands 135 feet tall. It is used to produce bulk feed for agricultural operations. The fertilizer plant and other lawn and garden materials manufacturing were added to the business in the early 1950's. Processing grains and flour poses an ignition hazard. There have been several explosions throughout the nation. In the event an explosion occurred at the Grange, additional damages and public health and safety issues could result due to the presence of fertilizer materials and chemicals used for lawn and garden purposes.

The Central Oregon and Pacific Railroad runs parallel to highway 99, and runs behind the Grange Co-op west of the grain elevator and fertilizer plant. The railroad is known to carry volatile chemicals to supply industrial and manufacturing industries located in Medford. There have been two derailments that occurred in the vicinity of the Grange Co-op within the last 20 years (C. Newell, personal communication, October 14, 2008).

Derailment and significant damage to freight cars could cause a hazardous materials incident in the community and pose a public health hazard.

2.7 Education Facilities

School District #6 serves Central Point, Gold Hill and Sam's Valley. Located in Central Point, the District offices provide administrative functions that serve to fulfill the mission of providing a diverse and innovating learning environment that embraces the values and beliefs of the community, recognizes the uniqueness and potential of each student and allows each student to achieve his or her dreams. Approximately 80% of the district's student base lives in Central Point. These students are served by three elementary schools, a middle school and high school, as follows:

Elementary Schools:

- Mae Richardson Elementary – Located on West Pine Street at the corner of North Haskell Street near Daisy Creek and its confluence with Griffin Creek. There are 485 students and 19 teachers.

- Central Point Elementary – Located between South 2nd and 4th Street. There are 466 students and 17 teachers. Central Point Elementary is a new building that opened in 2004. It was built in compliance with fire and earthquake safety standards.

- Jewett Elementary – Located at North 10th Street close to East Pine Street near Mingus Creek and Interstate 5. There are 533 students and 18 teachers.

Middle School:

- Scenic Middle School – Located on Scenic Avenue adjacent to Griffin Creek. There are 858 students 43 teachers.

High School:

- Crater High School – Located between North 3rd Street and Highway 99 near Griffin Creek. There are 1512 students with 80 teachers.

With respect to mitigation planning, the number of educational institutions in the City, especially those for school-aged children, raises concerns for sheltering and sustaining large numbers of children in place, should they not be able to return home safely. Handling communications with children's parents is a related issue. The District has worked closely with the City of Central Point police department to develop emergency action plans. All administrators in District 6 have been trained in emergency management and have received FEMA certification. Emergency plans are practiced at least twice a year in the schools (V. Robinson, personal communication, April 20, 2009).

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3.0 PLANNING PROCESS

3.1 Central Point Hazard Mitigation Plan Development Project History

The City of Central Point received Hazard Mitigation Grant Program (HMGP) funds in the fall of 2007 to develop a natural hazard mitigation plan. The local floodplain manager provided project management, research and composition, as well as public involvement facilitation. The Hazard Mitigation Advisory Committee formed in January 2008 and included 12 people including citizen representatives and stakeholders from local utilities, school district, fire district, American Red Cross, a local development firm, and Central Point Public Works, Parks and Community Development Departments. The committee provided direction and contributed knowledge of local history, programs, trends, and hazard events that are included in the plan.

Table 3.1
Hazard Mitigation Advisory Committee Members

Department	Participant
Public Works, Project Manager	Stephanie Holtey, CFM
Parks & Public Works	Matt Samitore
Community Development	Tom Humphrey
Central Point City Council	Kay Harrison
School District #6	Vicki Robinson
Pacific Power & Light	Monte Mendenhall
Fire District #3	Don Hickman
Fire District #3 (alternate)	Hugh Holden
Fire District #3 (alternate)	Mark Moran
Central Point Resident, SFHA	Kevin Winter
American Red Cross	Antone Hernandez
Central Point Resident, Twin Creeks Development Co.	Bret Moore

Following the release of the Federal Emergency Management Agency's Preliminary Flood Insurance Rate Map (FIRM) for Central Point, the City requested additional HMGP funds to complete an enhanced risk assessment for flood and earthquake based on quantitative analysis. The project manager and Hazard Mitigation Advisory Committee determined that incorporation of the revised flood hazard data provided on the Preliminary FIRM and in the Flood Insurance Study were essential to facilitate development and implementation of effective mitigation actions. The State of Oregon Emergency Management and FEMA agreed; however, delays in federal funding appropriations and mitigation program spending authority caused postponed progress on the City's Hazard Mitigation Development project until the funding issues were resolved.

In September 2010, additional HMGP funds were allocated to the City to complete an enhanced hazard mitigation plan that included quantitative risk assessments not previously possible due to insufficient data available. Consultants were hired to acquire FEMA Elevation Certificates for nearly all properties in the Special Flood Hazard Area (SFHA), evaluate erosion hazards and mitigation opportunities on Griffin Creek, complete quantitative risk assessments for flood and earthquake hazards, and assist the City with development of viable mitigation action items, including benefit cost analysis for high priority projects that were found to maximize risk reduction within the community.

The hazard mitigation planning effort included consultants under contract to the City of Central Point. From December 2010 through March 2011, the consultants were Neathamer Surveying, Inc. and Northwest Hydraulic Consultants, Inc. From April 2011 forward, the consultant was Kenneth A. Goettel of Goettel & Associates Inc.

Throughout the project timeline, the Hazard Mitigation Advisory Committee met a total of five times. Formal adoption of the final FEMA-approved 2011 Central Point Hazard Mitigation Plan was completed by the City Council on October 27, 2011.

3.2 Hazard Mitigation Advisory Committee Roles & Responsibilities

The major roles and responsibilities of the Hazard Mitigation Planning Advisory Committee, with technical support from the consultants, are to complete the 2011 Central Hazard Mitigation, including:

- Develop the mission statement, goals, objectives and action items.
- Develop the hazard, vulnerability and risk assessments.
- Develop historical disaster information.
- Meet FEMA's current requirements for mitigation plan approval.
- Coordinate hazard mitigation planning tasks and activities with the City's staff and departments.
- Encourage and facilitate continued public involvement throughout the mitigation planning process.
- Encourage and monitor the implementation of mitigation action items identified in the mitigation plan.

After FEMA approval of the 2011 Central Point Hazard Mitigation Plan, the Advisory Committee's continuing roles and responsibilities will include:

- Hold periodic meetings, at least annually, to review the Mitigation Plan and revise as necessary.

- Continue to encourage and facilitate public involvement in the mitigation planning process.
- Continue to encourage and monitor the implementation of mitigation action items identified in the mitigation plan.
- Initiate the FEMA-required 2016 update of the Central Point Hazard Mitigation Plan by mid-2014.

3.3 Public Participation Process

Public participation is a key component of the mitigation planning process and offers citizens and stakeholders the opportunity to express their ideas and priorities for hazard mitigation activities.

The 2011 Central Point Hazard Mitigation Plan development project included a four phase public participation process:

- Developing the Planning Committee composed of knowledgeable individuals from the City and the community and holding committee meetings,
- Distributing a public questionnaire to gather public opinions about hazard mitigation planning and priorities,
- Conducting four public meetings, workshops, and presentations to identify common concerns about hazards, promote hazard awareness, and to discuss specific goals and action items in the mitigation plan,
- Conducting an Open House and Open Forum Meeting for the Elevation Certificate Acquisition to support the development of the enhanced flood risk assessment.
- Developing a hazard mitigation website to provide information about the mitigation planning process and benefits of mitigation to the community, as well as to provide access to planning documents and another means of requesting public feedback.

The following sections provide a synopsis of the major elements in the mitigation planning process. Supplemental documentation of the planning process is provided in Appendix 3, including meeting minutes and sign-in sheets, a copy of the questionnaire mailed to residents and business owners/operators, questionnaire results, agendas for the public meetings/workshops, and presentations delivered to the Hazard Mitigation Advisory Committee, the public and City Council.

3.3.1 Hazard Mitigation Advisory Committee Meetings

The hazard mitigation planning committee met on the following dates during the Central Point Hazard Mitigation Plan development project:

- January 31, 2008
- June 26, 2008
- May 14, 2009
- January 13, 2010
- August 5, 2011

Agendas, sign-in sheets, and meeting summaries for the above meetings are in Appendix 3.

The committee met at least one time during each phase of the mitigation plan development process (i.e. organize resources, assess vulnerability, develop mitigation strategy, and adopt and implement the plan). An extra meeting was held on January 13, 2010 during the vulnerability assessment phase due to changes in the FEMA flood maps and the need to obtain direction and input on whether or not to delay the project and seek additional funds. The gap between the January 13, 2010 and August 5, 2011 meetings corresponds to the time period when the project was delayed due to funding issues and subsequent data acquisition following funding appropriation.

The 2011 Central Point Hazard Mitigation Plan addresses each of the natural hazards posing risk to the city, with emphasis on the hazards which pose the greatest risk, including: flood, earthquakes, and severe storms. Other natural hazards that pose very low or negligible risk are also addressed in the plan and include: wildland/urban interface wildfires, landslides, volcanic activity, subsidence, expansion soils, and sinkholes.

The decision to focus on natural hazards for the 2011 Central Point Hazard Mitigation Plan was made because human-caused hazards are predominantly or entirely addressed by emergency response planning rather than by mitigation planning.

The 2011 Central Point Hazard Mitigation Plan includes the following significant elements:

- Detailed overview of the major natural hazards that impact the city;
- Quantitative risk assessments for flood and earthquake hazards;
- Mitigation action items that have the potential to significantly reduce risk in Central Point when implemented;
- Identification of high priority mitigation action items that are FEMA grant eligible and competitive;

3.3.2 Household Preparedness Questionnaire

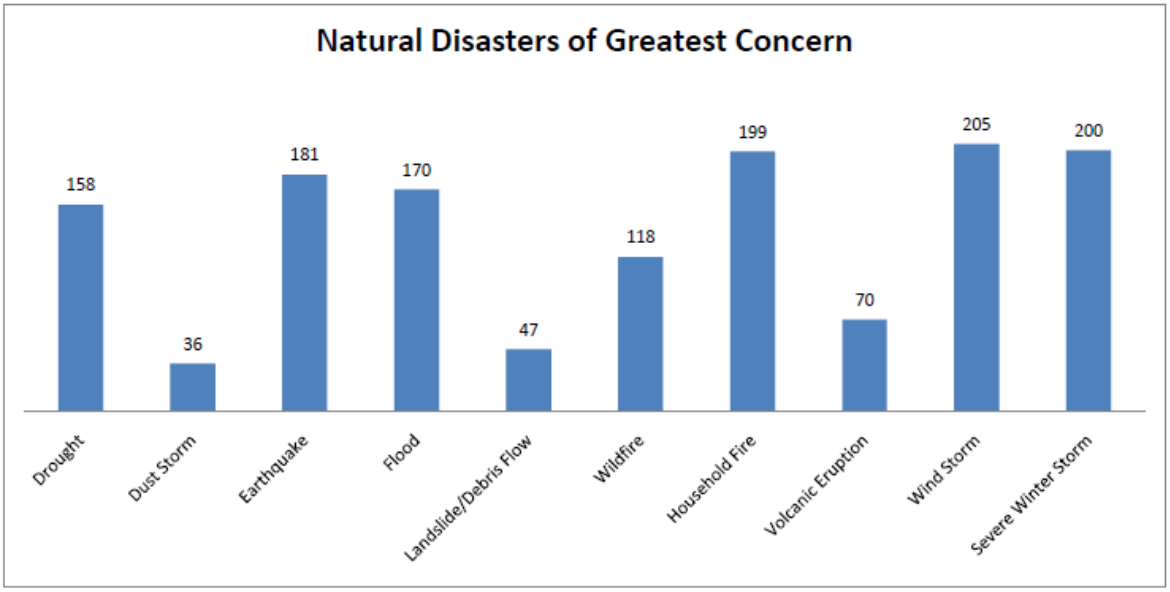
Hazard mitigation survey questionnaires were distributed by direct mailing to all water bill customers within the city during the first year of the mitigation planning process. A copy of the questionnaire and cover letter, as well as the survey results are provided in Appendix 3.

The questionnaires solicited community inputs on several important hazard mitigation issues, including:

- The level of concern about each of a comprehensive list of natural and human-caused hazards,
- The most effective ways to receive disaster mitigation information,
- The extent to which households have completed disaster preparation activities,
- The relative importance of eight mitigation objectives, and
- The extent of support for eight types of mitigation strategies.

The overall level of concern about natural hazards expressed by questionnaire responses are shown in Figure 3.1 below.

Figure 3.1
Natural Hazards of Greatest Concern to Central Point Residents



Overall level of concern reported by questionnaire respondents indicates that severe winter and wind storms pose the greatest concern with household fire, earthquake, and flood following in order of decreasing concern. Overall, there are

differences in the level of concern expressed by the public in relation to the more quantitative risk assessments presented in Chapters 6 through 9. The risk assessments rank floods, earthquakes and severe storms, including winter and wind storms among others, as posing the greatest threat to Central Point.

The questionnaires also gathered inputs regarding priorities for mitigation activities and disaster preparedness. Summary results are shown below in Figure 3.2. These results show that 7 of the 8 mitigation priorities were ranked as very important, with protecting historical and cultural landmarks ranked as somewhat important.

Table 3.2
Mitigation Priorities

Respondent Priorities for Community Risk Reduction Measures	Level of Importance
Protect Private Property	Very Important
Protect Critical Facilities	Very Important
Prevent Development in High Hazard Areas	Very Important
Enhance Natural and Beneficial Functions	Very Important
Protect Historical and Cultural Resources	Somewhat Important
Protect and Reduce Damage to Utilities	Very Important
Strengthen Emergency Services	Very Important
Disclose Hazard Risks During Real Estate Transactions	Very Important

The questionnaires also gathered inputs regarding 12 strategies to reduce risk. Respondents indicated wither or they strongly agree, agree, have a neutral opinion, disagree, strongly disagree or are not sure. Summary results are shown below in Table 3.4

Table 3.3
Opinions on Mitigation Strategies

Support for Community-wide Hazard Mitigation Strategies	Opinion
Regulatory Approach	Agree
Non-regulatory Approach	Agree
Mix of Regulatory & Non-regulatory approaches	Agree
Policies to prohibit development in high hazard areas	Agree/Strongly agree
Use of tax dollars to compensate landowners for not developing in high hazard areas	Disagree
Use of local tax dollars to reduce risks and losses from natural disasters	Agree
Protect historical and cultural structures	Agree
Willingness to make home more disaster resistant	Agree
Steps to safeguard local economy following a disaster event	Agree
Improve disaster preparedness of local schools	Agree
Develop inventory of at-risk buildings and infrastructure	Agree
Disclosure of natural hazard risks during real estate transactions	Strongly Agree

Throughout the questionnaire responses, there was a consistent and strong emphasis on promoting awareness of risk during real estate transactions, protecting critical facilities and utilities and strengthening emergency services.

3.3.3 Public Meetings and Workshops

The Hazard Mitigation Planning Committee held public meetings in July of 2008 and 2009, and August 2011 to present elements of the Central Point Hazard Mitigation Plan and to obtain input.

The public announcements for these workshops were provided in the City Newsletter, the Natural Resources Bulletin, and the City's community calendar on the website (www.centralpointoregon.gov). Announcements are shown in Figures 3.3 through 3.5. It is important to note that due to the timing of Public Meeting #4 and location scheduling logistics, the meeting was held as part of a City Council Study Session, which was advertised on the City's calendar of events, Social Marketing network (i.e. Facebook & Twitter), and promoted by word of mouth. There was no opportunity to provide a mailing in coordination with the City's water bill service.

The intent of these workshops was to introduce the purpose, objectives and elements of the plan and to address questions or concerns about hazard mitigation and disaster preparedness.

Although given ample opportunity, the public participation in these workshops was minimal:

- Public Meeting #1 : 3 attendees
- Public meeting #2: 0 attendees
- Public Meeting #3: 3 attendees
- Public Meeting #4: 11 attendees (7 Council & 4 staff members)
- Public Meeting #5: 0 attendees

The attendees' primary concerns were for floods, especially as related to their own homes. This is likely due to the expansive floodplains mapped by FEMA, as well as the occurrence of three large urban floods in 2009 and 2010.

The workshop comments and public questionnaire responses that were received validated the foundation and direction for the update of the Central Hazard Mitigation Plan. Questions that arose were primarily regarding flood insurance and potential funding mechanisms for the Griffin Creek Flood Mitigation project. See Chapter 6.0 for a description of the flood mitigation action items.

A final public workshop to review the draft final 2011 update of the Hazard Mitigation Plan was held on August 9, 2011. The notice for this workshop is shown below in Figure 3.5. Despite widespread publicity about the workshop, no members of the public attended the workshop.

Figure 3.3
Announcement for Public Meeting #1

Hazard Mitigation Public Meeting Announcement

You are invited to attend a public meeting regarding the development of the City's Natural Hazard Mitigation Plan on:

Tuesday, July 15th from 6:00 p.m. to 8:00 p.m

All communities, including Central Point, are subject to a variety of natural hazards. The purpose of hazard mitigation is to create a more disaster resilient community by developing an understanding of natural hazards and their potential impacts to our community, and then identifying and implementing actions to reduce hazard impacts and increase the City's ability to recover when a disaster does occur. The City wants your input on the proposed Mission and Goals of the mitigation plan, as well as any concerns or ideas you have regarding the development of the plan. We look forward to seeing you on Tuesday, July 15th. In the meantime, please feel free to contact the Citys' Floodplain Specialist if you have any questions or would like more information.

Figure 3.4
Announcements for Public Meeting #2 and #3

City of Central Point

News From City Hall

Hazard Mitigation Planning Public Meeting Scheduled for May 7th

A Public Meeting will be held on Thursday, May 7th from 6:00 to 8:00 p.m. in the Central Point Council Chambers, to provide an update on the Hazard Mitigation Plan Development project currently under way in Central Point. Hazard mitigation planning aims to identify potential hazards facing the community, the impact on our community's resources and ways that we can reduce our vulnerability and increase our resilience to those disasters.

To date, the City has developed a draft profile of our community's assets, natural hazards that could impact Central Point and a vulnerability assessment of those hazards. Please join us to learn more about natural hazards facing our community and provide your feedback, ideas and concerns. Your input will be instrumental in identifying potential mitigation projects to reduce our risks associated with various natural hazards, including: severe storms, floods, earthquakes, volcanic eruptions, wildfires and landslides.

Please feel free to contact the City's Floodplain/Stormwater Specialist for more information by phone at 664-7602, Ext. 244 or by e-mail at stephaniew@ci.central-point.or.us . We look forward to seeing you on May 7th at 6:00 p.m.

Natural Hazard Mitigation Public Meeting Scheduled for July 6th

Figure: Urban flooding in Central Point following the June 2009 severe thunderstorms. Source: Mail Tribune Monday June 1, 2009.

A public meeting will be held on Monday July 6th at 6:00 p.m. in the Central Point Council Chambers to provide an update on the Hazard Mitigation Plan Development project currently under way in Central Point. Natural hazards can and do happen in the Rogue Valley. The severe thunderstorms and localized flooding experienced in Central Point in early June is a good example. During that event, we saw urban flooding along streets that made travel difficult, impacts to public and personal safety from lightening and hazardous trees, and power interruption. By understanding the impacts that natural hazards like severe storms, flooding, earthquakes and volcanic eruptions have on our community we are able to design strategies to minimize their impacts and can get on with normal day to day life quickly.

Please remember to attend this important public meeting on July 6th. It's a great opportunity for you and your family to learn more about the natural history of our area and the natural hazard events that have shaped it over time. We are interested in your feedback, ideas and concerns about natural hazards and the potential impacts that they can have on your family and our community. Your input will be instrumental in identifying potential mitigation projects, reducing our risks, and becoming a disaster resilient community.

For more information contact Stephanie Woolett, the City's Floodplain/Stormwater Specialist by phone at 664-3321, Ext. 244 or e-mail at stephanie.woolett@centralpointoregon.gov. We look forward to seeing you on July 6th at 6:00 p.m.

Figure 3.5
Announcement for Public Meeting #5

Central Point Natural Resources Bulletin

Floodplains | Stormwater | Trees | Natural Hazards Summer 2011

Annual Stream Clean-up Reduces Flood Damage & Beautifies Community

Central Point is home to seven streams that meander through the community: Bear, Griffin, Jackson, Horn, Daisy, Mingus, and Elk Creeks. Although they can pose a hazard during high water events, streams can also add amenity to property and the community when their natural condition is preserved or enhanced through proper care. Everyone can help make our streams an amenity by keeping litter where it belongs: in the trash or recycling bin; volunteering time to restore degraded stream areas; and, promoting awareness of our local streams as a natural resource to neighbors, friends and family.

Information for Streamside Residents

If you live next to a stream, it's important to inspect the stream bank area and remove any obstructions or debris to minimize the risk of damages if a flood occurs during the rainy season, which occurs between October and April in our region. In addition to being a good practice, keeping streams free of obstructions is actually a requirement in Central Point. This program promotes safety, flood damage reduction, and natural resource protection.

City staff will be conducting an inspection of the streams in early August to assess the stream corridor conditions. To make sure that you are doing your part to keep our community safe, take action to make sure the following measures have been met:

- Compost materials, including grass-clippings, etc. are located outside the stream corridor. In addition to blocking small culverts and pipes, these materials pollute the water and contribute to gross and sometimes dangerous algae blooms.
- Trim blackberries to allow the passage of water during a high water event. Remember that chemicals are not allowed in or near streams.
- Clean up litter and construction debris. Unfortunately this junk floats downstream and requires continual monitoring and action. If we work together, we can minimize the litter that impairs our waterways, threatens wildlife, and increases flood risk.
- Address any other obstruction that could cause a safety concern for residents, property, infrastructure, and our local natural resources.

No matter where you live, remember that you can help keep our community safe and beautiful. For more information about the City's Stream and Drainage Channel Maintenance program, please contact the Public Works Department or check out our website resources.

Inside this issue…

- *Annual Stream Clean-up Overview: Benefits & Requirements*
- *Natural Hazard Mitigation Plan Meeting: August 9th*
- *Floodplain Development Primer for existing residents and new development.*
- *Benefits of Trees*
- *City Natural Resource Directory: Floodplain, Stormwater, Natural Hazards*

Hazard Mitigation Plan is Nearly Complete! Upcoming Public Meeting to Showcase the Draft Plan.

Where: Central Point City Hall
When: Tuesday, August 9th from 6:00 to 7:30 p.m.
Why: To preview the draft hazard mitigation plan, learn more about hazards, community risk, and potential risk reduction projects.

Did you know that litter, debris, and overgrown blackberries caused water level increases during the 1996/1997 New Year's Day Flood?

City staff observed backed up water due to clogged culverts and storm drains that caused water height increases over 1-foot. When water cannot flow through the stream channel it must find another route, which means that more people get flooded – some outside mapped high risk flood hazard areas. Sadly, the vast majority of these properties are not protected by advanced building techniques to minimize flood damages or by flood insurance that covers the cost of damages when they occur.

City of Central Point Public Works Department | 541.664.7602 | www.centralpointoregon.gov

3.3.4 Elevation Certificate Acquisition Open House

On December 2, 2010 the City hosted an open house event to present information about the hazard mitigation plan development project and the associated FEMA Elevation Certificate Acquisition program. Eligible property owners were notified of the meeting date, time, and purpose by direct mailing. There were 32 people who attended the Open House presentations offered. Four primary objectives of the open house included:

- Promoting awareness of the hazard mitigation plan development project and benefits of mitigation;
- Explaining what an Elevation Certificate is, why it is needed when you live in the SFHA, who uses Elevation Certificates and why;
- Facilitating project coordination, especially obtaining property owner contact information for scheduling purposes;
- Answering questions, addressing concerns, and obtaining feedback.

The purpose of the Elevation Certificate Acquisition program was to obtain data for structures in the Special Flood Hazard Area (SFHA) for use in developing a quantitative risk assessment and conducting benefit cost analysis for high priority mitigation action items. Although the Elevation Certificates were collected specifically for mitigation purposes, they also prove as useful tools for insurance purposes, as well as evaluating structural mitigation options.

Despite the fact that the Elevation Certificate Acquisition program was funded by and geared toward mitigation planning objectives, residents had several questions about flood insurance requirements. This was due to the fact that completion of the Elevation Certificate Acquisition program would coincide roughly with the effective date of the newly revised FEMA Flood Insurance Rate Map for Central Point. Most of those present owned a home in a newly designated floodplain and would be subject to the Federal mandatory flood insurance purchase requirement for the first time.

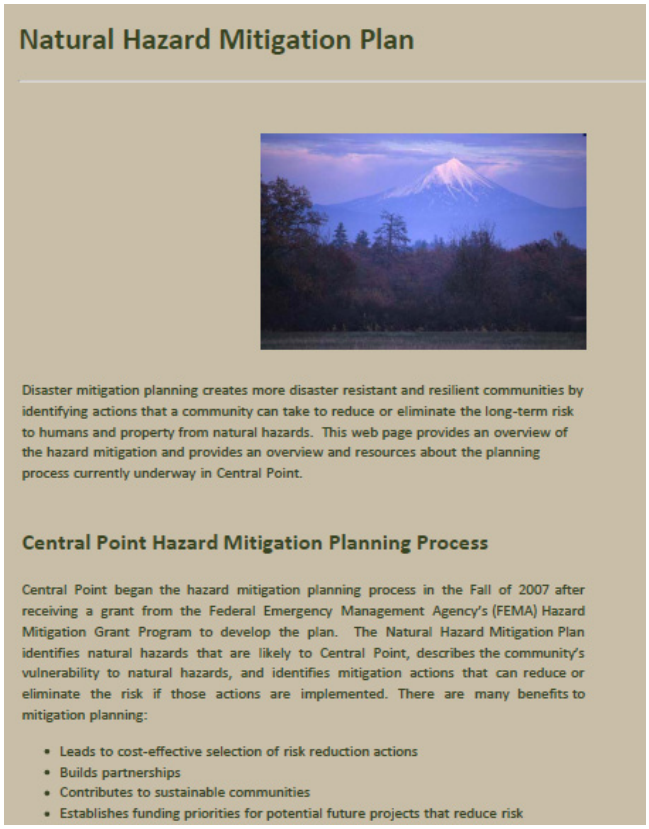
Since this meeting was specifically geared toward flood hazards, there were no comments received regarding the other major or minor hazards that pose a risk to the community. Some residents expressed frustration regarding past development patterns that likely contribute to the expanded SFHA and wanted to see future development planning that prevents or minimizes increases in flood hazards over time.

3.3.5 Hazard Mitigation Website

A website was created in 2008 to provide information about the hazard mitigation plan development project. This website includes an overview of hazard mitigation,

how the planning process works, and relevant information about the Central Point Hazard Mitigation Plan.

Figure 3.6
Central Point Hazard Mitigation Web Page Screen Shots



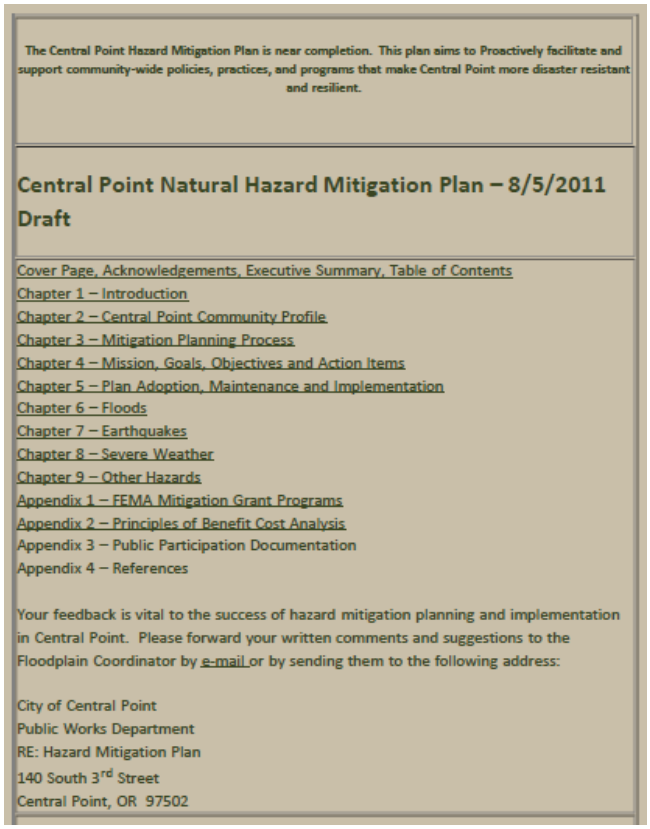
Natural Hazard Mitigation Plan

Disaster mitigation planning creates more disaster resistant and resilient communities by identifying actions that a community can take to reduce or eliminate the long-term risk to humans and property from natural hazards. This web page provides an overview of the hazard mitigation and provides an overview and resources about the planning process currently underway in Central Point.

Central Point Hazard Mitigation Planning Process

Central Point began the hazard mitigation planning process in the Fall of 2007 after receiving a grant from the Federal Emergency Management Agency's (FEMA) Hazard Mitigation Grant Program to develop the plan. The Natural Hazard Mitigation Plan identifies natural hazards that are likely to Central Point, describes the community's vulnerability to natural hazards, and identifies mitigation actions that can reduce or eliminate the risk if those actions are implemented. There are many benefits to mitigation planning:

- Leads to cost-effective selection of risk reduction actions
- Builds partnerships
- Contributes to sustainable communities
- Establishes funding priorities for potential future projects that reduce risk



The Central Point Hazard Mitigation Plan is near completion. This plan aims to Proactively facilitate and support community-wide policies, practices, and programs that make Central Point more disaster resistant and resilient.

Central Point Natural Hazard Mitigation Plan – 8/5/2011 Draft

Cover Page, Acknowledgements, Executive Summary, Table of Contents
Chapter 1 – Introduction
Chapter 2 – Central Point Community Profile
Chapter 3 – Mitigation Planning Process
Chapter 4 – Mission, Goals, Objectives and Action Items
Chapter 5 – Plan Adoption, Maintenance and Implementation
Chapter 6 – Floods
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Appendix 1 – FEMA Mitigation Grant Programs
Appendix 2 – Principles of Benefit Cost Analysis
Appendix 3 – Public Participation Documentation
Appendix 4 – References

Your feedback is vital to the success of hazard mitigation planning and implementation in Central Point. Please forward your written comments and suggestions to the Floodplain Coordinator by e-mail or by sending them to the following address:

City of Central Point
Public Works Department
RE: Hazard Mitigation Plan
140 South 3rd Street
Central Point, OR 97502

The web page is managed by the project manager and modified as the project progresses toward completion.

3.3.6 Agency Involvement

In an effort to obtain feedback from public agency stakeholders, the project manager mailed notices to the following federal, state and local agencies:

- Avista Natural Gas
- Pacific Power & Light
- Rogue Valley Sewer Services
- Medford Water Commission
- Jackson County Housing Authority
- Rogue Valley Council of Governments, Natural Resources
- Rogue Valley Council of Governments, Senior & Disability Services
- Jackson County Emergency Management

- City of Medford
- Oregon Department of Fish & Wildlife
- Oregon Department of Environmental Quality, Rogue Basin Coordinator
- Oregon Department of Geologic and Mineral Industries
- Oregon Department of Land Conservation & Development, Natural Hazards
- Oregon Department of State Lands
- Oregon Department of Transportation
- FEMA Region X

Early in the planning process, two formal stakeholder interviews were conducted with Pacific Power & Light and the Oregon Department of Transportation; however, informal feedback and project assistance was received from Rogue Valley Council of Governments Senior and Disabilities Services, Jackson County Emergency Management, the Department of Geologic and Mineral Industries was received via e-mail correspondence.

Later in the process, the City invited agencies to review the draft plan and submit final comments. To date, no comments have been received.

Summaries of formal interviews and e-mails are included in Appendix 3.

4.0 MISSION STATEMENT, GOALS, OBJECTIVES AND ACTION ITEMS

4.1 Overview

The overall purpose of the Central Point Hazard Mitigation Plan is to reduce the impacts of future natural disasters on Central Point. In other words, the purpose is to make Central Point more disaster resistant and disaster resilient, by reducing the vulnerability to disasters and enhancing the capability of the city and its citizens to respond effectively to and recover quickly from future disasters.

Completely eliminating the risk of future disasters in Central Point is neither technologically possible nor economically feasible. However, substantially reducing the negative impacts of future disasters is achievable with the adoption of this pragmatic Hazard Mitigation Plan and ongoing implementation of risk reducing action items.

Incorporating risk reduction strategies and action items into Central Point's existing programs and decision making processes will facilitate moving Central Point toward a safer and more disaster resistant future. This mitigation plan provides the framework and guidance for both short- and long-term proactive steps that can be taken to:

- Protect life safety,
- Reduce property damage,
- Minimize economic losses and disruption, and
- Shorten the recovery period from future disasters.

In addition, the Central Point Hazard Mitigation Plan meets the Federal Emergency Management Agency's (FEMA) mitigation planning requirements so that Central Point remains eligible for pre- and post-disaster mitigation grant funding.

The Central Point Hazard Mitigation Plan is based on a four-step framework that is designed to help focus attention and action on successful mitigation strategies: Mission Statement, Goals, Objectives and Action Items.

- **Mission Statement.** The Mission Statement states the purpose and defines the primary function of the Central Point Hazard Mitigation Plan. The Mission Statement is an action-oriented summary that answers the question "Why develop a hazard mitigation plan?"
- **Goals.** Goals identify priorities and specify how Central Point intends to work toward reducing the risks from natural and human-caused hazards. The Goals represent the guiding principles toward which the community's

efforts are directed. Goals provide focus for the more specific issues, recommendations and actions addressed in Objectives and Action Items.

- **Objectives.** Each Goal has Objectives which specify the directions, methods, processes, or steps necessary to accomplish the plan's Goals. Objectives then lead directly to specific Action Items.
- **Action Items.** Action items are specific well-defined activities or projects that work to reduce risk. That is, the Action Items represent the steps necessary to achieve the Mission Statement, Goals and Objectives.

4.2 Mission Statement

The mission of the Central Point Hazard Mitigation Plan is to:

> **Proactively facilitate and support community-wide policies, practices, and programs that make Central Point more disaster resistant and disaster resilient.**

The Central Point Hazard Mitigation Plan documents Central Point's commitment to promote sound public policies designed to protect citizens, critical facilities, infrastructure, private property and the environment from natural hazards by increasing public awareness; identifying resources for risk assessment, risk reduction and loss reduction; and identifying specific activities to help make Central Point more disaster resistant and disaster resilient.

4.3 Mitigation Plan Goals and Objectives

Mitigation plan goals and objectives guide the direction of future policies and activities aimed at reducing risk and preventing loss from disaster events. The goals and objectives listed here serve as guideposts and checklists as the city, other agencies, businesses and individuals begin implementing mitigation action items within Central Point.

Central Point's mitigation plan goals and objectives are based broadly, on and consistent with, the goals established by the State of Oregon Hazard Mitigation Plan. However, the specific priorities, emphasis and language are Central Point's. These goals were developed with extensive input and priority setting by the Central Point mitigation plan steering committee and the other stakeholders and citizens of Central Point.

Goal 1: Protect Life Safety

Objectives:

A. Enhance life safety by minimizing the potential for deaths and injuries in future disaster events.

B. Enhance life safety by improving public awareness of earthquakes and other natural hazards posing life safety risk to the Central Point community.

Goal 2: Protect Central Point Buildings and Infrastructure

Objectives:

A. Identify buildings and infrastructure at high risk from one or more hazards addressed in the Central Point Hazard Mitigation Plan.

B. Conduct risk assessments for critical buildings, facilities and infrastructure at high risk to determine cost effective mitigation actions to eliminate or reduce risk.

C. Implement mitigation measures for buildings, facilities and infrastructure which pose an unacceptable level of risk.

D. Ensure that new buildings and infrastructure in Central Point are adequately designed and located to minimize damages in future disaster events.

Goal 3: Enhance Emergency Response Capability, Emergency Planning and Post-Disaster Recovery

Objectives:

A. Ensure that critical facilities and critical infrastructure are capable of withstanding disaster events with minimal damages and loss of function.

B. Enhance emergency planning to facilitate effective response and recovery from future disaster events.

C. Increase collaboration and coordination between Central Point, nearby communities, utilities, businesses and citizens to ensure the availability of adequate emergency and essential services for the Central Point community during and after disaster events.

Goal 4: Seek Funding Sources for Mitigation Actions

Objectives:

A. Prioritize and fund action items with the specific objective of maximizing mitigation, response and recovery resources.

B. Explore both public (local, state and federal) and private funding sources for mitigation actions.

Goal 5: Increase Public Awareness of Natural Hazards and Enhance Education and Outreach Efforts

Objectives:

A. Develop and implement education and outreach programs to increase public awareness of the risks from natural hazards.

B. Provide information on resources, tools, partnership opportunities and funding sources to assist the community in implementing mitigation activities.

C. Develop and enhance partnerships with public agencies, non-profit organizations, business, industry and the public by enhancing communications and cooperation to encourage and facilitate mitigation actions.

Goal 6: Incorporate Mitigation Planning into Natural Resource Management and Land Use Planning

Objectives:

A. Balance natural resource management, land use planning and natural hazard mitigation to protect life, property and the environment.

B. Preserve, rehabilitate and restore natural systems to enhance habitats and serve natural hazard mitigation functions.

4.4 Critical and Essential Facilities

Many of the high priority action items focus on facilities which are critical or essential for Central Point. Critical facilities are facilities defined as those necessary for emergency response and recovery activities, especially public safety and hospitals. Essential utility services such as electric power, water and wastewater are also extremely important to communities, especially after a disaster. Such utilities are often characterized as “lifeline” utilities because they are so important to a community for life safety (e.g., services to hospitals) and for the economic recovery after a disaster.

Central Point has designated the following facilities as critical or essential:

City Buildings

City Hall
Police Station
Public Works Corporate Yard

Non-City owned Emergency Services Buildings

Fire District #3 Station
Oregon State Police Regional Office

Schools

There are five schools in Central Point. Mae Richardson Elementary is located on West Pine Street at the corner of North Haskell Street near Daisy Creek and its confluence with Griffin Creek. Central Point Elementary was built in 2004 and is located between South 2nd and 4th Street. Jewett Elementary is an older school. It is located at North 10th Street close to East Pine Street near Mingus Creek and Interstate 5. This school has had problems with flooding during heavy rain storms that cause the stream and storm drains to back up into classrooms. The most recent event occurred during the spring 2009 rain storm. Fortunately damages were limited to inundated carpets, which were easily cleaned before class was back in session. Scenic Middle School is located on Scenic Avenue adjacent to Griffin Creek. Crater High School is composed of several buildings that vary in age. It is located between North 3rd Street and Highway 99 near Griffin Creek. Two of the buildings closest to the creek are impacted by the mapped FEMA floodplain.

Key Utility Elements

Water: The City's drinking water is provided by the Medford Water Commission, which obtains water from Big Butte Springs and the Rogue River. The City currently operates two storage reservoirs that hold 3 million gallons total, as well as several miles of transmission mains and distribution lines. A new 3 million gallon reservoir began construction in the summer 2011, thus increasing the city's water storage. Upon completion, however, the one million gallon reservoir is slated to be demolished, leaving a total storage capacity of 5 million gallons. The water system also includes one pressure station, which is used to boost distribution system pressure during peak demand hours. The system connects with the Medford Water Commission master meters, which can provide water in emergency situations; however, water supply from the Medford Water Commission is currently limited to 6.8 million gallons per day by contract.

Wastewater: Rogue Valley Sewer Services provides sanitary sewer services to the City of Central Point and other communities in the valley. Their system in Central Point includes 58.4 miles of city sewer lines that were constructed between 1949 to the present day. System critical facilities include 30 stream crossings, 3 railroad crossings, 4 Interstate crossings and 6 siphons. According to the District Engineer, there are no upgrades needed in preparation of natural disasters. Wastewater is treated at a regional facility located in White City near the banks of the Rogue River.

Stormwater: The City of Central Point stormwater system includes 45.8 miles of storm drain lines, 581 catch basins, 2127 curb inlets, 714 storm manholes, 0

known underground injection control facilities, 2 engineered water quality facilities (concrete sediment/trash and oil separator vaults) and 6 detention facilities. Underground Injection control facilities are drained to the ground. Outfalls drain to the nearest of seven streams and then to the Rogue River or to the north via Bear Creek.

Other Utilities: Electric power (Pacific Power & Light), natural gas (Avista Natural Gas) and telecommunications services (Qwest) within Central Point are provided by investor-owned utilities: Although not owned by the city, these utilities are critical for the functioning of the city.

Key Transportation System Elements

Major transportation routes within and to/from Central Point include:

- Interstate 5 runs generally north-south through Central Point. Interchange no. 33 at East Pine Street provides primary access/egress for Central Point. In addition the Seven Oaks interchange (no. 35) northwest of Central Point, and the North Medford interchange (no. 37) provides access/egress along Highway 99 into town from the north and south.
- The major arterials include: Highway 99/Front Street, East Pine Street, and Biddle Road. Minor arterials include Hamrick Road, West Pine Street, North 10th Street, Scenic Avenue, Freeman Road, Hanley Road, and Twin Creeks Crossing.

4.5 Central Point Hazard Mitigation Plan Action Items

The Mission Statement, Goals and Objectives for Central Point, as outlined above, are achieved via implementation of specific mitigation action items. Action items may include refinement of policies, data collection to better characterize hazards or risk, education, outreach or partnership-building activities, as well as specific engineering or construction measures to reduce risk from one or more hazards to specific buildings, facilities, or infrastructure within the Central Point community.

Action items identified and prioritized during the development of the Central Point Hazard Mitigation Plan are summarized in the tables on the following pages. Individual action items may address a single hazard (such as floods, or earthquakes) or they may address two or more hazards concurrently. The first group of action items is for multi-hazard items that address more than one hazard, followed by groups of action items for each of the hazards considered in this plan, which are addressed in more detail in Chapters 6 to 9.

Implementation of the action items presented in this plan are to be conducted by the coordinating organizations in partnership with key stakeholders, such as utilities, property owners, local government, etc. All of the action items presented in this Hazard Mitigation Plan are realistic in terms of implementation capability; however, ease of implementation, cost, and staff time availability vary between the

action items presented in table 4.1. For example, outreach and education efforts may be easily implemented through existing natural resources, public works and community development programs. Other items, such as the Griffin Creek Flood Mitigation Project, Stormwater Master Plan development, and inventory projects need to be implemented as funds and staff time become available. Timelines for completion may need to be adapted to address these implementation challenges.

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Table 4.1
City of Central Point Mitigation Action Items

Hazard	Action Item	Coordinating Organizations	Timeline	Plan Goals Addressed					
				Life Safety	Protect Buildings & Infrastructure	Public Awareness	Emergency Services	Environment & Land Use	Seek Mitigation Funding
Multi-Hazard Mitigation Action Items									
Short-Term #1	Identify critical facilities and infrastructure in Central Point that are at risk for one or more natural hazards and implement mitigation measures as resources become available.	Public Works Department	Ongoing	X	X	X	X		
Short-Term #2	Encourage public and private owners of important buildings and infrastructure to undertake risk assessments for their facilities and implement mitigation measures when necessary.	Public Works & Building Department	Ongoing	X	X	X			
Short-Term #3	Increase public awareness of natural hazards by enhancing education and outreach activities, including dissemination of hazard maps and FEMA pamphlets.	Public Works Department	Ongoing	X	X	X			
Short-Term #4	Promote Jackson County Disaster Registry to Central Point residents through website, education/outreach mailings, public meetings, etc.	Public Works Department	Ongoing	X		X	X		
Long-Term #1	Obtain funding and resources to implement high priority mitigation action items	Public Works Department	Ongoing	X	X	X	X	X	X
Long-Term #2	Integrate the Mitigation Plan findings into planning and regulatory documents and programs	Community Development Department	Ongoing	X	X	X	X	X	

Hazard	Action Item	Coordinating Organizations	Timeline	Plan Goals Addressed					
				Public Awareness	Life Safety	Protect Property Minimize Losses	Partnerships & Implementation	Emergency Services	Environmental Protection
Flood Mitigation Action Items: Within FEMA-Mapped Floodplains									
Short-term #1	Incorporate identified action items in the approved Hazard Mitigation Plan, including the Griffin Creek Flood Mitigation project components into the Central Point Capital Improvements Plan for Stormwater and Streets.	Central Point Public Works	1-year	X		X	X		
Short-term #2	Explore the feasibility of mitigating low income housing complexes owned and operated by the Housing Authority located just upstream of West Pine Street on the east bank of Griffin Creek through property redevelopment to relocate buildings outside of the regulatory floodway and SFHA.	Central Point Public Works and Community Development, Jackson County Housing Authority	1-2 years	X			X		
Long Term #1	Griffin Creek Flood Mitigation Project including the following: stakeholder buy-in, public involvement, easement acquisition, utility relocation; engineered construction plans, restoration plans, environmental permits; grade control structure removal; West Pine Street crossing upgrade; channel modifications; stream restoration; LOMR acquisition.	Central Point Public Works, School District #6, Pacific Power, Rogue Valley Sewer Services, Rogue River Valley Irrigation District, Oregon State Police, Southern Oregon Labor Temple, and the Jackson County Housing Authority	Ongoing until Completion	X	X	X	X	X	X
Long-term #2	Elevate or acquire highly flood-prone structures not mitigated by the Griffin Creek Mitigation Project (See Flood Mitigation Action Items Long-term #1 and #2 for areas inside FEMA-Mapped Floodplains.)	Central Point Public Works	Ongoing		X	X	X	X	
Long-term #3	Complete an outreach strategy for the community in accordance with CRS procedures to ensure that public involvement and education efforts are effective.	Central Point Public Works	1-5 years	X					

Hazard	Action Item	Coordinating Organizations	Timeline	Plan Goals Addressed					
				Public Awareness	Life Safety	Protect Property Minimize Losses	Partnerships & Implementation	Emergency Services	Environmental Protection
Long-term #4	Develop a Flood Warning Program for the City in accordance with CRS guidelines and coordinate this effort with Jackson County Emergency Management's Emergency Action Plan, which the City adopted by Resolution.	Central Point Public Works	3-5 years	X	X		X	X	
Flood Mitigation Action Items: Outside of FEMA-Mapped Floodplains									
Short-term #1	Complete a Stormwater Master Plan for the City that links stormwater drainage problems and solutions with mitigation planning efforts, including: drainage basin mapping, problem area identification, and low impact development implementation prioritization for flow reduction.	Central Point Public Works	2-3 years		X	X			X
Short-term #2	Explore the feasibility of mitigating Jewett Elementary School from future flooding as a result of stormwater drainage problems.	School District #6 Central Point Public Works & Community Development	3-5 years	X	X	X	X	X	X
Long-term #1	Conduct stormwater drainage improvements pursuant to the Stormwater Master Plan recommendations (See Flood Mitigation Action Item, short-term #1 for areas outside of FEMA-Mapped Floodplains.)	Central Point Public Works	Ongoing		X	X			X
Long-term #2	Complete a Benchmark Master Plan that outlines standards for setting and maintaining benchmarks in the city, including the establishment of 3 to 5 National Spatial Reference System benchmarks that are 1st or 2nd order with a stability rating of A or B and that are within 1.0 mile of a regulatory floodplain.	Central Point Public Works	1-5 years	X		X	X		
Long-term #3	Review and update flood warning and emergency action plans as new information about Emigrant Dam failure becomes available.	Central Point Public Works and Administration (Emergency Management)	1-5 years	X	X		X	X	

Hazard	Action Item	Coordinating Organizations	Timeline	Plan Goals Addressed					
				Public Awareness	Life Safety	Protect Property Minimize Losses	Partnerships & Implementation	Emergency Services	Environmental Protection
Earthquake Mitigation Actions									
Short-term #1	Evaluate the seismic vulnerability of critical city-owned buildings and establish priorities to retrofit or replace vulnerable buildings.	Police Department, Public Works Corporate Yard	1-2 years	X	X	X	X		
Short-term #2	Evaluate the seismic vulnerability of the schools and fire station in Central Point and establish priorities to retrofit or replace vulnerable buildings.	Jewett Elementary	1-2 years	X	X	X	X		
Short-term #3	Evaluate the seismic vulnerability of important components of the Central Point water and waste water systems and establish priorities to retrofit or replace vulnerable components.	Central Point Water System, RVS Wastewater System	3-5 years	X	X	X	X	X	
Short-term #4	Conduct a sidewalk survey of residential, commercial and industrial buildings in Central Point using FEMA's Rapid Visual Screening to identify especially vulnerable buildings, raise awareness, and encourage mitigation actions.	Unreinforced masonry buildings (URM), concrete/steel buildings with URM infill, and other vulnerable building types	5 years	X	X	X			
Short-term #5	Disseminate FEMA pamphlets to educate homeowners and business owners about structural and non-structural retrofitting options and benefits for vulnerable buildings.	Vulnerable buildings identified in the Rapid Visual Screening inventory.	Ongoing	X	X	X			
Long-term #1	Obtain funding and retrofit important public facilities with significant seismic vulnerabilities.	Structures identified as vulnerable pursuant to seismic risk assessments in Short-term actions #1-3	Ongoing	X	X	X	X		X

Hazard	Action Item	Coordinating Organizations	Timeline	Plan Goals Addressed					
				Public Awareness	Life Safety	Protect Property Minimize Losses	Partnerships & Implementation	Emergency Services	Environmental Protection
Severe Weather Mitigation Action Items									
Short-Term #1	Formalize the City's Community Forestry program to organize tree management efforts on public and private property.	Parks & Public Works Department	Ongoing	X	X	X		X	X
Short-Term #2	Promote awareness of tree selection, planting, and care to minimize hazards while promoting community forestry goals.	Parks & Public Works Department	Ongoing	X	X	X		X	
Short-Term #3	Ensure that all critical facilities in Central Point have backup power and emergency operations plans to deal with power outages	Public Works	1-2 Years		X	X		X	
Long-Term #1	Consider upgrading lines and poles to improve wind/ice loading, undergrounding critical lines, and adding interconnect switches to allow alternative feed paths and disconnect switches to minimize outage areas	Pacific Power & Light	5 Years		X	X		X	
Long-Term #2	Require new developments to include underground power lines	Community Development	Ongoing		X	X		X	

Hazard	Action Item	Coordinating Organizations	Timeline	Plan Goals Addressed					
				Public Awareness	Life Safety	Protect Property Minimize Losses	Partnerships & Implementation	Emergency Services	Environmental Protection
Other Natural Hazards Mitigation Action Items									
Short-Term #1	None Identified.	N/A	N/A						
Long-Term #1	None identified.	N/A	N/A						

5.0 PLAN ADOPTION, MAINTENANCE AND IMPLEMENTATION

5.1 Overview

For a hazard mitigation plan to be effective, it has to be implemented gradually over time, as resources become available, continually evaluated and periodically updated. Effective mitigation requires developing a system that routinely incorporates logical thinking about hazards and cost-effective mitigation measures into ongoing public- and private-sector decision making. The following sections depict how Central Point has adopted and will implement and maintain the Central Point Hazard Mitigation Plan.

5.2 Plan Adoption

FEMA approval of the 2011 Central Point Hazard Mitigation Plan was received on October 3, 2011. FEMA approval means that Central Point's Hazard Mitigation Plan meets national standards and that the City will continue to be eligible for hazard mitigation funding from FEMA's mitigation grant programs.

The Central Point Hazard Mitigation Plan was adopted by the Central Point City Council on October 27, 2011 making this the effective date of the plan. The adoption resolution is included in the appendix at the end of this chapter.

Central Point has the necessary human resources to ensure the Plan continues to be an active planning document. City staff from many departments have been active in the preparation of the plan and have gained an understanding of the process and the desire to keep it up to date and useful.

Recent major high-profile disasters and the growing understanding of the threats posed to Central Point from natural hazards have kept the interest in hazard mitigation planning and implementation alive at the City Council level, at the city staff level, among private sector entities, and among the citizens of Central Point.

5.3 Implementation

5.3.1 Coordinating Body

The Central Point Hazard Mitigation Advisory Committee will oversee implementation of the plan and be responsible for periodic monitoring, evaluating and updating the plan. The city will continue to provide staffing to accomplish the mitigation plan monitoring, evaluating, and updating. Consistent staffing allows for well-organized meetings and will help to ensure that the right people are involved at the meetings. The existing active interest in mitigation and emergency planning

that exists within Central Point will help to ensure the successful implementation of the plan over the coming years.

5.3.2 Integration of the Hazard Mitigation Plan into Ongoing Programs, Policies and Practices

The mission statement, objectives, goals and action items outlined in Chapter 4 of the Central Point Hazard Mitigation Plan provide a strong framework and guidance for the identified mitigation priorities for Central Point. However, the Mitigation Plan is a guidance document, not a regulatory document; therefore, implementation of the objectives, goals and action items can be accomplished most effectively by fully integrating this guidance into ongoing city-wide programs, policies and practices.

Assessments of the hazards, vulnerability and risk combined with the prioritized mitigation action items in the 2011 Central Point Hazard Mitigation Plan provide a solid foundation for incorporating mitigation planning and implementation into ongoing programs, policies and practices, as listed below with the responsible City of Central Point Departments:

- Building code enforcement, especially seismic and fire provisions - Community Development, Building Division.
- Central Point's seismic retrofit ordinances for pre-1994 welded steel moment frame buildings and pre-1976 reinforced masonry and tilt-up concrete buildings - Community Development, Building Division.
- Enforcement of special provisions in FEMA-mapped 100-year floodplains, per the National Flood Insurance Program (NFIP) requirements – Public Works.
- Emergency response planning and post-disaster recovery planning – Administration (General), Public Works (Flood, Severe Weather, Drought), Police.
- Ongoing comprehensive land use planning, zoning and environmental planning for new construction and redevelopment projects – Community Development, Public Works.
- Capital improvement planning for city buildings, utility infrastructure and transportation infrastructure –Public Works, Community Development, City Manager, Finance.

All of the above ongoing programs, policies and practice mesh with and support the Hazard Mitigation Plan's primary goals of protecting life and property from natural disasters.

Information in the above plans was incorporated into the 2011 Central Point Hazard Mitigation Plan, including:

- Central Point's FEMA-mapped floodplains,

- Central Point's flood ordinance,
- Central Point's wildland/urban interface wildfire risk,
- Land use planning and zoning, and
- Capital improvement planning.

5.3.3 Cost Effectiveness of Mitigation Projects

As Central Point and other entities, public or private, within the City consider whether or not to undertake specific mitigation projects or evaluate competing mitigation projects, they must answer questions that don't always have obvious answers, such as:

What is the nature of the hazard problem?

How frequent and how severe are hazard events?

Do we want to undertake mitigation measures?

What mitigation measures are feasible, appropriate and affordable?

How do we prioritize between competing mitigation projects?

Are our mitigation projects likely to be eligible for FEMA funding?

Central Point recognizes that benefit-cost analysis is a powerful tool that can help communities provide solid, defensible answers to these difficult socio-political-economic-engineering questions. Benefit-cost analysis is required for all FEMA-funded mitigation projects, under both pre-disaster and post-disaster mitigation programs. Thus, communities seeking FEMA funding must understand benefit-cost analysis. Even if FEMA funding is not involved, benefit-cost analysis provides a sound basis for evaluating and prioritizing possible mitigation projects for any natural hazard. As a result, Central Point will use benefit-cost analysis and related economic tools, such as cost-effectiveness evaluation, to the extent practicable in prioritizing and implementing mitigation actions. See Appendix 2 Principles of Benefit-Cost Analysis for further details on the benefit-cost analysis process.

Central Point has utilizes benefit-cost analysis in two important ways:

- To help prioritize mitigation actions, once specific projects are defined in sufficient detail, including at least conceptual designs and preliminary cost estimates.
- To support applications for FEMA mitigation grants.

5.3. 4 STAPLE/E Approach

Central Point has uses the STAPLE/E approach to help evaluate potential mitigation actions. Using STAPLE/E criteria, mitigation activities can be evaluated quickly in a systematic fashion based on the Social, Technical, Administrative,

Political, Legal, Economic, and Environmental (STAPLE/E) considerations and opportunities for implementing particular mitigation action items in Central Point. The STAPLE/E approach is very helpful for assessing the viability of mitigation projects and supplements the risk and economic results from benefit-cost analyses.

The following synopsis outlines each of the elements of the STAPLE/E Approach

Social: Planning Department staff, local non-profit organizations, or local planning groups can help answer these questions.

- Is the proposed action socially acceptable to the community?
- Are there equity issues involved that would mean one segment of the community is treated unfairly? (Or one segment more favorably?)
- Will the action cause social disruption?

Technical: Public Works, Engineering and Building Department staff can help answer these questions.

- Will the proposed action work?
- Will it create more problems than it solves?
- Does it solve a problem or only a symptom?
- Is it the most useful action in light of other goals?

Administrative: Elected officials can help answer these questions.

- Is the action implementable?
- Is there someone to coordinate and lead the effort?
- Is there sufficient funding, staff and technical support available?
- Are there ongoing administrative requirements that need to be met?

Political: City Council members and planning officials can help answer these questions.

- Is the action politically acceptable?
- Is there public support both to implement and to maintain the project?

Legal: Include legal counsel, land use planners and risk managers in this discussion.

- Who is authorized to implement the proposed action?
- Is there a clear legal basis or precedent for this activity?
- Are there legal side effects? Could the activity be construed as a taking?
- Is the proposed action allowed by the comprehensive plan, or must the comprehensive plan be amended to allow the proposed action?

- Will the City be liable for action or lack of action?
- Will the activity be challenged?

Economic: City Economic Development staff, Public Works, Building Department, and the County Assessment and Taxation office can help answer these questions.

- What are the costs and benefits of this action?
- Do the benefits exceed the costs?
- Are initial, maintenance, and administrative costs taken into account?
- Has funding been secured for the proposed action? If not, what are the potential funding sources (public, non-profit, and private)?
- How will this action affect the fiscal capability of the City?
- What burden will this action place on the tax base or economy?
- What are the budget and revenue effects of this activity?
- Does the action contribute to other goals, such as capital improvements or economic development?
- What benefits will the action provide? (This can include dollar amount of damages prevented, number of homes protected, credit under the CRS, potential for funding under the HMGP or the FMA program, etc.)

Environmental: Environmental groups, land use planners, Engineering, and natural resource managers can help answer these questions.

- How will the action impact the environment?
- Will the action need environmental regulatory approvals?
- Will it meet local and state regulatory requirements?
- Are endangered or threatened species likely to be affected?

5.4 Prioritization of Mitigation Actions

Implementation of any of the mitigation actions listed in the 2011 Central Point Hazard Mitigation Plan is contingent upon resource availability, including both staff and financial resources. Thus, it is impossible to prioritize the mitigation action items exactly. The following multi-faceted approach has been used to prioritize the mitigation action items:

- The highest priority action items address the highest priority goals – including Reduce the Threats to Life Safety and Reduce the Threats to Buildings, Facilities and Infrastructure.
- The highest priority action items thus are for the hazards which pose the greatest threats to Central Point: floods, earthquakes, and severe storms.
- Within the groups of action items – multi-hazard and hazard-specific, the relative priority has been determined by consensus of the Hazard Mitigation

Planning Team, including the STAPLE/E approach and benefit-cost analysis as noted below.

- The STAPLE/E approach was used as a screening tool to ensure that each proposed mitigation action item was feasible for each of the STAPLE/E criteria.
- The City of Central Point recognizes the importance of benefit-cost analysis not only for FEMA grant applications, but also to help prioritize between competing mitigation projects regardless of the funding source. Benefit-cost analysis is predominantly applicable to physical mitigation measures such as flood mitigation projects, seismic retrofits and so on. Benefit-cost analysis is generally not applicable to mapping, risk assessments, code enhancement and other types of measures. The importance of benefit-cost analysis is recognized not only in this section but also elsewhere in the 2011 Central Point Hazard Mitigation Plan including:
    - Chapter 1, Section 1.7 – The Role of Benefit-Cost Analysis in Mitigation Planning,
    - Chapter 5, Section 5.3.3 – Cost Effectiveness of Mitigation Projects, and
    - Appendix 2 – Principles of Benefit-Cost Analysis.

The above multi-faced approach to prioritize mitigation action items is a good faith effort to establish priorities. However, the principal constraint for the implementation of each of these action items is the availability of resources – both staff time and financial resources; therefore, Central Point's prioritization of action items is necessarily flexible. If resources become available for a lower priority mitigation item before funds are available for a higher priority action item, then the lower priority mitigation item will be implemented.

This realistic, flexible approach is necessary to reduce risk in Central Point over time as resources to implement mitigation actions become available.

5.5 Plan Maintenance

5.5.1 Periodic Monitoring, Evaluation and Updating

The City of Central Point has developed a process for regularly reviewing and updating the Hazard Mitigation Plan. The Mitigation Planning Committee will hold meetings once a year at a minimum from the date that the 2011 plan is effective, as well as after significant disaster events affecting Central Point. Committee members will be responsible for overseeing the progress of the mitigation actions in the Plan. These meetings will provide opportunities to incorporate new information into the Plan and remove outdated items and completed actions. This will also be the time to recognize the success of community action item implementation.

The Planning Team will assess whether and to what extent:

1. Do the plans goals, objectives and action items still address current and future expected conditions?
2. Do the mitigation action items accurately reflect Central Point's current conditions and mitigation priorities?
3. Have the technical hazard, vulnerability and risk data been updated or changed?
4. Are current resources adequate for implanting Central Point's Hazard Mitigation Plan? If not are their other resources that may be available?
5. Are there any problems or impediments to implementation? If so, what are the solutions?
6. Have other agencies, partners, and the public participated as anticipated? If no, what measures can be taken to facilitate participation?
7. Have there been changes in federal and/or state laws pertaining to hazard mitigation in Central Point?
8. Have the FEMA requirements for the maintenance and updating of hazard mitigation plans changed?
9. What can Central Point learn from declared federal and/or state hazard events in communities that share similar characteristics to Central Point, such as population, geographical area, land use mix, and hazard vulnerability?
10. How have previously implemented mitigation measures performed in recent hazard events? This may include assessment of mitigation action items similar to those contained in this Plan, but where hazard events occurred outside of Central Point.

The Mitigation Planning Committee will review the results of these Mitigation Plan assessments, identify corrective actions and make recommendations, if necessary, to the City Council for actions that may be necessary to bring the Mitigation Plan back into conformance with the stated goals and objectives.

The Advisory Committee will also have lead responsibility for the formal updates of the plan every five years. The formal update process will be initiated at least two years before the five-year anniversary of FEMA approval of the Central Point Mitigation Plan, to allow ample time for robust participation by stakeholders and the public and for updating data, maps, goals, objectives and action items. All revisions of the Plan will be taken to the City Council for formal acknowledgement as part of Central Point's Plan maintenance and implementation program.

5.5.2 Continued Public Involvement and Participation

Implementation of the mitigation actions identified in the Plan must continue to engage not only city staff but also the entire community. The City of Central Point

is committed to involving the public directly in the ongoing review and updating of the Hazard Mitigation Plan.

This public involvement process will include public participation in the monitoring, evaluation and update process outlined in the previous section. Public involvement will intensify as the 2016 update process is begun and completed.

The 2011 Central Point Hazard Mitigation Plan will be available on the City's website and hard copies will be placed in local libraries. The existence and locations of these hard copies will be posted on the City's website along with contact information so that people can direct comments, suggestions and concerns to the Hazard Mitigation Planning Team.

A press release requesting public comments will be issued after each evaluation and also whenever additional public inputs are deemed necessary. The press release will direct people to the website and other locations where the public can review proposed updated versions of the plan. This process will provide the public with accessible and effective means to express their concerns, opinions, ideas about any updates/changes that are proposed to the mitigation plan.

Adjacent jurisdictions and public agencies will be notified by e-mail to provide an opportunity for stakeholders and other entities to engage in the ongoing review and updating of the mitigation plan.

The Hazard Mitigation Planning Team members will ensure that the resources are available to publicize the press releases and maintain public participation through web pages, public access channels and newspapers as deemed appropriate.

APPENDIX

RESOLUTION NO. 1315

A Resolution Adopting the Central Point Hazard Mitigation Plan

Recitals:

A. The City of Central Point recognizes the threat that natural hazards pose to people and property within the community;

B. Implementing hazard mitigation actions will reduce the potential for harm to people and property from future hazard events;

C. An adopted, Federal Emergency Management Agency (FEMA)--approved hazard mitigation plan is a prerequisite for mitigation project funding eligibility under FEMA pre- and post-disaster mitigation grant programs;

D. The City of Central Point engaged in the FEMA-prescribed mitigation planning process in the development of the Central Point Hazard Mitigation Plan; and

E. The Oregon Department of Emergency Management and FEMA Region X officials have reviewed the City of Central Point Hazard Mitigation Plan and ( ) approved it (✓) contingent upon this official adoption of the participating governing body;

The City of Central Point resolves:

Section 1. The "Central Point Hazard Mitigation Plan" is adopted as the official plan for the City.

Section 2. The City of Central Point will submit this resolution to the Oregon Department of Emergency Management and Federal Emergency Management Agency Region X officials to facilitate final approval of the plan.

Passed by the City Council and signed by me in authentication of its passage this 27th day of October, 2011.

Mayor Hank Williams

ATTEST:

City Recorder

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6.0 FLOOD HAZARDS

6.1 Overview

The City of Central Point is subject to overbank flooding from several streams, including:

- Bear Creek which flows along the eastern part of Central Point,
- Griffin Creek, Jackson Creek, Mingus Creek and Elk Creek which flow through the city, and
- Daisy Creek and Horn Creek, which are tributaries to Griffin Creek and Jackson Creek, respectively.

Of these flood sources, Griffin Creek poses the greatest threat to Central Point because of the large numbers of residential and other structures within the mapped floodplain, including many in the floodway.

Flooding along these creeks typically occurs during late fall to winter to early spring storms with intense rainfall, with flooding sometimes exacerbated by snow-melt runoff. The drainage areas for these creeks are small as shown in Table 7.1 below.

Table 6.1
Drainage Areas for Central Point Creeks

Creek	Drainage Area (Square Miles)
Bear Creek[1]	284
Griffin Creek	23.3
Jackson Creek	19.5
Elk Creek	4.8
Mingus Creek	1.3
Horn Creek	0.8
Daisy Creek	0.5

[1] upstream of Medford, drainage area upstream of Central Point is somewhat larger

Because the drainage areas of these creeks are small, the extent of flooding is governed by the total rainfall plus snow-melt runoff within short periods ranging from a day or two for the larger creeks to perhaps as little as a couple of hours for the smallest creeks.

In addition to overbank flooding from the above waterways, portions of Central Point are also subject to urban flooding typically associated with localized storm water drainage problems. Urban flooding associated with stormwater drainage problems occurs when inflows of stormwater exceed the conveyance capacity of

the local stormwater drainage system or the system becomes blocked with debris. See Section 6.5 for further discussion of localized stormwater drainage problems and urban flooding.

Flooding from dam failure could occur in Central Point since Emigrant Dam is located upstream on Bear Creek. In the event of failure, the inundation zone is expected to encompass a wide corridor along Bear Creek impacting residential, commercial, and industrial development. See Section 6.4 for further discussion of dam failure impacts projected for Central Point.

6.2 Historical Floods in Central Point

Historically, flooding has occurred in the Central Point area throughout the recorded history of the area.

As documented in the May 2001 FEMA Flood Insurance Study for Jackson County, the worst flooding in Central Point in recent decades occurred in December 1962 and December 1964, with the flood of 1964 being more severe. Most of the flood damage within the city occurred along Mingus Creek and Daisy Creek. In both cases, there were high water levels but no extensive structural damage. The flooding on Daisy Creek was aggravated by a channel obstruction on Griffin Creek. The flooding on Mingus Creek was partly due to undersized drainage structures which have subsequently been enlarged or replaced.

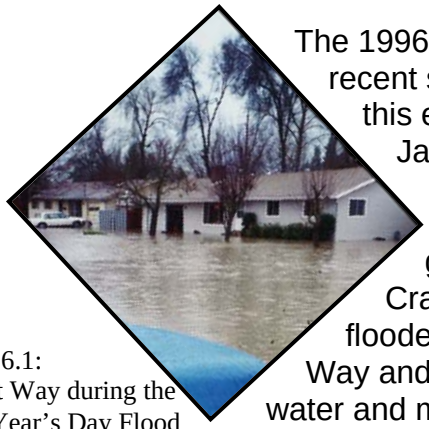


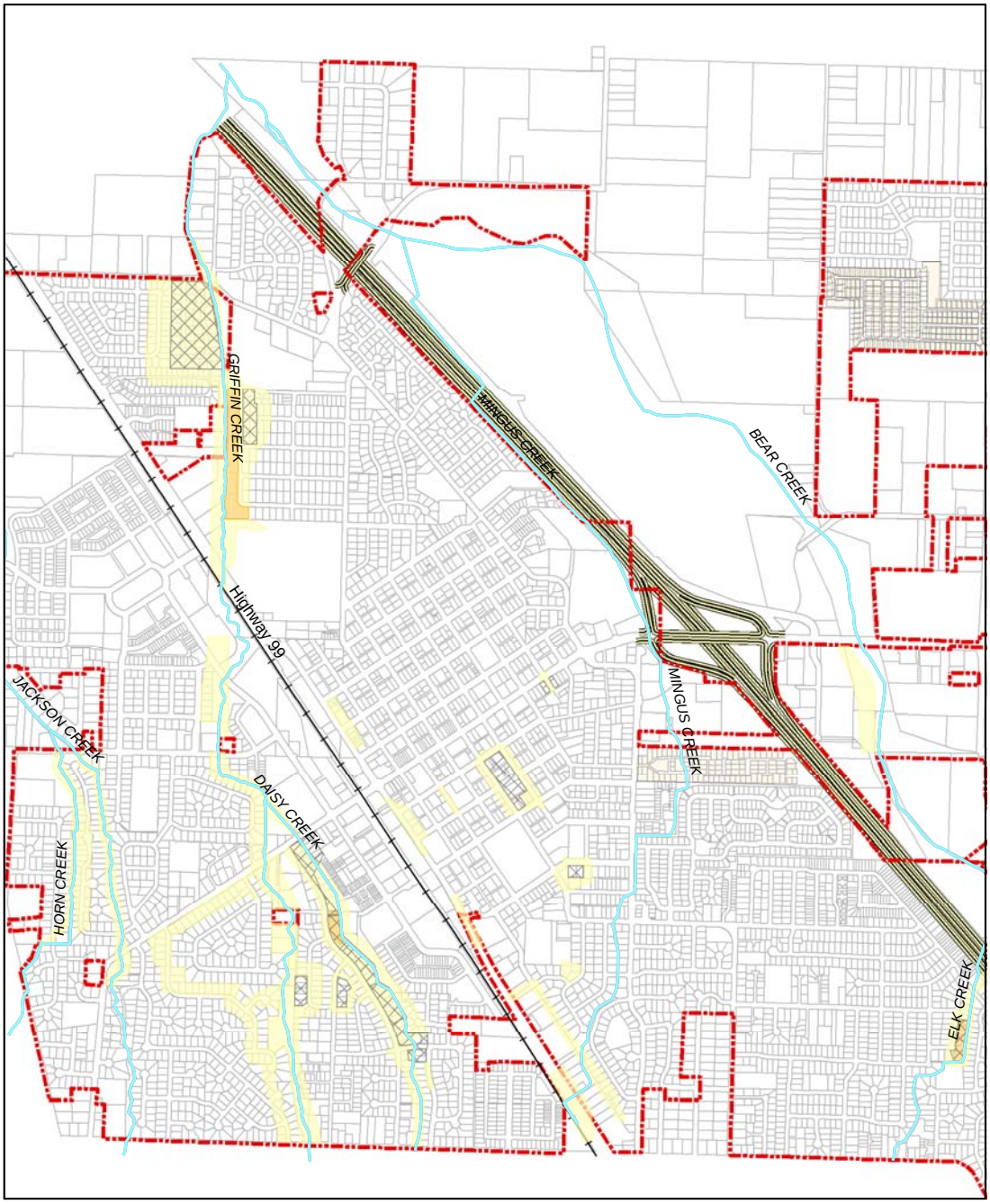
Photo 6.1:
Comet Way during the New Year's Day Flood

The 1996/1997 New Year's Day Flood is the most recent significant overbank flood of record. During this event, urban areas along Griffin, Daisy, and Jackson Creeks experienced shallow flooding that inundated streets and residences. Of these streams, Griffin Creek caused the greatest problems throughout the city. The Crater High School football field and track were flooded and downstream properties along Comet Way and Nancy Avenue were heavily impacted by high water and mud. Along Daisy Creek, homes and several of the surrounding streets, including Timothy Street and Glenn Way were also threatened by rising waters. During this flood event, 29,000 sandbags were distributed; over 15 residences were evacuated; and over $310K in damages were incurred within the City limits. Figure 6.2 provides a general overview of the areas impacted during the New Years Day Flood.

Urban Flooding in the form of ponding and stormwater drainage problems occurs nearly every year to some degree, depending on annual weather conditions. Severe rain storms that occurred on May 31st and June 12th of 2009 caused localized flooding in several areas throughout the city inundating streets and damaging property. Photo 6.3 was taken at the intersection of Freeman and East Pine Street and shows extensive street flooding that impacted travelers and was close to inundating nearby commercial development. By far, the area hardest hit

Figure 6.1

Flood History Map
1996/1997 New Year's Day Flood



Legend

- streams
- known_sandbag_areas
- evacuated_homes
- 1997 flooded_areas

Source Information:

Information provided on this map is based on City staff's observation of flood hazard impacts throughout the community during the New Year's Day flood event.

N

by the 2009 spring floods was the residential neighborhood located at the intersection of 5th and Victoria Street. The street and several residences at this intersection were inundated with high water that resulted from stormwater drainage problems causing nearly $25,000 in damages to structures, landscapes, and vehicles. Later investigation revealed a broken pipe combined with insufficient conveyance capacity caused the severe flooding experienced at this location. Although less severe, a similar storm impacted Central Point in August of 2010 and high water impacted most of the same areas as the 2009 storm. Since the last flood, the Public Works Department has completed a storm drain construction project that provides additional capacity and connectivity to prevent future occurrences of major flooding in this area.

6.3 Flood Hazards and Flood Risk: Within Mapped Floodplains

6.3.1 FEMA Floodplain Mapping

The FEMA Flood Insurance Rate Maps (FIRMs) map the regulatory (100-year) floodplain areas, which are also referred to as the Special Flood Hazard Area (SFHA). The maps for Central Point were recently updated to include new flood hazard information based on a flood study conducted by FEMA in partnership with the City of Central Point. The changes to the FIRM became effective May 3, 2011 and significantly alter our understanding of flood hazards and risk in the community.

The FEMA floodplain maps for Central Point include the following flood risk zones:

1. **Zone AE**: Areas with a 1% annual chance of flooding with detailed flood hazard data, including base flood elevations.

2. **Zone AO**: Areas with a 1% annual chance of shallow flooding, with flood depths from 1 to 3 feet (usually sheet flow on sloping terrain), including average base flood depths to the nearest whole foot only.

3. **Zone X (Shaded)**: Areas of 0.2% annual chance flood, areas of 1% annual chance flood with average depths of less than 1 foot, or with drainage areas of less than 1 square mile and areas protected by levees from the 1% annual chance flood. No base flood elevations or base flood depths are shown within this zone.

4. **Zone X (Unshaded)**: Areas determined to be outside of the 0.2% annual chance flood. No base flood elevations or base flood depths are shown within this zone.

The FEMA terms used in the above floodplain definitions are defined below.

> The 1% annual flood means that each year there is a 1% chance of flood waters reaching this height or higher. This level of flood is often referred to as the 100-year flood. Over a 30 year period, this flood has about a 26% chance of occurring at any given location.
>
> The 0.2% annual flood means that each year there is a 0.2% chance of flood water reaching this height or higher. This level of flood is also commonly referred to as the 500 year flood event. Over a 30 year time period, this flood has nearly a 6% chance of occurring at any given location.
>
> The base flood elevation means the elevation above sea level of the 1% annual chance flood (100-year flood).
>
> The base flood depth means the water depth above ground surface of the 1% annual chance flood (100-year flood).

The FEMA Flood Insurance Study and Flood Insurance Rate Maps include a large number of terms of art and acronyms. A good summary of the terms used in flood hazard mapping is available on the FEMA website at:

http://www.fema.gov/pdf/floodplain/nfip_sg_appendix_d.pdf

6.3.2 FEMA-Mapped Floodplains in Central Point

There are large areas of Central Point within the 2011 FEMA-mapped floodplains. Much of flood risk in Central Point is from Griffin Creek, including its tributary Daisy Creek and the overflow channel which flows from Griffin Creek to Jackson Creek through the Twin Creeks Transit Oriented Development (TOD). There are numerous developed parcels within these floodplains, including a significant number within the floodway.

There are also a few developed parcels in the Jackson Creek floodplain, including its tributary Horn Creek, as well as within the Elk Creek floodplain. The Bear Creek floodplain, which is east of Interstate 5, covers a substantial area. However, there is very little development in this area.

Areas outside of the FEMA mapped floodplains do not necessarily have zero flood risk. These areas in Central Point may be subject to flooding in events larger that exceed the 500-year event and/or from urban flooding associated with stormwater drainage problems or conditions of the landscape that cause water to pond until it is able to be absorbed back into the soil.

The 2011 FEMA mapped floodplains in Central Point are shown as Figures 6.2 to 6.5 on the following pages. Note: the city limits are delineated in red.

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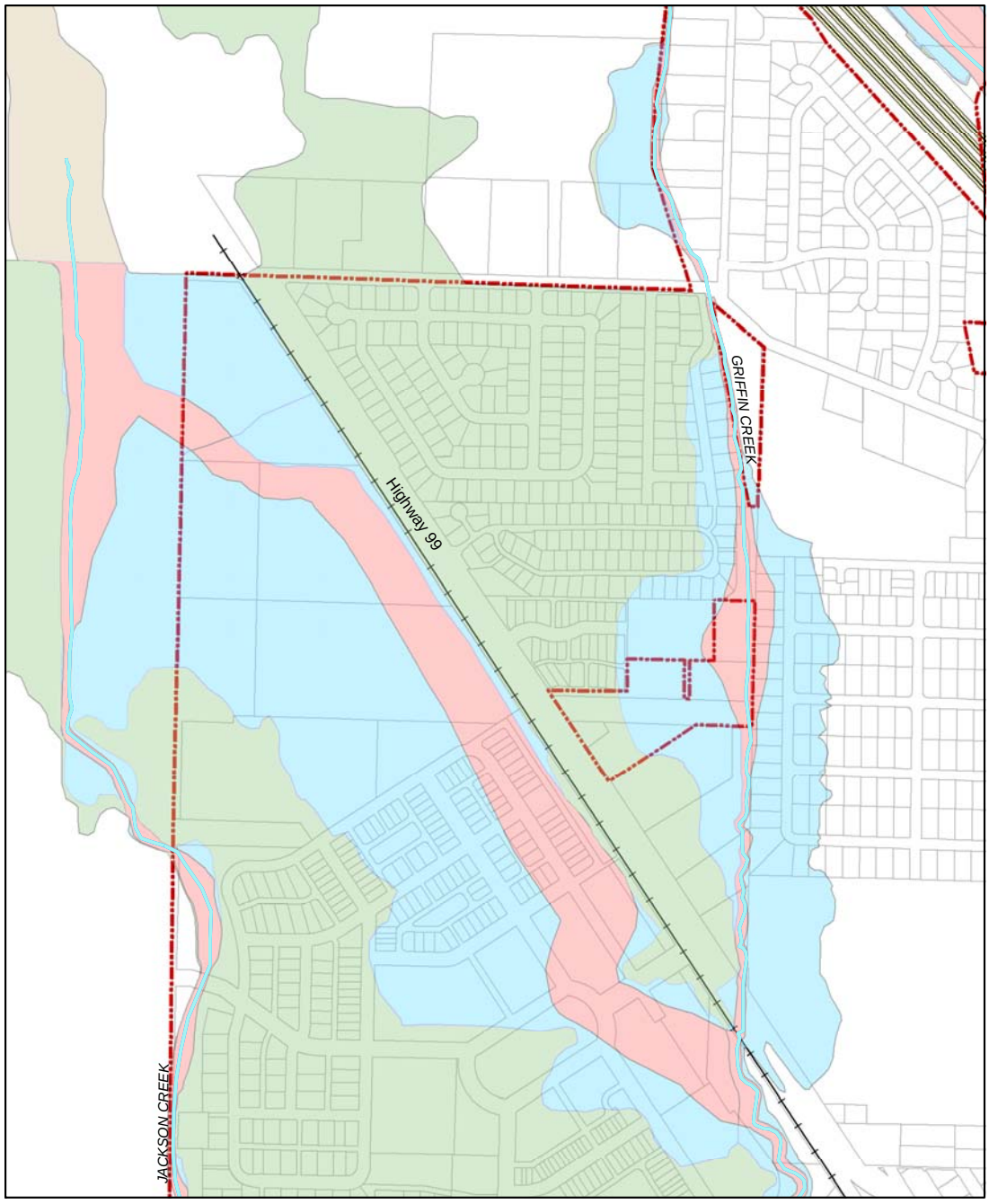
Figure 6.2

FEMA-Mapped Floodplains: Griffin and Jackson Creeks, Northwest Portion



Legend

- streams

FEMA FIRM

FLD_ZONE

- A
- AE
- AO
- FLOODWAY
- X
- X-SHADED

Source Information:

FEMA Flood Insurance Rate Map (FIRM)
Jackson County, Oregon and Incorporated Areas
Map and Panel No.: 41029C 1768F, 1769F, 1956F, 1957F
Community No.: 410092
Effective Date: May 3, 2011

N

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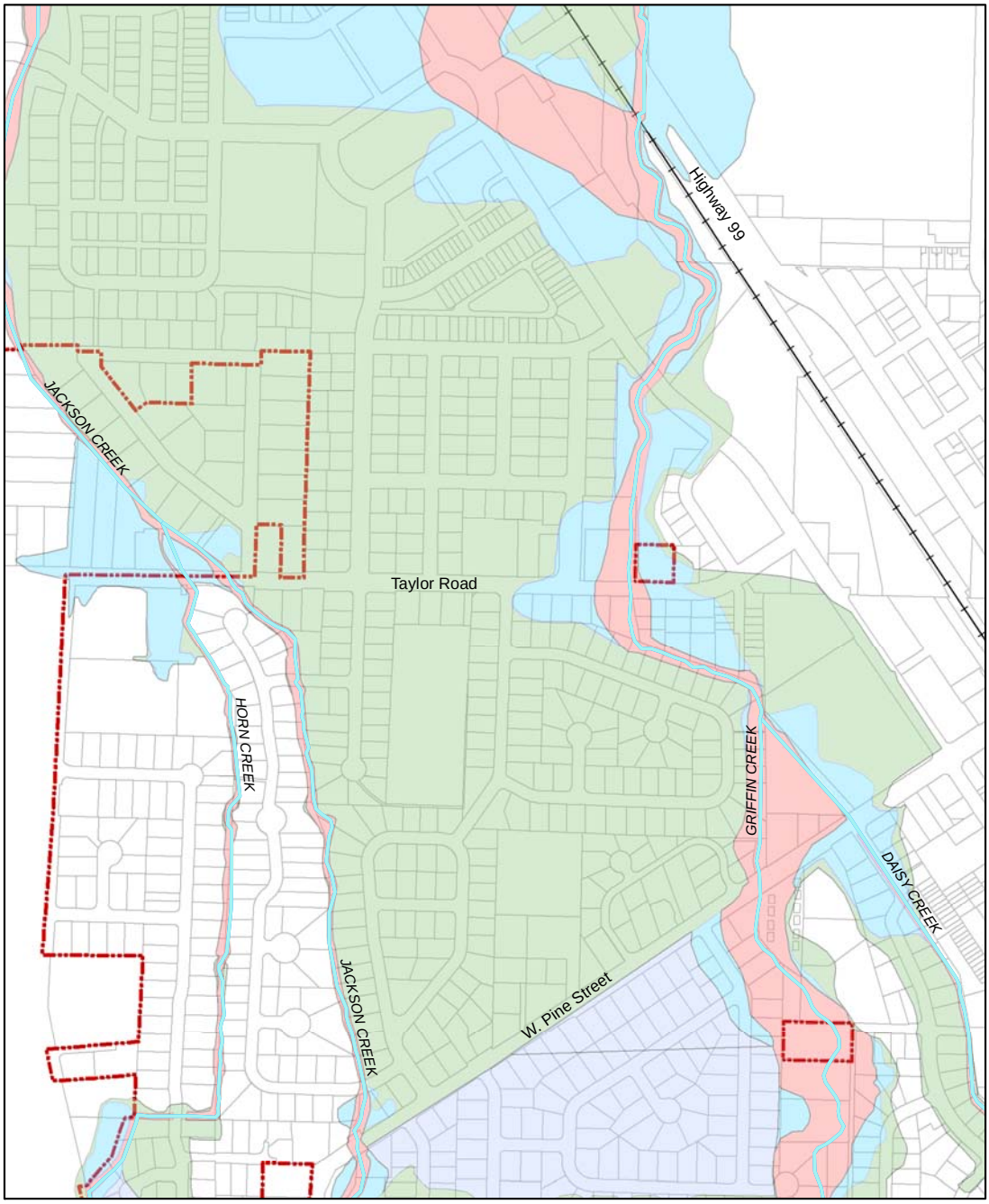
Figure 6.3

FEMA-Mapped Floodplains: Griffin & Jackson Creeks, Central Portion



Legend

- streams

FEMA FIRM

FLD_ZONE

- A
- AE
- AO
- FLOODWAY
- X
- X-SHADED

Source Information:

FEMA Flood Insurance Rate Map (FIRM)
Jackson County, Oregon and Incorporated Areas
Map and Panel No.: 41029C 1768F, 1769F, 1956F, 1957F
Community No.: 410092
Effective Date: May 3, 2011

N

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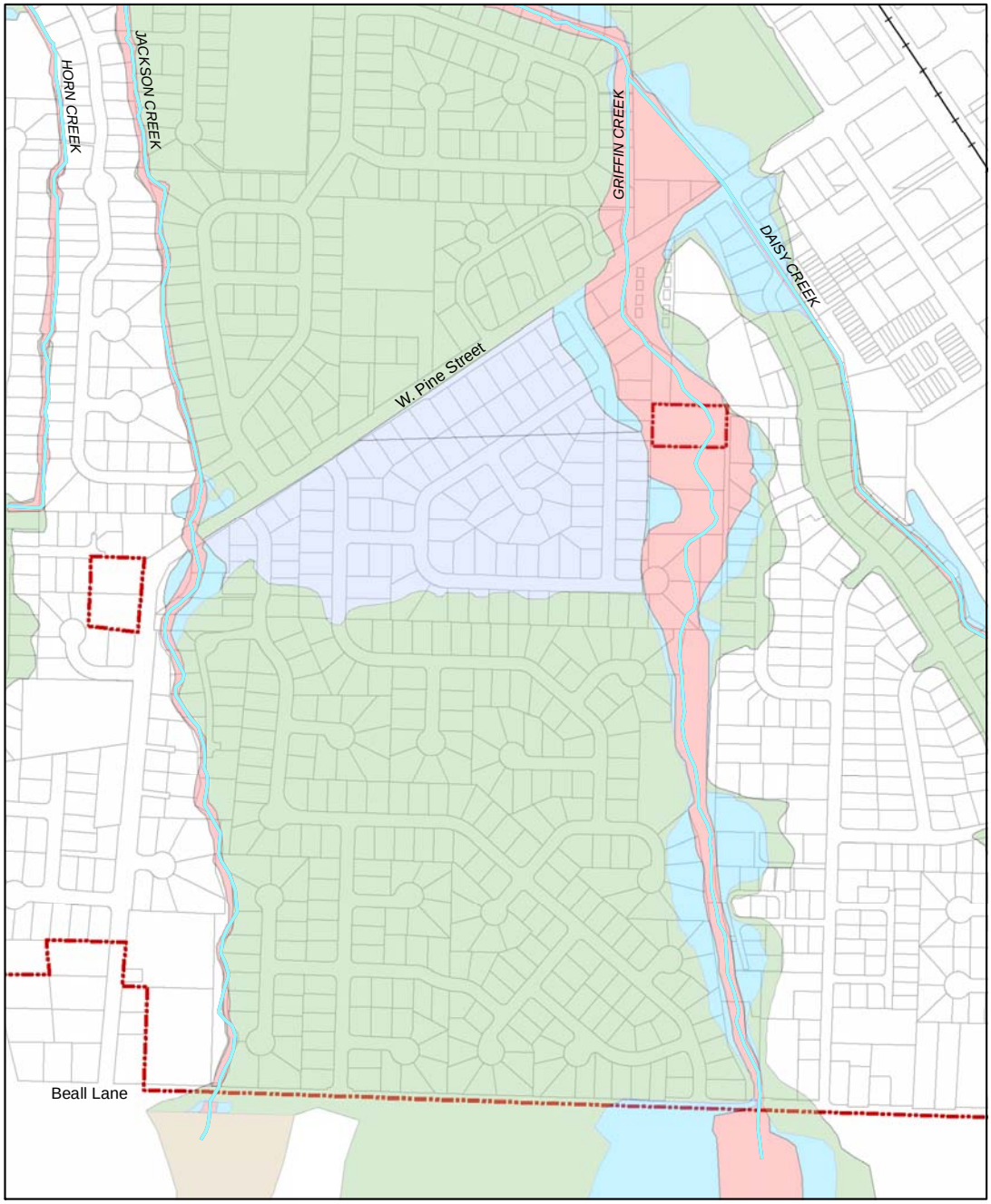
Figure 6.4

FEMA-Mapped Floodplains: Griffin & Jackson Creeks, Southwest Portion



Legend

- streams

FEMA FIRM

FLD_ZONE

- A
- AE
- AO
- FLOODWAY
- X
- X-SHADED

Source Information:

FEMA Flood Insurance Rate Map (FIRM)
Jackson County, Oregon and Incorporated Areas
Map and Panel No.: 41029C 1768F, 1769F, 1956F, 1957F
Community No.: 410092
Effective Date: May 3, 2011

N

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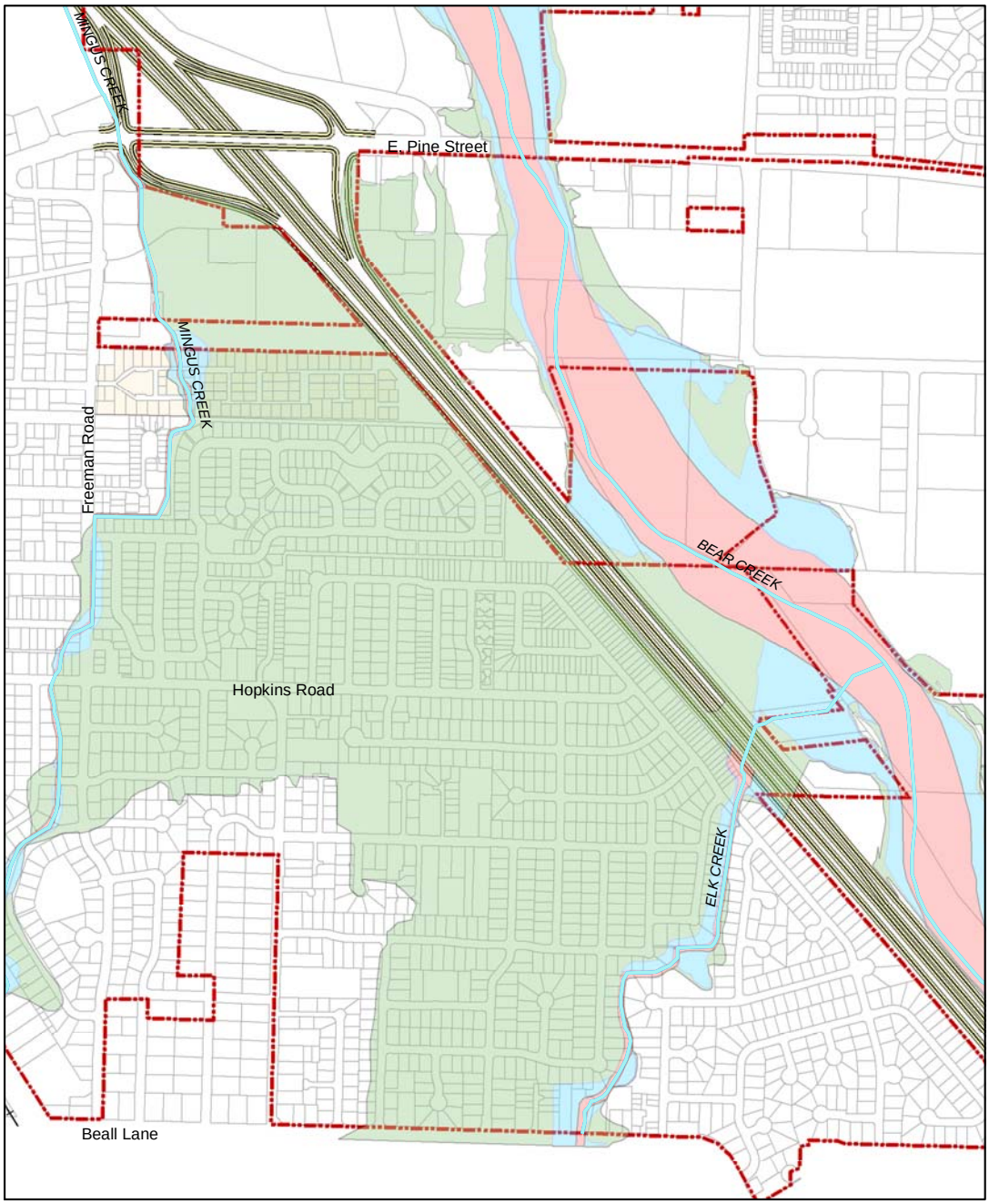
Figure 6.5

FEMA-Mapped Floodplains: Mingus, Elk, and Southeast Bear Creeks



Legend

- streams

FEMA FIRM

FLD_ZONE

- A
- AE
- AO
- FLOODWAY
- X
- X-SHADED

Source Information:

FEMA Flood Insurance Rate Map (FIRM)
Jackson County, Oregon and Incorporated Areas
Map and Panel No.: 41029C 1768F, 1769F, 1956F, 1957F
Community No.: 410092
Effective Date: May 3, 2011

N

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6.3.3 Flood Hazard Data

For mapped 100-year floodplain areas (AE Zones), the flood hazard data included in the Flood Insurance Study (FIS) allow quantitative calculation of the frequency and severity of flooding for structures within the floodplain. An example is given below

Table 6.2
Flood Hazard Data
Griffin Creek at W. Pine Street[1]

Flood Frequency (years)	Discharge (cubic feet per second)	Elevation (feet)
Stream Bottom	0	1265.10
10	1,790	1273.55
50	2,400	1274.55
100	2,640	1275.05
500	3,110	1275.50

[1] Downstream of W. Pine Street

The stream discharge data shown above Griffin Creek are from Table 4: Summary of Discharges on page 17 of the May 3, 2011 FEMA Flood Insurance Study for Jackson County and Incorporated Areas. Stream discharge means the volume of water flowing down the river and is typically measured in cubic feet of water per second (cfs).

The flood elevation data are from the Flood Profile Graph 97P in the Flood Insurance Study. Flood elevation data vary with location along the reach of the river and thus separate flood elevation data points must be read from the graph at each location along the river. The data shown above are for Cross Section AC, just downstream (north) of W. Pine Street.

Quantitative flood hazard data such as shown above, are important for mitigation planning purposes because they allow determination of the frequency and severity (i.e., depth) of flooding for any building or other facility (e.g., road or water treatment plant) for which elevation data exist. Such quantitative flood hazard data also facilitate detailed economic analysis (benefit-cost analysis) of mitigation projects to reduce the level of flood risk for a particular building or other facility.

For a given location, the level of flood risk varies dramatically with the first floor elevation of each building or other facility. For example, in the area along Griffin Creek downstream of W. Pine Street:

- A building with a first floor elevation of less than 1,273 feet would be expected to experience flooding above the first floor more frequently than every 10 years on average (i.e. 10% annual chance),

- However, a nearby building with a first floor elevation above 1,275 feet would be expected to experience flooding above the first floor less than once every 100 years on average (i.e. 1% annual chance).

6.3.4 Caveats for the Central Point Flood Insurance Study

The Flood Insurance Study (FIS) for Central Point and vicinity is current as of 2011. Over time, flood hazards may change because of increasing development upstream, changes in stream channels, improvements (or degradation) of flood protection measures over time and so on. Simply because an FIS is old, does not necessarily mean that a FIS is outdated or inaccurate. However, the older a study is, the more likely it is that channel or watershed conditions have changed.

Another caveat is that flood studies are inevitably less than perfect, due to incomplete data and modeling uncertainties. Thus, in some cases, mapped floodplain boundaries may underestimate or overestimate the actual level of flood risk at a given location.

6.3.5 Interpreting Flood Hazard Data for Mapped Floodplains

The frequency and severity of flooding (level of flood hazard) is not determined simply by whether the footprint of a given structure is or is not within the 100-year floodplain. A common error is to assume that structures within the 100-year floodplain are at risk of flooding while structures outside of the 100-year floodplain are not. This simplistic view is simply not true. Some important guidance for interpreting flood hazards is given below.

A. Being in the 100-year floodplain does not mean that floods happen once every 100 years. Rather, a 100-year flood means that the probability of a flood to the 100-year level or greater has a 1% chance of happening every year.

B. Within or near the 100-year floodplain, the key determinant of flood hazard level for a building or other facility is the relationship between the elevation of the structure or facility in relation to the flood elevations for various flood events. For example, homes with first floor elevations below or near the 10-year flood elevation have drastically higher levels of flood hazard than other homes with first floor elevations near the 50-year or 100-year flood elevations or at higher elevations.

C. Flooding may occur outside of the mapped 100-year floodplain, for several reasons:

a. First, the 100-year flood is by no means the worst possible flood. Floods greater than the 100-year event will flood many areas outside of the mapped 100-year floodplain.
b. Second, areas protected by levees may flood if the levees fail.
c. Third, many flood prone areas flood because of local storm water drainage conditions (see Section 6.5 below). Such flood prone areas have nothing to do with the 100-year floodplain boundaries.
d. Fourth, areas of the city along Bear Creek are subject to inundation from failure of the Emigrant Dam (see Section 6.5 below).

6.4 Dam Failures

Emigrant Dam is located about 24 miles upstream of Central Point on Bear Creek and poses an additional flood risk to the city in the event of dam failure.

Emigrant Dam was constructed and continues to be used for irrigation purposes. It was built in 1924 and experienced upgrades that expanded its storage capacity in 1958 to 1961. It is owned by the Bureau of Reclamation and operated by the Talent Irrigation District.

The dam is composed of a 104-foot high thin-arch concrete structure encased by a 204-foot high earth fill structure. The reservoir has a total capacity of 40,500 acre feet (active 39,500 acre-feet) and includes an ungated overflow spillway.

According to the Bureau of Reclamation, Emigrant Dam has a low risk of failure that is on the order of magnitude of 1 in 10,000 years. The risk of failure during a Cascadia subduction zone earthquake or earthquakes on faults nearer to Central Point (see Chapter 7) is largely unknown. The Bureau is currently working on research to better quantify this risk. See Chapter 7.0 for more detailed information about earthquake hazards in Central Point.

In the event of dam failure, the Bureau of Reclamation has developed the Emigrant Dam Inundation Map information presented in Figure 6.6. This is considered a worst-case scenario and encompasses a significant portion of the community that parallels Bear Creek, including residential, commercial, civic, and open space land uses. Interstate 5 is expected to be completely inundated through the valley; therefore, the region's most heavily used transportation route will be inaccessible to local and regional traffic, as well as interstate travelers and freight.

6.5 Flood Hazards and Flood Risk: Outside of Mapped Floodplains

The previous sections of this chapter apply primarily to the areas of Central Point that are within the FEMA-mapped floodplains and/or within areas of potential flooding due to dam failures. In addition, Central Point may be at relatively high risk from local stormwater drainage problem areas.

Many areas of the United States outside of mapped floodplains are subject to repetitive, damaging floods from local stormwater drainage. Nationwide, more than 25% of flood damage occurs outside of FEMA-mapped floodplains.

In most cities, stormwater drainage systems are designed to handle only small to moderate size rainfall events. Stormwater systems are sometimes designed to handle only 2-year or 5-year flood events, and are rarely designed to handle rainfall events greater than 10-year or 15-year events.

For local rainfall events that exceed the collection and conveyance capacities of the stormwater drainage system, some level of flooding inevitably occurs. In many cases, local storm water drainage systems are designed to allow minor street flooding to carry off stormwater that exceeds the capacity of the stormwater drainage system. In larger rainfall events, flooding may extend beyond streets to include yards. In major rainfall events, local stormwater drainage flooding can also flood buildings. In extreme cases, local stormwater drainage flooding can sometimes result in several feet of water in buildings, with correspondingly high damage levels.

For Central Point, stormwater drainage problems have been generally minor, with a few locations known to have significant flooding problems. These locations include the 5th and Victoria Street intersection in the northeast portion of town, as well as the intersections of Freeman Road and East Pine Street; Oak and 2nd Street; and, Oak and 4th Street.

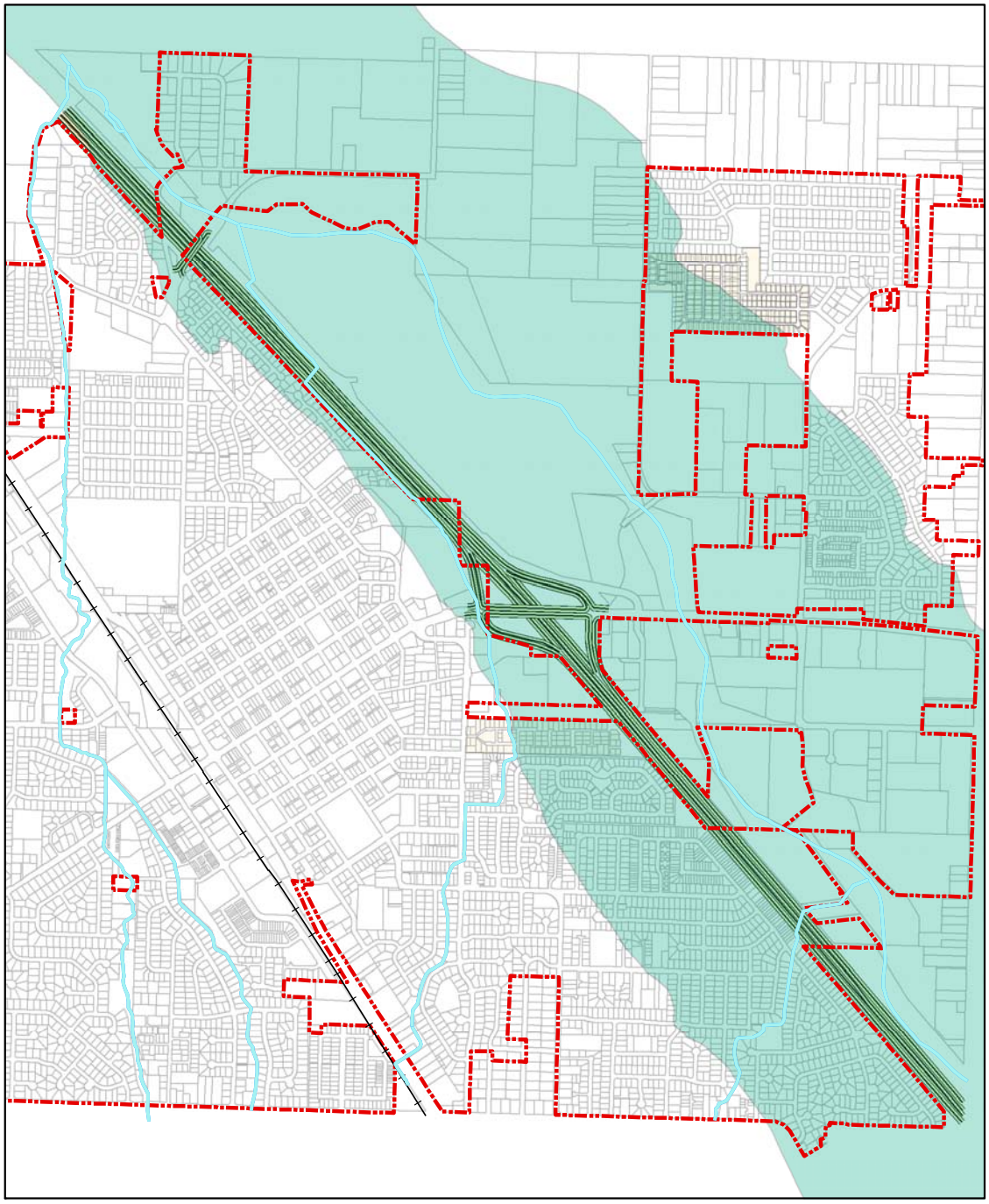
The area at the 5th and Victoria Street intersection has experienced the most severe flood damages. This area is characterized by a topographical depression in the landscape that, prior to the spring of 2011, had insufficient storm drainage infrastructure to convey water during heavy rain events, as seen in the spring of 2009 and summer of 2010. Construction of storm drainage facilities to improve conveyance capacity and efficiency were designed specifically to alleviate the flood problems experienced over the past couple of years. See Section 6.2 for information about historical flood events in Central Point.

Locations on Oak Street intersections are areas characterized by old storm drainage infrastructure. Inlets clog easily with debris and topographical characteristics may also contribute to standing water during moderate to heavy rain events.

Jewett Elementary School near the 10th Street, Freeman Road and Pine Street intersection was inundated by floodwater during the spring floods of 2009. A large

Figure 6.6

Emigrant Dam Inundation Zone



Emigrant Inundation Impacts Summary

Comprehensive Plan Land Use Designation	No. Structures	Acreage
Residential	2018	382.3
Commercial	981	115.7
Mixed Use	0	0
Civic/Open Space	1	31.8
Industrial	17	36.6

land area

N

Legend

streams

emigrant_lake_dam_inundation

I_5 Freeway

from Pine Street south drains into Mingus Creek on the Jewett School property. In addition, overgrown blackberries in the vicinity combined with the presence of a new sediment and debris separator appear to contribute to the high water problems during heavy rain storms at Jewett and the Freeman and Pine Street intersection. The Public Works Department will have a better idea of the causes and solutions to the problem following completion of a Stormwater Master Plan that is slated to begin in 2012 – 2013.

6.6 Inventory Exposed to Flood Hazards in Central Point

6.6.1 Flood Prone Land & Building Inventory

Much of the land and building inventory in Central Point is mapped in a flood-prone area by FEMA on the revised FIRM. An overview of the land area and existing buildings in the mapped floodplains are provided in this section.

Land Inventory

The number of parcels within the FEMA-mapped floodplains for each of the creeks affecting Central Point are shown in Table 7.3 below.

Table 6.3
Numbers of Parcels within FEMA-Mapped Floodplains in Central Point

Creek	Number of Parcels			
	Floodway	Zone AE	Zone AO	Zone X-shaded
Griffin Creek[1]	186	329	91	807
Daisy Creek	57	45	0	95
Jackson Creek	104	26	0	287
Horn Creek	59	13	6	47
Mingus Creek	59	48	0	577
Elk Creek	53	64	0	607
Bear Creek	31	17	0	43
TOTAL	549	542	97	2463

[1] Including overflow channel to Jackson Creek

Nearly sixty percent of the parcels in Central Point are located in one of the flood zones provided in Table 6.3, which means that most of the community is located in a flood-prone area with at least 0.2 percent chance or greater of experiencing a flood in any given year. Based on an analysis of flood hazard, land use data available, most of the land area located in the flood-prone lands are zoned for residential use; however, the community's Flood Damage Prevention regulations (discussed in Section 6.6.2) include provisions that require preservation of open space to minimize exposure of new site improvements and subdivisions from the high risk flood hazards (i.e. 100-year or 1% annual chance flood waters and associated hazards, such as debris impact).

It is important to note that calculations to support the flood prone land inventory and the building inventory are based on the most current Jackson County tax lot and buildings layer for areas located inside the Central Point city limits. Areas within the Urban Growth Boundary were not included, nor were the islands of County jurisdiction that are interspersed through the City.

Building Inventory

The building inventory within the Central Point flood-prone lands includes a large stock of residential structures, as well as a handful of non-residential structures, such as schools, churches, small accessory buildings and detached garages and shops. In total, there are an estimated 267 multi-family units located in the regulatory floodplain. A large number of these multi-family facilities are for low income and retirement populations.

Table 6.4
Number of Existing Buildings within FEMA Mapped Regulatory Floodplains in Central Point

Creek	Number of Buildings			
	Floodway	Zone AE	Zone AO	Zone X-Shaded
Griffin Creek[1]	65	161	132	956
Daisy Creek	1	16	0	125
Jackson Creek	9	5	0	352
Horn Creek	0	1	6	58
Mingus Creek	5	38	0	796
Elk Creek	1	36	0	672
Bear Creek	2	7	0	43
TOTAL	83	264	138	3002

[1] Including overflow channel to Jackson Creek

Mae Richardson Elementary, located at the confluence of Daisy and Griffin Creeks, as well as Crater High School, further downstream on Griffin Creek, are the schools impacted by the FEMA mapped flood hazards. Jewett Elementary School, which is located near Mingus Creek and Interstate 5, has also experienced flooding; however, there is no FEMA mapped floodplain that predicts the level of risk to this facility. Central Point staff has observed flooding to occur here as a result of storm drainage problems, which may include and insufficient outlet and minimal stream capacity to accommodate larger flows.

Other critical facilities located in the special flood hazard area include the Oregon State Police vehicle compound on Griffin Creek, the Pacific Power substation that serves Central Point residents, and an Avista Natural Gas regional facility near the confluence of Horn and Jackson Creeks, including transmission lines throughout the community.

6.6.2 National Flood Insurance Compliance

FEMA's National Flood Insurance Program (NFIP) maintains nationwide databases of flood insurance policies and repetitive loss properties.

Insurance Summary

NFIP information, current as of May 31, 2011, shows the following policy information for Central Point:

- Number of polices: 317
- Insurance in force: $62,204,900
- NFIP claims paid: 27
- Total claims amount: $132,350
- Number of repetitive loss buildings: 0

NFIP insured properties are often given high priority for flood mitigation actions, such as elevation or acquisitions. These types of mitigation projects are always voluntary and at the discretion of the owner.

Overall, 485 structures were identified as being exposed to flood risks within the 100-year floodplain, and an additional 3,002 were found to be located within the 500-year floodplain.

Staff Resources

- Central Point has Floodplain/Stormwater Coordinator who performs the day to day floodplain management functions and is a Certified Floodplain Manager.
- The Floodplain Coordinator reviews all permits for development within the regulatory floodplain (100-year floodplain); ensures that information about floodplain management on the City's website; provides flood map information and assistance to the public upon request; oversees outreach and education efforts; coordinates with city staff, including the GIS Specialist, to keep maps up-to-date and promote flood risk awareness within the organization; provides assistance to real estate, insurance, and banking professionals with regard to floodplain development, insurance, and mapping information, etc.
- Barriers to effective floodplain management include:
    - None at this time.

Compliance History

- Central Point is in good standing with the NFIP.
- Current violations: 2

- Last Community Assistance Visit:
- A follow up Community Assistance Visit has been requested.

Regulation

- Central Point entered the NFIP on September 30, 1980. The Community Number is 410092.
- The effective date of the first Flood Hazard Boundary Map was June 6, 1974.
- The effective date of the first FIS and FIRM was September 30, 1980. The current effective FIRM took effect on May 3, 2011 and includes new flood zone boundaries, including floodway, and base flood elevations. FIRMs are available in both paper and digital formats.
- Central Point's floodplain ordinance is Central Point Municipal Code 8.24, Flood Damage Prevention, which was revised on April 24, 2011. These regulations exceeds NFIP standards in several areas, including but not limited to the following provisions:
    - Structures must have at least one foot of freeboard;
    - Substantial improvements and damages are counted cumulatively over a ten year period;
    - Accessory structures and fences are prohibited in the regulatory floodway;
    - There is a 25-foot Special Stream Setback that applies to the top-of-bank or the regulatory floodway boundary, whichever is greater;
    - Site improvements and subdivisions must ensure adequate building area outside the regulatory floodway and the Special Stream Setback, which must be preserved as open space by easement;
    - Site improvements and subdivision proposals are prohibited in the Special Flood Hazard Area (SFHA) unless the applicant can demonstrate no adverse impacts to existing or anticipated future development;
    - Critical facilities are prohibited from the SFHA unless there is no other feasible site placement alternative available and the facility is protected above the 500-year flood level;
    - Drainage requirement encourages on-site treatment with low impact development practices, such as rain gardens, to infiltrate runoff and reduce discharge into local streams. When on-site treatment is not provided, site runoff must drain to an approved storm drain facility in accordance with Building and Public Works standards.
- The permitting process requires a Floodplain Development Permit, which is subject to Type I, II, or III processing and decision making procedures set

forth under the land use code. The permit evaluates the project proposal's consistency with the Flood Damage Prevention requirements set forth in Chapter 8.24 of the Municipal Code.

Community Rating System (CRS)

- Central Point has participated in the CRS since 1992.
- The City's CRS class rating is 7.
- Central Point's Hazard Mitigation Plan includes CRS planning elements to achieve additional CRS rating points.

6.7.3 NFIP Continued Compliance Actions

Staff Resources

- Floodplain Coordinator to continue annual training to maintain Certified Floodplain Manager status, at a minimum.
- Establish a Floodplain Management Team to build local understanding of and capability to effectively manage floodplains and provide superior service to floodplain residents before, during, and after flood events.
    - Regular meetings of team members (quarterly or better depending on development activity);
        - Provide in-house training
        - Discuss current applications and procedures
        - Enhance inter-department communication regarding floodplain management and development issues
    - Promote Certified Floodplain Manager acquisition by team members

Compliance

- There are two general violations of the Flood Damage Prevention regulations that are known in the City. Provided below is a summary of the known violations:

    - A single family residence constructed in the early 1980's has a residential basement. This violation was recently discovered in the fall of 2010 when the owner approached the City about extremely high insurance rates quoted when Preferred Risk coverage was denied. (Note: When the current owner purchased the property in 2007, the City notified him that the property was located in the SFHA and that insurance would be required; however, the lender failed to require insurance and the owner obtained a Preferred Risk Policy at that time. He did not maintain continuous coverage, which resulted in failure to renew at the Preferred Risk rate). The City has been attempting to work with the property owner to reduce the flood insurance rate through effective mitigation measures that would also attain NFIP and local floodplain development compliance. Resolution of this violation is in progress.

- Manufactured park on Griffin Creek has several dwellings that are not equipped with sufficient flood openings in the foundation wall. In most cases the Certificate of Occupancy was withheld and the Elevation Certificate completed at the time of each unit's placement was not approved. Unfortunately, the Elevation Certificate form at the time did not provided sufficient data to assist the new dwelling owners with compliance assistance. To remedy this shortfall, the City hired a Professional Land Surveyor to prepare new Elevation Certificates, which will facilitate development of a complete compliance assistance action plan for the affected dwellings. Resolution of this violation is in progress.

- The Floodplain Coordinator maintains regular contact with the Regional FEMA office and State NFIP Coordinator. A Community Assistance Visit will be requested to review the City's Floodplain Management Program in 2012.

Regulation

- Central Point adopted the revised FIRM for Jackson County and Incorporated Areas by Ordinance No. 1947, which amended Chapter 8.24 of the Central Point Municipal Code on April 24, 2011.

Flood Risk Maps

- Since the flood risk maps for the community were recently updated, the City's priority has shifted to implementing regulations and providing map and flood risk reduction assistance, as needed.
- Future mapping efforts will be coordinated with the new Risk Map program, which will coordinate mapping on a watershed-wide basis. This effort is largely dependent on FEMA funding.

Community Outreach Activities

- Continued yearly activities include:
  - Mail flood information to all properties in the community;
  - Mail flood information to floodplain residents;
  - Mail flood insurance information to all community properties that provide specific content based on flood risk;
  - Newsletter articles every other month;
  - Natural Resources Bulletin articles about floodplain-related activities and information, twice a year;
  - Presentations to homeowners associations and professional groups (i.e. insurance, real estate, etc) upon request (at least two per year);

- Brochures available at City Hall and Public Works Headquarters**,** and
- Central Point's Floodplain Management web pages updated to provide information on a variety of flood-related topics, including floodplain development and helpful resources such as a the FEMA/DHS website.

Community Rating System (CRS)

- Central Point will continue to participate in the CRS and wishes to improve its class ranking of 7.
- Planned activities to gain CRS points include:
  - Complete the Central Point Hazard Mitigation Plan;
  - Incorporate identified mitigation measures into the Central Point Capital Improvements Plan for stormwater management.
  - Complete a stormwater master plan that links stormwater drainage problem areas with mitigation planning. The current plan is outdated and contains modeling that does not reflect community conditions;
  - Establish a Benchmark Master Plan that outlines standards for setting and maintaining benchmarks in the City limits;
  - Implement low impact development requirements in the community to increase on-site infiltration as opposed to runoff conveyance to the nearest stream where feasible. Studies show that infiltration can significantly reduce flood impacts;
  - Complete an Outreach Strategy to develop a more effective means of communicating flood risk information with the community.
  - Explore development of a Flood Warning Program for the City of Central Point streams to predict when an overbank flood event is likely to occur and establish a plan for communicating flood warnings to the public.

6.7.4 Flood Damage Estimates – Limitations and Approaches

The flood damage estimates in this section are rough estimates to determine the approximate magnitude of potential flood losses for 100-year and 500-year flood events in Central Point.

As summarized in Table 6.4, there are 485 buildings in the FEMA-mapped 100-year floodplain and 3,002 buildings in the 500-year floodplain. To estimate losses, we assume the following typical parameters:

- 50% of buildings have flooding to the first floor elevation
- Average building size: 2,000 square feet, 1-story without basement

- Average building replacement value/sf: $125.00
- Building damage: 13.4% of building value, per FEMA standard depth-damage function
- Contents damage: 8.1% of building value, per FEMA standard depth-damage function

Table 6.5
Flood Damage Estimates

Flood Event	Buildings Flooded	Replacement Value	Buildilng Damage	Contents Damage	Total Damage
100-year	242	$60,500,000	$8,107,000	$4,900,500	$13,007,500
500-year	1501	$375,250,000	$50,283,500	$30,395,250	$80,678,750

The above damage estimates include only building and contents damages. Including other damages (vehicles, outbuildings, landscaping, debris removal), the costs of displacement to temporary quarters, the economic value of people's lost time and damages to transportation and utility infrastructure, the total damages would likely be about 50% higher than shown in Table 6.5. Thus, total damages and losses for 100-year and 500-year flood events are estimated to be about $20 million and about $120 million, respectively.

6.8 Flood Mitigation Projects

Potential mitigation projects to reduce the potential for future flood losses cover a wide range of possibilities. Viable flood mitigation measures to reduce flood risk in Central Point include:

- Channel improvements to increase conveyance capacity and lower flood levels,
- Elevation or acquisition of highly flood-prone structures, and
- Stormwater drainage system improvements prescribed in an updated stormwater master plan.

As discussed previously and documented in Figures 6.2 to 6.5, Griffin Creek poses the greatest flood threat to Central Point because of the large numbers of structures within the mapped floodplain, including many in the floodway.
The City of Central Point has completed a detailed hydrologic and hydraulic analysis of Griffin Creek and developed a detailed mitigation strategy to greatly reduce the level of flood risk from Griffin Creek. Implementation of the Griffin Creek mitigation project is thus the City's highest flood mitigation priority and also the highest mitigation priority overall, considering all of the natural hazards which pose risk to Central Point.

6.8.1 Synopsis of the Griffin Creek Flood Mitigation Project

The Griffin Creek Flood Mitigation Project aims primarily to alleviate floodway and stream bank erosion impacts to existing development, including critical infrastructure, and secondarily to minimize the high risk flood hazards shown on the revised FEMA Flood Insurance Rate Map released on May 3, 2011.

Of all Central Point streams, Griffin Creek poses the greatest risk to the community. The floodway alone impacts 186 parcels and 65 structures; the floodplain impacts 416 parcels and 293 structures. In addition, the Pacific Power Substation is located in an area that is showing signs of increasing meander and streambank erosion. It is with these concerns about floodway impacts, specifically on existing development, and streambank erosion impacts of critical infrastructure that the City hired Northwest Hydraulic Consultants, Inc. to evaluate the problem and identify potential mitigation alternatives. In addition to improving conveyance and addressing erosion concerns, the Griffin Creek Flood Mitigation Project was designed to enhance water resources.

The Griffin Creek Flood Mitigation strategy includes two projects: one on the lower reach that extends downstream of highway 99 to Scenic Avenue; and the upper reach that extends from the Pedestrian Bridge to Mae Richardson Elementary upstream to the north extent of Flanagan Park. Griffin Creek is channelized throughout the two reaches. The lower reach follows a relatively straight alignment, while the upper reach has a more winding planform. Features of each reach, including identified constrictions and bank erosion areas, are shown in Figure 6.7.

Mitigation projects identified for both reaches include channel modification and reconstruction. The upper reach project also includes removal of identified constrictions, as well as replacement of the West Pine Street box culvert with a freespan bridge.

Figure 6.7
Griffin Creek Mitigation Project Reach Features

Griffin Creek Lower Reach

Griffin Creek Upper Reach

Lower Reach

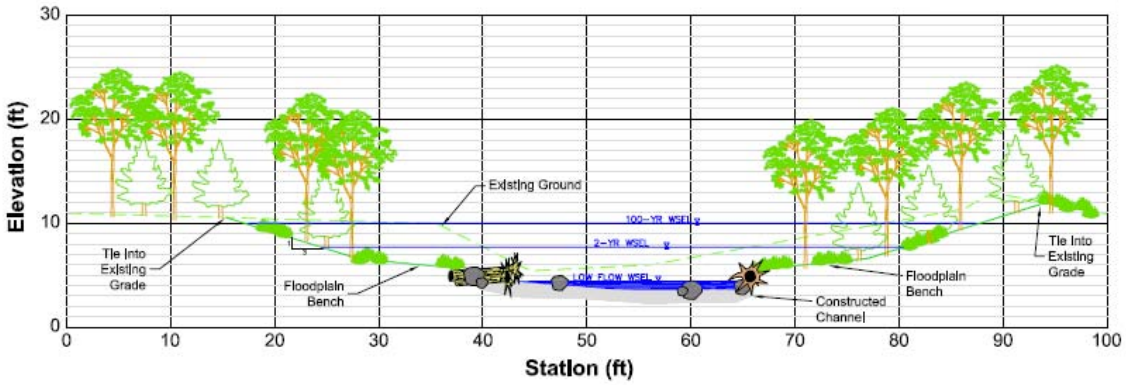
The lower reach mitigation project includes channel reconstruction along the entire reach. Significant lowering of the existing channel through re-grading and reduction in the hydraulic constriction caused by the existing undersized channel are expected to drop flood elevations 1 to 6 feet along the lower 1,000 feet of the reach.

This reduction in flood levels is reduces the footprint of the floodway and the 100-year floodplain so that all structures currently mapped as within the floodway or 100-year floodplain would no longer be in these flood hazard areas.

Stream improvement features would be included to add channel stability and habitat. Since Griffin Creek is listed as critical habitat for Southern Oregon Coho, these features are essential to this channel modification, reconstruction project.

Completion of this project would lessen erosion potential to the Pacific Power Substation. Figure 6.8 is a typical cross section for the Lower Reach project and Figure 6.10 illustrates the extent of the project and impacts to the floodway and floodplain.

Figure 6.8
Griffin Creek Mitigation: Lower Reach Typical Cross-Section



Upper Reach

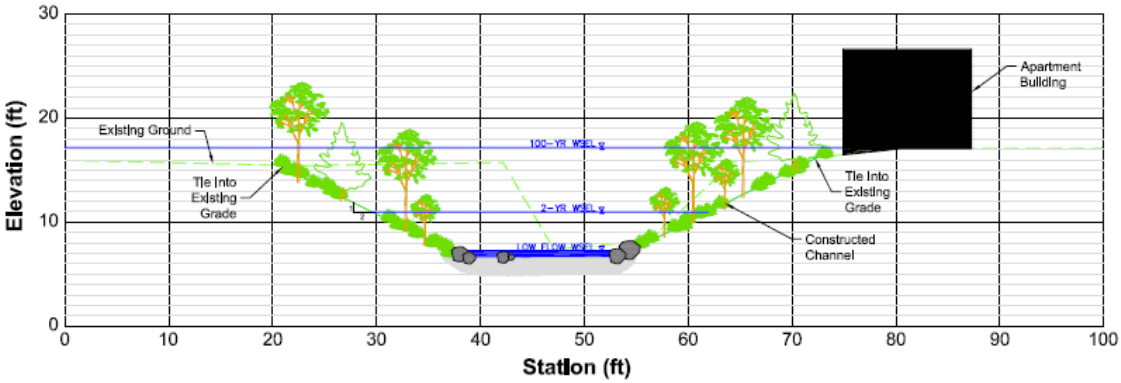
This project involves significant channel modification, replacement of the existing West Pine Street box culvert with a freespan bridge, and removal of the two private bridges upstream, as well as the grade control structure located just downstream of the Mae Richardson pedestrian bridge.

Stream improvement features would be included to add channel stability and habitat. Since Griffin Creek is listed as critical habitat for Southern Oregon Coho, this is essential to channel modification, reconstruction project.

Preliminary modeling shows that all these activities combined would be necessary to make improvements to the floodway and floodplain extent. When combined together, these improvements result in significant reductions to the flood depths and to the mapped floodway and floodplain, particularly in the AO zone upstream of West Pine Street and West of Griffin Creek. These benefits are attributed to flood level reduction throughout the entire reach that result in flood waters remaining confined to the channel corridor. A small area would remain in the flood hazard area, but based on FEMA mapping standards would be designated as a Flood Zone AH rather than AO, indicating ponding instead of sheet flow.

Based on aerial photograph interpretation in combination with analysis of building inventory and post mitigation data, approximately 175 structures (122 from the AO and 53 from AE and floodway) would be removed from the regulatory floodplain. Figure 6.10 shows a typical cross-section for the upper reach mitigation and Figure 6.12 illustrates the benefits after construction.

Figure 6.10
Griffin Creek Mitigation: Upper Reach Typical Cross-Section



According to the report submitted by Northwest Hydraulic Consultants, Inc., the total cost for both projects combined is $10,530,000, which includes $800,000 for replacement of the West Pine Street culvert with a freespan bridge.

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Figure 6.11
Griffin Creek Mitigation: Lower Reach Results

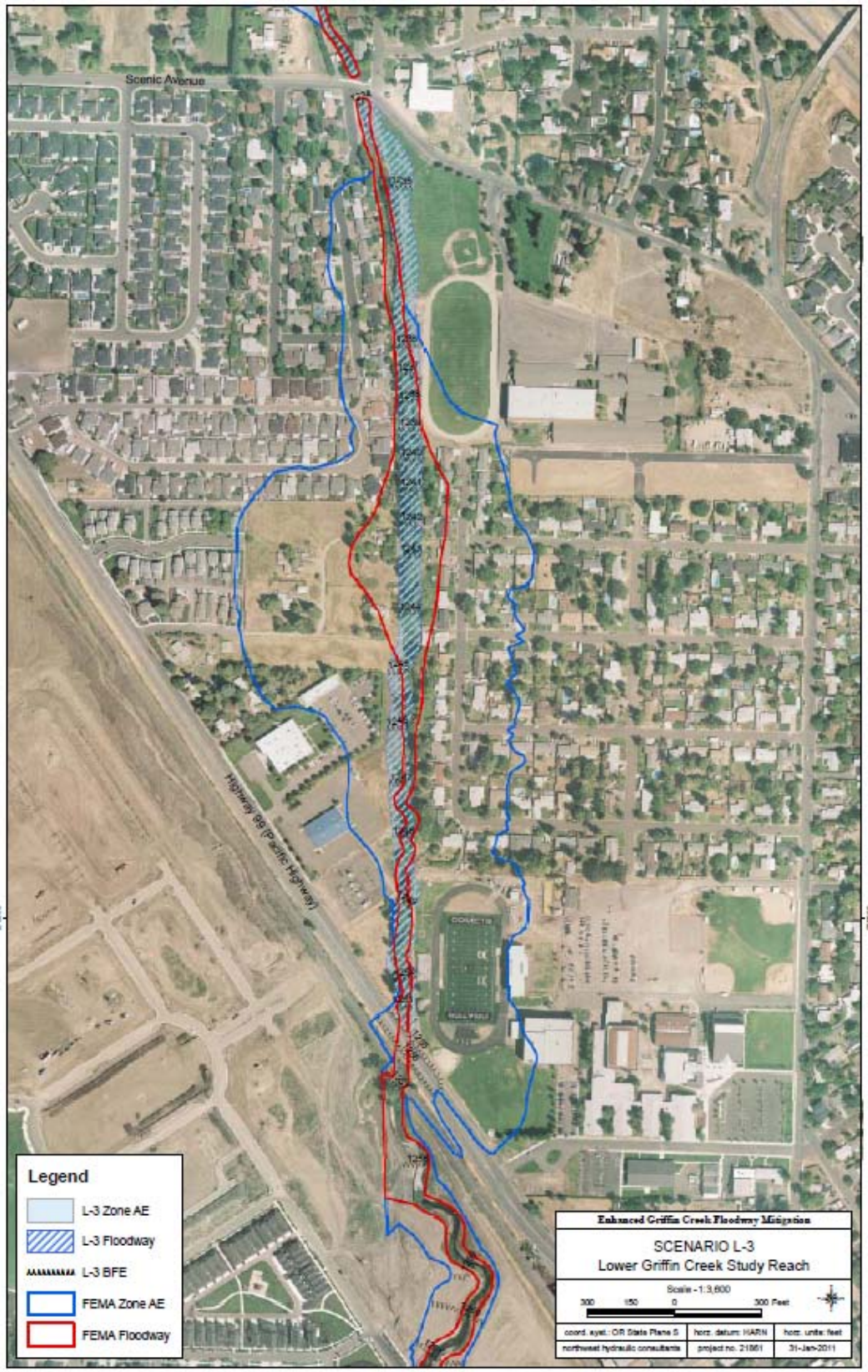

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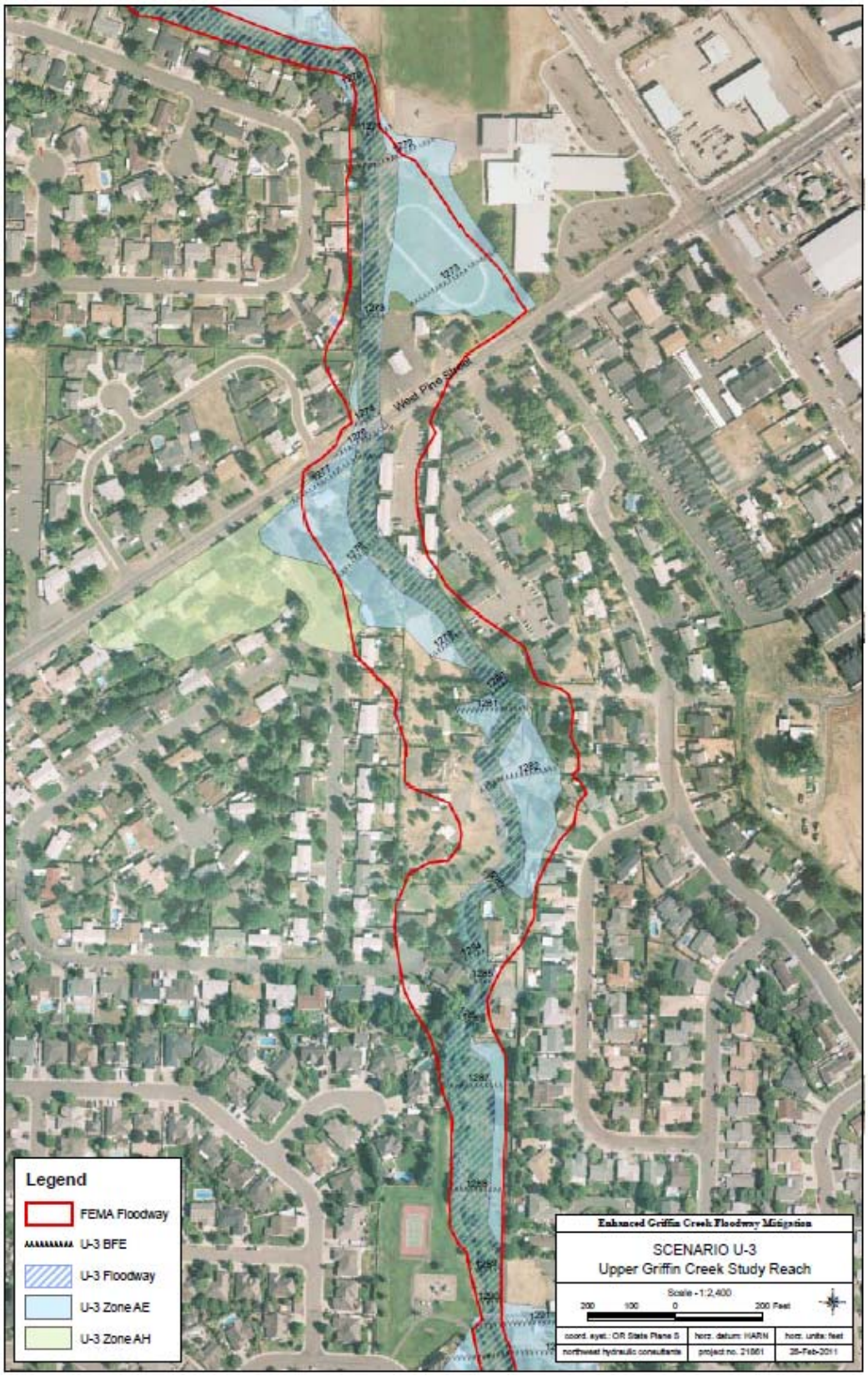
Figure 6.12
Griffin Creek Mitigation: Upper Reach Results



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The following table includes flood mitigation action items from the master Action Items table in Chapter 4.

Table 6.5
Flood Mitigation Action Items

Hazard	Action Item	Coordinating Organizations	Timeline	Plan Goals Addressed					
				Public Awareness	Life Safety	Protect Property Minimize Losses	Partnerships & Implementation	Emergency Services	Environmental Protection
Flood Mitigation Action Items: Within FEMA-Mapped Floodplains									
Short-term #1	Incorporate identified action items in the approved Hazard Mitigation Plan, including the Griffin Creek Flood Mitigation project components into the Central Point Capital Improvements Plan for Stormwater and Streets.	Central Point Public Works	1-year	X		X	X		
Short-term #2	Explore the feasibility of mitigating low income housing complexes owned and operated by the Housing Authority located just upstream of West Pine Street on the east bank of Griffin Creek through property redevelopment to relocate buildings outside of the regulatory floodway and SFHA.	Central Point Public Works and Community Development, Jackson County Housing Authority	1-2 years	X			X		
Long Term #1	Griffin Creek Flood Mitigation Project including the following: stakeholder buy-in, public involvement, easement acquisition, utility relocation; engineered construction plans, restoration plans, environmental permits; grade control structure removal; West Pine Street crossing upgrade; channel modifications; stream restoration; LOMR acquisition.	Central Point Public Works, School District #6, Pacific Power, Rogue Valley Sewer Services, Rogue River Valley Irrigation District, Oregon State Police, Southern Oregon Labor Temple, and the Jackson County Housing Authority	Ongoing until Completion	X	X	X	X	X	X

Hazard	Action Item	Coordinating Organizations	Timeline	Plan Goals Addressed					
				Public Awareness	Life Safety	Protect Property Minimize Losses	Partnerships & Implementation	Emergency Services	Environmental Protection
Long-term #2	Elevate or acquire highly flood-prone structures not mitigated by the Griffin Creek Mitigation Project (See Flood Mitigation Action Items Long-term #1 and #2 for areas inside FEMA-Mapped Floodplains.)	Central Point Public Works	Ongoing		X	X	X	X	
Long-term #3	Complete an outreach strategy for the community in accordance with CRS procedures to ensure that public involvement and education efforts are effective.	Central Point Public Works	1-5 years	X					
Long-term #4	Develop a Flood Warning Program for the City in accordance with CRS guidelines and coordinate this effort with Jackson County Emergency Management's Emergency Action Plan, which the City adopted by Resolution.	Central Point Public Works	3-5 years	X	X		X	X	
Flood Mitigation Action Items: Outside of FEMA-Mapped Floodplains									
Short-term #1	Complete a Stormwater Master Plan for the City that links stormwater drainage problems and solutions with mitigation planning efforts, including: drainage basin mapping, problem area identification, and low impact development implementation prioritization for flow reduction.	Central Point Public Works	2-3 years		X	X			X
Short-term #2	Explore the feasibility of mitigating Jewett Elementary School from future flooding as a result of stormwater drainage problems.	School District #6 Central Point Public Works & Community Development	3-5 years	X	X	X	X	X	X

Hazard	Action Item	Coordinating Organizations	Timeline	Plan Goals Addressed					
				Public Awareness	Life Safety	Protect Property Minimize Losses	Partnerships & Implementation	Emergency Services	Environmental Protection
Long-term #1	Conduct stormwater drainage improvements pursuant to the Stormwater Master Plan recommendations (See Flood Mitigation Action Item, short-term #1 for areas outside of FEMA-Mapped Floodplains.)	Central Point Public Works	Ongoing		X	X			X
Long-term #2	Complete a Benchmark Master Plan that outlines standards for setting and maintaining benchmarks in the city, including the establishment of 3 to 5 National Spatial Reference System benchmarks that are 1st or 2nd order with a stability rating of A or B and that are within 1.0 mile of a regulatory floodplain.	Central Point Public Works	1-5 years	X		X	X		
Long-term #3	Review and update flood warning and emergency action plans as new information about Emigrant Dam failure becomes available.	Central Point Public Works and Administration (Emergency Management)	1-5 years	X	X		X	X	

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7.0 EARTHQUAKES

Historically, awareness of seismic risk in Oregon has generally been low, among both the public at large and public officials. This low level of awareness reflected the low level of seismic activity in Oregon, at least in recent historical time. However, beginning in the early 1990s, awareness of seismic risk in Oregon has increased significantly. Factors in this increased awareness include the 1993 Scotts Mills earthquake in Clackamas County, the 1990s changes in seismic zones in the Oregon Building Code which increased seismic design levels for new construction in western Oregon and widespread publicity about the occurrence of large magnitude earthquakes on the Cascadia Subduction Zone.

Awareness of seismic risk in Oregon has also increased because of the devastating earthquakes and tsunamis in Indonesia in 2004 and Japan in 2011. The geologic settings for the Indonesia and Japan earthquakes are virtually identical to the Cascadia Subduction Zone.

Before reviewing the levels of seismic hazards and risk in Central Point, we first present a brief earthquake "primer" to review earthquake concepts and terms.

7.1 Earthquake Primer

Earthquakes are most often described by their magnitude (M), which is a measure of the total energy released by an earthquake. The most common magnitude is the "moment magnitude" which is calculated by seismologists from the amount of slip (movement) on the fault causing the earthquake and the area of the fault surface which breaks during the earthquake. Moment magnitudes are similar to the Richter magnitude, which was used for many decades but has now been replaced by the moment magnitude.

Moment magnitudes use a numerical scale which ranges from 0 to 9+. The magnitudes for the four largest earthquakes recorded worldwide and selected Oregon earthquakes are shown below in Table 7.1.

Table 7.1
Earthquake Magnitudes: Examples

Earthquake	Magnitude
Largest Earthquakes Worldwide	
1960 Chile	9.5
1964 Prince William Sound, Alaska	9.2
2004 Sumatra, Indonesia	9.1
2011 Japan	9.0
Selected Oregon Earthquakes	
1700 Cascadia Subduction Zone	9.0
1993 Klamath Falls	6.0
1993 Scotts Mills	5.6
2001 Nisqually (Washington)	6.8

In evaluating earthquakes, it is important to recognize that the earthquake magnitude scale is not linear, but rather logarithmic. Each one step increase in magnitude, for example from M7 to M8, corresponds to an increase of about a factor of 30 in the amount of energy released by the earthquake, because of the mathematics of the magnitude scale.

Thus, a M7 earthquake releases about 30 times more energy than a M6, while a M8 releases about 30 times more energy than a M7 and so on. Thus, a great M9 earthquake releases nearly 1,000 times more energy than a large earthquake of M7 and nearly 30,000 times more energy than a M6 earthquake.

The public often assumes that the larger the magnitude of an earthquake, the "worse" the earthquake. Thus, the "big one" is the M9 earthquake and smaller earthquakes such as M6 or M7 are not the "big one". However, this is true only in very general terms. Larger magnitude earthquakes affect larger geographic areas, with much more widespread damage than smaller magnitude earthquakes. However, for a given site, the magnitude of an earthquake is not a good measure of the severity of the earthquake at that site.

Rather, for any earthquake, the intensity of ground shaking at a given site depends on four main factors:

- Earthquake magnitude,
- Earthquake epicenter, which is the location on the earth's surface directly above the point of origin of an earthquake,
- Earthquake depth, and
- Soil or rock conditions at the site, which may amplify or deamplify earthquake ground motions.

An earthquake will generally produce the strongest ground motions near the earthquake with the intensity of ground motions diminishing with increasing distance from the epicenter.

For Central Point, a great magnitude 9.0 earthquake on the Cascadia Subduction Zone would result in widespread damage. However, this earthquake is not the worst case scenario for Central Point. Rather, a smaller, nearby earthquake could result in higher levels of ground shaking and damage for Central Point than a M9.0 Cascadia Subduction Zone earthquake.

In general, earthquakes at or below M5 are not likely to cause significant damage, even locally very near the epicenter. Earthquakes between about M5 and M6 are likely to cause minor to moderate damage near the epicenter. Earthquakes of M7.5 or greater (e.g., the 2001 Nisqually earthquake in Washington) cause major damage over wider areas. Larger earthquakes of M7+ cause damage over increasingly wider geographic areas with the potential for very high levels of damage near the epicenter. Great earthquakes with M8+ cause major damage

over very wide geographic areas. For example a M9 earthquake on the Cascadia Subduction Zone would affect the entire Pacific Northwest from British Columbia to Northern California.

The intensity of ground shaking varies not only as a function of M and distance but also depends on soil types. Soft soils may amplify ground motions and increase the level of damage. Thus, for any given earthquake there will be contours of varying intensity of ground shaking. The intensity will generally decrease with distance from the earthquake, but often in an irregular pattern, reflecting soil conditions (amplification) and possible directionality in the dispersion of earthquake energy.

There are many measures of the severity or intensity of earthquake ground motions. A very old scale is the Modified Mercalli Intensity scale (MMI), which is a descriptive, qualitative scale that relates severity of ground motions to types of damage experienced. MMIs range from I to XII.

More useful, modern intensity scales use terms that can be physically measured with seismometers, such as the acceleration, velocity, or displacement of the ground. The most common physical measure, and the one used in this mitigation plan, is Peak Ground Acceleration or PGA. PGA is a measure of the intensity of shaking, relative to the acceleration of gravity (g). For example, 1.0% g PGA in an earthquake (an extremely strong ground motion) means that objects accelerate sideways at the same rate as if they had been dropped from the ceiling. 10% g PGA means that the ground acceleration is 10% that of gravity and so on.

Damage levels experienced in an earthquake vary with the intensity of ground shaking and with the seismic capacity of structures. Ground motions of only 1 or 2% g are widely felt by people; hanging plants and lamps swing strongly, but damage levels, if any, are usually very low. Ground motions below about 10% g usually cause only slight damage. Ground motions between about 10% g and 30% g may cause minor to moderate damage in well-designed buildings, with higher levels of damage in poorly designed buildings. At this level of ground shaking, only unusually poor buildings would be subject to potential collapse. Ground motions above about 30% g may cause significant damage in well-designed buildings and very high levels of damage (including collapse) in poorly designed buildings. Ground motions above about 50% g may cause significant damage in most buildings, even those designed to resist seismic forces.

7.2 Oregon Earthquakes

Earthquakes in Western Oregon, and throughout the world, occur predominantly because of plate tectonics - the relative movement of plates of oceanic and continental rocks that make up the rocky surface of the earth. Earthquakes can also occur because of volcanic activity and other geologic processes.

The Cascadia Subduction Zone is a geologically complex area off the Pacific Northwest coast from Northern California to British Columbia. In simple terms, several pieces of oceanic crust (the Juan de Fuca Plate, Gorda Plate and other smaller pieces) are being subducted (pushed under) the crust of North America. This subduction process is responsible for most of the earthquakes in the Pacific Northwest as well as for creating the volcanoes in the Cascades. Figure 7.1 shows the geologic (plate-tectonic) setting of the Cascadia Subduction Zone.

There are three source regions for earthquakes that can affect the Central Point area:

1) “interface” earthquakes on the boundary between the subducting oceanic plates and the North American plate,

2) “intraplate” earthquakes within the subducting oceanic plates, and

3) “crustal” earthquakes within the North American Plate.

The geographic and geometric relationships of these earthquake source zones are shown in Figures 7.2 and 7.3.

The “interface” earthquakes on the Cascadia Subduction Zone have magnitudes of about 9.0. Such earthquakes are the great Cascadia Subduction Zone earthquake events that have received attention in the popular press. The geologic settings for the M9.2 Indonesia earthquake (2004) and the M9.0 Japan earthquake (2011 are virtually identical to the Cascadia Subduction Zone

These earthquakes occur about 20 to 60 kilometers (12 to 40 miles) offshore from the Pacific Ocean coastline. Ground shaking from such earthquakes would be very strong near the coast and strong ground shaking would be felt throughout Central Point and the surrounding areas.

The estimated long term return period for great (M9.0) Cascadia earthquakes is about 500 years. However, last great Cascadia earthquake occurred in the year 1700, based on current interpretations of Japanese tsunami records. Because the last great earthquake occurred more than 300 years ago, the probability of a similar earthquake over the next 50 years is higher than that inferred from the long-term average return period.

Over the next 50 years, the probability of a M9.0 Cascadia earthquake is probably at least 10% to 15%. The probability of a M8.0+ earthquake in the next 50 years may be as high as 37% (USGS Professional Paper 1661, Goldfinger et al., 2011, in press).

Figure 7.1
Cascadia Subduction Zone
(Cascadia Region Earthquake Working Group (2005): Cascadia Subduction Zone Earthquakes: A Magnitude 9.0 Earthquake Scenario)

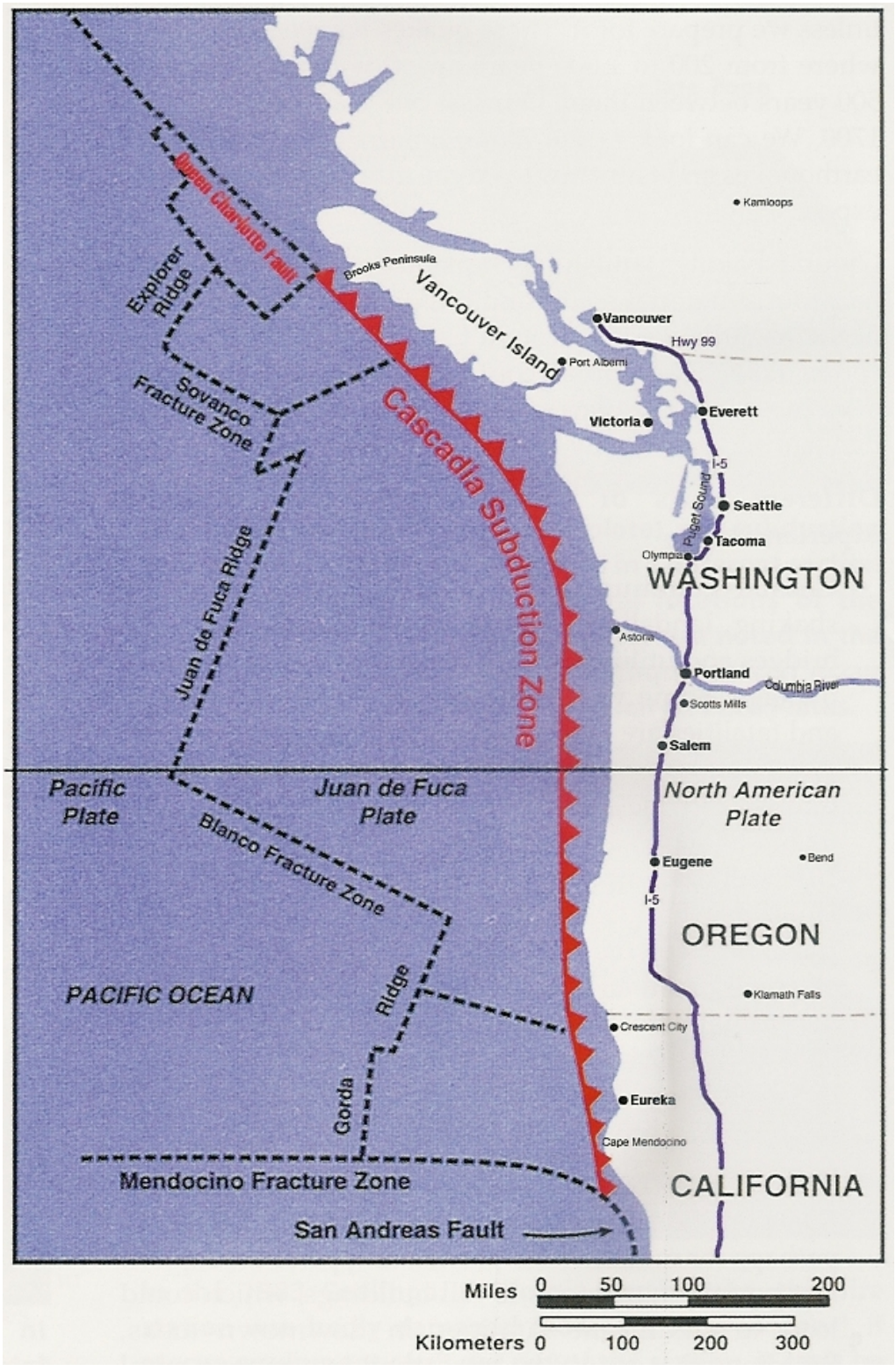
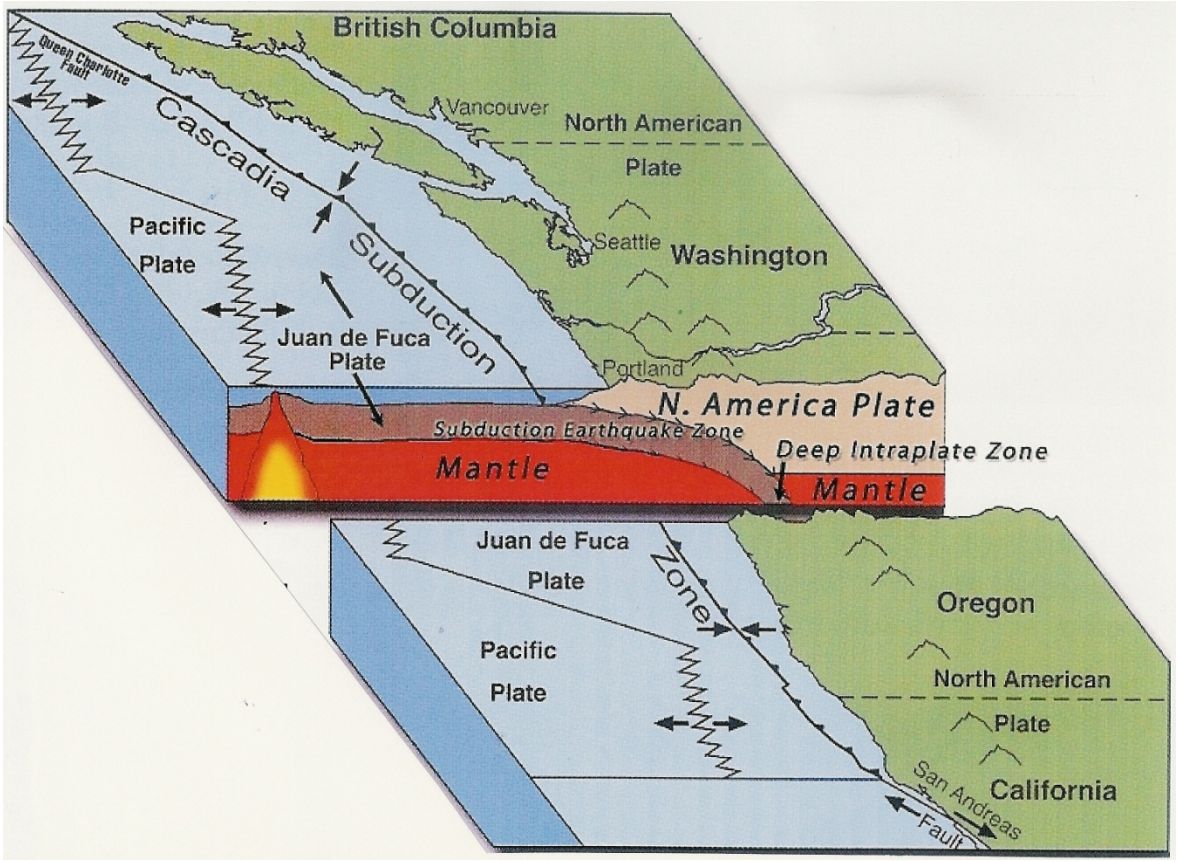


Figure 7.2
Cascadia Subduction Zone: Cross Section
(Cascadia Region Earthquake Working Group (2005): Cascadia Subduction Zone Earthquakes: A Magnitude 9.0 Earthquake Scenario)

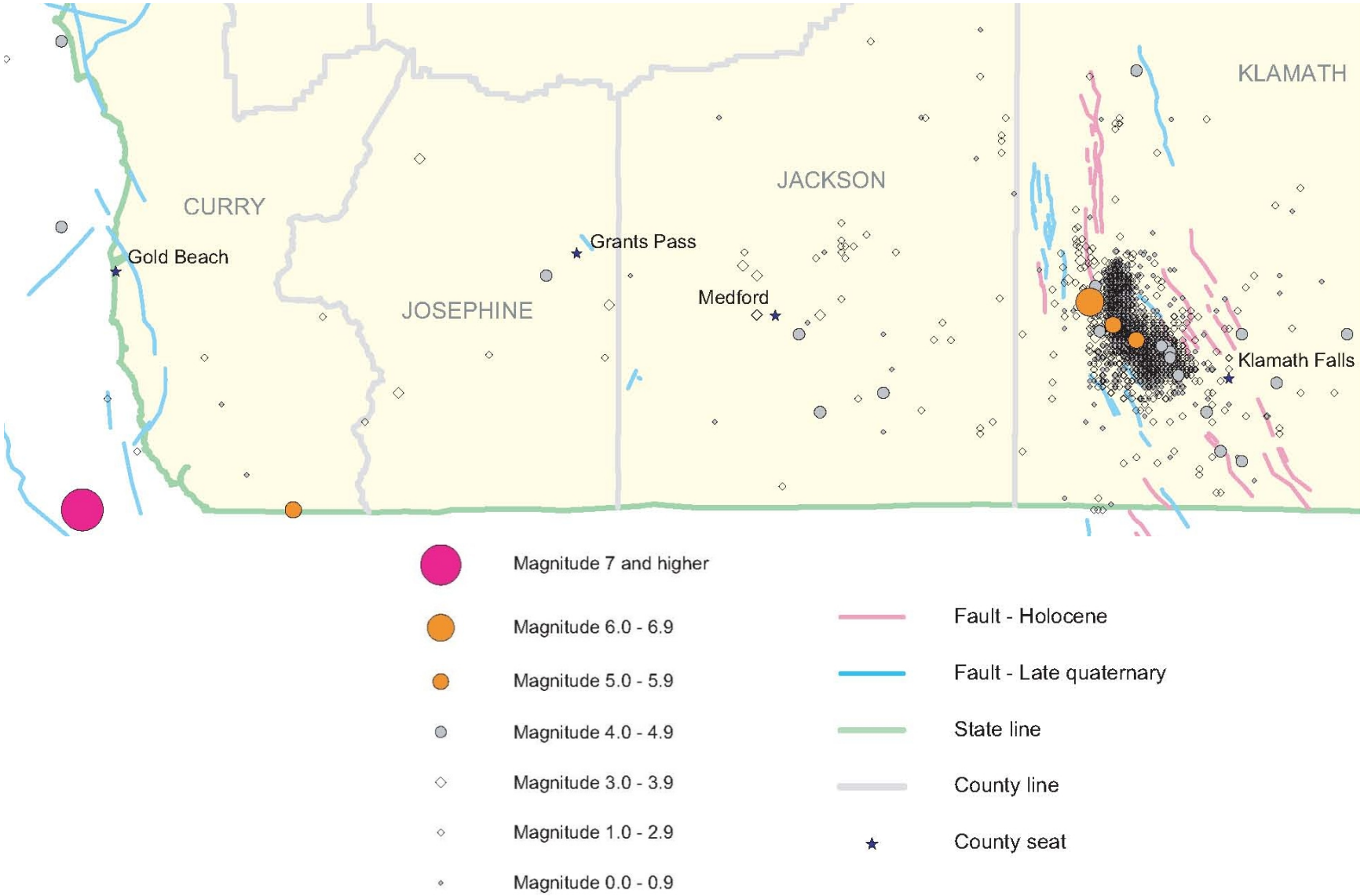


Interface earthquakes occur on the boundary between the subducting plate and the North American plate.

The “intraplate” earthquakes occur deep within the subducting oceanic plate, at depths of about 18 to 25 miles, and may have magnitudes up to about 7.5. The probable recurrence intervals are about 500 to 1000. Because “intraplate” earthquakes may occur anywhere along the Cascadia Subduction Zone, many of these earthquakes are likely to be too far from Central Point to result in significant damage. The probability of an “intraplate” earthquake causing significant damage in Central Point over the next 50 years is probably about 1% to 2%.

Crustal earthquakes occur within the North American plate, above the subducting plate shown in Figure 7.2. Historical earthquake epicenters in Oregon are shown below in Figure 7.3 (Map of Selected Earthquakes for Oregon, 1841 through 2002), DOGAMI Open File Report 03-02, http://earthquake.usgs.gov/hazards/).

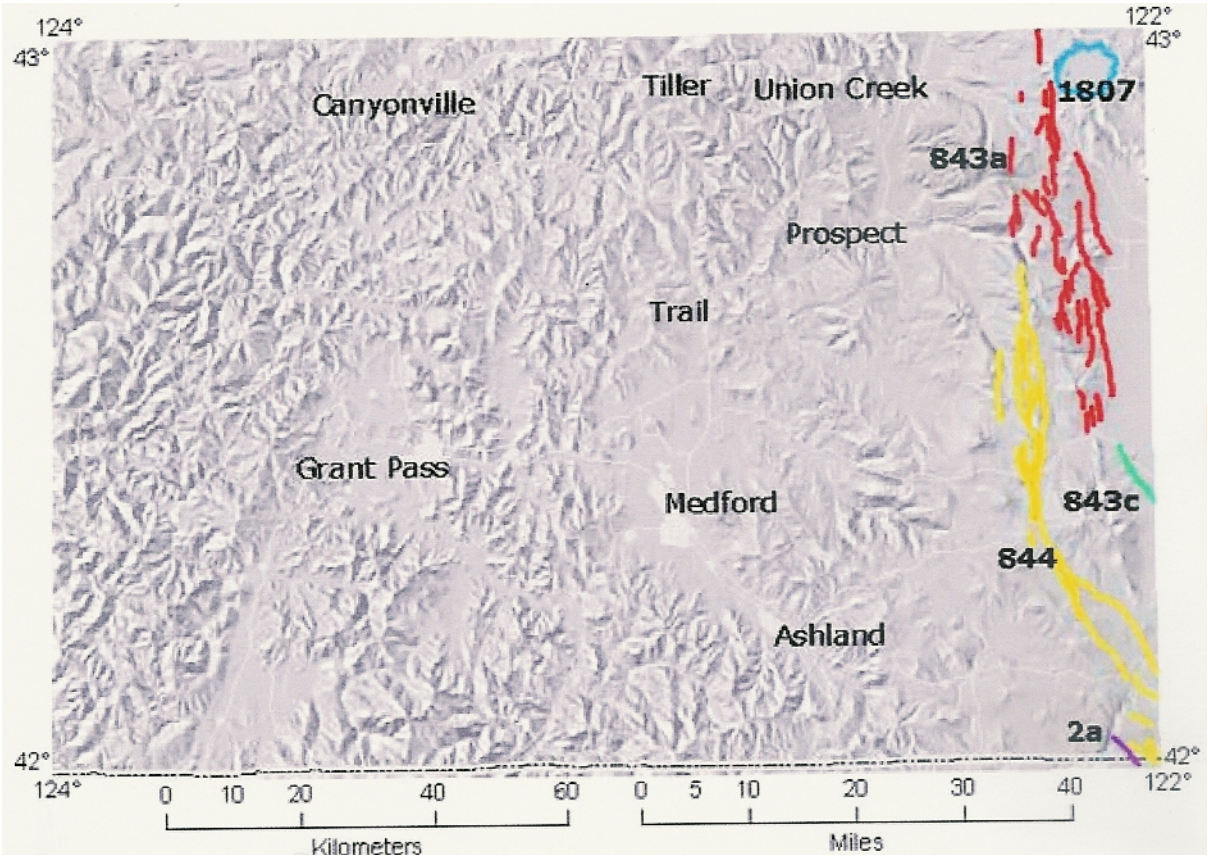
Figure 7.3
Earthquake Epicenters in Southwest Oregon from 1841 to 2002



As shown in Figure 7.3 on the previous page, there have been more than 50 small earthquakes recorded in Jackson county, but none of M5 or greater. There have also been numerous earthquakes in the Klamath Falls area, including three in the M5 to M5 to M6 range.

The identified crustal earthquake faults in the vicinity of Central Point are shown in Figure 7.4.

Figure 7.4
USGS Mapped Crustal Faults Near Central Point
(USGS Earthquake Hazards Program – Quaternary Fault and Fold Database)



The faults numbered in Figure 7.4 above include the following faults relatively close to Central Point:

- 2a Cedar Mountain fault system, Mahogany Mountain section,
- 843a Klamath graben fault system, West Klamath Lake section,
- 844 Klamath graben fault system, South Klamath Lake section,
- 844 Sky Lakes fault zone, and
- 1807 Mount Mazama ring faults.

The above faults are all listed as “Class A” faults by the USGS, which means that there is solid geological evidence for fault movements during the Quaternary geologic period – that is, within the past 1.6 million years. The USGS consensus characteristic magnitudes and return periods for earthquakes on the first four faults listed above are shown below in Table 7.2 (http://earthquake.usgs.gov/hazards/). These data are from the 2008 National Seismic Hazard Maps – Fault Parameters database. Similar data are not published for the Mount Mazama Ring faults.

Table 7.2
Crustal Faults Near Central Point

USGS Number	Fault Name	Characteristic Magnitude	Return Period (Years)	Annual Probability	Probability in 50 Years
2a	Cedar Mountain	7.05	1,803[1]	0.05545%	2.74%
843a	Klamath (West)	7.06	7,042	0.01420%	0.71%
843c	Klamath (South)	7.36	8,696	0.01150%	0.57%
844	Sky Lakes	7.08	4,082	0.02450%	1.22%

As shown above, all four of these faults are capable of generating large, M7+ earthquakes with return periods that range from about 1,800 years to about 7,000 years.

For mitigation planning purposes, the calculated probability of each earthquake occurring over the next 50 years is also shown. These probabilities range from 0.57% to 2.74% for the four earthquakes.

However, the probability of at least one M7+ earthquake occurring on these faults over the next 50 years is significantly higher, more than 5%. These crustal faults are approximately 25 to 40 miles from Central Point, close enough to result in significant damage in Central Point.

Based on the historical seismicity in Western Oregon and on analogies to other geologically similar areas, small to moderate earthquakes up to M5 or M5.5 are possible almost any place in the vicinity of or within Central Point. Such earthquakes would be mostly smaller than the 1993 Scotts Mills earthquake (M5.6). There is a possibility of larger crustal earthquakes in the M6+ range in the absence of known, mapped faults, but the probability of such events is likely to be low.

7.3 Seismic Hazards for Central Point

The current scientific understanding of earthquakes is incapable of predicting exactly where and when the next earthquake will occur. However, the long term probability of earthquakes is well enough understood to make useful estimates of the probability of various levels of earthquake ground motions at a given location. The current consensus estimates for earthquake hazards in the United States are

incorporated into the 2008 USGS National Seismic Hazard Maps. These maps are the basis of building code design requirements for new construction. 2008 USGS seismic hazard data for a very dense soil site (International Building Code Soil Type C) within Central Point are shown below in Table 7.3 (OEM, 2010). The level of seismic hazard doesn't vary appreciably within Central Point except for possible variations in soil/rock types.

Table 7.3
2008 USGS Seismic Hazard Data for Central Point
(Approximate Values for Very Dense Soil Sites)

Probabilistic Ground Motion	PGA (% of g)
10% in 50 years	14.0%
2/3rds of 2% in 50 years	22.7%
2% in 50 years	34.0%
Location	Central Point[1]
Latitude	42.37363
Longitude	122.91435

[1] Central Point Police Department

For sites in Central Point that are firm soil (Type D) or soft soil (Type E), ground motion values will be significantly higher. Relative ground motions for soil types C, D and E are shown below in Table 7.4 (calculated using International Building Code soil factors).

Table 7.4
Effect of Soil Type on Earthquake Ground Motions

Probabilistic Ground Motion	Soil Type C Very Dense Soil	Soil Type D Firm Soil	Soil Type E Soft Soil
	PGA (% of g)		
10% in 50 years	14.0%	18.5%	28.4%
2/3rds of 2% in 50 years	22.7%	24.9%	34.4%
2% in 50 years	34.0%	37.4%	38.1%

For any given earthquake, ground motions in Central Point will be substantially higher on soft soil sites and somewhat higher on firm soil sites, relative to ground motions on very dense soil sites. Thus, the extent of damage will also vary with location and soil type within Central Point.

The ground shaking values in Tables 7.3 and 7.4 are expressed as a percentage of g, the acceleration of gravity. For example, the 10% in 50 year PGA value means that over the next 50 years there is a 10% probability of this level of ground shaking or higher. Any of these levels of ground shaking are high enough to cause significant to substantial damage in vulnerable buildings. The 2/3rds of the 2% in 50 year ground motion is the level of ground motion required for the design of new buildings in the International Building Code.

The 2008 USGS seismic hazard data for the area (Figure 7.5) shows the seismic hazard level generally decreasing eastward, with the exception of the higher hazard area near Klamath Falls. Values presented on these maps are lower than those shown above in Tables 7.3 and 7.4 because the map contours are for rock sites. Ground motions on soil sites will be significantly higher than for rock sites.

Figure 7.5a
USGS Seismic Hazard Map
PGA value (%g) with a 10% Chance of Exceedance in 50 years

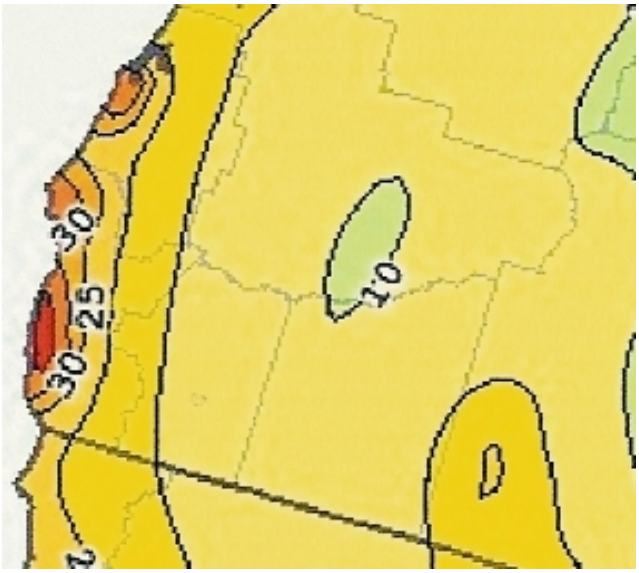
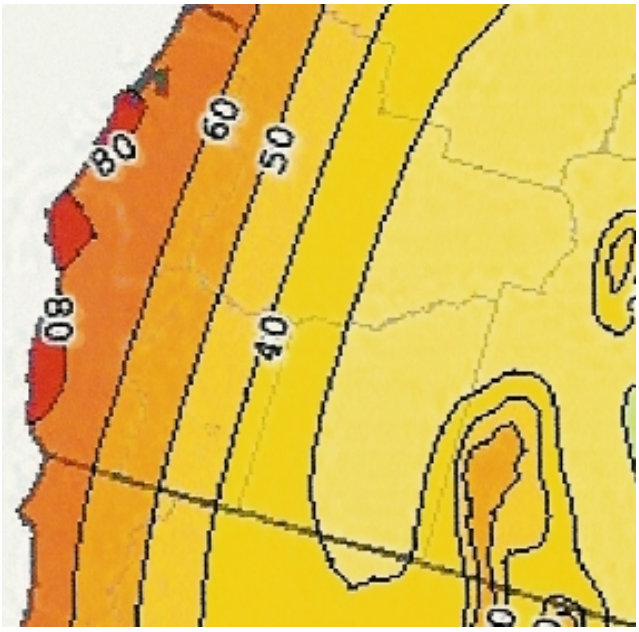


Figure 7.5b
USGS Seismic Hazard Map
PGA value (%g) with a 2% Chance of Exceedance in 50 years



The level of seismic hazard for locations within Central Point can also be expressed fully as a “seismic hazard curve” which shows the annual probability of exceeding the full range of possible earthquake ground motions. This example is for a very dense (Soil Type C) site. As discussed previously, earthquake ground motions within Central Point will be higher significantly higher for firm soil sites (Soil Type D) and especially so for soft soil sites (Soil Type E)

Figure 7.6
Central Point: Seismic Hazard Curve

Seismic Hazard Data by Latitude - Longitude

OREGON

Version 2.5 April 27, 2010

Project Name:	**Central Point Police Department**	**Date:**	**April 27, 2011**
Address:	**155. S. 2nd Street**	**User Name:**	**K.A. Goettel**
City, State, Zip:	**Central Point, Oregon 97502**		

Enter Site Latitude-Longitude in degrees-minutes-seconds OR in decimal degrees

	Degrees	Minutes	Seconds	Decimal
Latitude:	42.37363			**42.373630**
Longitude:	122.91435			**122.914350**

Enter Project Site Soil/Rock Type: **C** **Soil/Rock entries must match letter codes exactly.**

Soil Rock Choices:

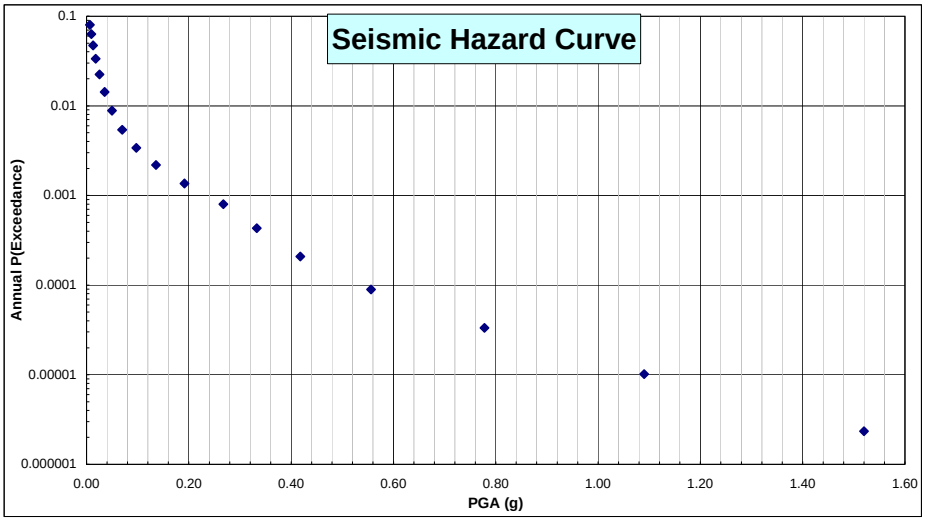
Rock	**AB**
Very Dense Soil	**C**
Firm Soil	**D**
Soft Soil	**E**
Very Soft Soil	**F**

Soil/Rock types and definitions as per IBC 2003 (2006).

If soil/rock unknown, use Firm Soil D as default.

Site specific geotechnical analysis encouraged for Soil F

Site Hazard Data	
PGA	**Annual P**
0.006600	7.990E-02
0.009240	6.301E-02
0.012936	4.714E-02
0.018084	3.345E-02
0.025344	2.241E-02
0.035508	1.428E-02
0.049632	8.827E-03
0.069564	5.409E-03
0.097416	3.395E-03
0.135960	2.184E-03
0.191400	1.362E-03
0.267290	8.008E-04
0.332791	4.303E-04
0.418101	2.088E-04
0.556000	8.948E-05
0.778000	3.331E-05
1.090000	1.015E-05
1.520000	2.351E-06
2.130000	2.220E-07



2/3rds of 2% in 50 year PGA value: **0.227** **Enter this value into the E-RVS spreadsheet**

Reference PGA values:	**g**	**% g**
10% in 50 years:	**0.140**	**14.0%**
5% in 50 years:	**0.232**	**23.2%**
2% in 50 years:	**0.340**	**34.0%**

PGA values are shown as fractions of g, the acceleration of gravity. Thus, for example, 0.500 means 0.5 g or 50% of g.

There is one important caveat on the USGS seismic hazard data discussed above for Central Point. The re-assessment of the probabilities of great earthquakes on the Cascadia Subduction Zone (Goldfinger et. al, 2001), which was discussed in Section 7.2, has significantly increased the estimated probabilities of Cascadia earthquakes. Thus, the 2008 USGS seismic hazard data appear to underestimate the level of seismic hazards in western Oregon, including Central Point.

7.4 Other Aspects of Seismic Hazards in Central Point

Much of the damage in earthquakes occurs from ground shaking, which affects buildings and infrastructure. However, there are several other consequences of earthquakes that can result in very high levels of damage in some locations, including: liquefaction, settlement, lateral spreading, landslides, dam failures and tsunamis.

7.4.1 Liquefaction, Settlement and Lateral Spreading

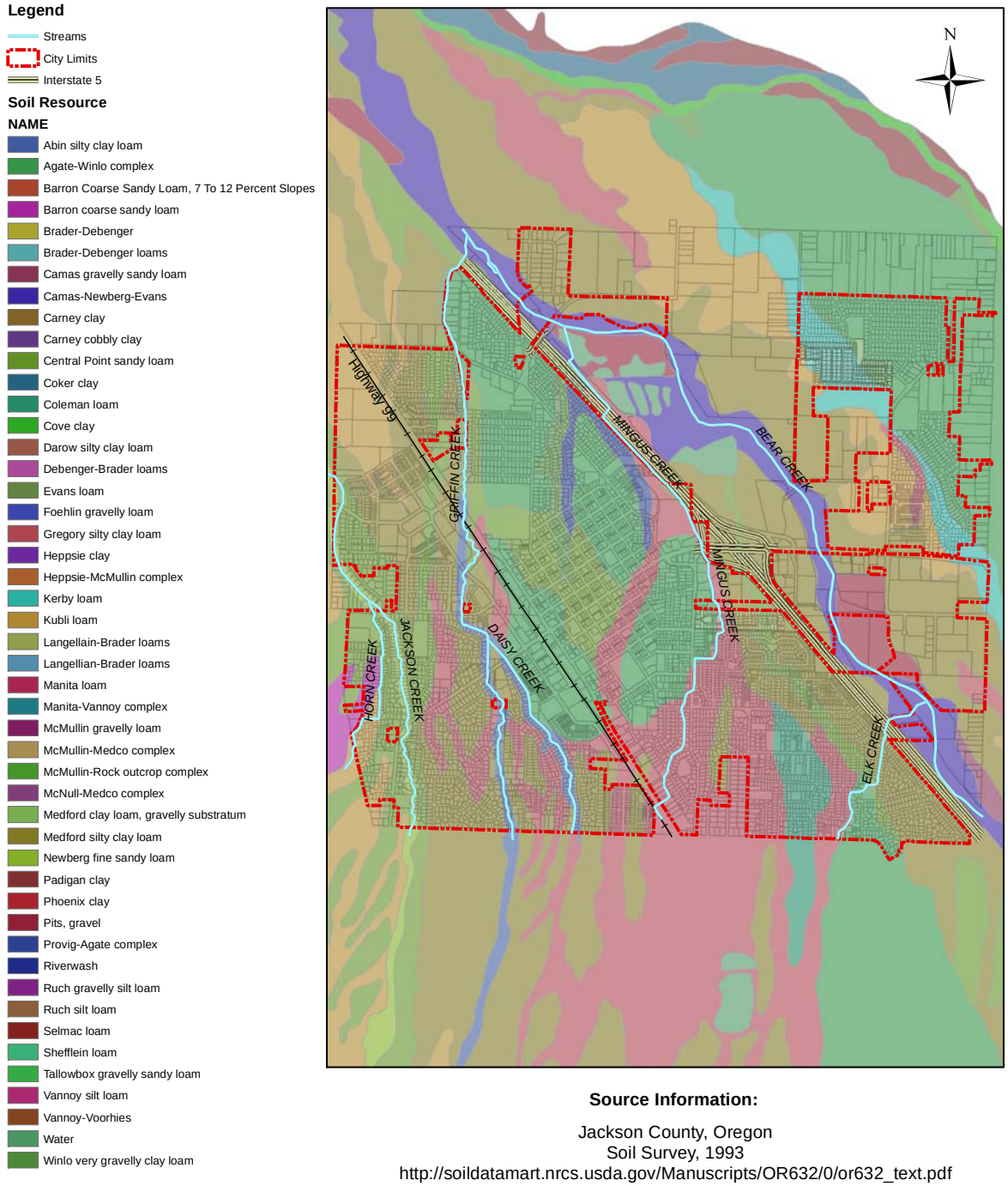
Liquefaction is a process where loose, wet sediments lose strength during an earthquake and behave similarly to a liquid. Once a soil liquefies, it will tend to settle vertically and/or spread laterally. With even very slight slopes, liquefied soils tend to move sideways downhill (lateral spreading). Settling or lateral spreading can cause major damage to buildings and to buried infrastructure such as pipes and cables.

A liquefaction map does not currently exist for Central Point. However, the recently completed DOGAMI statewide seismic assessment of schools and emergency response facilities included soil types for several facilities in Central Point. For these facilities, the soil types were identified as Type C (Very Dense Soil) or Type D (Firm Soil). These data suggest that most areas within Central Point may not be subject to liquefaction (DOGAMI, 2007).

Figure 7.7 on the following page shows mapped soil types within Central Point. This map does not characterize soils with respect to liquefaction potential. However, some of the areas along the stream channels may have some potential for liquefaction. A more detailed analysis of these soil data would be required to determine whether or not any of these areas have significant liquefaction potential in future earthquake events.

Figure 7.7
Central Point Soil Type Map

Soil Resources Map



Source Information:

Jackson County, Oregon
Soil Survey, 1993
http://soildatamart.nrcs.usda.gov/Manuscripts/OR632/0/or632_text.pdf

7.4.2 Landslides

Earthquakes can also induce landslides, especially if an earthquake occurs during the rainy season and soils are saturated with water. The areas prone to earthquake-induced landslides are largely the same as those areas prone to landslides in general. As with all landslides, areas of steep slopes with loose rock or soils are most prone to earthquake-induced landslides**.**

The risk of landslides in Central Point is very low because the topography is nearly flat with very gentle slopes in most of the City. The only areas of steep slopes are the stream channel slopes. Minor landslides might occur within these channel areas, but are unlikely to affect any buildings or infrastructure.

Landslides are also addressed in Chapter 9 which covers hazards that pose minimal risks to Central Point.

7.4.3 Dam Failures

Earthquakes can also cause dam failures in several ways. The most common mode of earthquake-induced dam failure is slumping or settlement of earth-fill dams where the fill has not been properly compacted. If the slumping occurs when the dam is full, then overtopping of the dam, with rapid erosion leading to dam failure is possible. Dam failure is also possible if strong ground motions heavily damage concrete dams. Earthquake induced landslides into reservoirs have also caused dam failures.

There is one significant dam upstream of Central Point, Emigrant Dam, which is located about 24 miles upstream of Central Point on Bear Creek and poses an additional flood risk to the city in the event of dam failure from earthquakes or any other cause.

Figure 7.8
Emigrant Dam

Emigrant Dam was constructed and continues to be used for irrigation purposes. It was built in 1924 and experienced upgrades that expanded its storage capacity in the years between 1958 and 1961. It is owned by the Bureau of Reclamation and operated by the Talent Irrigation District. The dam is composed of a 104-foot high thin-arch concrete structure encased by a 204-foot high earth fill structure. The reservoir has a total capacity of 40,500 acre feet (active 39,500 acre-feet) and includes an ungated overflow spillway.

According to the Bureau of Reclamation, Emigrant Dam has a low risk of failure that is on the order of magnitude of 1 in 10,000 years. The best available information suggests that this is true for both flood and earthquake related failures; however, the risk of failure during a Cascadia subduction zone earthquake or earthquakes on faults nearer to Central Point is largely unknown (Healy, 2011, personal communication). The Bureau is currently working on research to better quantify this risk.

In the event of dam failure, the Bureau of Reclamation has developed the Emigrant Dam Inundation Map information presented previously in Chapter 6: Figure 6.6. This is considered a worst-case scenario and encompasses a significant portion of the community that parallels Bear Creek, including residential, commercial, civic, and open space land uses. Interstate 5 is expected to be completely inundated through the valley; therefore, the region's most heavily used transportation route.

7.4.4 Tsunamis and Seiches

Tsunamis result from earthquakes that cause a sudden rise or fall of part of the ocean floor. In the open ocean, far from land tsunami waves may be only a few inches high and thus be virtually undetectable, except by special monitoring instruments. These waves travel across the ocean at speeds of several hundred miles per hour. When such waves reach shallow water near the coastline, they slow down and can gain great heights.

Tsunamis affecting the Oregon coast can be produced from very distant earthquakes off the coast of Alaska or elsewhere in the Pacific Ocean. For such tsunamis, the warning time for the Oregon coast would be at least several hours. However, interface earthquakes on the Cascadia Subduction Zone can also produce tsunamis. For such earthquakes the warning times would be very short, only a few minutes. Because of this extremely short warning time, emergency planning and public education are essential before such an event occurs.

Central Point would not be affected by tsunamis on the Oregon Coast. However, a related phenomenon is "seiches" which are waves from sloshing of inland bodies of waters such as lakes, reservoirs, or rivers. Seiches may result in damages to docks, shorefront structures and dams. In Central Point, seiches could cause localized damages to water reservoirs, which typically occur as roof damage.

7.5 Scenario Earthquake Loss Estimates for Central Point

7.5.1 Summary Results

There are a wide range of possible earthquakes that may affect Central Point, including not only Cascadia Subduction Zone earthquakes and crustal earthquakes on known faults but also crustal earthquakes on as yet unknown faults. The USGS national seismic hazard maps (cf. Figure 7.5) include contributions from unknown faults, which are statistically possible anywhere in Central Point and vicinity. Most likely earthquakes on as yet unknown faults would be relative small, most likely with magnitudes less than M7. However, earthquakes as large as M6 or M7.5 on unknown faults are also possible.

The consequences of possible earthquakes affecting Central Point were explored using FEMA's HAZUS loss estimation software: HAZUS-MH-MR5, Version 10.0.0. HAZUS loss estimates for specified scenario earthquakes are intended for regional planning purposes and provide general indications of the extent of damages, economic losses and casualties.

For Central Point, we evaluate three scenario earthquakes:

- M9.0 earthquake on the Cascadia Subduction Zone,
- M7.08 earthquake on the Sky Lakes Fault Zone, and
- M7.0 earthquake on a postulated unknown fault within Central Point.

The HAZUS results presented below are based on the "level one" data built into the HAZUS software (FEMA HAZUS-MH-MR5 Version 10.0.0 (Hazards U.S. – Multi-Hazard). The national inventory data used by HAZUS are estimates for each census tract. In some cases, these data may be incomplete or inaccurate. The results should not be interpreted as indicating the exact damages, losses or casualties for each scenario earthquake – the exact levels of damages, losses and casualties cannot be predicted before an earthquake occurs. Rather, the results illustrate the relative severity of consequences for Central Point for each of the three earthquake scenarios and the approximate levels of damages and casualties expected.

Summary HAZUS loss estimates for the three scenario earthquakes listed above are given in Table 7.5 (http://earthquake.usgs.gov/hazards/). The Cascadia M9.0 HAZUS run was made using the USGS shake map ground motions for Cascadia M9.0 earthquake. The results for the two other scenarios are based on ground motion relationships built into HAZUS for the defined location and magnitude of these earthquake scenarios.

Table 7.5
Summary Impacts for Central Point
Three Scenario Earthquakes

Category	Cascadia M9.0	Sky Lakes M7.08	Central Point M6.0
Damages and Losses			
Number of Damaged Buildings - Total	2,505	481	5,357
Number of Damaged Buildings - Slight Damage	1,350	369	2,422
Number of Damaged Buildings - Moderate Damage	852	104	1,776
Number of Damaged Buildings - Extensive Damage	292	8	828
Number of Damaged Buildings - Complete Damage	11	0	331
Building-Related Damages and Economic Losses	$49,000,000	$5,250,000	$240,000,000
Transportation Systems Damages[1]	N/A	N/A	N/A
Utility Systems Damages[1]	N/A	N/A	N/A
Total Damages and Losses	$49,000,000	$5,250,000	$240,000,000
Casualties			
Injuries (2 pm)	17	1	155
Injuries (2 am)	11	1	73
Deaths (2 pm)	0	0	10
Deaths (2 am)	0	0	2

[1] Inventory data for transportation infrastructure and utility infrastructure are incomplete - meaningful damage estimates are not available.

The estimated deaths and injuries are significantly lower during nighttime hours than during daytime hours, because more people are in wood frame residential buildings, which generally perform reasonably well in earthquakes.

The damage, loss and casualties estimates differ substantially for the three scenario earthquakes. The damage, loss and casualty estimates vary so much because of the combination of two factors:

- Magnitude of the earthquake, and
- Location of the earthquake in relation to Central Point.

In addition to the building damages summarized above, any of these scenario earthquakes may results in damage to transportation infrastructure (especially bridges) and utility infrastructure, with the extent of damage increasing with increasing levels of ground shaking. For utility systems, the most likely damages include breaks in water and wastewater pipes. Damage to gas pipes may also

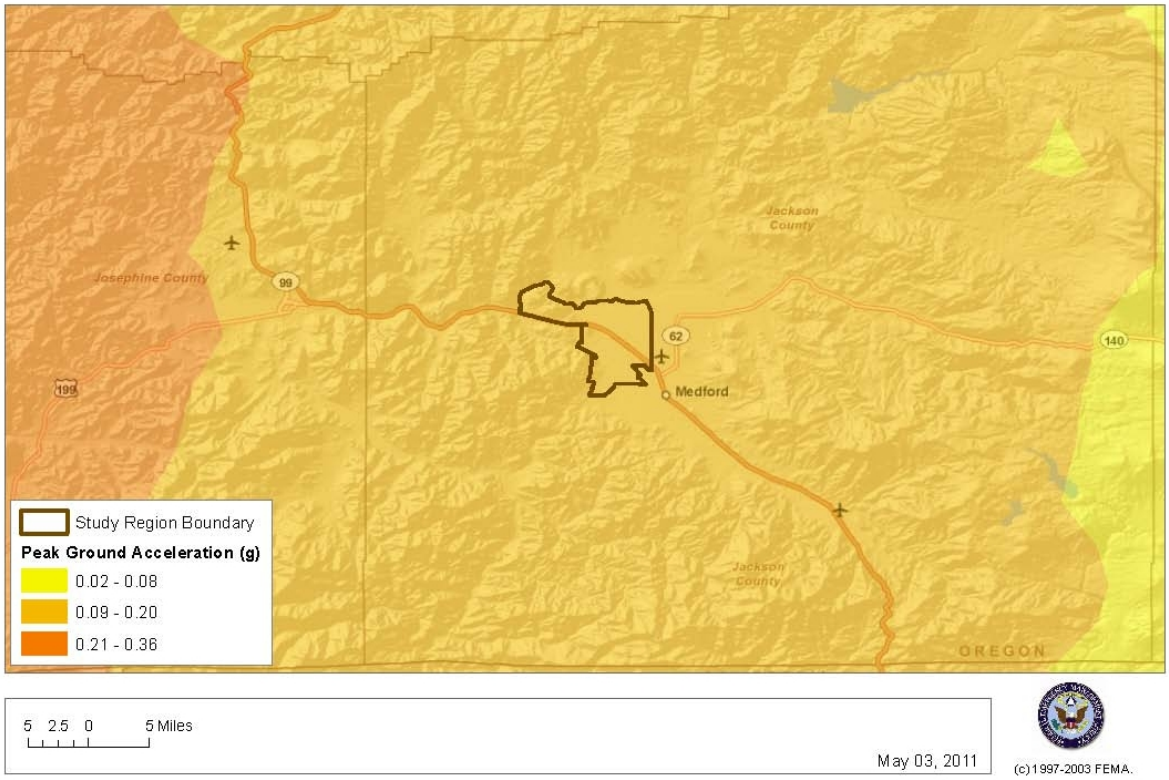
occur but with fewer breaks because of higher design criteria for gas pipes. Damage may also occur in the electric power system, especially to high voltage transformers with brittle components. Given such damage to utility systems, localized disruptions of utility service is likely.

The M9.0 earthquake on the Cascadia Subduction Zone is the most likely great earthquake to affect Central Point, with an estimated return period of about 300 to 500 years. However, the worst case scenario earthquake is not the M9.0 on the Cascadia Subduction Zone but rather a much smaller earthquake, such as a M6.0 in or very near Central Point. As shown in the following figures, the level of ground shaking for nearby smaller earthquakes is much higher than the ground shaking from much larger but much further away earthquakes. Thus, damages and casualties are much higher for the smaller nearby earthquake.

The following maps show the variation in estimated earthquake ground motions for the three earthquakes. The ground shaking maps for the Cascadia M9.0 scenario is a USGS shake maps which include the best available soil/rock data for the affected areas. The ground shaking maps for the Sky Lakes M7.08 and the postulated unknown fault within Central Point are based on HAZUS data only, which may be of lower spatial resolution than the USGS shake map.

The following maps and the HAZUS results represent data for the census tracks which cover Central Point. The census tract boundaries don't match the city boundaries exactly, but the differences are minor for the purpose of illustrating the approximate levels earthquake ground shaking, damages and casualties expected for the three scenario earthquakes.

Figure 7.9
Cascadia M9.0 Earthquake: Ground Motion



Because the Cascadia M9.0 earthquake is located a considerable distance west of Central Point, the level of ground shaking in Central Point doesn't vary much with location within Central Point. Ground shaking for this scenario is near the midpoint of the color band for ground shaking from 0.09 g to 0.20 g. That is, the level of ground shaking in Central point for this scenario is about 0.15 g. Ground motions would be slightly higher in the western part of Central Point and decrease slightly to the east.

Because the Cascadia M9.0 earthquake is located a considerable distance east of Central Point, the level of ground shaking in Central Point doesn't vary much with location within Central Point. Ground shaking for this scenario from about 0.057 g in the western part of Central Point to about 0.07 g in the eastern part of Central Point. Note: this minor differences are highlighted in the above map, because the contour bands shown on the map are very narrow.

Ground motions in Central Point for this scenario are lower than those for the Cascadia M9.0 earthquake, even though the Sky Lakes Fault Zone is closer to Central Point. This occurs because the magnitude of the Sky Lakes earthquake is much smaller than the Cascadia magnitude.

Figure 7.10
Sky Lakes Fault Zone M7.08

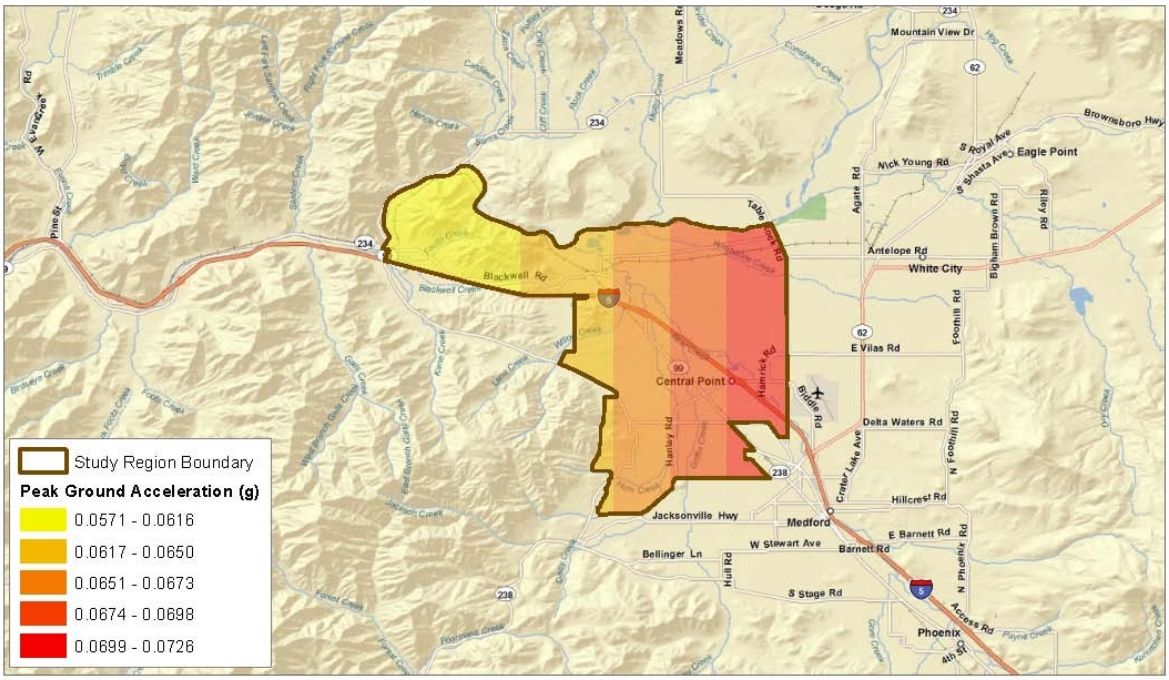
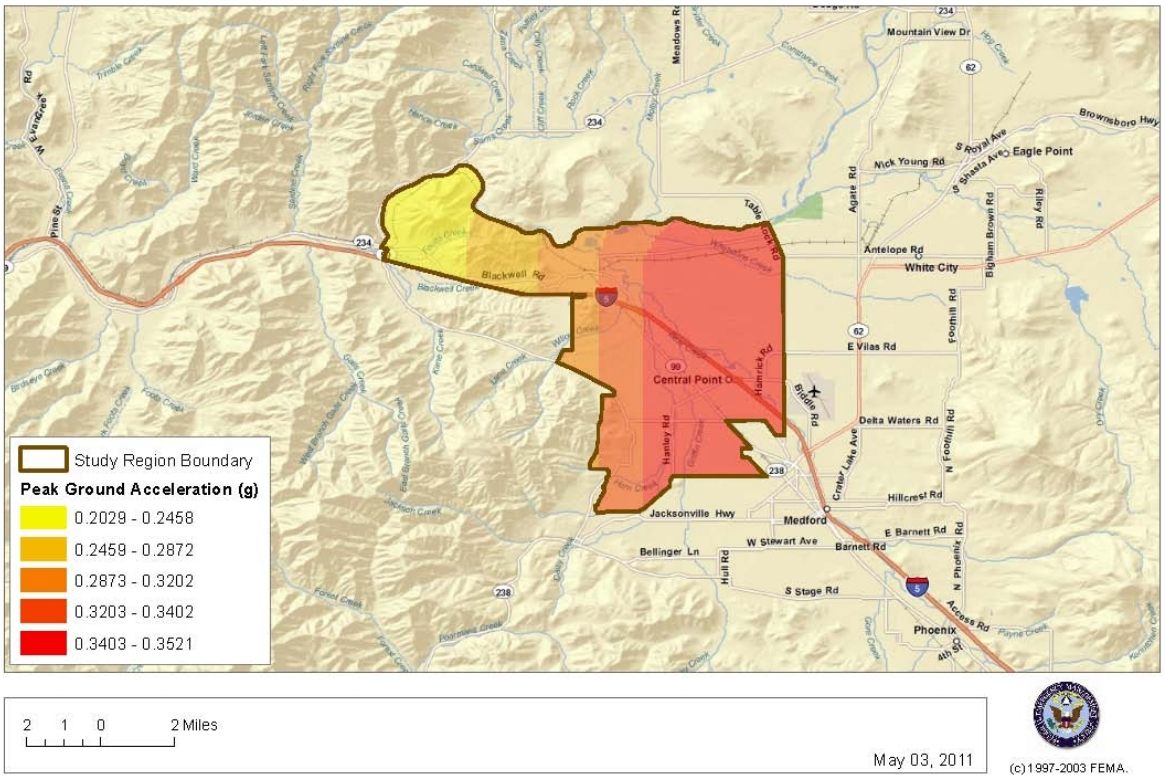


Figure 7.11
Postulated Central Point Fault M6.0: Ground Motion



This scenario earthquake is the smallest magnitude earthquake of the three scenarios. However, the level of ground shaking is higher than for the much larger Cascadia M9.0 or the Sky Lakes M7.06 scenarios, because this postulated earthquake occurs within Central Point (at the approximate north-south middle of Central Point near Interstate 5).

For this scenario, the ground motions vary markedly with location within the City, with the highest ground motions near the epicenter, decreasing with distance from the epicenter. Ground motions range from about 0.20 g to about 0.35 g.

Because of the higher levels of ground shaking, the estimated damages for this scenario are higher than for the other two earthquake scenarios.

7.5.3 HAZUS Results: Commentary and Caveats

Summary HAZUS loss estimates for the three scenario earthquakes considered were shown previously Table 7.5.

HAZUS results illustrate the relative severity of consequences for Central Point for each of the three earthquake scenarios and the approximate levels of damages and casualties expected. The numerical results should not be over-interpreted.

In addition to the results shown in Table 7.5, HAZUS generates many more detailed output reports. However, the detailed information in these output reports should be interpreted very cautiously because the results are based on limited data, which may be incomplete and/or inaccurate.

For reference, some of the detailed HAZUS results (which are not included in the summary information in this chapter) appear significantly inaccurate, including the following information which is included in the HAZUS output reports.

- The expected damage and functionality estimates for essential facilities (schools, EOCs, police stations and fire stations) appear incomplete and possibly inaccurate.
- The expected damage and functionality estimates for transportation systems – highways and rail – appear incomplete and possibly inaccurate.
- The expected damage and functionality estimates for utility systems are incomplete and possibly inaccurate. The reported numbers of leaks/breaks for the potable water, wastewater and natural gas systems appear high, given the generally good soils in Central Point and the estimates of no loss of service for the potable water and electric systems for all three scenarios appears unrealistic, especially for the M6.0 scenario..

7.5.4 Qualitative Loss Estimates for Other Earthquakes

In addition to the three scenario earthquakes summarized above, there are other earthquakes which could result in significant damage in Central Point. Qualitative loss

estimates for several of these earthquakes are provided below.

As discussed in Section 7.2, earthquakes on the Cascadia Subduction Zone include deep intraplate earthquakes as well as the interface earthquake presented above. Deep intraplate earthquakes might have magnitudes ranging from the high M6 range to as much as M7.5. An example of such an earthquake is the Nisqually earthquake in Washington State.

Levels of ground shaking and damages, economic losses and casualties in Central Point from deep intraplate earthquakes would vary significantly depending on the location and depth of the epicenter and the magnitude of the earthquake. However, damage levels could be roughly comparable to those for the further-away M9.0 interplate Cascadia Subduction Zone earthquake discussed above

As shown previously (see Figure 7.4) there are several other USGS mapped faults near the Sky Lakes Fault Zone. Earthquakes of roughly M7.0 on these faults would have consequences similar to the HAZUS scenario results for the M7.08 Sky Lakes scenario, but probably somewhat less because the other faults are somewhat further from Central Point.

Finally, as discussed previously, there could earthquakes on unknown faults almost anywhere in Jackson County, most likely below M6.0, but possibly as large as M6.5. For Central Point, such earthquake could result in significant damage if they occur close to Central Point. However, the likely damages would probably be less than the postulated M6.0 scenario results presented above.

7.6 Earthquake Hazard Mitigation Projects

7.6.1 Overview

There are a wide variety of possible hazard mitigation projects for earthquakes. The most common projects include: structural retrofit of buildings, non-structural bracing and anchoring of equipment and contents, and strengthening of bridges, utility systems and other infrastructure components.

Structural retrofit of buildings should not focus on typical buildings, but rather on buildings that are most vulnerable to seismic damage. For example, let's assume that there are 100 reinforced masonry buildings built well before current seismic requirements. A logical retrofit prioritization may consider several factors, including:

- Which of these 100 buildings have the most severe seismic deficiencies?
- Among the buildings with most severe seismic deficiencies, which ones have the highest occupancy and/or are critical service facilities such as hospitals, fire and police stations, and emergency shelters?. Many jurisdictions also consider school buildings as high priorities for retrofits.
- Which buildings are located in higher seismic hazard areas, including areas subject to soil amplification, liquefaction or lateral spreading?

- Which of these buildings pose the greatest risk (which may be evaluated quantitatively as part of a benefit-cost analysis) considering the vulnerability, occupancy and importance of each building?
- Which possible seismic retrofits have the highest benefit-cost ratio?

Considerations such as those outlined above may help Central Point determine priorities for seismic retrofits.

Non-structural bracing of equipment and contents is often the most cost-effective type of seismic mitigation project. Inexpensive bracing and anchoring may protect very expensive equipment and/or equipment whose function is critical such as medical diagnostic equipment in hospitals, computers, communication equipment for police and fire services and so on.

For utilities, bracing of control equipment, pumps, generators, battery racks and other critical components can be powerfully effective in reducing the impact of earthquakes on system performance. Such measures should almost always be undertaken before considering large-scale structural mitigation projects.

The strategy for strengthening bridges and other infrastructure follows the same principles as discussed above for buildings. The targets for mitigation should not be typical infrastructure but rather specific infrastructure elements that have been identified as being unusually vulnerable and/or are critical links in the lifeline system. For example, vulnerable overpasses on major highways would have a much higher priority than overpasses on lightly traveled rural routes.

7.6.2 Central Point

DOGAMI has completed a preliminary statewide seismic risk assessment, using FEMA's Rapid Visual Screening methodology for emergency service facilities and schools. The DOGAMI survey includes the buildings in Central Point shown in Table 7.6 on the following page (DOGAMI, 2007).

Per FEMA's Rapid Visual Screening (RVS) methodology, buildings with Final Scores of 2.0 or lower may have significant seismic vulnerabilities and more detailed risk assessments are recommended. These RVS results should be interpreted only as a preliminary indication of seismic vulnerability. Upon more detailed evaluation, some buildings with low scores may not have significant seismic vulnerabilities.

However, the pre-1990s vintage of most of these buildings indicates that these buildings were designed to seismic provisions significantly lower than current or recent building codes. Thus, more detailed seismic evaluations of most of these buildings may be warranted.

Table 7.6
DOGAMI Rapid Visual Screening Summary

Building[3]	Building Type	Date[4]	DOGAMI RVS Final Score[1]
Police Station	Concrete Shear Wall	1980	2.3
Oregon State Police	Light Steel Frame	1990s	3.2
Fire Station	Reinforced Masonry	1990s	0.4 [2]
Central Point Elementary School	Unknown	1908	N/A
Jewett Elementary School			
Building A	Reinforced Masonry	1955	1.9
Building B	Reinforced Masonry	1955	2.4
Building C	Concrete Shear Wall	1955	1.9
Richardson Elementary School	Reinforced Masonry	1964	0.1
Scenic Middle School			
Building A	Reinforced Masonry	1960	2.3
Building B	Reinforced Masonry	1960	0.8
Building C	Reinforced Masonry	1960	2.3
Crater High School			
Building A	Wood frame	1950	3.5
Building B	Concrete Shear Wall	1950	0.4
Building C	Concrete Shear Wall	1950	0.3
Building D	Reinforced Masonry	1970s	2.8
Building E	Concrete Shear Wall	1960s	0.3
Building F	Reinforced Masonry	1970s	0.5
Building G	Reinforced Masonry	1980s	0.3
Building H	Reinforced Masonry	1960s	0.3

[1] RVS is FEMA's Rapid Visual Screening methodology which provides a preliminary assessment of a building's potential seismic vulnerability, taking into account the approximate level of seismic hazard within each county. Lower scores indicate higher risk. The suggested interpretation is that more detailed risk assessments should be done for buildings with scores of 2.0 or below.

[2] RVS score may be unrealistically low - reevaluation suggested.

[3] Building letter designations per DOGAMI report.

[4] DOGAMI estimate- may not be correct.

Photos of the Central Point buildings in Table 7.6 are provided in the Appendix at the end of this chapter.

The following table contains earthquake mitigation action items from the master Action Items table in Chapter 4.

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Table 7.11
Earthquake Mitigation Action Items:

Hazard	Action Item	Coordinating Organizations	Timeline	Plan Goals Addressed					
				Public Awareness	Life Safety	Protect Property Minimize Losses	Partnerships & Implementation	Emergency Services	Environmental Protection
Earthquake Mitigation Actions									
Short-term #1	Evaluate the seismic vulnerability of critical city-owned buildings and establish priorities to retrofit or replace vulnerable buildings.	Community Development, Building Division	1-2 years	X	X	X	X		
Short-term #2	Evaluate the seismic vulnerability of the schools and fire station in Central Point and establish priorities to retrofit or replace vulnerable buildings.	Community Development, Building Division	1-2 years	X	X	X	X		
Short-term #3	Evaluate the seismic vulnerability of important components of the Central Point water and waste water systems and establish priorities to retrofit or replace vulnerable components.	Public Works and Community Development, Building Division	3-5 years	X	X	X	X	X	

Hazard	Action Item	Coordinating Organizations	Timeline	Plan Goals Addressed					
				Public Awareness	Life Safety	Protect Property Minimize Losses	Partnerships & Implementation	Emergency Services	Environmental Protection
Short-term #4	Conduct a sidewalk survey of residential, commercial and industrial buildings in Central Point using FEMA's Rapid Visual Screening to identify especially vulnerable buildings, raise awareness, and encourage mitigation actions.	Public Works and Community Development, Building Division	5 years	X	X	X			
Short-term #5	Disseminate FEMA pamphlets to educate homeowners and business owners about structural and non-structural retrofitting options and benefits for vulnerable buildings.	Public Works and Community Development, Building Division	Ongoing	X	X	X			
Long-term #1	Obtain funding and retrofit important public facilities with significant seismic vulnerabilities.	Public Works and Community Development, Building Division	Ongoing	X	X	X	X		X

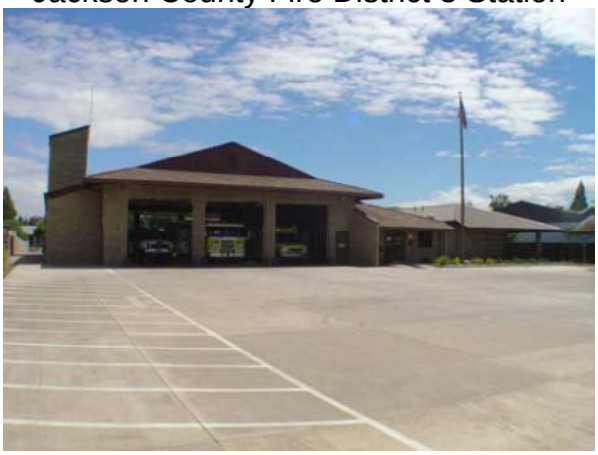
Appendix

DOGAMI Photos of Buildings in Table 7.6 (DOGAMI, 2007)

Central Point Police Station

Oregon State Police

Jackson County Fire District 3 Station



Central Point Elementary School

Richardson Elementary School

Jewett Elementary School Building A

Jewett Elementary School Building B

Jewett Elementary School Building C

Scenic Middle School Building A

Scenic Middle School Building B

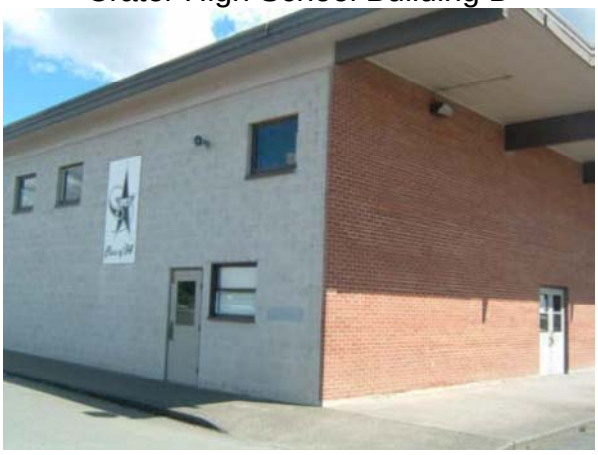
Scenic Middle School Building C

Crater High School Building A

Crater High School Building B

Crater High School Building C

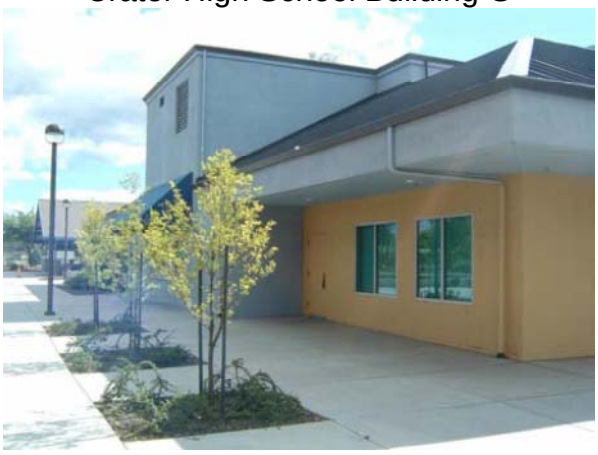
Crater High School Building D



Crater High School Building E

Crater High School Building F

Crater High School Building G



Crater High School Building H

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8.0 SEVERE WEATHER

8.1 Overview

Winter storms affecting Central Point are often characterized by a combination of heavy rains and high winds throughout Jackson County, sometimes with snowfall, especially at higher elevations. Heavy rains can result in localized or widespread flooding, as well as debris slides and landslides. High winds commonly result in tree falls which primarily affect the electric power system, but which may also affect roads, buildings and vehicles. Winter storms may also result in significant ice accumulations, which primarily affect the electric power system and transportation. This chapter deals primarily with the rain, wind, snow and ice effects of winter storms. Larger scale flooding is addressed in Chapter 6.

For completeness, we also briefly address other severe weather events, including severe thunderstorms, hail, lightning strikes and tornadoes in Section 8.5. However, the frequency, severity, and impacts of such severe weather events are generally minor for Central Point, compared to winter storm effects.

Winter storms can affect the area directly, with damage within Central Point, or indirectly, with damage outside the area but affecting transportation to/from the area and/or utility services (especially electric power). Historically, Central Point has often been subject to both direct and indirect impacts of winter storms. The winter storms that affect Central Point are typically not local events affecting only small geographic areas. Rather, the winter storms are typically large cyclonic low pressure systems moving from the Pacific Ocean and that thus usually affect large areas of Oregon and/or the whole Pacific Northwest.

Historical winter storm data compiled by the Portland Office of the National Weather Service include the following major winter storm events with substantial wind damage in western Oregon:

January 9, 2009	October 2, 1967
December 14-15, 2008	March 27, 1963
December 1-3, 2007	October 12, 1962
December 14, 2006	November 3, 1958
February 7, 2002	December 21-23, 1955
February 6, 1996	December 4, 1951
December 12, 1995	November 10-11, 1951
November 13-15, 1981	April 21-22, 1931
March 25-26, 1971	January 20, 1921

The specific severity and impacts of the major historical winter storm events listed above varied significantly with geographic location within Oregon. However, in terms of sustained wind speeds and damage levels, the 1962 Columbus Day storm stands out as the most severe such event for Oregon.

8.2 Rain Hazard Data

Severe winter storms in Central Point often include heavy rainfall. The potential impact of heavy rainfall depends on both the total inches of rain and the intensity of rainfall (inches per hour or inches per day). In the context of potential flooding, "rainfall" also includes the rainfall equivalent from snow melt. Flash floods, which are produced by episodes of intense heavy rains (usually 6 hours or less) are rare in western Oregon but do represent a potential meteorological hazard.

Because the drainage areas of the creeks within Central Point are small, the extent of flooding is governed by the total rainfall plus snow-melt runoff within short periods ranging from a day or two for the larger creeks to perhaps as little as a couple of hours for the smallest creeks. The flood prone areas within Central Point are discussed in Chapter 6: Floods

Central Point annual rainfall data are summarized in Table 8.1 below. These data are for the Medford airport weather station, the nearest station to Central Point.

Table 8.1
Central Point Rainfall Data

Location	Average Annual Precipitation (inches)	Lowest Annual Precipitation (inches)	Highest Annual Precipitation (inches)	Period of Record
Medford	18.97	10.42 (1959)	31.41 (1996)	1928-2010

Western Regional Climate Center website: www.wrcc.dri.edu

Average annual rainfall amounts are moderate in Central Point, about 19 inches per year. As shown above, there are also substantial variations in annual rainfall from year to year.

The rainfall data shown in Table 8.1 give general overview of the potential for winter storm flooding in Central Point, but whether or not flooding occurs at specific sites depends heavily on specific local rainfall totals during individual storms and local drainage conditions. For example, 3" of rain in one area may cause no damage at all, while 3" of rain in a nearby area may cause road washouts and flooding of buildings. The maximum one-day rainfall of 3.30 inches occurred on December 2, 1962.

8.3 Wind Hazard Data

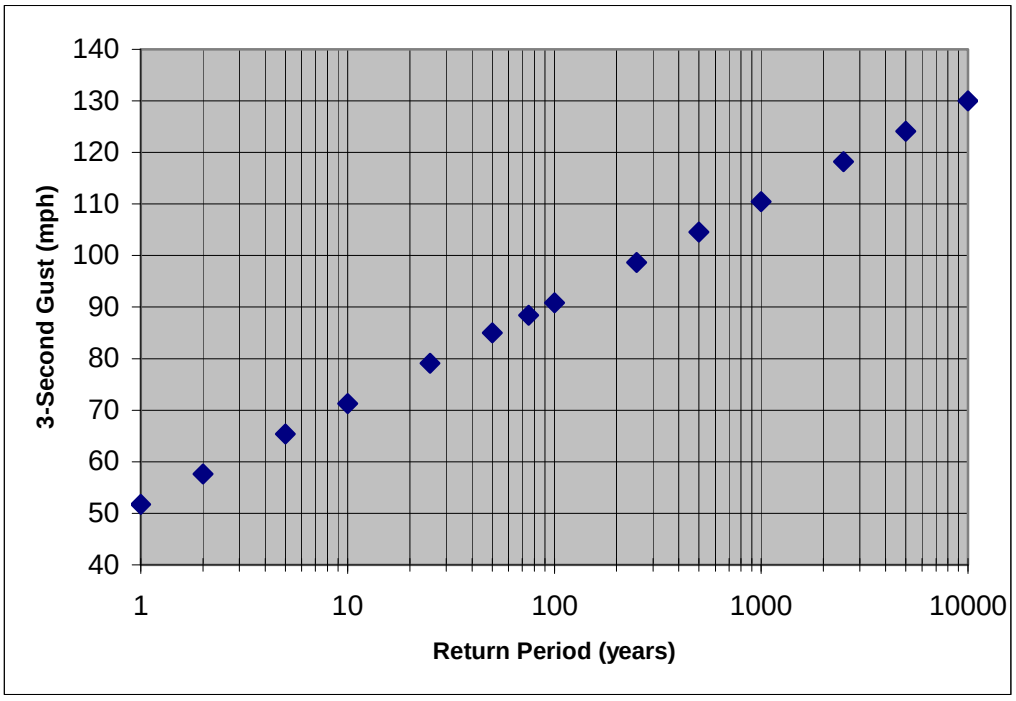
Wind speeds associated with winter storms vary depending on meteorological conditions, but also vary spatially depending on local topography. For Central Point, given the limited topographic relief, the wind hazard levels are generally uniform across the city.

The International Building Code references ASCE 7-05 (American Society of Civil Engineers, Minimum Design Loads for Buildings and Other Structures) Chapter 6 which specifies the minimum wind speed (3-second gust) for the design of new construction as 85 miles per hour, for most areas of the United States. 85 miles per hour is the wind speed with an average return period of 50 years; that is, the annual probability of winds of 85 mph or higher is 2%.

Locations with higher than typical wind hazards are designated as "special wind regions" and the design wind speeds are locality-specific in these areas. Central Point is not in a special wind region, so the approximate levels of wind hazard for Central Point are as shown below in Figure 8.1.

In Central Point, the 10-year, 50-year and 100-year return period wind speeds are approximately 71 mph, 85 mph and 91 mph, respectively. All of these winds speeds are three-second gusts which are typically about 30% higher than sustained wind speeds. Thus, the corresponding 10-year, 50-year and 100-year sustained wind speeds are approximately, 55 mph, 65 mph and 70 mph, respectively.

Figure 8.1
Wind Hazard Curve for Central Point



A series of three winter storms in close succession during January of 1950 swept through the region and impacted the entire state. High winds combined with snow and sleet affected the transportation network, damaged trees, and caused power outages. No specific damages were recorded in Central Point.

The October 1962 Columbus Day storm impacted Central Point, along with other west cost communities. There is little information regarding specific impacts to Central Point; however, there is some data for Medford, which shares a boundary with Central Point. What is known is that the impacts of the storm were not as great in southern Oregon as the rest of the state. Where winds gusted to 116 miles per hour in Portland, the largest wind gust in Medford reached only 58 miles per hour. There were reports of damages to roof tops and trees, but no evidence of catastrophic damages were recorded in Central Point.

8.4 Snow and Ice Hazard Data for Central Point

Winter storms can also involve ice and snow in Central Point. The most likely impact of snow and ice events on Central Point are road closures limiting access/egress to/from some areas, especially roads to higher elevations. Winter storms with heavy wet snow or high winds and ice storms may also result in power outages from downed transmission lines and/or poles.

Average annual snowfalls in Central Point are generally low as shown below in Table 8.2.

Table 8.2
Snowfall Data for Central Point

Location	Average Annual Snowfall (inches)	Lowest Annual Snowfall (inches)	Highest Annual Snowfall (inches)	Period of Record
Medford	6.90	0.00 (12 years)	31.6 (1955-1956)	1928-2010

Western Regional Climate Center website: www.wrcc.dri.edu

Average snowfall in Central Point is low, only about 7 inches, with many years in which no snowfall has been recorded. However, the maximum annual snowfall in Central Point was 31.6 inches in 1955-1956, with three substantial storms in November, February and March. During the period of record, there have been five years with snowfall above 20 inches, with the last such year being 1964-1965. However, over the past 20 years, the average annual snowfall in Central Point has been only 2.3 inches, with 8 years in which no measurable snowfalls occurred.

Central Point is also subject to ice storm (freezing rain) events. Approximate ice thicknesses for various return periods are shown below in Table 8.2

For Central Point, ice thicknesses range from about 0.5” in a 50-year event to nearly 1.5” in a 400-year event. The data shown above are from an American Lifelines Alliance report: Extreme Ice Thicknesses from Freezing Rain (2004) (http://www.americanlifelinesalliance.org/pdf/ALAIceLoadFinalReport092804.pdf).

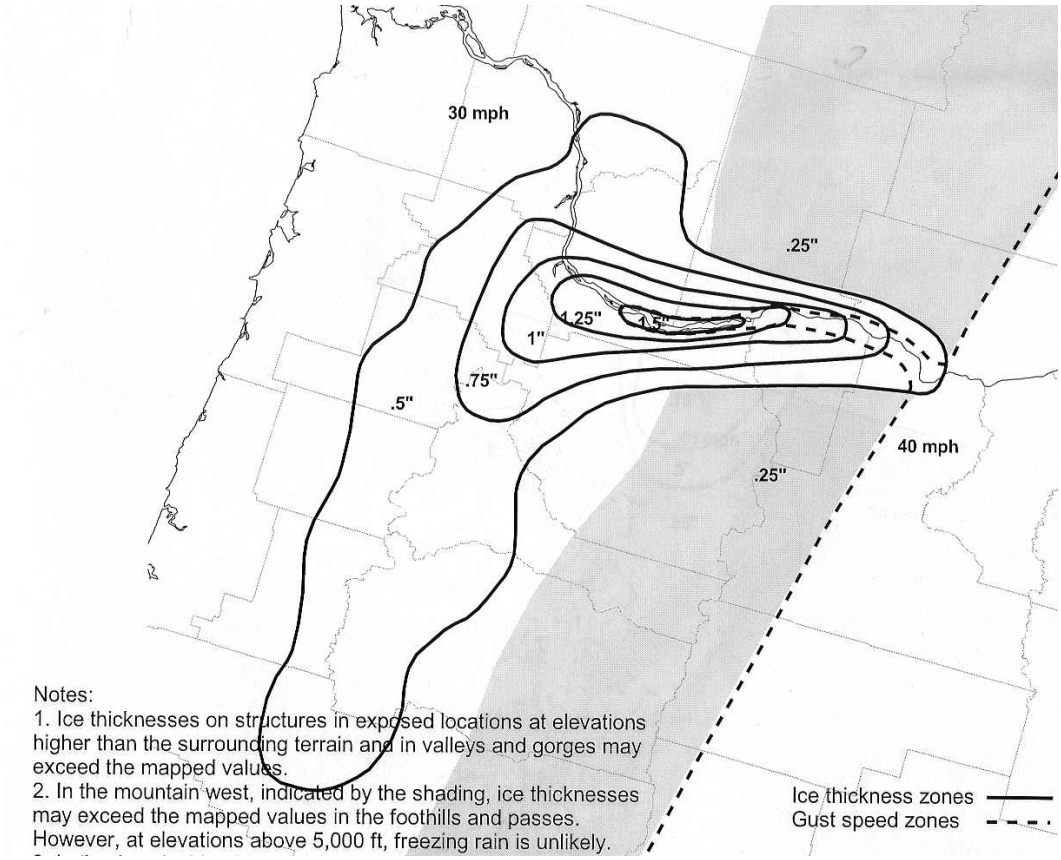
The most common effects of ice storms are tree falls and damage to above ground utility lines (from tree falls or from direct ice loading). Significant damage typically begins at ice thicknesses of about 0.25 inches, with damage increasing markedly at thicknesses above 0.5 inches. Damage to utility lines is typically concentrated in distribution system lines which are at lower heights than transmission lines and thus much more subject to damage from tree falls. Transmission lines also typically have higher wind/ice load design specifications and thus are typically not damaged except in extreme ice storm events with well over 1.00 inches of ice. For Central Point, ice thicknesses in 50-year or more severe events are high enough ($\geq$ 0.5”) to cause widespread significant damage, especially to trees and utility lines.

Table 8.2
Ice Thicknesses in Central Point for Various Return Periods

Return Period (years)	Central Point Ice Thickness (inches)
400	1.47
200	1.13
100	0.87
50	0.50
10	0.33
5	0.20
2	0.10
1	0.03

The 50-year ice thickness contour map is shown below in Figure 8.2.

Figure 8.2
50-Year Ice Thickness from Freezing Rain



The only ice storms of record include those that occurred in 1991 and 1992. The 1991 winter storm front caused temperatures to drop -6°F at night and remain below 12°F during the day. This lasted about a week and caused significant damage to water pipes, heating systems, and crops throughout the region. The 1992 storm produced an unusual cold spell that created a draw of electrical power throughout the region. There is no record of specific damages in Central Point for either the 1991 or 1992 winter ice storms.

8.5 Other Severe Weather Events

The National Oceanic and Atmospheric Administration (NOAA), which includes the National Weather Service, also includes the National Climatic Data Center (NCDC). The NOAA and NCDC websites have a vast amount of historical information on severe weather events throughout the United States. These databases can also be searched by State and County to obtain more localized information. Website addresses are: www.noaa.gov and www.ncdc.noaa.gov, for NOAA and NCDC, respectively. The state and county storm event database can be found at:

http://www4.ncdc.noaa.gov/cgi-win/wwcgi.dll?wwevent~storms.

Unless otherwise referenced, all of the storm event data below for Central Point are from the state and county storm event database referenced above.

8.5.1 Severe Thunderstorms and Hail Events

The NCDC database lists 38 thunderstorm wind events in Jackson County from 1950 to 2011. Only two of these events included a damage amount which totaled $170,000 for these two events. Damages in many events are probably unreported and unavailable. Only one of these events was identified as being in Central Point: a thunderstorm wind event on August 23, 1999 with wind speeds estimated to be 50 knots (about 58 mph).

Thus, most thunderstorm events in Central Point are too minor to be recorded as significant storm events. Nevertheless, thunderstorm events in Central Point may occasionally cause locally high winds with tree falls which may affect roads, utility lines, buildings and vehicles.

The NCDC database lists 70 hail events for Jackson County from 1950 to 2011. However, all but four of these events are from 1991 to date. Thus, earlier records are certainly incomplete. Several of these events were in or very near to Central Point, as summarized in Table 8.3 below.

Hail events are relatively common in Central Point during summer months. Most events result in only minor damage and few practical mitigation measures exist for hail storms, other than taking shelter and moving vehicles to garages when possible. However, all of the events listed in Table 8.3 have hail diameters of 0.75 inches are greater. Severe hail events result in damages to roofs, windows, vehicles and other vulnerable, exposed items.

Table 8.3
Hail Events in or Near Central Point

Date	Location	Hail Diameter (inches)	Damages Reported
7/21/1995	Medford	1.40	No
7/29/1996	Medford Airport[1]	2.00	$3,500,000
8/1/1997	Central Point[2]	0.75 and 1.38	No
9/2/1997	Medford Airport[3]	0.75 to 1.38	$2,100,000
8/6/2003	Medford	0.75	No
8/1/2009	Central Point	1.75	No
8/17/2010	Central Point[4]	0.75	No

[1] most severe hail event listed in Oregon
[2] two events 6 minutes apart
[3] four events over a 21 minute period
[4] three events over an 11 minute period

The historical hail data shown above include five hail events with hail diameters from 1.38 inches to 2.00 inches. Such large hail events typically result in significant damages; albeit certainly not at levels comparable to those from major floods or earthquakes.

Given several such large hail events within a 15 year time period, the level of hail hazard in Central Point is high.

Summer thunderstorms occurred in 1997, 2009, and 2010. In both cases, the storms were sudden onset and lasted a short period of time with intense precipitation that included hail and rain. In both cases, rainfall was the primary concern as flooded streets caused traffic problems, as well as damage to surrounding structures. There were no reported damages from hail during these storm events.

8.5.2 Extreme Temperatures

Prolonged periods of extreme temperatures – either unusually cold or unusually hot – can pose life safety risks, particularly for elderly and other at risk populations, especially if power outages are concurrent with extreme temperatures. The greatest risk for extreme heat is to lower income residents without air conditioning or those who have lost air conditioning due to power outages.

Average high temperatures in Central Point range from 90^{o} in July to 45^{o} in December. The record high temperature in Central Point is 115^{o} which occurred on July 20, 1946. On average, Central Point experiences about 53 days per year with daily high temperatures of 90^{o} or higher and about 7 days or more with daily highs of 100^{o} or higher.

Extreme heat often results in localized power outages. Demand for electricity may exceed capacity resulting in brownouts or blackouts. The combination of very high demand and high temperatures results in an increased number of equipment failures (especially lines and transformers), which increase the number of service outages.

Central Point is subject to extreme heat periods. However, public response to extreme heat situations is primarily the responsibility of emergency responders and public health staff.
Average low temperatures in Central Point range from 31^{o} in January to 73^{o} in July. The record low temperature in Central Point is -6^{o} which occurred on December 14, 1962. On average, Central Point experiences about 80 days per year with daily lows of 32^{o} or lower. However, temperatures of 0^{o} or lower are uncommon and occur on average only about once every 10 years.

Central Point is subject to cold temperatures near or below 0^{o}. Extreme cold temperatures may result in property damage from freezing and rupturing of water

pipes, including irrigation systems and pipes within buildings with inadequate insulation. Extreme cold conditions may also result in power outages due to equipment failures and/or high demand.

If cold temperatures are accompanied by power outages, then emergency shelters for people (especially at risk populations such as the elderly or otherwise frail people) may be required. However, as with extreme heat situations, public response to extreme cold situations is primarily the responsibility of emergency responders and public health staff.

Overall, the level of risk posed to Central Point by extreme temperatures is relatively low.

There are no obvious practical mitigation action items specifically to reduce the impacts of extreme heat or extreme cold on the residents of Central Point. However, mitigation measures suggested in previous hazard chapters to ensure back-up power supplies for critical facilities under disaster or other emergency conditions would also be beneficial during extreme heat or extreme cold conditions, which often include localized or widespread power outages.

8.5.3 Lightning

Nationwide, lightning is a significant weather related killer. NOAA data show that lightning causes about 90 deaths per year, with at least 230 injuries (NOAA Technical Memorandum NWS SR-193, 1997). Lightning injuries appear to be systematically underreported and thus the actual injury total is most likely significantly higher. For Oregon, however, casualties from lightning are very low, with totals of only 7 deaths and 19 injuries reported over a 35 year period (NOAA). The NCDC data base lists only 1 death and 14 injuries from 1995 to 2011.

The NCDC database lists only 5 lightning events for Jackson County from 1950 to 2011. However, this record is obviously incomplete, since all 5 events are from 2002 or later. Clearly, many earlier and smaller lightning events are not included in this database. One of these listed lightning events occurred in Central Point on June 2, 2009, with one injury reported.

Thus, the level of risk posed by lightning strikes in Central Point, while not zero, is low. Public education about safe practices during electrical storms is the only available mitigation measure to reduce casualties from lightning. Lightning strike damage to buildings or infrastructure is generally relatively minor and few practical mitigation alternatives are applicable to lightning, other than installing lightning arrestors on critical facilities subject to lightning damage.

Despite the low risk of lightning strikes, they have been known to happen in Central Point and the surrounding area. On June 1, 2009 lightning struck a pipe on the McDonalds roof located on East Pine Street in Central Point. A worker who was emptying the dishwasher was shocked by the lightning strike. Another home

in Medford, just south of Central Point was also reportedly struck by lightning and caught fire.

8.5.4 Tornadoes

Tornadoes also do occur occasionally in Oregon. However, Oregon is not among the 39 states with any reported tornado deaths since 1950. A compilation of historical tornadoes from by the National Weather Service lists 100 tornadoes in Oregon. Of these 100 tornadoes, nearly all were small tornadoes rated at F0 or F1 on the commonly used Fujita tornado intensity scale. During this time period, there were three F2 tornadoes and one F3 tornado.

None of these historical tornadoes were in Central Point or Jackson County, although several were in adjacent counties.

An important caveat on historical reports of tornadoes, especially older events and those for small tornadoes, is that some events previously reported as tornadoes are now more accurately understood as downbursts or microbursts associated with thunderstorms and not actually tornadoes.

Climate and weather conditions in Oregon overall, and specifically in Central Point, make the occurrence of major tornadoes unlikely, but not impossible as demonstrated by the rare F2 or F3 tornado events in Oregon. The most practical mitigation actions for tornadoes are public warnings and taking shelter to minimize the potential for deaths and injuries.

8.6 Severe Weather Risk Assessment

8.6.1 Winter Storms

Winter storm flooding, snow, ice and wind events may affect both infrastructure and buildings. Localized flooding from winter storms very commonly affects the transportation system, especially roads. Severe winter storms may result in numerous road closures due either to washouts or due to depth of water on road surfaces. Such localized flooding may also affect buildings in the flooded areas.

Wind impacts from winter storms arise primarily from tree falls, which may affect vehicles and buildings, to some extent, but whose primary impact is often on utility lines, especially electric power lines. Widespread wind damages may result in widespread downing of trees or tree limbs with resulting widespread damage of utility lines. Such tree-fall induced power outages affect primarily the local electric distribution system, because transmission system cables are generally less prone to tree fall damage because of design and better tree-trimming maintenance. In severe wind storms, direct wind damage or wind driven debris impacts on buildings cause building damages, especially for more vulnerable types of construction such as mobile homes.

Snow and/or ice events typically disrupt transportation, with more severe events also damaging above-ground utilities. Utility outages may be widespread and of long duration in major events such as very heavy snowfalls or significant ice storms.

8.6.2 Other Severe Weather Events

Compared to winter storm impacts, the likely impacts of other severe weather events in Central Point are relatively minor.

Severe thunderstorms may include winds high enough to cause tree falls, with most damage to utility lines, but also possible damage to buildings and vehicles.

Severe hail events, with large diameter hail, may result in significant damages to roofs, windows, vehicles and other vulnerable, exposed items.

Lightning strikes may result in damage to buildings and also damage electric equipment within buildings (from power surges in electric lines), as well as resulting in death or injury to individuals. Lightning damage is typically limited to one or a few specific locations hit by strikes, rather than affecting a large area.

The probable impacts of severe weather events on Central Point are summarized qualitatively below in Tables 8.4 and 8.5.

Table 8.4a
Probable Impacts of Winter Storms on Central Point[1]

Inventory	Probable Impacts
Portion of Central Point Affected	Entire City may be affected by road closures or loss of electric power; otherwise direct damages to buildings and infrastructure are likely to be localized and relatively minor
Buildings	Isolated minor damage from tree falls, wind or heavy snow loads; a few buildings may be affected by localized flood damage
Streets within Central Point	Road closures due to snow, ice tree falls and/or flooding; limited impact because of short detour routes within the city.
Roads within and to/from Central Point	Potential closures of some roads and major highways due to snow, ice, localized flooding and tree falls. Road closures from landslides or debris flows also possible in roads to/from Central Point in hilly or mountainous areas.
Electric Power	Loss of electric power may be localized or widespread due to tree falls and/or ice on local distribution lines or very widespread if transmission lines fail.
Other Utilities	Generally minor impacts on other utilities from winter storms, except for possible effects of loss of electric power
Casualties	Potential for casualties (deaths and injuries) from tree falls or contact with downed power lines or from traffic accidents.

[1] These winter storm impacts include localized flooding and the effects of wind, snow, and ice.

For more quantitative risk assessment of localized flooding and wind damages arising from winter storms, the best approach is to systematically gather data on

sites of repetitive damages due to localized flooding or wind damages. By documenting (and mapping using GIS) the sites of repetitive damage events, along with documentation of the type and cost of damages and losses, the most seriously impacted sites can be clearly identified. Such repetitive loss sites with significant damages would be likely candidates for future mitigation actions.

Table 8.5
Probable Impacts of Other Severe Weather Events on Central Point

Weather Event	Probable Impacts
Severe Thunderstorms	Localized damage mostly from tree falls and primarily affecting above-ground utility lines. However, there may also be localized damage to vehicles and buildings. Possibility of injuries or, rarely, deaths.
Severe Hail Events	Localized damage in small areas that receive the largest diameter hail, although severe events could affect large portions of Central Point. Damage generally limited to vulnerable, exposed items including roofs, windows and vehicles.
Lightning	Isolated damage to one or a few buildings, including damage to electrical equipment in buildings struck by lightning. Possibility of injuries or deaths.
Tornadoes	Generally low risk, but possible localized damage from small F0 or F1 tornadoes, with slight possibility of deaths or injuries. More widespread damage possible in very rare larger tornadoes, which also have a higher likelihood of causing deaths or injuries.

8.7 Mitigation of Severe Impacts

Potential mitigation projects for winter storms may address any of the aspects of such storms, including floods, winds, and snow/ice.

For winter storm flooding, the mitigation measures discussed in Chapter 6 (Floods) for local storm water drainage flooding are exactly the mitigation measures for the flood aspects of winter storms. Common mitigation projects include: upgrading storm water drainage systems, construction of detention basins, and structure-specific mitigation measures (acquisition, elevation, floodproofing) for flood-prone buildings.

For roads subject to frequent winter storm flooding, possible mitigation actions include elevation of the road surface and improved local drainage. For utility infrastructure subject to frequent winter storm flooding, possible mitigation actions include improved local drainage, elevation or relocation of the vulnerable utility elements to non-flood prone areas nearby.

For wind, snow and ice effects of winter storms, the most common and most effective mitigation action is to increase tree trimming effects, because a high percentage of wind damage to utilities, buildings, vehicles, and people arises from tree falls. However, economic, political and esthetic realities place limits on tree trimming as a mitigation action. .

Effective tree trimming mitigation programs often focus on limited areas where tree falls have a high potential to result in major damages and economic losses. High priority areas include examples such as the following:

1) Transmission lines providing electric power to the area,
2) Major trunk lines providing the backbone of the electric power distribution system within the area
3) Distribution lines for electric power to critical facilities in the area,
4) Specific circumstances where falling of large trees poses an obvious threat to damage buildings and/or people or close major transportation arteries.

Mitigation measures for snow and ice are limited, although tree trimming efforts, discussed above, also reduce the impact of snow and ice on trees, roads, and utility lines. For the most part, dealing with snow and ice storms are primarily issues of emergency planning, along with response and recovery actions.

Similarly, few mitigation measures appear practical for Central Point for other types of severe weather, including severe thunderstorms, hail, lightning, and tornadoes. For such weather events, public education about safe practices and emergency planning, response and recover appear to be the most useful pragmatic actions.

The following table contains winter storm mitigation action items from the master Action Item table in Chapter 4.

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Table 8.6
Winter Storm Mitigation Action Items

Hazard	Action Item	Coordinating Organizations	Timeline	Plan Goals Addressed					
				Public Awareness	Life Safety	Protect Property Minimize Losses	Partnerships & Implementation	Emergency Services	Environmental Protection
Winter Storm Mitigation Action Items									
Short-Term #1	Formalize the City's Community Forestry program to organize tree management efforts on public and private property.	Parks & Public Works Department	Ongoing	X	X	X		X	X
Short-Term #2	Promote awareness of tree selection, planting, and care to minimize hazards while promoting community forestry goals.	Parks & Public Works Department	Ongoing	X	X	X		X	
Short-Term #3	Ensure that all critical facilities in Central Point have backup power and emergency operations plans to deal with power outages	Public Works	1-2 Years		X	X		X	
Long-Term #1	Consider upgrading lines and poles to improve wind/ice loading, undergrounding critical lines, and adding interconnect switches to allow alternative feed paths and disconnect switches to minimize outage areas	Pacific Power & Light	5 Years		X	X		X	
Long-Term #2	Require new developments to include underground power lines	Community Development	Ongoing		X	X		X	

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9.0 OTHER NATURAL HAZARDS

The natural hazards addressed in the preceding chapters – floods, earthquakes and severe weather – pose significant threats to Central Point. In addition to these major natural hazards, there are several other natural hazards which pose minor or negligible threats to Central Point. These other natural hazards are briefly addressed in this chapter.

These hazards include:

- Wildland/urban interface fires,
- Landslides,
- Volcanic events,
- Drought,
- Subsidence,
- Expansive Soils, and
- Sinkholes.

In additional to natural hazards, there are many anthropogenic hazards which pose risk to Central Point, including terrorism and other deliberate malevolent actions, hazardous material releases from fixed or mobile sources, many types of accidents, disruption of utility systems and other. Evaluation of these anthropogenic hazards is outside the scope of the Central Point Hazard Mitigation Plan which focuses on natural hazards.

The anthropogenic hazards are more effectively addressed elsewhere, including emergency planning, public health, environmental and law enforcement efforts.

9.1 Wildland/Urban Interface Fires

Wildland/urban interface fires pose significant threats to many portions of Oregon and Jackson County, but the risk to Central Point is virtually negligible.

Wildland fires are fires where vegetation – grass, brush and trees – are the primary fuels. Wildland/urban interface fires are fires which occur when structures are built in wildland areas and the primary fuels become both structures and vegetation. Development in areas subject to wildland fires often poses high levels of life safety risk for residents, as well has high risk for homes and other structures.

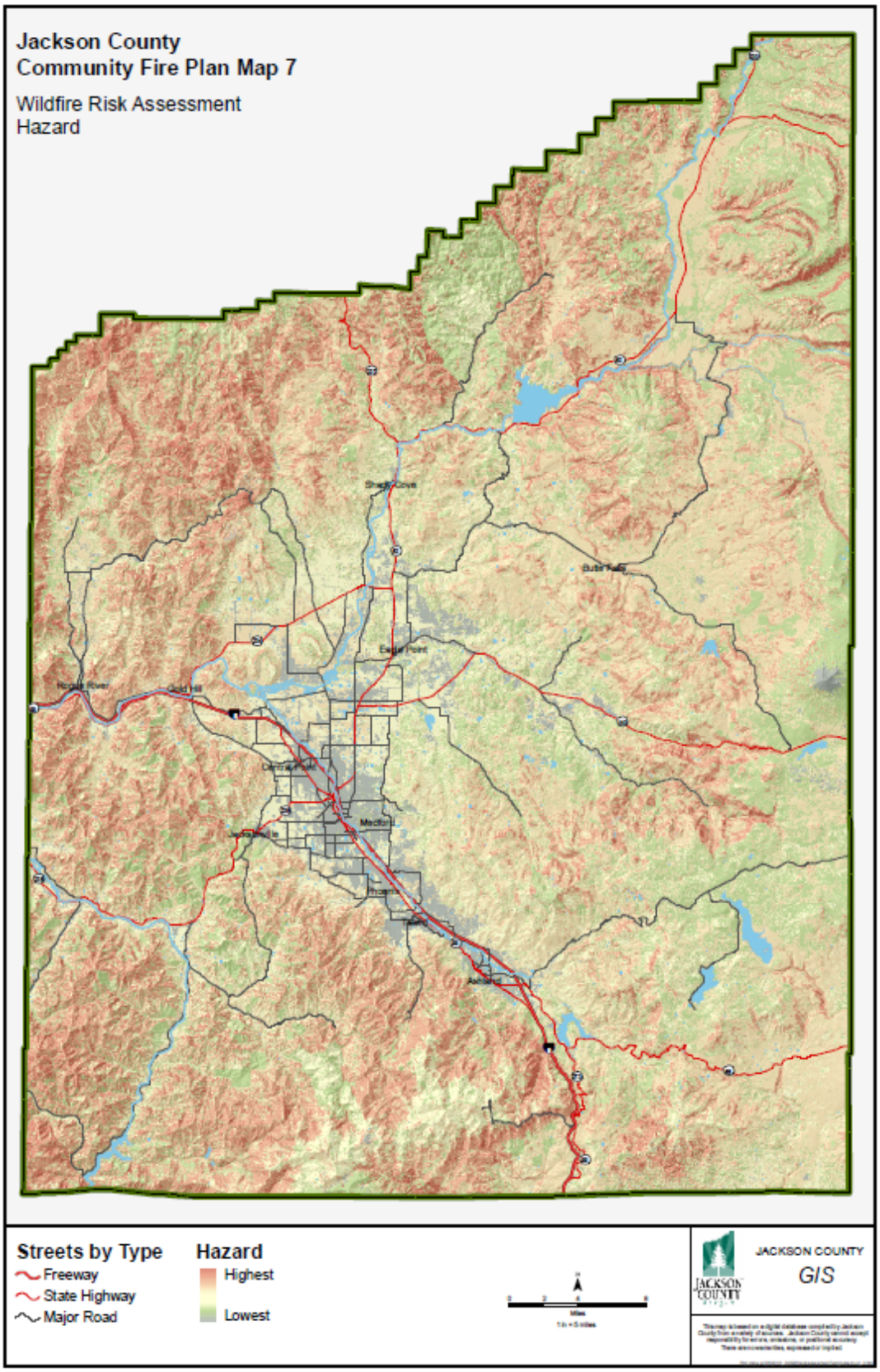
There are several factors which govern the risk of wildland/urban interface fires, including the level of vegetative fuel loads, the continuity of vegetative fuels, climate, weather and topography. In addition, the level of risk in many areas subject to wildland/urban interface fires is exacerbated by limited water supplies and other fire

suppression capability, the absence of fire-safe construction practices, and limited routes for access/egress from the high risk areas.

Fortunately, Central Point has a very low level of risk from wildland/urban interface fires because there are no high fuel load wildland areas in, adjacent to or near Central Point. Rather, Central Point is surrounded by agricultural areas which have very low fuel loads and pose minimal fire risks.

The conclusion that Central Point has virtually negligible risk of wildland/urban interface fires is reinforced by the wildland fire risk map included Chapter 7 in the 2006 Jackson County Hazard Mitigation Plan. The wildfire hazard area includes the majority of the county, but does not include Central Point, the surrounding agricultural areas or the portion of Medford immediately south of Central Point.

Figure 9.1
Jackson County Wildfire Risk Assessment Map



9.2 Landslides

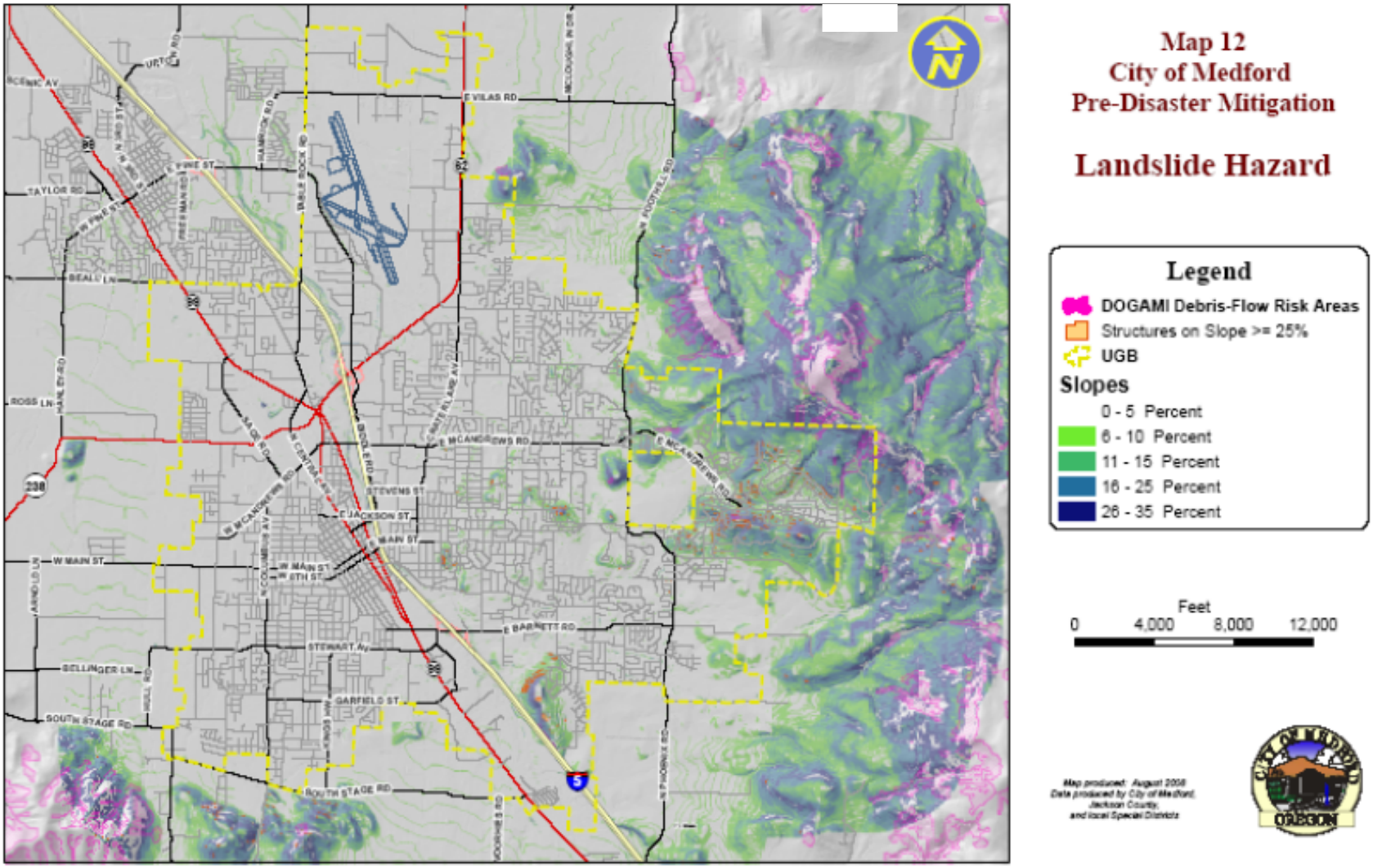
Landslides and closely related hazards such as mudslides and debris flows, pose significant threats to portions of Oregon and Jackson County, but the risk to Central Point is virtually negligible.

Landslides, mudslides and debris flows occur predominantly in hilly and mountainous areas with steep slopes with unstable soils or rocks. The topography of Central Point is almost uniformly flat with minimal slopes in almost every part of the city and this almost nil risk from these hazards.

The only areas of Central Point are a few stream bank areas within the channels of deeply incised streams. Possible landslides in these areas are more accurately characterized as very minor bank failures. Any such bank failures would be very localized. The threat to structures, if any, would be minimal, because there are very few, if any structures, close enough to stream banks to be affected by such failures. Thus, the risk posed by landslides and related hazards in Central Point appears virtually negligible.

This conclusion that Central Point has virtually negligible risk of landslides and related hazards is reinforced by the following map which shows the very low slopes throughout Central Point.

Figure 9.2
City of Medford Landslide Hazard Map



9.3 Volcanic Events

9.3.1 Overview

The Cascades, which run from British Columbia into northern California, contain more than a dozen major volcanoes and hundreds of smaller volcanic features. In the past 200 years, seven of the Cascade volcanoes in the United States have erupted, including: Mt. Baker, Glacier Peak, Mt. Rainier, Mount St. Helens, Mt. Hood, Mt. Shasta, and Mt. Lassen.

Over the past 4,000 years (a geologically short time period) in Oregon there have been three eruptions of Mt. Hood, four eruptions in the Three Sisters area, two eruptions in the Newberry Volcano area and minor eruptions near Mt. Jefferson, at Blue Lake Crater, in the Sand Mountain Field, near Mt. Washington, and near Belknap Crater. During this time period, the most active volcano in the Cascades has been Mount St. Helens in Washington State with about 14 eruptions.

Many other volcanoes in Oregon and Washington are deemed active or potentially active. A great deal of general background information on Oregon volcanoes and on volcanoes in general is available on several websites, including the following.

Table 9.1
Volcano Websites

Institution	Website
Smithsonian Institution (Global Volcanism Project)	www.volcano.si.edu
United States Geological Survey (USGS) - general site	www.usgs.gov
USGS Cascades Volcano Observatory (Vancouver, WA)	http://vulcan.wr.usgs.gov
DOGAMI	www.oregongeology.com

The Smithsonian Institution's Global Volcanism Project lists 20 active volcanic areas in Oregon. These volcanoes are listed below in Table 9.2.

Table 9.2
Active Volcanoes in Oregon

Volcano	Type	Last Eruption
Mt. Hood	Stratovolcano	1866
Mt. Jefferson	Stratovolcano	950 main volcano inactive for >10,000 years
Blue Lake Crater	Crater	1490 BC
Sand Mountain Field	Cinder cones	1040 BC?
Mt. Washington	Shield volcano	620 main volcano inactive
Belknap Field	Shield volcanoes	460?
North Sister Field	Complex volcano	350
South Sister	Complex volcano	50 BC?
Mt. Bachelor	Stratovolcano	5800 BC
Davis Lake	Volcanic field	2790 BC?
Newberry Volcano	Shield volcano	620 crater formation 300,000 to 500,000 years ago
Devis Garden	Volcanic field	unknown
Squaw Ridge Lava Field	Volcanic field	unknown
Four Craters Lava Field	Volcanic field	unknown
Cinnamon Butte	Cinder cones	unknown
Crater Lake	Caldera	2290 BC Crater formation about 7,700 years ago
Diamond Craters	Volcanic field	unknown
Saddle Butte	Volcanic field	unknown
Jordan Craters	Volcanic field	1250 BC
Jackies Butte	Volcanic field	unknown

In addition to the Oregon volcanic areas listed above, there are active volcanic areas in Washington State, including Mount St. Helens and several others, as well as several in northern California, including Mount Shasta and Mount Lassen.

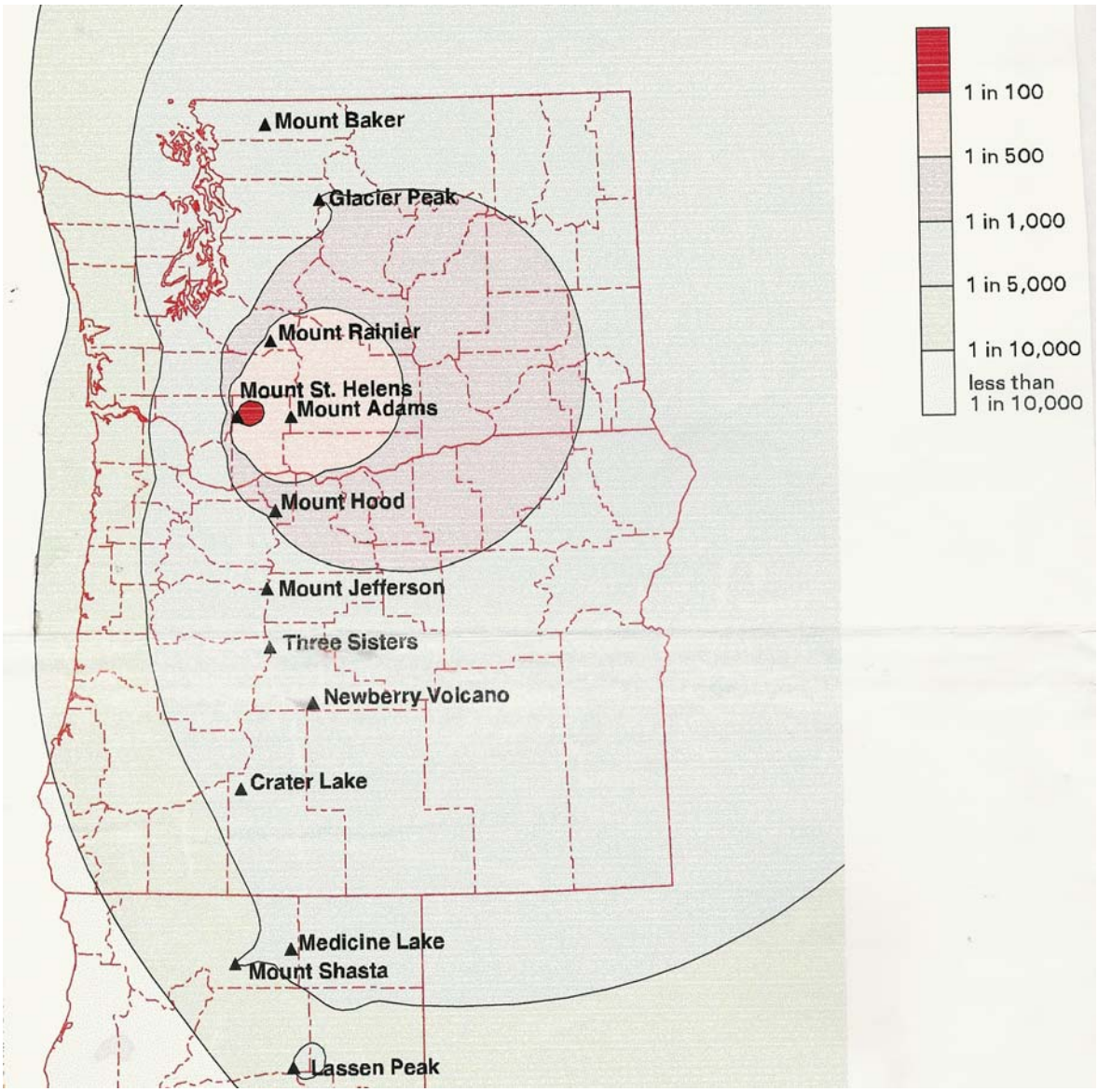
9.3.2 Volcanic Hazards Affecting Central Point

None of the active volcanic areas are near enough to Central Point to pose threats of lava flows or lahars. However, major eruptions of any of the active volcanic areas in Oregon, Washington or California could result in volcanic ash falls which could affect Central Point.

The following figure shows contours of the estimated annual probability of one centimeter (about 0.4 inches) of volcanic ash (USGS Open File Report 99-437, Volcanic Hazards in the Three Sisters Region, Oregon, 2001).

For Central Point the annual probability of one centimeter or more of volcanic ash is about 1 in 7,000, from interpolation of the contours in Figure 9.4. That is, the average return period for such an ash fall is about 7,000 years. For ash falls of 10 centimeters or more, the USGS estimate of the return period in Central Point is more than 10,000 years.

Figure 9.3
Annual Probability of 1 Centimeter or More of Volcanic Ash



As discussed above, the likelihood of significant volcanic ash falls in Central Point is extremely low. However, for completeness we note that the possible impacts of volcanic ash falls affecting Central Point include:

a) Clean-up and ash removal from roofs, gutters, sidewalks, roads, vehicles,

b) Clogging of filters and possible severe damage to vehicle engines, furnaces, heat pumps, air conditioners and other engines and mechanical equipment,

c) Possible respiratory problems for at-risk population such as elderly, young children or others with respiratory problems,

d) Possible impacts on public water supplies drawn from surface waters, including degradation of water quality (high turbidity) and possible increased maintenance requirements at water treatment plants,

e) Possible electric power outages from ash-induced short circuits in distribution lines, transmission lines, and substations,

f) Possible disruptions of air traffic from the Medford Airport and/or other airports in the Pacific Northwest.

There are no practical mitigation measures to protect Central Point from the remote possibility of significant ash falls. If such an event were to occur, public notifications re: the health risks would be important.

9.4 Drought

The City of Central Point purchases treated water from the Medford Water Commission which draws water from two sources to supply Rogue Valley customers:

- Big Butte Springs – groundwater supply with up to 25.4 million gallons per day (mgd), and
- Rogue River – surface supply up to 45 mgd.

Water from both sources is treated at the Robert A. Duff Water Treatment Plant and then conveyed to the City where it is stored and distributed to customers.

The watersheds providing water supply to the Medford Water Commission system is shown in Figure 9.4.

The use of groundwater and surface water supply sources varies seasonally. Big Butte Springs is the primary water source during much of the year; however, shortage of supply results in the Rogue River surface water being the primary water supply from May to October. The maximum daily water demand from all of the Medford Water Commission's customers has been about 52 mgd.

Central Point's agreement with the Medford Water Commission allows a maximum of 6.8 mgd, which is well above the average daily demand of 2.77 mgd, but slightly below the maximum daily demand of 6.54 mgd which occurred on July 5, 2010. The maximum daily demand was met by in-system water storage.

It is important to note that 2010 was not a typical water year for Central Point; therefore, the Central Point Water Master Plan is the guiding document for planning purposes. Local system upgrades and conservation programs, as well as regional treatment facility upgrades are either in place or planned to address any potential future water supply shortfalls.

Figure 9.4
Medford Water Commission Water Supply Map

As shown in Table 9.3, the Central Point Water Master Plan projects maximum daily demand rising to 7.76 mgd by 2015 and to 10.94 mgd by 2030. At full built out of the Urban Reserve Area (URA), maximum daily demand is estimated to be 12.81 mgd.

Table 9.3
Central Point Water Demands

Table ES-1. Summary of Water Demands			
Year	ADD (mgd)	MMD (mgd)	MDD (mgd)
Existing	2.77	1.32	6.26
2015	3.44	1.63	7.76
2030	4.86	2.31	10.94
URA build-out	5.68	2.70	12.81

Average Daily Demand (ADD)
Maximum Monthly Demand (MMD)
Maximum Daily Demand (MDD)

Central Point began construction of a new 3 million gallon reservoir in the summer of 2011. Construction of the reservoir will solve the maximum daily demand for 2030 and full URA build-out water demand projections. Annual adjustments to growth projections are conducted to evaluate water demand needs compared to existing supply.

In 2010, the Central Point implemented a conservation growth cost model to that is the basis of the city's water rate structure. Based on the first year analysis, the City saw a water consumption decrease of 15% during the summer months as compared to previous years. Future analyses will provide a better look at the effectiveness of this water conservation program.

The Medford Water Commission has started funding an expansion project that will include construction of a second treatment facility providing an additional 30 mgd treatment capacity for the region. The total capacity for the Medford Water Commission will be 100.4 mgd when this project is complete. Construction of the facility upgrades will begin when growth projections indicate a need for increased water supply.

9.5 Subsidence

The term “subsidence” refers to lowering of ground elevations, which typically occurs from ground water pumping or petroleum extraction. Subsidence can result in substantial damage to buildings, especially foundations, and to buried utility infrastructure. Subsidence damage may be severe, especially at soil type boundaries where there are discontinuities in the rate of subsidence.

In Central Point, there are no known areas where significant damage due to subsidence has or is occurring. Thus, the risk from subsidence in Central Point appears negligible**.**

9.6 Expansive Soils

The term “expansive soils” refers to soils, typically clay-rich, that undergo significant expansion and contraction cycles from seasonal variations in water content. Such cyclic changes can result in substantial damage to buildings, especially foundations, and to buried utility infrastructure.

In Central Point, there are no known areas where significant damage due to expansive soils has or is occurring. Thus, expansive soils risk in Central Point appears negligible.

9.7 Sinkholes

Sinkholes occur in areas with limestone bedrock which is subject to dissolving in ground water, creating underground channels and caves. Sinkholes occur when underground cavities collapse which can cause destruction of buildings, utility infrastructure and transportation infrastructure in the affected area.

There are no limestone areas within Central Point. Thus, the risk from sinkholes in Central Point is nil.

A similar phenomenon occurs when significant underground leakage of water from potable water or wastewater pipes occurs. In some cases, such leakage results in erosion and opening of cavities which may collapse. Since water and wastewater pipes are predominantly located under or adjacent to streets, such events most commonly occur along streets.

There have been sinkholes in Central Point as a result of old infrastructure failure associated with the following features:

- Man-made underground canals (used for sewer conveyance)
- Concrete-asbestos water and sewer pipes
- Abandoned wells

Unfortunately these features and probable sinkhole locations are not mapped.

There were two recent occurrences of sinkholes in Central Point during the summer of 2010 and winter of 2011. In both cases, the sinkholes occurred on private property; however, the dimensions of these sinkholes give cause for concern:

- The summer 2010 sinkhole was located underneath downtown buildings and spanned approximately 20-feet long, up to 4-feet wide, and a few feet deep.
- The winter 2011 sinkhole occurred in a privately owned commercial parking lot and was about 18-feet deep.

9.9 Mitigation Measures for Other Natural Hazards

The level of risk posed by all of the other natural hazards addressed in this chapter are low and in most cases the risks are negligible or nil.

Given the low level of risk, there are no necessary or practical mitigation measures for these hazards. Thus, no mitigation measures for these hazards are proposed.

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APPENDIX 1

FEMA AND OREGON MITIGATION GRANT PROGRAMS

September 21, 2011

FEMA FUNDING POSSIBILITIES FOR CENTRAL POINT

Overview

For public entities, such as Central Point, FEMA mitigation funding possibilities fall into two main categories:

- The post-disaster Public Assistance Program which covers not less than 75% of eligible emergency response and restoration (repair) costs for public entities whose facilities suffer damages in a presidentially-declared disaster. The Public Assistance Program also may fund mitigation projects for facilities damaged in the declared event.
- Mitigation grant programs (either pre-disaster or post-disaster) which typically cover up to 75% of mitigation costs.

FEMA Public Assistance Program

The objective of the Federal Emergency Management Agency's (FEMA) Public Assistance (PA) Grant Program is to provide assistance to State, Tribal and local governments, and certain types of Private Nonprofit organizations so that communities can quickly respond to and recover from major disasters or emergencies declared by the President.

Through the PA Program, FEMA provides supplemental Federal disaster grant assistance for debris removal, emergency protective measures, and the repair, replacement, or restoration of disaster-damaged, publicly owned facilities and the facilities of certain Private Non-Profit (PNP) organizations. The PA Program also encourages protection of these damaged facilities from future events by providing assistance for hazard mitigation measures during the recovery process.

For Central Point, PA assistance would be available only for future presidentially-declared disaster events which result in damage to public buildings or infrastructure within the city. Further details of FEMA's PA programs are available at:

http://www.fema.gov/government/grant/pa/index.shtm

FEMA Mitigation Funding Sources

The Federal Emergency Management Agency (FEMA) has several mitigation grant programs which provide federal funds to supplement local funds for specified types of mitigation activities. The FEMA grant programs typically provide 75% funding with 25% local match required; in some cases, FEMA grant programs may provide 90% or 100% funding.

The five primary FEMA mitigation grant programs are summarized below:

Grant Program	Frequency	Hazard Mitigation Planning	Risk Assessments	Mitigation Projects	Hazards
Hazard Mitigation Grant Program	Post-Disaster	YES	YES	YES	ALL
Pre-Disaster Mitigation	Annual	YES	NO	YES	ALL
Flood Mitigation Assistance	Annual	YES	NO	YES	Flood
Repetitive Flood Claims Program	Annual	NO	NO	YES	Flood
Severe Repetitive Loss Program	Annual	NO	NO	YES	Flood

These FEMA grant programs have specific eligibility requirements and application deadlines. All of these grant programs have specific requirements including definitions of ineligible projects which are excluded from the grant programs. All mitigation projects (but not planning projects or risk assessments) must be cost-effective, which means that a benefit-cost analysis using FEMA software and following FEMA guidance must demonstrate a benefit-cost ratio >1.0.

These grant programs are not entitlement programs, but rather are competitive grant programs which require strict adherence to the eligibility and application requirements and robust documentation. Robust documentation is especially critical for the PDM grant program which is nationally competitive.

The Hazard Mitigation Grant Program is initiated within a given state only after a Presidential Declaration of Disaster; thus, there is no fixed schedule. A given state may have several declarations in a given year or go several years without any declarations. Specific application deadlines are established for HMGP funds generated by each disaster declaration.

The other four mitigation grant programs are annual programs with specific deadlines, which vary from year to year. For FY 2012 grants, the application deadline for all four programs is December 2, 2011. However, these applications are reviewed and ranked by Oregon Emergency Management (OEM) staff before they go to FEMA for review. For FY 2012 Grants, the OEM deadline is November 14, 2011. For later years, deadlines are subject to change, but would likely be similar to the FY 2012 deadlines.

The three flood-only grant programs – Flood Mitigation Assistance (FMA), Repetitive Flood Claims (RFC) and Severe Repetitive Loss (SRL) – are narrowly defined grant programs which apply only to properties insured under the National Flood Insurance Program (NFIP). Thus, Central Point would be eligible for these grants only for properties with NFIP coverage, and, for the RFC and SRL programs, only if the properties also meet the repetitive loss requirements.

For Central Point, all five of the mitigation grant problems may be possible FEMA mitigation grant funding sources, as well as the Public Assistance Program if the city experiences damage in a future presidentially-declared disaster event.

Hazard Mitigation Grant Program

The Hazard Mitigation Grant Program (HMGP) is a post-disaster grant program. HMGP funds are generated following a Presidential Disaster Declaration for a given state, with the amount of funding being a percentage of total FEMA spending for various other FEMA programs such as the Individual and Family Assistance and Public Assistance programs.

FEMA regulations allow HMGP funds to be spent on any mitigation project in the state, for any hazard, regardless of whether or not an applicant was located in a declared county for a specific presidentially-declared disaster. Historically, OEM has often given priority to the declared counties and to the hazard (e.g., winter storms) that resulted in the presidential declaration. However, mitigation projects outside of the declared counties and for other hazards have also been considered.

HMGP funds are limited to a given state. Each state manages the HMGP process, including setting state priorities and selection of projects for funding. FEMA reviews applications only to ensure that selected projects meet all of FEMA's eligibility requirements. HMGP is the most flexible grant program: grants are possible for any natural hazard and may include hazard mitigation planning and risk assessments as well as physical mitigation projects. However, states have wide latitude in setting priorities and may restrict grant eligibility to specific counties to which the disaster declaration applies and/or to specific hazards or types of mitigation activities. Thus, OEM has great influence over HMGP grants within Oregon, subject to the requirement that all grants must meet FEMA's minimum eligibility requirements.

HMGP grant applications are competitive only with each state. The amount of HMGP funding in a given disaster can range from less than $100,000 to more than $1 billion for large disasters (e.g., the Northridge earthquake or Hurricane Katrina).

For Oregon, declared disasters are relatively common, often with one or more declarations in a given year for winter storms, floods, or other disasters. Thus, the total amount of HMGP mitigation funds available within the state and the funds likely available for mitigation projects (absent a major hurricane or earthquake) will vary from year to year and disaster event to disaster event. HMGP mitigation grants do not have pre-set maximums on grant sizes.

Pre-Disaster Mitigation Program

The Pre-Disaster Mitigation (PDM) grant program is a broad program which includes mitigation projects for any natural hazard as well as mitigation planning grants which must result in the development of a Local Hazard Mitigation Plan. PDM is a nationally-competitive annual program. The annual amount of grant

funds available has ranged from about $50 million to about $250 million. Funding levels in future years will depend on congressional appropriations.

PDM grants typically cover 75% of the costs of mitigation projects up to a maximum federal share of $3,000,000 per project. However, for eligible local government applicants in communities that meet FEMA's definition of small, impoverished community, the Federal share is 90%. For PDM, a small impoverished community must be:

- A community of 3,000 or fewer individuals identified by the State as a rural community and is not a remote area within the corporate boundaries of a larger city;
- Be economically disadvantaged, with residents having an average per capita annual income not exceeding 80% of the national per capita income, based on best available data. For the most current information, go to; http://www.bea.gov;
- Have a local unemployment rate that exceeds by 1 percentage point or more the most recently reported, average yearly national unemployment rate. For the most current information, go to: http://www.bls.gov/eag/eag.us.htm;
- Meet any other criteria required by Oregon, as specified by the Business Development Department, which was formerly known as the Economic and Community Development Department.

Flood Mitigation Grant Programs

The three flood-only mitigation grant programs, FMA, RFC and SRL, have annual appropriations specific to each state. As noted above, these programs are applicable only to NFIP insured properties or projects that benefit neighborhoods with a preponderance of NFIP insured properties. In addition the RFC and SRL programs are only for properties which also meet the repetitive flood loss criteria.

Each of these programs has their specific guidance, outlined in the Hazard Mitigation Assistance unified guidance discussed below. However, the overall grant requirements are similar to those for the HMGP discussed above.

For these mitigation grant programs, the Federal share of project costs is generally 75% with the following exceptions:

- FMA for severe repetitive loss property with Repetitive Loss Strategy: 90%.
- RFC: 100%.
- SRFL with Repetitive Loss Strategy: 90%.

Mitigation Grant Guidance and Requirements

FEMA's detailed program guidance and the specific requirements for each grant program are posted on the FEMA website (www.fema.gov). FEMA's detailed program guidance for these five grant programs is issued annually about June 1st. The FEMA website contains downloadable detailed guidance for each of the five grant programs summarized above.

http://www.fema.gov/government/grant/fs_mit_grant_prog.shtm

Mitigation Project Grant Applications

All of FEMA's mitigation grant programs are competitive, either within a given state or nationally. Thus, successful grant applications must be complete, robust and very well documented. The key elements for successful mitigation project grant applications include:

- Project locations within high hazard areas.
- Project facilities which have major vulnerabilities which pose substantial risk of damages, economic impacts, and (especially for seismic projects) deaths or injuries.
- For utility mitigation projects, the majority of benefits often accrue from reductions in the calculated economic impacts (using FEMA standard methodologies) of the loss of utility services.
- Mitigation project scope and budget are well documented.
- The benefits of the project are carefully documented using FEMA benefit-cost software, with all inputs meticulously meeting FEMA's guidance and expectations. A benefit-cost analysis meeting FEMA's requirements is very often the most critical step in determining a mitigation project's eligibility and competitiveness for FEMA grants.

A further eligibility requirement for mitigation project grants is that the local applicant must have a FEMA approved local hazard mitigation plan. Central Point will be eligible to apply for FEMA mitigation grants, once FEMA approves the Central Point Hazard Mitigation Plan.

OREGON SEISMIC REHABILITATION GRANT PROGRAM

In 2009, Oregon established the Oregon Seismic Rehabilitation Grant Program which provides seismic retrofit grants for schools and emergency services facilities. This grant program has two advantages relative to the FEMA grant programs: 1) grants provide 100% funding, and 2) grants are competitive only

within Oregon and thus the probability of success may be higher than with FEMA grant applications.

Eligible schools include buildings owned by public K-12 school districts, education service districts, community colleges and the Oregon University System. For emergency services, eligible facilities include hospital buildings with acute inpatient care, fire stations, police stations, sheriff's offices and other facilities used by state, county, district or municipal law enforcement agencies.

For 2010, application materials and detailed requirements were released by Oregon Emergency Management in early July, with an October 15th application deadline. Application deadlines and other details may differ in future years. For 2011, the grant program is subject to legislative authorization of the bond funds used to fund the grants.

This grant program is managed by Oregon Emergency Management (OEM) and program details can be obtained from OEM.

FEMA

Program Information **Mitigation**

The Unified Hazard Mitigation Assistance Grant Programs

HMA
Hazard Mitigation Assistance

Hazard Mitigation Assistance

The Department of Homeland Security (DHS) Federal Emergency Management Agency (FEMA) Hazard Mitigation Assistance (HMA) programs present a critical opportunity to reduce the risk to individuals and property from natural hazards while simultaneously reducing reliance on Federal disaster funds.

A Common Goal

While the statutory origins of the programs differ, all share the common goal of reducing the risk of loss of life and property due to natural hazards.

Funding Disaster Recovery Efforts

The Hazard Mitigation Grant Program (HMGP) may provide funds to States, Territories, Indian Tribal governments, local governments, and eligible private non-profits following a Presidential major disaster declaration.

The Hazard Mitigation Grant Program (HMGP) is authorized by Section 404 of the Robert T. Stafford Disaster Relief and Emergency Assistance Act, as amended (the Stafford Act), Title 42, United States Code (U.S.C.) 5170c. The key purpose of HMGP is to ensure that the opportunity to take critical mitigation measures to reduce the risk of loss of life and property from future disasters is not lost during the reconstruction process following a disaster. HMGP is available, when authorized under a Presidential major disaster declaration, in the areas of the State requested by the Governor. The amount of HMGP funding available to the Applicant is based upon the total Federal assistance to be provided by FEMA for disaster recovery under the Presidential major disaster declaration.

The Pre-Disaster Mitigation (PDM) program is authorized by Section 203 of the Stafford Act, 42 U.S.C. 5133. The PDM program is designed to assist States, Territories, Indian Tribal governments, and local communities in implementing a sustained pre-disaster natural hazard mitigation program to reduce overall risk to the population and structures from future hazard events, while also reducing reliance on Federal funding from future disasters.

The Flood Mitigation Assistance (FMA) program is authorized by Section 1366 of the National Flood Insurance Act of 1968, as amended (NFIA), 42 U.S.C. 4104c, with the goal of reducing or eliminating claims under the National Flood Insurance Program (NFIP).

The Repetitive Flood Claims (RFC) program is authorized by Section 1323 of the NFIA, 42 U.S.C. 4030, with the goal of reducing flood damages to individual properties for which one or more claim payments for losses have been made under flood insurance coverage and that will result in the greatest savings to the National Flood Insurance Fund (NFIF) in the shortest period of time.

The Severe Repetitive Loss (SRL) program is authorized by Section 1361A of the NFIA, 42 U.S.C. 4102a, with the goal of reducing flood damages to residential properties that have experienced severe repetitive losses under flood insurance coverage and that will result in the greatest amount of savings to the NFIF in the shortest period of time.

Additional HMA resources, including the HMA Unified Guidance, may be accessed at www.fema.gov/government/grant/hma/index.shtm

Program Comparisons

Cost Sharing

In general, HMA funds may be used to pay up to 75 percent of the eligible activity costs. The remaining 25 percent of eligible costs are derived from non-Federal sources.

The table below outlines the Federal and State cost share requirements.

COST SHARE REQUIREMENTS

Programs	Mitigation Activity Grant (Percent of Federal/ Non-Federal Share)
HMGP	75/25
PDM	75/25
PDM (subgrantee is small impoverished community)	90/10
PDM (Tribal grantee is small impoverished community)	90/10
FMA	75/25
FMA (severe repetitive loss property with Repetitive Loss Strategy)	90/10
RFC	100/0
SRL	75/25
SRL (with Repetitive Loss Strategy)	90/10

Eligible Applicants and Subapplicants

States, Territories, and Indian Tribal governments are eligible HMA Applicants. Each State, Territory, and Indian Tribal government shall designate one agency to serve as the Applicant for each HMA program. All interested subapplicants must apply to the Applicant.

The table below identifies, in general, eligible subapplicants.

ELIGIBLE SUBAPPLICANTS

Subapplicants	HMGP	PDM	FMA	RFC	SRL
State agencies	✔	✔	✔	✔	✔
Indian Tribal governments	✔	✔	✔	✔	✔
Local governments/communities	✔	✔	✔	✔	✔
Private non-profit organizations (PNPs)	✔				

✔ = Subapplicant is eligible for program funding

Individuals and businesses are not eligible to apply for HMA funds, however, an eligible subapplicant may apply for funding to mitigate private structures. RFC funds are only available to subapplicants who cannot meet the cost share requirements of the FMA program.

Available Funding

PDM, FMA, RFC, and SRL are subject to the availability of appropriations funding, as well as any directive or restriction made with respect to such funds.

HMGP funding depends on Federal assistance provided for disaster recovery.

General Requirements

All mitigation projects must be cost-effective, be both engineering and technically feasible, and meet Environmental Planning and Historic Preservation requirements in accordance with HMA Unified Guidance. In addition, all mitigation activities must adhere to all relevant statutes, regulations, and requirements including other applicable Federal, State, Indian Tribal, and local laws, implementing regulations, and Executive Orders.

All Applicants and subapplicants must have hazard mitigation plans that meet the requirements of 44 CFR Part 201.

Eligible Activities

The table below summarizes eligible activities that may be funded by HMA programs. Detailed descriptions of these activities can be found in the HMA Unified Guidance.

ELIGIBLE ACTIVITIES

Mitigation Activities	HMGP	PDM	FMA	RFC	SRL
1. Mitigation Projects	✔	✔	✔	✔	✔
Property Acquisition and Structure Demolition or Relocation	✔	✔	✔	✔	✔
Structure Elevation	✔	✔	✔	✔	✔
Mitigation Reconstruction					✔
Dry Floodproofing of Historic Residential Structures	✔	✔	✔	✔	✔
Dry Floodproofing of Non-Residential Structures	✔	✔	✔	✔	
Minor Localized Flood Reduction Projects	✔	✔	✔	✔	✔
Structural Retrofitting of Existing Buildings	✔	✔			
Non-Structural Retrofitting of Existing Buildings and Facilities	✔	✔			
Safe Room Construction	✔	✔			
Infrastructure Retrofit	✔	✔			
Soil Stabilization	✔	✔			
Wildfire Mitigation	✔	✔			
Post-Disaster Code Enforcement	✔				
5% Initiative Projects	✔				
2. Hazard Mitigation Planning	✔	✔	✔		
3. Management Costs	✔	✔	✔	✔	✔

✔ = Mitigation activity is eligible for program funding

Management Costs

For HMGP only: The Grantee may request up to 4.89 percent of the HMGP allocation for management costs. The Grantee is responsible for determining the amount, if any, of funds that will be passed through to the subgrantee(s) for their management costs.

Applicants for PDM, FMA, RFC, or SRL may apply for a maximum of 10 percent of the total funds requested in their grant application budget (Federal and non-Federal shares) for management costs to support the project and planning subapplications included as part of their grant application.

Subapplicants for PDM, FMA, RFC, or SRL may apply for a maximum of 5 percent of the total funds requested in a subapplication for management costs.

National Flood Insurance Program (NFIP) Participation

There are a number of ways that HMA eligibility is related to the NFIP:

SUBAPPLICANT ELIGIBILITY: All subapplicants for FMA, RFC, or SRL must currently be participating in the NFIP, and not withdrawn or suspended, to be eligible to apply for grant funds. Certain non-participating political subdivisions (i.e., regional flood control districts or county governments) may apply and act as subgrantee on behalf of the NFIP-participating community in areas where the political subdivision provides zoning and building code enforcement or planning and community development professional services for that community.

PROJECT ELIGIBILITY: HMGP and PDM mitigation project subapplications for projects sited within a Special Flood Hazard Area (SFHA) are eligible only if the jurisdiction in which the project is located is participating in the NFIP. There is no NFIP participation requirement for HMGP and PDM project subapplications located outside of the SFHA.

PROPERTY ELIGIBILITY: Properties included in a project subapplication for FMA, RFC, and SRL funding must be NFIP-insured at the time of the application submittal. Flood insurance must be maintained at least through completion of the mitigation activity.

Application Process

Applications for HMGP are processed through the National Emergency Management Information System (NEMIS). Applicants use the Application Development Module of NEMIS, which enables each Applicant to create project applications and submit them to the appropriate FEMA Region in digital format for the relevant disaster.

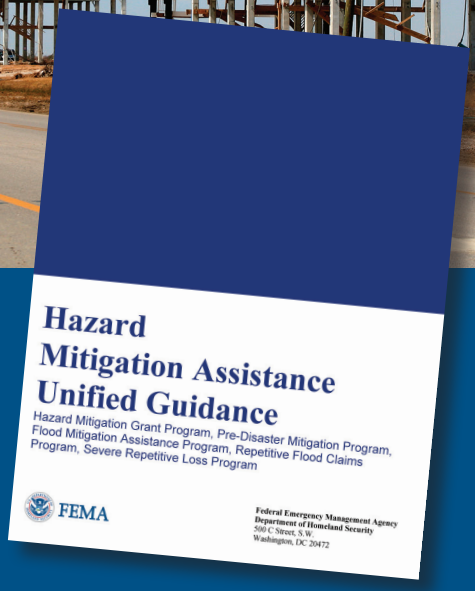
Applications for PDM, FMA, RFC, and SRL are processed through a web-based, electronic grants management system (eGrants), which encompasses the entire grant application process. The eGrants system allows Applicants and subapplicants to apply for and manage their mitigation grant application processes electronically. Applicants and subapplicants can access eGrants at https://portal.fema.gov.

Application Deadline

The PDM, FMA, RFC, and SRL application period is from early June through early December. Applicants must submit a grant application to FEMA through the eGrants system. The HMGP application deadline is 12 months after the disaster declaration date and is not part of the annual application period. Details can be found in the HMA Unified Guidance.

FEMA Review and Selection

All subapplications will be reviewed for eligibility and completeness, cost-effectiveness, engineering feasibility and effectiveness, and for Environmental Planning and Historical Preservation compliance. Subapplications that do not pass these reviews will not be considered for funding. FEMA will notify Applicants of the status of their subapplications and will work with Applicants on subapplications identified for further review.



Details about the HMA Grant Application process can be found in the Hazard Mitigation Assistance Unified Guidance, which is available at www.fema.gov/government/grant/hma/index.shtm

GovDelivery Notifications

Stay up-to-date on the HMA Grant Programs by subscribing to GovDelivery notifications. Have updates delivered to an e-mail address or mobile device. To learn more, visit **www.fema.gov**

Contact Information

HMA Helpline: Tel 866-222-3580, or e-mail **hmagrantshelpline@dhs.gov**

Contact information for FEMA Regional Offices is provided at **www.fema.gov/about/contact/regions.shtm**

Contact information for each State Hazard Mitigation Officer (SHMO) is provided at **www.fema.gov/about/contact/shmo.shtm**

FEMA

APPENDIX 2

PRINCIPLES OF BENEFIT-COST ANALYSIS

June 3, 2011

Introduction

Benefit-cost analysis is required for nearly all FEMA mitigation project grant applications and is often a key determinant of mitigation project eligibility. Overall, benefit-cost analysis is a tool that provides answers to a central question for hazard mitigation projects: **"Is it worth it?"**

If hazard mitigation were free, individuals and communities would undertake mitigation with robust enthusiasm and the risks from hazards would soon be greatly reduced. Unfortunately, mitigation is not free, but often rather expensive. For a given situation, is the investment in mitigation justified? Is the owner (public or private) better off economically to accept the risk or invest now in mitigation to reduce future damages? These are hard questions to answer! Benefit-cost analysis can help a community answer these difficult questions.

In the complicated real world of mitigation projects, there are many factors which determine whether or not a mitigation project is worth doing or which of two or more mitigation projects should have the highest priority. Consider a town which has two flood prone neighborhoods and each neighborhood desires a mitigation project. The two neighborhoods have different numbers of houses, different value of houses, different frequencies and severity of flooding. The first neighborhood proposes storm water drainage improvements at a cost of $3.0 million. The second neighborhood wants to elevate houses at a cost of $3.0 million. Which of these projects should be completed? Both? One or the Other? Neither? Which project should be completed first if there is only funding for one? Are there alternative mitigation projects which are more sensible or more cost-effective than the proposed projects?

Such complex socio-political-economic-engineering questions are nearly impossible to answer without completing the type of quantitative flood risk assessment and benefit-cost analysis discussed below.

Risk Assessment for Benefit-Cost Analysis

In determining whether or not a given mitigation project is worth doing, the level of risk exposure without mitigation is critical. Consider a hypothetical $1,000,000 mitigation project. Whether or not the project is worth doing depends on the level of risk before mitigation and on the effectiveness of the project in reducing risk. For example, if the before mitigation risk is low (a subdivision street has a few inches of water on the street every couple of years or a soccer field in a city park floods every five years or so) the answer is different than if the before mitigation risk is high (100 or more houses are expected to have flooding above the first floor every 10 years or a critical facility is expected to be shut down because of flood damages once every five years).

All well-designed mitigation projects reduce risk (badly designed projects can increase risk or simply transfer risk from one community to another). However, just because a mitigation project reduces risk does not make it a good project. A $1,000,000 project that avoids an average of $100 per year in flood damages is not worth doing, while the same project that avoids an average of $200,000 per year in flood damages is worth doing.

The principles of benefit-cost analysis are briefly summarized here. The benefits of a hazard mitigation project are the reduction in future damages and losses, that is, the avoided damages and losses that are attributable to a mitigation project. To conduct benefit-cost analysis of a specific mitigation project the risk of damages and losses must be evaluated twice: before mitigation and after mitigation, with the benefits being the difference.

The benefits of a hazard mitigation project are future damages and losses that are avoided because a mitigation action was implemented.

Because the benefits of a hazard mitigation project accrue in the future, it is impossible to know exactly what they will be. For example, we do not know when future floods or other natural hazards will occur or how severe they will be. We do know, however, the probability of future floods or other natural hazards (if we have appropriate hazard data). Therefore, the benefits of mitigation projects must be evaluated probabilistically and expressed as the difference between annualized damages before and after mitigation.

To illustrate the principles of benefit-cost analysis, we consider a hypothetical single family home in the town of Acorn, with the home located on the banks of Squirrel Creek. The home is a one story building, about 1500 square feet on a post foundation, with a replacement value of $60/square foot (total $90,000). We have flood hazard data for Squirrel Creek (stream discharge and flood elevation data) and elevation data for the first floor of the house. Therefore, we can calculate the annual probability of flooding in one-foot increments, as shown below.

Table A2.1
Damages Before Mitigation

Flood Depth (feet)	Annual Probability of Flooding	Scenario Damages and Losses Per Flood Event	Annualized Flood Damages and Losses
0	0.2050	$6,400	$1,312
1	0.1234	$14,300	$1,765
2	0.0867	$24,500	$2,124
3	0.0223	$28,900	$673
4	0.0098	$32,100	$315
5	0.0036	$36,300	$123
Total Expected Annual (Annualized) Damages and Losses			**$6,312**

Flood depths shown above in Table A2.1 are in one foot increments of water depth above the lowest floor elevation. Thus, a “3" foot flood means all floods between 2.5 feet and 3.5 feet of water depth above the floor. We note that a “0" foot flood has, on average, damages because this flood depth means water plus or minus 6" of the floor; even if the flood level is a few inches below the first floor, there may be damage to flooring and other building elements because of wicking of water.

The Scenario (per flood event) damages and losses include expected damages to the building, content, and displacement costs if occupants have to move to temporary quarters while flood damage is repaired.

The Annualized (expected annual) damages and losses are calculated as the product of the flood probability times the scenario damages. For example, a 4 foot flood has slightly less than a 1% chance per year of occurring. If it does occur, we expect about $32,100 in damages and losses. Averaged over a long time, 4 foot floods are thus expected to cause an average of about $315 per year in flood damages. Note that the smaller floods, which cause less damage per flood event, actually cause higher average annual damages because the probability of smaller floods is so much higher than that for larger floods. With these data, the house is expected to average $6312 per year in flood damages. This expected annual or “annualized” damage estimate does not mean that the house has this much damage every year. Rather, in most years there will be no floods, but over time the cumulative damages and losses from a mix of relatively frequent smaller floods and less frequent larger floods is calculated to average $6312 per year.

The calculated results in Table A2.1 are the flood risk assessment for this house for the as-is, before mitigation situation. The table shows the expected levels of damages and losses for scenario floods of various depths and also the annualized damages and losses.

The risk assessment shown in Table A2.2 shows a high flood risk, with frequent severe flooding which the owner deems unacceptable. He explores mitigation alternatives to reduce the risk: the example below is to elevate the house 4 feet.

Table A2.2
Damages After Mitigation

Flood Depth (feet)	Annual Probability of Flooding	Scenario Damages and Losses Per Flood Event	Annualized Flood Damages and Losses
0	0.2050	$0	$0
1	0.1234	$0	$0
2	0.0867	$0	$0
3	0.0223	$0	$0
4	0.0098	$6,400	$63
5	0.0036	$14,300	$49
Total Expected Annual (Annualized) Damages and Losses			**$112**

By elevating the house 4 feet, the owner has reduced his expected annual (annualized) damages from $6312 to $112 (98% reduction) and greatly reduced the probability or frequency of flooding affecting his house. The annualized benefits are the difference in the annualized damages and losses before and after mitigation or $6312 - $112 = $6200.

Is this mitigation project worth doing? Common sense says yes, because the flood risk appears high: the annualized damages before mitigation are high ($6,312). To answer this question more quantitatively, we complete our benefit-cost analysis of this project. One key factor is the cost of mitigation. A mitigation project that is worth doing at one cost may not be worth doing at a higher cost. Let's assume that the elevation costs $20,000. This $20,000 cost occurs once, up front, in the year that the elevation project is completed.

The benefits, however, accrue statistically over the lifetime of the mitigation project. Following FEMA convention, we assume that a residential mitigation project has a useful lifetime of 30 years. Money (benefits) received in the future has less value than money received today because of the time value of money. The time value of money is taken into account with present value calculation. We compare the present value of the anticipated stream of benefits over 30 years in the future to the up-front out-of-pocket cost of the mitigation project.

A present value calculation depends on the lifetime of the mitigation project and on what is known as the discount rate. The discount rate may be viewed simply as the interest rate you might earn on the cost of the project if you didn't spend the money on the mitigation project. Let's assume that this mitigation project is to be funded by FEMA, which uses a 7% discount rate to evaluate hazard mitigation

projects. With a 30-year lifetime and a 7% discount rate, the "present value coefficient" which is the value today of $1.00 per year in benefits over the lifetime of the mitigation project is 12.41. That is, each $1.00 per year in benefits over 30 years is worth $12.41 now. The benefit-cost results are now as follows.

Table A2.3
Benefit-Cost Results

Annualized Benefits	$6,200
Present Value Coefficient	12.41
Net Present Value of Future Benefits	$76,942
Mitigation Project Cost	$20,000
Benefit-Cost Ratio	3.85

These results indicate a benefit-cost ratio of 3.85. Thus, in FEMA's terms the mitigation project is cost-effective and eligible for FEMA funding. Taking into account the time value of money, which is essential for a correct economic calculation, results in lower benefits than if we simply multiplied the annual benefits times the 30 year project useful lifetime. Economically, simply multiplying the annual benefits times the lifetime would ignore the time value of money and thus gives an incorrect result.

Summary

The above discussion of benefit-cost analysis of a flood hazard mitigation project illustrates the basic concepts. Similar principles apply to mitigation projects for earthquakes or any other natural hazards. However, for earthquake mitigation projects, one of the major benefits is life safety. For purposes of benefit-cost analysis, the statistical values for deaths and injuries must be included in the benefit-cost analysis. For reference, the current FEMA statistical value for human life is $5.8 million. Given this high value, many seismic mitigation projects are deemed cost-effective and thus eligible for FEMA hazard mitigation grant funding.

The role of benefit-cost analysis in prioritizing and implementing mitigation projects in Central Point is addressed in Chapter 5 (Plan Adoption, Maintenance and Implementation). Although benefit-cost analysis is a powerful tool for helping to evaluate and prioritize mitigation projects, and a requirement for all FEMA hazard mitigation grants, benefit-cost analysis should not be considered the sole determinant for mitigation actions. In some cases, the potential for negative effects from a particular natural hazard may simply be deemed unacceptable, such as the potential for deaths and injuries, and thus mitigation may be undertaken without benefit-cost analysis.

APPENDIX 3

CENTRAL POINT HAZARD MITIGATION PUBLIC PARTICIPATION PROCESS

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MITIGATION PLAN DEVELOPMENT PUBLIC PARTICIPATION

Overview

Throughout the hazard mitigation planning process, the City of Central Point engaged the public with the following objectives:

- Raise awareness of natural hazards and the benefits of mitigation;
- Identify values and concerns of stakeholders throughout the community to establish meaningful goals and objectives to support mitigation strategy development;
- Raise awareness of natural hazards, potential impacts, mitigation options, and the benefits of implementing mitigation actions to the individuals and the community at large;
- Determine opportunities and challenges regarding implementation of identified action strategies;
- Adapt to changing perceptions and values of the community.

A diverse outreach and community engagement strategy was developed to implement a program of achieving the public participation objectives, including:

- Establish a Hazard Mitigation Advisory Committee (HMAC) with broad range of stakeholders to represent the community;
- Facilitate regular meetings with the HMAC to guide development of the Central Point Natural Hazard Mitigation Plan;
- Survey Central Point residents and businesses regarding natural hazards and preparedness;
- Host public meetings during each phase of the hazard mitigation plan development process to present information, results, as well as to obtain input on the direction of the planning process;
- Publish articles in the newsletter about the hazard mitigation planning process, as well as upcoming community engagement events;
- Maintain web pages dedicated to the Natural Hazard Mitigation Plan that includes copies of all meeting documents, including agenda, meeting summaries, PowerPoint presentations, fact sheets, and the draft plan;
- Update the City Council and Planning Commission during open access public meetings on the Natural Hazard Mitigation Plan development process, findings, and mitigation actions; and,
- Talk with residents and potential residents on an individual basis about the planning process and benefits to the community. This occurs as individuals visit City Hall or call staff with floodplain, stormwater, or building related questions.

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Hazard Mitigation Advisory Committee Documentation

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ADVISORY COMMITTEE MEMBERSHIP & AFFILIATION

The Hazard Mitigation Advisory Committee is comprised of several individuals that represent private and public sector organizations, as well as the community residents. Advertisement for interest in serving on the Advisory Committee was provided in the City's Newsletter publication. Ultimately, the following individuals expressed an interest and commitment to the hazard mitigation planning effort.

Department/Affiliation	Participant
Public Works, Project Manager	Stephanie Holtey, CFM
Parks & Public Works	Matt Samitore
Community Development	Tom Humphrey
Police Department	Jon Zeliff
Central Point City Council	Kay Harrison
School District #6	Vicki Robinson
School District #6	Rick Barryhill
Pacific Power & Light	Monte Mendenhall
Fire District #3	Don Hickman
Fire District #3 (alternate)	Hugh Holden
Fire District #3 (alternate)	Mark Moran
Fire District #3 (alternate)	Michelle Fuss
Central Point Resident, SFHA	Kevin Winter
American Red Cross	Antone Hernandez
Central Point Resident, Twin Creeks Development Co.	Bret Moore

Over the course of the project, there were staff changes at Fire District #3, which is reflected in the table above. At any one time, there was only one representative from the Fire District.

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Hazard Mitigation Plan Development

Advisory Committee Meeting #1 Agenda

January 31, 2008

1. Welcome – Introductions
2. Hazard Mitigation Overview
    a. What is a hazard mitigation plan
    b. Role of the Advisory Committee
    c. Plan development timeline
    d. Questions/Comments
3. Plan Mission and Goals
4. Public Information Strategy
    a. Public Meetings
    b. Household Survey
    c. Workshops
    d. Stakeholder Interviews
    e. Focus Groups
    f. Website Development
5. Next steps – Risk Assessment
6. Schedule next meeting
7. Adjourn

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Hazard Mitigation Plan Development

Advisory Committee Meeting #1 Sign-in Sheet

January 31, 2008

NAME:	ORGANIZATION:	CONTACT #:	E-MAIL:
Stephanie Woolett	City of Central Point.	664.7602 Ext. 244	stephaniew@ci.central-point.or.us
Kay Harrison	City of Central Point Council	621-0176	khcpor@hotmail.com
Kevin Winter	- Citizen - in flood plain	664-6217	WINFAM@3@YAHOO
Vicki Robinson	Central Pt. School Dist	494-6211	vicki.robinson@district6.org
MONTE MENDENHALL	PACIFIC POWER	776-5499	MONTE.MENDENHALL@PACIFICORP.COM
BRET MOORE	TWIN CREEKS DEV. + W.L. MOORE CONST.	665-5401	BRETM@TWNCRKS-COM
Matt Samitore	City of Central Point	664-3321 x205	matts@ci.central-point.or.us
DON HICKMAN	JCFD3	826.7100	donh@JCFD3.COM
TOM HUMPHREY	CP	423-1025	tomh@ci.central-point.or.us

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ADVISORY COMMITTEE MEETING #1 – MEETING SUMMARY

January 31, 2008

Meeting Attendees: Stephanie Woolett, Kay Harrison, Kevin Winter, Vicki Robinson, Monte Mendenhall, Bret Moore, Matt Samitore, Don Hickman, Tom Humphrey.

The meeting commenced at 3:00 p.m. in the Sun Room at City Hall in Central Point. Stephanie Woolett, the City's Floodplain/Stormwater Specialist facilitated the meeting, which began with introductions of all advisory committee members present. The overall purpose of this meeting was to provide an overview of hazard mitigation planning, including the four phases of plan development and associated timeline, as well as to discuss the Plan mission, goals and the public information strategy.

Stephanie provided an overview of hazard mitigation. She explained that hazard mitigation aims to reduce the impacts of natural hazards on a community and also increase resilience to disasters. By reducing the need to respond to disasters through mitigation, the City will benefit by reducing unnecessary expenditures and by avoiding or minimizing negative social, cultural and health effects associated with disasters. To demonstrate the financial viability of hazard mitigation planning, Stephanie cited a statistic from the Multihazard Mitigation Council of the National Institute of Building Sciences, which indicates that "a dollar spent on mitigation saves society an average of $4." Tom Humphrey also noted that the City will be eligible to receive hazard mitigation grants once the Plan is approved by FEMA and adopted by the City Council.

The Advisory Committee will guide the development of the Plan by establishing the Plan mission and goals, identifying community assets, establishing mitigation action items and reviewing all documentation for completeness and accuracy.

Development of the Central Point Hazard Mitigation Plan will occur in four phases:

- Phase I: Organize Resources
- Phase II: Assess community vulnerability to natural hazards
- Phase III: Develop the mitigation strategy/plan
- Phase IV: Adopt and implement the Plan

At the time of this meeting, Phase I was nearing completion. Stephanie reported that each phase begins with a training offered by the Oregon Natural Hazards Workgroup. Each training session provides an overview of the activities to be conducted during each phase of the Plan's development and equips Plan facilitators with the tools and resources necessary to proceed. Stephanie indicated that it is her goal to have the plan completed and approved by FEMA and the City Council by October of 2008.

The committee reviewed mission statements from communities throughout Oregon. Kay shared the City Council's interest in providing assistance to other communities during disaster events. The committee members expressed a similar sentiment and Stephanie suggested that the best way to achieve that goal would be to become a more disaster resilient community. Specific strategies for disaster response, including how to best assist other communities, may be included in the City's Emergency Action Plan. Stephanie agreed to develop a draft mission statement and goals, based on the Advisory Committee's input and send the draft to the Committee for review and approval prior to the next meeting.

Another important aspect of developing the Hazard Mitigation Plan is the public information strategy. Community ownership of the Plan is vital to ensure that this Plan is a living document that is incorporated into the day to day

business of organizations and households throughout the City. Creating a strategy for public involvement will help ensure that Central Point residents have access to information about the plan and multiple venues for providing feedback throughout its development. Stephanie listed several ideas for soliciting public involvement, including:

- Holding public meetings
- Mailing a Household Natural Hazards Preparedness Survey (sent in January 2008)
- Hosting workshops
- Conducting stakeholder interviews
- Facilitating focus groups
- Developing a website

The group also suggested that we utilize the Community Chalk Board hosted by Channel 12 news and also utilize the media to promote awareness of the hazard mitigation planning in Central Point.

The next phase of the process will involve characterizing hazards, identifying community assets and determining the areas of greatest vulnerability. Stephanie will forward all draft risk assessment information to the committee prior to the next meeting date, which is scheduled to take place on Thursday, April 3, 2008 from 3:00 – 5:00 p.m. in the Sun Room at City Hall. The meeting adjourned at 3:45 p.m.

CENTRAL POINT HAZARD MITIGATION PLAN DEVELOPMENT

ADVISORY COMMITTEE WORK SESSION #2 AGENDA

June 26, 2008

Work Session Purpose

The primary objective of this work session is to obtain feedback from the advisory community regarding the community's vulnerability to natural hazards. This feedback will be instrumental in providing local knowledge and feedback to staff, which will be used in the development of the plan.

Work Session Agenda

1. Review Mission & Goals and finalize

2. Review natural hazards that could potentially affect Central Point & discuss their characteristics
    a. Flood
    b. Severe Storms
    c. Earthquake
    d. Volcanic Eruptions
    e. Landslides
    f. Wildfire

3. Identify areas of greatest community vulnerability – discussion and mapping exercise
    a. Critical facilities
    b. Special needs populations
    c. Transportation/evacuation routes
    d. Other???

4. Public Involvement
    a. Shall we open Advisory Committee meetings up to the public in addition to holding public meetings?
    b. Promote public meeting scheduled for Tuesday July 15th at 6:00 p.m. in Council Chambers

c. Next steps – Finish hazard and vulnerability analysis; finish drafting document sections for Advisory Committee review, meet to develop mitigation action items.

5. Adjourn

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Hazard Mitigation Plan Development

Advisory Committee Meeting #2 Sign-in Sheet

June 26, 2008

NAME:	ORGANIZATION:	CONTACT #:	E-MAIL:
Stephanie Woolett	City of Central Point	664.7602 ext. 244	stephaniew@ci.central-point.or.us
MONTE MENDENHALL	PACIFIC POWER	776-5499	MONTE.MENDENHALL@PACIFICORP.COM
[signature]	City of Central Point	x205	mattse c. —
Vicki Robinson	School Dist No 6	4946211	vicki.robinson@district6.org
Tom Humphrey	City	423-1025	tomh@ci.central-point.or.us
Kay Harrison	City	621-0176	khapor@hotmail.com
DON HICKMAN	JCFD3	831.2774	dwh@JCFD3.com

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ADVISORY COMMITTEE MEETING #2 – MEETING SUMMARY

June 26, 2008

Meeting Attendees: Stephanie Woolett, Kay Harrison, Vicki Robinson, Monte Mendenhall, Matt Samitore, Don Hickman, Tom Humphrey.

The meeting commenced at 2:15 p.m. in the Sun Room at City Hall in Central Point. Stephanie Woolett, the City's Floodplain/Stormwater Specialist facilitated the meeting, which began with an overview of the hazard mitigation plan process and progress made since the last Advisory Committee meeting. The overall purpose of this meeting was to finalize the Plan's mission and goals; to review natural hazards affecting Central Point; and to conduct a vulnerability assessment exercise based on knowledge of the hazards and community assets.

Plan Mission & Goals

Based on the Advisory Committee's input, the draft Mission Statement for Hazard Mitigation Plan was presented as follows:

> *To protect people, property and the environment from the impact of natural disasters, and to become a more disaster resilient community by promoting and enhancing partnerships among public and private entities.*

The Advisory Committee unanimously voiced their approval for the proposed mission statement. The Plan goals were are congruent with those of the Jackson County and City of Medford Hazard Mitigation Plans and aim achieve the Plan's mission. The proposed goals were presented as follows:

1. Protect Life and Property
2. Enhance and Promote Public Education
3. Coordinate and Enhance Emergency Services
4. Promote Partnerships and Coordination to Improve Implementation
5. Improve Structural Integrity of Public Buildings and Infrastructure
6. Protect and Enhance Natural Resources

Monte requested clarification regarding the scope of "emergency services" as presented in Goal #3, specifically whether or not utilities would be included as an emergency service. The group expressed that Goal #3 was too broad and decided to specify the intent to include Utilities and Public Works as "emergency services." Monte also noted that it would be a good idea to conduct an inventory of emergency services resources for better coordination during disaster events. This was noted as a good mitigation action item, as well as something that should be addressed in the City's Emergency Operations Plan that the City will be working on in the near future.

Community Profile

Stephanie presented the results of her research to characterize Central Point and identify the community assets, including information regarding the local economy, major employers, the transportation network, critical facilities and demographics. Based on available literature, Central Point has been characterized as a bedroom community that serves Medford, as well as a desirable retirement destination. The group did not agree with that assessment that Central Point serves Medford because Central Point is home to many people who work throughout the Upper Rogue Valley area and not just Medford. In addition, the dynamics of the City have been changing significantly over the last ten years as a result of increased light industrial development and a shift toward becoming an artisan corridor.

The local economy is supported by a wide array of industries that range from services for retirees and tourists to natural resource based industry, such as agricultural operations and timber; and an evolving technological and business base. Currently, the major employers include: The Grange Co-op, School District #6, City of Central Point, Providence, Rogue Valley Council of Governments (RVCOG), Erickson Air Crane and the world famous Rogue Creamery.

The group also reviewed the transportation network servicing Central Point, including the local street network, as well as State Highway 99, Interstate 5, the Railroad, and the International Rogue Valley Airport right outside the City Limits. Understanding of the transportation network is vital for evaluating the potential impact of various natural disasters on the ability of Central Point residents to travel to work, as well as to receive goods and services from distributors outside of the area.

The Advisory Committee also thought that we should include a description of the communications network in the Community Profile section of the plan since communications represent a group of critical facilities within the City. Communications networks of concern include:

- Cellular providers: US Cellular, Verizon, Sprint, T-Mobile
- Fiber Optics: Sprint, Hunter Communications, Ashland
- Internet: Charter, ClearWire
- Cable: Charter
- Telephone: Charter, Qwest, ClearWire

Other critical facilities categories include utilities, such as the Pacific Power Substation and Avista Natural Gas Transfer Station and Pipeline, as well as water and wastewater systems, government offices, schools and medical facilities.

Currently the City has a population of 17,025. Since the 2000 Census, the greatest growth was seen in the 45-64 and 65 years and older age groups. The Census reported that the mean travel time to work for Central Point residents was 15.6 minutes, which corroborates the claim that the majority of the population in the workforce (65.2%) travels outside of the City for employment. The Census also reported that 5.9% of families and 6.6% of individuals living in Central Point were living below the poverty level in 1999. In light of the recent economic decline and observed increases of individuals frequenting the soup kitchen on Highway 99, it appears that there may be an increasing number of families and individuals living below the poverty level. Vickie reported that there has been an increase in the number of children at Central Point Elementary living below the poverty level and a decrease at Jewett Elementary. In addition, there is a significant increase in the numbers of children who are enrolled as English Language Learners. There was also discussion regarding different organizations that are equipped to aid individuals and families that are a living below the poverty level and/or who belong to a minority group. These organizations include: the Catholic Church, La Clinica de Valle, and the Health Clinic at Jewett Elementary.

Natural Hazards

The second phase of the Hazard Mitigation Plan includes a characterization of the natural hazards that could impact the City, a vulnerability assessment and brainstorm of existing and potential future mitigation action items. The vulnerability assessment essentially identifies areas where the subject natural hazard interfaces with community's assets, which are vulnerable systems. This interface between natural hazards and vulnerable systems represents the community's risk of disaster. This section includes 6 natural hazards. They are floods, severe storms, earthquakes, volcanic eruptions, wildland/urban interface fires and landslides. The following provides an overview of the hazard information presented and the discussion and feedback provided by the Advisory Committee.

Floods

Central Point is a flood-prone community. This is attributable to the fact that the Central Point is generally flat and is intersected by 7 streams. According to the ongoing flood study, the west side of Central Point is likely to be heavily impacted by floodwaters from Griffin Creek during the 100-year and 500-year level flood events. Stephanie reported that the most recent large flood event was the New Years Day Flood of 1996/1997; however, that event was not a 100-year level flood in Central Point despite the common perception among the public.

According to the Draft Flood Insurance Study Workmap, there are 372 acres that are likely to be zoned high-risk (in the Special Flood Hazard Area or 100-year floodplain). In that area, approximately 593 tax lots and 196 structures would be impacted by flood waters. Of particular note is the location of the Pacific Power Substation along the banks of Griffin Creek. Monte reported that during a flood, PP&L would turn off the power and de-energize the system. Southern Oregon Search and Rescue would assist PP&L with placing sand bags around the perimeter. Stephanie and Matt initiated a discussion regarding the threat of creek bank erosion to the substation. Stephanie reported that the substrate in that area is primarily composed of sand and that she has observed erosion just downstream of the substation. Matt agreed that erosion due to flooding might represent a more significant hazard for the substation than the water. The group thought it would be best to hire a hydro-geologist to study this particular reach of the stream and propose potential mitigation actions to protect the stream bank and potentially reduce the projected flood height. Some schools are also impacted. Mae Richardson Elementary and

the Crater Campus are located in the Griffin Creek floodplain. During a large scale flood event, the schools must ensure that all of the kids are picked up by their parents or a relative. If an evacuation is necessary, this might prove challenging. Another concern is that projected floodwaters will inundate several key roadways that may pose a safety hazard to residents in the event evacuations are necessary. Roads that are likely to be inundated by Griffin Creek floodwaters include Highway 99, Beall Lane, Scenic Avenue, Taylor Road, Pine Street. Horn Creek has historically impacted Grant Road and Elk Creek is likely to cover Beall Lane and possibly I-5. It was suggested that emergency response personnel have inflatable boats on hand to assist residents during a large scale flood event.

To date, Central Point has enacted several mitigation activities. Participation in the National Flood Insurance Program (NFIP) reduces flood impacts on development and makes flood insurance available to all residents in the City. The City has adopted Flood Damage Prevention and Hazard Mitigation regulations to protect new development and substantial improvements. Participation in the Community Rating System (CRS) serves the dual purpose of making flood insurance more affordable in Central Point and reducing the impact of floods on the community by continually working toward No Adverse Impact floodplain management. Another mitigation activity that reduces the impacts of urban flooding is the City's ongoing Stormwater Management program, which currently requires storm drain protection to prevent pollution and collection of debris that can cause storm drain back up. Annual drainage channel maintenance by stream-side property owners reduces the likelihood that debris will obstruct the flow of water and cause increased flood heights upstream. Following the New Years Day Flood, the City replaced the culvert/bridge over Griffin Creek at Scenic and conducted a stream channel modification along Griffin Creek at Flanagan Park to increase the capacity of the channel. The new Twin Creeks development in northwest Central Point incorporates smart development standards and a progressive drain system that includes bioswales and detention/filtration basins. The developer also realigned portions of Griffin and Jackson Creeks to include a more natural meander. Based on the flood study workmaps, these actions appear to have reduced floodplain boundaries and flood heights in some areas. Stephanie indicated that she would like the City to participate in the National Weather Service's Turn Around, Don't Drown campaign to promote flood safety awareness.

Severe Storms

Severe storms have a high annual occurrence in Central Point. Winter storms are most likely to take place between October and April. These events typically last one to two days and can have sustained winds of 40 mph with gusts of up to 55 mph as well as snow and ice. The most common impacts to infrastructure result from hazardous driving conditions associated with ice, as well as power outages and downed trees. Stephanie and Monte will correspond regarding existing and proposed mitigation measures to protect the power grid in Central Point and the greater Rogue Valley. Stephanie will also contact a representative from ODOT to obtain input regarding our mitigation plan and impacts of severe winter storms to state maintained roadways.

All structures are at risk from winter storm events; however, frail, elderly and disabled persons who depend on electric powered assistive devices and utilities are most at risk in the event a severe winter storm creates a power outage. In the event a storm occurs while school is in session, the children must wait for parents to pick them up from school. Vickie reported that schools sometimes have to stay open late into the evening while waiting for parents who may be stranded or delayed due to hazardous weather conditions on the roadways. Medical and water commission facilities, as well as the transportation network and Rogue Valley Sewer Service are critical facilities that are at risk during winter storm events. The economic base for the City and region can also be impacted if the storms impair the ability of people to travel to and from work safely or if power outages interrupt service. As seen in the last year's winter storm, high winds can cause trees to fall which endanger lives. In addition, debris can clog streams and increase the potential for flooding; loss of tree cover can increase the urban heat island effect during summer months which can increase susceptibility to heat related illness. The Advisory Committee expressed that summer storms related to heat waves should also be included in the plan. Stephanie will conduct research into this subject for inclusion in the plan.

There are a variety of mitigation measures currently in place. The National Weather Service has a service station at the Rogue Valley International Airport that provides severe weather warnings and watches. The River Forecast Center issues flood watches and warnings. This information is monitored by the City to gauge when a weather event may impact the area. Pacific Power is continually improving redundancy in the power grid and both the Pacific Power and the City have ongoing tree removal and trimming programs to address hazardous trees. Matt reported that the California Transportation Department and Oregon Department of Transportation have a cooperative agreement to share resources during storm events. Monte reported that the City's underground power line ordinance mitigates the impact of wind and trees on the power system. Vickie shared that every school in District 6 has a preparedness, response and mitigation plan and each is prepared to shelter in place.

Earthquakes

In providing an overview of the earthquake hazard in Central Point, Stephanie presented a brief description of the region's geology and earthquake history as it relates to the subduction zone off the Oregon Coast and the Klamath Fault. Earthquakes associated with the subduction zone have a lower probability of occurrence but will be far greater in magnitude than those associated with the Klamath Fault. Subduction zone quakes typically are a 9.0 magnitude or greater. Research of tree rings and Japanese history indicate that the last major subduction zone earthquake occurred in 1700. Scientists believe that the next one is due to occur within the next 100 years. Klamath Fault earthquakes are estimated to reach a magnitude of 7.0.

Earthquakes can destroy buildings and roads and pose a serious threat to life and safety. Secondary disasters associated with earthquakes must be examined as well. These could include disruption to the water system, dam failure at Emigrant Lake and Lost Lake. Although Lost Lake is a much bigger water body that Emigrant Lake, the Lost Lake inundation zone does not directly impact Central Point. Primary impact associated with the failure of the Lost Lake Dam would be impacts to I-5 to the north, as well as impacts to the water and wastewater systems. Failure of the Emigrant Lake dam would inundate large portions of Central Point, according to Jackson County's maps, including Jewett Elementary, a large portion of Central Point East and Blue Grass Downs. Another concern raised by Stephanie is the potential for liquefaction in Central Point. Liquefaction occurs when the substrate shakes to the point of becoming a liquid. Matt indicated that Todd Meador, the City's Building Official, may have a spot study that would identify problem areas.

Existing mitigation measures includes the 1993 Seismic Zone Rating update and new seismic construction standards. In addition state and local government buildings are required to meet higher standards.

Volcanic Eruptions

Stephanie provided an overview of the volcanic hazards that could potentially impact Central Point. These hazards are associated with Mount McLoughlin and Mount Shasta. There is a very low probability that Mount McLoughlin will erupt. If it does, the primary hazards will be associated with the pyroclastic flow of hot ash and gases, fires associated with airborne embers, and ash deposition. Mount Shasta is second in activity to Mount St. Helens and could potentially deposit an inch of ash. Aside from ash deposition, an eruption at Mount Shasta is not likely to directly impact Central Point. The greatest impact will result from an influx of people from Northern California seeking shelter, medical care and sustenance.

The Cascade Volcano Observatory and Pacific Northwest Seismograph Network studies and evaluate potential hazards to provide lead time warning to local officials. In the event a warning was issued, the City would use the information to help emergency managers coordinate an evacuation.

Wildland/Urban Interface Fires

Based on research conducted, Stephanie indicated that wildland fires don't directly impact the Central Point urban area; however, there are indirect impacts associated with air quality and an influx of rural residents seeking refuge from fires.

Landslides

Since Central Point's has little topographic relief and is located far away from steep hillsides, landslides are not likely to impact the city. Stream bank erosion is more of a concern.

Before adjourning the meeting, Stephanie informed the group about the upcoming Public Meeting on July 15th from 6:00 – 8:00 p.m. and asked the committee members to promote the meeting. She also asked if we should open the Advisory Committee meetings to the public or if public involvement should be limited to public meetings, individual inquiries and other outreach projects. The group agreed that it would be best to encourage public involvement at the public meetings and through other outreach mechanisms to maintain the efficacy of the committee meetings.

The next meeting will be scheduled after Stephanie finishes the hazard and vulnerability analysis and completes draft sections of the plan worked on to date. The meeting was adjourned at 4:00 p.m.

CENTRAL POINT HAZARD MITIGATION PLAN

Community Profile & Risk Assessment
Advisory Committee Meeting #2: June 26, 2008

Hazard Mitigation Review

- $49,400 grant obtained to develop a plan
- Purpose of mitigation planning is to reduce a community's risk and prevent loss from future natural disasters by:
  - Identifying the location/extent of local hazards
  - Assessing community risk exposure/sensitivity
  - Developing mitigation goals
  - Recommend/implement activities to minimize loss.

Plan Mission

To protect people, property and the environment from the impact of natural disasters, and to become a more disaster resilient community by promoting and enhancing partnerships among public and private entities.

Plan Goals

- Goal #1: Protect Life and Property
- Goal #2: Enhance and Promote Public Education
- Goal#3: Coordinate and Enhance Emergency Services
- Goal #4: Promote Partnerships and Coordination to Improve Implementation
- Goal #5: Improve Structural Integrity of Public Buildings and Infrastructure
- Goal #6: Protect and Enhance Natural Resources

Community Profile - Character

- Bedroom Community
  - Serves Medford
  - Retirement destination
- Economy
  - Tourism
  - Retirement-related
  - Timber
  - Agriculture
- Major Employers:
  - Grange Co-op
  - School District
  - City of Central Point
  - Providence
  - RVCOG
- Highway System
  - Interstate 5
  - Hwy 99
- Local Street Network
  - 79 miles of streets and alleys
    - Major roadways
      - Pine Street
      - Beall Lane
      - Upton Road
      - Grant Road
      - Scenic Road
      - Freeman Road
      - Hopkins Road

Community Profile – General Statistics

- Population: 17,025
- Area:
  - City: 3.77 square miles
- Total Miles of Roads: 58
- Total Miles of Streams: 11.4
- Total # Stream Crossings: 27

Community Profile: Demographics

- Current Population: 17,025
- Age Characteristics
  - Between 1990 and 2000 Census, all age groups experienced growth.
  - Greatest growth seen in the 45 – 64 yr & 65yrs and over cohorts.
  - The following is a breakdown of the age demographics measured during the 2000 Census:
    - Under 5 years = 976 (7.8%)
    - 5 – 17 = 2,596 (20.8%)
    - 18 – 24 = 978 (7.8%)
    - 25 – 44 = 3,651 (29.2%)
    - 45 – 64 = 2,521 (20.2%)
    - 65 years and over = 1,771 (14.2%)
- Economic Characteristics
  - In Labor Force = 5952 (65.2%)
  - Mean travel time to work = 15.6 minutes
    - Commuters with highest travel times located west of Hwy 99 and south of E. Pine between Hwy 99 and I-5
  - Families below poverty level = 198 (5.9%)
    - Highest reported poverty rates clustered in downtown core
      - South of E. Pine Street from Hwy 99 to South 9th Street, and
      - North of E. Pine Street from N. 9th Street to I-5
  - Individuals below poverty level = 809 (6.6%)
    - Highest reported poverty rates clustered in Census blocks located in the downtown core & east of I-5

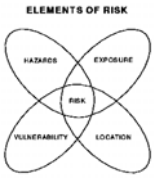
Community Profile – Critical Facilities

- Utilities
  - Pacific Power Substation
  - Avista Natural Gas Transfer Station & Pipeline
- Water and Wastewater Systems
  - Water provided by City
  - Purchased from Medford Water Commission
  - Stored in City-owned reservoirs & 83 miles of waterline.
  - Wastewater treatment plant near White City owned and operated by RVS.
- Government Offices
  - City of Central Point City Hall
  - City of Central Point Public Works Yard
  - Oregon State Police
  - U.S. Post Office
- Schools
  - Mae Richardson Elementary
  - Jewett Elementary
  - Central Point Elementary
  - Scenic Middle School
  - Crater High School
- Medical Facilities
  - Providence Medical Center
  - La Clinica de Valle

Natural Hazards Overview

- Floods
- Severe Storms
- Earthquakes
- Volcanic Eruptions
- Wildland – Urban Interface Fires
- Landslides

Risk Assessment Overview



Severe Storms: Overview

- Probability of annual occurrence is high.
  - October through April
  - Sustained winds of 40 mph; gusts up to 55 mph
  - Typical winter wind and snow storms last one to two days.
  - Severe snow and ice storms from the Siskiyous can occur in Central Point.
- Impacts to infrastructure
  - Hazardous driving conditions endanger people and may result in closures on I-5.
  - Power outages can impact the entire City and City services.
  - Downed trees endanger people, structures and travel routes.

Severe Storms: Vulnerability

- Structure: All areas & structures at risk; depends on event.
- Vulnerable Populations:
  - People who depend on electric-powered assistive devices & utilities (frail, elderly, disabled).
- Critical Facilities:
  - Medical facilities
  - Water Commission facilities
  - Transportation Network
  - RVS
- Economic Assets:
  - Commercial & industrial enterprises – operations
  - Commercial infrastructure
- Environmental Assets:
  - Large trees & debris from windstorms can jam waters of CP streams.

Severe Storms: Existing Mitigation

- Severe Weather Watches and Warnings
  - National Weather Service Station at Rogue Valley International Airport provides sever weather warnings and watches.
  - NWS River Forecast Center in Portland issues flood watches and warnings.
- The Power Grid
  - Pacific Power improving redundancy in the electric power system.
- Tree removal and trimming
  - Pacific Power and City of Central Point operate a program of regular tree removal and trimming.
- Others???

Floods: Overview

- Central Point is a flood-prone community that is generally flat and located at the downstream end of the Bear Creek Watershed.
  - Bear Creek and six of its tributaries flow through the City limits:
    - Griffin Creek
    - Jackson Creek
    - Horn Creek
    - Daisy Creek
    - Mingus Creek
    - Elk Creek
- History of Flooding
  - 1996/1997 last large flood
    - Only a 25-30 year magnitude event
    - $29,782.76 total cost to City
    - 19 Streets flooded
    - 34 homes evacuated
    - 204 homes saved by sand bags
    - 29,000 sand bags distributed

Floods: Vulnerability, Cont.

1982 Flood Insurance Rate Map (FIRM)

- Area zoned high-risk
  - 320 acres
- # Tax lots impacted
  - 139
- # Structure impacted
  - 45

Draft Flood Insurance Study Workmap

- Area zoned high-risk
  - 372 acres
- # Tax lots impacted
  - 593
- # Structures impacted
  - 196

Floods: Vulnerability

Critical Facilities

- Utilities
  - PP&L Substation
- Education Facilities
  - Crater Campus
  - Mae Richardson Elementary
- Government Facilities
  - Oregon State Police
- Transportation Network
  - Highway 99
  - Interstate 5
  - W. Pine Street
  - Taylor Road
  - Grant Road
  - Scenic Avenue
  - Beall Lane

Population & Environmental Assets

- Population
  - 2 Mobile Home Parks
    - Green Briar Terrace
    - Miller Estates
  - New Retirement Facility in TOD
  - Low-income, disabled, elderly and youth.
- Environmental Assets
  - ground and surface water pollution from sewage overflow
  - Stream bank erosion
  - Loss of riparian and fish habitat due to debis, pollution and infrastructure deposits to streams

Floods: Existing Mitigation

- NFIP/Community Rating System
  - City regulates development in high-risk floodplain areas to exceed the minimum requirements of the program.
  - City participates in the Community Rating System
    - Voluntary incentive program to earn flood insurance premium discounts in exchange for proactive, wise floodplain management practices.
- Stormwater Management
  - City requires protection of storm drain system to prevent pollution and collection of debris that increases stream overbank flooding and causes urban flooding conditions.
  - Annual drainage channel maintenance proactively removes debris and overgrown vegetation, such as Himalaya Blackberry, which would obstruct floodwaters and increase flood damages.

Earthquakes: Overview

- Klamath Fault
  - Cascade Mountain/Basin and Range Contact Zone
    - Magnitude up to 7.0
    - 1993 EQ Magnitude 5.9 and 6.9
      - Aftershocks 5.1 for 6 months
- Secondary Disasters a Major Concern
  - Disruption to water system
  - Dam Failure
    - Emigrant Lake Dam
    - Destruction of bridges
    - Transportation network disruption
      - Resources?

Earthquakes: Overview

- Subduction Zone Earthquakes
  - Juan de Fuca/North American Plate interface
    - 750 miles along PNW coast
    - High magnitude quakes
    - 1700 most recent according to tree rings and Japanese tsunami history
- Klamath Fault
  - Cascade Mountain/Basin and Range Contact Zone
    - Magnitude up to 7.0
    - 1993 EQ Magnitude 5.9 and 6.9
      - Aftershocks 5.1 for 6 months
- Secondary Disasters a Major Concern
  - Disruption to water system
  - Dam Failure
    - Emigrant Lake Dam
      - Loss of life
      - Damage to structures, roads
    - Destruction of bridges
      - Transportation network disruption
        - Resources problems
        - Economic Implications

Earthquakes: Vulnerability

- There is a medium (1 chance per 50 years) to high probability (more than 1 chance per 10 years) of an earthquake occurring in our area.
- Subduction Zone Earthquakes
  - Magnitude range 8.0 to 9.0
  - Likely to occur within the next 100 years
  - DOGAMI Study predicts economic losses in Jackson Co. related to damage to buildings, highways, airports and communication systems.
    - 22% homes
    - 32% educational facilities
    - 42% government buildings
    - 39% commercial structures
    - 42% industrial buildings
  - Following the quake, service operation interruption rate is as follows:
    - 25% fire stations
    - 38% police stations
    - 30% schools
    - 16% bridges

Earthquakes: Existing Mitigation

- Building and Development Codes
  - 1993 Seismic Zone Rating revised
  - New seismic construction standards
  - State and local government buildings required to meet higher standards

Volcanic Eruptions: Overview

- Mount McLoughlin
  - Low probability, but possible
  - Ash deposition depends on wind direction
  - Potential disruption to water service
  - Fires associated with air borne hot embers
  - Nuee Ardante/Pyroclastic flow
- Mount Shasta
  - Second in activity to Mount St. Helens
  - Potential ash deposition of 1"
  - Potential influx of northern California residents seeking shelter, medical care and sustenance
- Vulnerability
- Existing Mitigation
  - Cascade Volcano Observatory & Pacific Northwest Seismograph Network
    - Studies and evaluate potential hazards to provide lead time warning to local officials

Wildfire: Overview

- Wildfires don't directly impact urban interface
- Indirect impacts:
  - Air Quality
  - Destination for evacuees

Landslides: Overview

- Central Point topography is flat
  - Elevation ranges from 1,210 feet to 1,300 feet above sea level, per 3Di-West Lidar data.
    - Lowest point bottom of Bear Creek Channel at downstream end of the City.
    - Highest points along Beall Lane
- Prone to streambank erosion but not landslides

CENTRAL POINT HAZARD MITIGATION PLAN DEVELOPMENT

ADVISORY COMMITTEE WORK SESSION #3 AGENDA

May 14, 2009

Work Session Purpose

The primary objective of this work session is to review the vulnerability assessment and begin Phase III of the project: developing the mitigation plan.

Work Session Agenda

1. Review the community vulnerability assessment for natural hazards
    a. Flood
    b. Severe Storms
    c. Earthquake
    d. Volcanic Eruptions
    e. Landslides
    f. Wildfire

2. Mitigation Plan Development
    a. Goals – general guidelines that explain what you want to achieve.
        i. Protect life and property
        ii. Enhance and promote public education
        iii. Coordinate and enhance emergency services
        iv. Promote partnerships and coordination to improve implementation
        v. Improve structural integrity of public buildings and infrastructure
        vi. Protect and enhance natural resources
    b. Objectives – define strategies or implementation steps to attain the identified goals.
        i. Examples: protect existing critical facilities from flood damage, educate citizens about earthquake hazards and preparedness, etc.
    c. Mitigation Actions – specific actions that help you achieve your goals and objectives.

3. Public Involvement
    a. Public Meeting #2 – Thursday, June 18th 6:00 – 8:00 p.m. Council Chambers.
        i. Purpose – to review natural hazard profiles and vulnerability assessment information obtained to date. Present next steps and get folks thinking about mitigation goals, objectives and actions.
    b. Please advertise this meeting to people you know so we get a good turnout.
    c. Public Meeting #3 – Tentatively scheduled for Monday, July 6th 6:00 – 8:00 p.m. Will probably reschedule for middle of the month.
        i. Purpose – to review proposed action items and strategy and solicit feedback.

d. Next steps – Research mitigation actions, develop strategy, document the planning process, draft the remaining plan elements.

4. Adjourn

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HAZARD MITIGATION PLAN DEVELOPMENT

ADVISORY COMMITTEE MEETING #3 SIGN-IN SHEET

May 14, 2009

NAME:	ORGANIZATION:	CONTACT #:	E-MAIL:
Stephanie Woolett	City of Central Point Public Works	664.7602, ext. 244	Stephanie.woolett@centralpointoregon.gov
Antone Hernandez	American Red Cross	541-779-3773	anthne@sooredcross.org
Don Hickman	JCFD3	541.831.2774	donh@JCFD3.com

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CENTRAL POINT

PUBLIC WORKS DEPARTMENT

Stephanie Woolett, CFM
Floodplain/Stormwater Coordinator

140 South 3rd Street · Central Point, OR 97502 · (541) 664-7602 · www.centralpointoregon.gov

Hazard Mitigation Advisory Committee Meeting #3

May 14, 2009

Meeting Summary

Attendees: Don Hickman (Fire District #3), Antone Hernandez (American Red Cross), Stephanie Woolett (City of Central Point, Facilitator)

Purpose: Review the vulnerability assessment and begin developing the mitigation strategy.

The meeting began at 3:00 p.m. in the Sun Room at City Hall in Central Point. Stephanie Woolett, the City's Floodplain/Stormwater Coordinator facilitated the meeting, which began with a review of the vulnerability assessment. Due to the lack of members present the review was brief and resulted in a good discussion regarding the American Red Cross capabilities and experience during disaster events, which segued into brainstorming ideas for mitigation.

Tony reported that during disaster events the majority of people assisted by the Red Cross after the first 24 hours are economically depressed. Typically 10 – 15% of the population impacted or evacuated will reside in a shelter for an extended stay. He also stressed the importance of considering regional issues, including the "State of Jefferson" philosophy where neighbors help neighbors during tough times and disasters. Although this is the case in the Rogue Valley and Central Point, he stressed the importance of individual and family preparedness for at least two to three weeks. Education about the need for our population to be self-sustaining following a disaster event is critical due to the geography of the region and the unlikelihood that assistance will be immediately available.

We also discussed the importance of having an early warning system for different natural hazards, which is currently unavailable in Central Point and the greater Rogue Valley. There was mention of "Info Flash," which allows emergency managers and local officials to send a press release to all media circles for immediate publication. Developing or supporting the development of a local/regional warning system should be part of the mitigation plan.

In light of the plan goal to coordinate and enhance emergency services, including utilities and public works, the group thought it would be good to conduct an inventory of available emergency services and accompanying capabilities assessment. It is important to note that during a major disaster, like the Cascadia earthquake event, only about 40% of all employees (including first responders) will be available due to concerns for immediate family welfare and safety and barriers to travel.

Throughout the course of the meeting, the discussion weaved between preparedness and mitigation. It is important to distinguish the two and to also be realistic about the mitigation strategies that can be implemented at the local level. More discussion about mitigation strategies will occur in the near future. Due to Stephanie's pregnancy and pending maternity leave and the schedules of other Advisory Committee members, much of the discussion will likely occur via e-mail and by telephone. Don reported that Hugh Holden will be replacing him on the Advisory Committee in the near future. Stephanie reported that she is going to request an extension on the grant.

The meeting adjourned at 4:25 p.m.

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CENTRAL POINT HAZARD MITIGATION PLAN DEVELOPMENT

ADVISORY COMMITTEE WORK SESSION #4 AGENDA

January 13, 2010

Work Session Purpose

The primary objective of this work session is to review the vulnerability assessment and mitigation action items developed to date and to chart a course for the remaining work to be accomplished including:

- Floodplain data gaps elimination
- Enhanced vulnerability assessment completion
- Erosion and flood impacts geotechnical study and project identification
- Action item review and benefit cost analysis documentation

Work Session Agenda

1. Hazard Mitigation Plan Progress Report

2. Central Point Vulnerability and Mitigation Action Plan Review
    a. Severe Storm
        i. Promote hazard tree awareness, including identification, abatement and proper tree care.
        ii. Research the feasibility of becoming a StormReady Community.
    b. Flood
        i. Culvert replacement at West Pine and Taylor to reduce floodway impacts.
        ii. Retrofit the crossings of Jackson and Horn Creeks at Taylor Road to reduce infrastructure vulnerability.
        iii. Erosion and flood risk reduction to PP&L and RVSS utilities on Griffin Creek downstream of Highway 99.
        iv. Develop residential flood mitigation assistance program to evaluate structural deficiencies and recommend mitigation alternatives for flood protection.
        v. Create an urban forestry program recognized by the City Council and increase the urban forest canopy to provide a flood protection benefit.
        vi. Create a Low Impact Development program, including implementation incentives, to decrease impervious surfaces in new developments, as well as retrofits of existing developments.
        vii. Conduct a city-wide drainage study to quantify the urban flood hazard areas and identify comprehensive strategies to reduce localized flooding.
    c. Earthquake
        i. Retrofit vulnerable public buildings identified in the state-wide seismic vulnerability assessment.
        ii. Partner with regional jurisdictions to complete a community study of earthquake hazards, including landslides, liquefaction and shaking amplification.

3. Next Steps
    a. Funding acquisition for enhanced risk assessment, mitigation action item review, benefit cost analysis and data gap elimination.
    b. Select a geotechnical consultant to study the erosion hazards associated with Griffin Creek meander and identify a viable mitigation project.
    c. Facilitate Public Meeting #3 to review the action items within context of the vulnerability assessment.

d. Update the draft plan - Stephanie
e. Review the draft plan – Advisory Committee
f. Advisory Committee Meeting #5 – March; Meeting #6 June/July
g. Facilitate Public Meeting #4, which will be an open house event for the public to review the mitigation plan and provide final feedback on progress made to date.

4. Adjourn

HAZARD MITIGATION PLAN DEVELOPMENT

ADVISORY COMMITTEE MEETING #4 SIGN-IN SHEET

January 13, 2010

NAME:	ORGANIZATION:	CONTACT #:	E-MAIL:
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Matthew Samitore	City of CP	x203	matt.samitore@centralpointoregon.gov
MONTE MELOENNALL	PACIFIC POWER	776-5499	MONTE.MELOENNALL@PACIFICORP.COM
ANTONIE HERNANDEZ	RED CROSS	779-3773	ahernandez@soredcross.org
HUMPHREY, TOM	CP PLNG	423-1025	tom.humphrey@centralpointoregon.gov

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CENTRAL POINT

PUBLIC WORKS DEPARTMENT

Stephanie Holtey, CFM
Floodplain/Stormwater Coordinator

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Hazard Mitigation Advisory Committee Meeting #4

January 14, 2010

Meeting Summary

Attendees: Monte Mendenhall (Pacific Power), Antone Hernandez (American Red Cross), Tom Humphrey (Central Point Community Development), Matt Samitore (Parks and Recreation, Public Works), Stephanie Holtey (Central Point Public Works, Project Facilitator)

Purpose: To review the mitigation action opportunities in the context of the vulnerability assessment results, discuss the hazard mitigation grant opportunity and potential projects to enhance aspects of the plan and chart a course to Phase IV – plan adoption, implementation and maintenance.

The meet commenced at 3:00 p.m. in the Sun Room at City Hall. Stephanie provided a brief overview of the hazard mitigation planning process since the committee hasn't met since May of 2009. In addition to revisiting the four phased approach to the plan's development, the group examined the mission statement and supporting goals to ensure that they accurately reflect the planning team's vision for hazard mitigation in Central Point. No modifications were requested at the time of the meeting; however, Tom asked if human caused hazards were going to be incorporated into the plan. Stephanie reported that it was decided to incorporate human-caused hazards as an appendix to the plan at a later date, probably the next 5-year cycle update. This would allow the opportunity to gain additional information based on the City's Emergency Action planning process.

Stephanie provided a progress report that highlighted the planning activities conducted to date, including plan research and writing activities, public outreach/education, advisory committee meetings, public meetings and website development. Subsequently, an assessment of community vulnerability and associated mitigation opportunities was examined for severe storms, floods and earthquakes.

Severe Storms

These events create city-wide hazards associated with wind, falling trees, lightning, severe cold and ice and snow. Localized flooding may be associated with winter storm melt, especially when accompanied by rain. Public outreach regarding hazard tree identification, abatement and prevention through proper tree care was identified as a mitigation opportunity. Monte indicated that PP&L publishes a brochure about tree care around electric facilities and also has a forester on staff who could be another resource in this effort. The second mitigation opportunity is exploring the feasibility of becoming a StormReady community through the National Weather Service. Stephanie reported that there are a variety of specific and technical requirements for this designation, so it may be worthwhile to explore this action in cooperation with Jackson County, Medford and other jurisdictions in the valley.

Floods

Central Point flood hazards are associated with riverine and urban floods. Riverine hazards are mapped by FEMA on the Flood Insurance Rate Maps. Urban floods are not mapped in the City and can occur anywhere there are depressions in the landscape that do not drain water adequately or when storm drain capacity is insufficient or there is a blockage in the system. Impacts are associated with damage to structures and their contents, interruption of critical facilities, damage to infrastructure at stream crossings, declines in economic activity and disturbance to environmental systems such as water quality, riparian habitat, etc. Several mitigation

opportunities have been identified including two crossing retrofit projects and one erosion and flood mitigation assessment near the PP&L substation and transmission lines. Stephanie provided an overview of each mitigation opportunity, including the location, potential losses and anticipated benefits. This information provided a segue a discussion regarding the available of additional hazard mitigation grant funds to complete work to enhance the risk assessment by obtaining flood elevation data to support a quantitative analysis of potential losses, conducting hydraulic and hydrologic evaluation of flood impacts along Griffin Creek to support the assessment of erosion potential near electric utility facilities by a geotechnical professional, and conducting benefit cost analysis to support future FEMA Pre-Disaster Mitigation and Flood Mitigation Assistance grant opportunities.

Earthquakes

In the wake of the recent earthquake in Haiti, Stephanie revisited the Earthquake chapter in the vulnerability assessment and created a mitigation and preparedness fact sheet regarding the Cascadia earthquake scenario developed by the Cascadia Region Earthquake Workgroup. The scenario provides an overview of the three types of Cascadia events that can occur: shallow/crustal, deep intraplate and subduction zone earthquakes. Each varies in intensity, duration and severity of damages and frequency of occurrence. The subduction zone events are by far the most destructive and occur every 300 to 500 years on average. Primary and secondary hazards along with likely impacts were discussed by the group. Loss of electrical power for an extended period of time was noted as a likely impact. Monte suggested that when this occurs knowledge of generator locations and mobility potential could alleviate loss of service by law enforcement and other key facilities needed to provide essential emergency services.

Multi-Hazard

Multi-hazard mitigation opportunities were also presented. The objective of these action items is to enhance community resilience overall and not just for hazard specific vulnerabilities. Identified opportunities include:

- Increasing web-based public information outreach;
- Developing an outreach program to improve awareness of hazards and mitigation and preparedness activities;
- Developing a disaster risk reduction curriculum for Central Point schools;
- Promoting the Disaster Registry available vulnerable populations; and,
- Revitalizing the Community Capability Assessment Program for Central Point.

As we move forward to adoption and implementation of the plan, we need to take the necessary steps to acquire additional funding. This includes developing a detailed scope of work for needed services and selecting consultants for geotechnical and land surveying services. Stephanie reported that she prepared a Request for Qualifications for geotechnical services and that the Advisory Committee will be selecting the consultant based on qualifications and cost. The estimated cost for geotechnical services is approximately $12,000. The selection will occur at the next meeting, which was scheduled to take place on February 3, 2010 at 3:00 p.m. at City Hall. The Land Surveyor services would be selected through the Request for Proposals process, which bases the selection solely on the price of services requested.

Additional public meetings need to be facilitated to review the mitigation strategy development and provide the opportunity for public comment on the draft plan prior to its review and approval by FEMA. The draft document needs further modification and additions, which must be reviewed by the Advisory Committee. Stephanie indicated that these documents will be posted on the City's website to facilitate easy access.

The meeting adjourned at 4:30 p.m.

Central Point Hazard Mitigation Plan Development
Presentation to Hazard Mitigation Advisory Committee
January 13, 2010

HAZARD MITIGATION PLAN

PROJECT OVERVIEW

- Plan Development Process:
  - Phase I – Organize Resources
  - Phase II – Inventory Community Assets and Assess Vulnerability
  - Phase III – Develop a mitigation action plan
  - Phase IV – Adopt, implement, monitor and maintain the plan

PROGRESS REPORT

- Established a Mission and Supporting Goals
- Completed draft Community Profile and Vulnerability Assessment
- Identified preliminary mitigation opportunities
- Conducted a hazard awareness and preparedness survey
- Held 2 public meetings
- Held 4 Advisory Committee meetings
- Developed a Hazard Mitigation web page
- Published Updates in the City's Newsletter

PROJECT MISSION AND GOALS

Protect people, property and the environment from the impact of natural disasters, and to become a more disaster resilient community by promoting and enhancing partnerships among public and private entities.

- Protect Life and Property
- Enhance and Promote Public Education
- Coordinate and Enhance Emergency Services
- Promote Partnerships and Coordination to Improve Implementation
- Improve Structural Integrity of Public Buildings and Infrastructure
- Protect and Enhance Natural Resources

SEVERE STORMS

VULNERABILITY ASSESSMENT

- Winter, wind and thunderstorms
  - High frequency and probability of future occurrence.
  - City-wide impacts mostly associated with wind, trees, snow/ice and localized flooding.
  - Critical facility impacts mostly due to power outages that interrupt business operations. Fallen trees can block transportation network.
  - Vulnerable populations are the frail, elderly and/or disabled persons that depend on electric powered assistive devices and utilities. Also young children.
  - Environmental Assets impacted due to loss of urban forest canopy and secondary impacts associated with localized flooding due to debris jams in waterways.

MITIGATION OPPORTUNITIES

- Promote awareness of hazardous trees, including identification, abatement and proper tree care.
- Investigate feasibility of becoming a StormReady Community, as well as the opportunity to partner with Jackson County and other jurisdictions to meet qualifications.

FLOODS

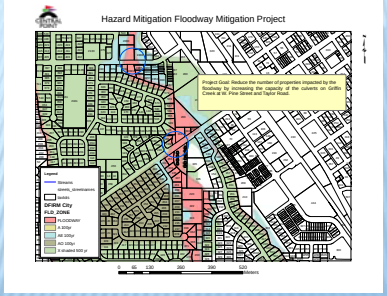
VULNERABILITY ASSESSMENT

- Riverine Floods
  - Flood Hazard Zones mapped on Flood Insurance Rate Map (FIRM)
  - Impacts associated with flood forces
- Urban Floods
  - Hazard areas are not mapped.
  - Impacts generally associated with blocked or insufficient capacity in storm drain system.
- Impacts
  - Structures & contents from flood forces
  - Critical Facilities – PP&L substation and transmission lines, OSP office.
  - Transportation System – 25 crossings
  - Vulnerable populations are the elderly, frail and/or disabled, as well as youth.
  - Economic impacts to the Twin Creeks commercial core and undeveloped residential areas. Decreased property values.
  - Environmental impacts to water quality, riparian corridors, parks.

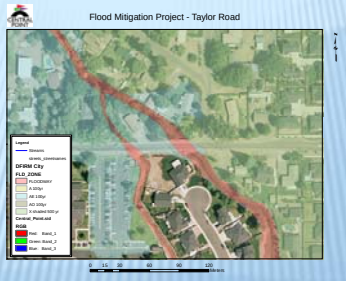
MITIGATION OPPORTUNITIES

- Crossing Retrofit projects
  - Griffin Creek at West Pine and Taylor Road.
  - Horn and Jackson Creek at Taylor Road.
- Erosion and Flood Protection for PP&L utilities and downstream Griffin Creek Properties.
- Develop a residential flood mitigation assistance program to evaluate structural deficiencies and recommend mitigation alternatives for flood protection.
- Conduct a localized drainage study to identify the urban flood hazard areas.
- Create an urban forestry program to provide flood protection benefits.
- Create a low impact development program, including incentives and public works standards.

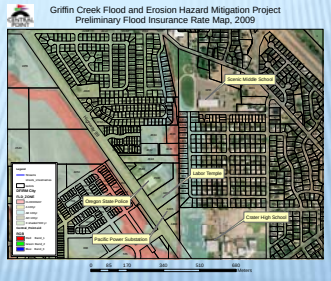
GRIFFIN CREEK CROSSING RETROFIT



TAYLOR ROAD RETROFIT



GRIFFIN CREEK EROSION & FLOOD MITIGATION



EARTHQUAKE

VULNERABILITY ASSESSMENT

- Cascadia and Klamath Faults
  - 8.5 to 9.0+ Cascadia
  - 7.0 Klamath
- Widespread impacts expected throughout community.
  - Non-reinforced masonry
  - Structures built prior to 1954
  - Utilities damages
  - I-5 overpasses, viaduct
  - Government offices
  - Medical facilities
- Significant economic impacts associated with closure of I-5
- Vulnerable populations are those who cannot support themselves for at least 120 hours.
- Environmental concerns associated with haz mat releases, local flooding associated with debris.
- Emigrant Dam Failure a potential secondary hazard.

MITIGATION OPPORTUNITIES

- Retrofit public buildings identified in the state-wide seismic vulnerability assessment.
- Partner with regional jurisdictions to complete a community study of earthquake hazards including landslides, liquefaction and shaking amplification.

MULTI-HAZARD MITIGATION OPPORTUNITIES

- Increase web-based public information outreach
- Develop an outreach program to improve awareness of hazards and mitigation and preparedness activities
- Develop a disaster risk reduction curriculum for Central Point schools.
- Promote the Disaster Register availability for vulnerable populations.
- Revitalize the Community Capability Assessment Program for Central Point.

THE ROAD TO PHASE IV - IMPLEMENTATION

- Plan Enhancement Opportunity – Grant funds
  - Enhanced Risk Assessment
  - Flood Data Gap Elimination – Elevation Certificates
  - Geotechnical Evaluation of Erosion Potential for PP&L and Other Utilities; Project Identification & Conceptual Design
  - Benefit Cost Analysis and Documentation for FEMA Grants

THE ROAD TO PHASE IV, CONT.

- Select consultant for Geotechnical and Conceptual Design Services.
- Facilitate two more public meetings
  - Mitigation action review and comment
  - Open House – final plan review and comment
- Complete the draft plan and review as a committee
- Conduct the FEMA Crosswalk review internally.
- Submit the final draft plan to OEM/FEMA
- Approval from FEMA
- Local adoption by City Council
- Implement, monitor, maintain the plan

NEXT MEETING

- The next meeting will be held at the beginning of February to select the Geotechnical Consultant.
  - February 3rd at 3:00 p.m.
- Check out the hazard mitigation website at www.centralpointoregon.gov. Navigate to the Flood Mitigation Page under the Public Works Department's Floodplain Management link.

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CENTRAL POINT HAZARD MITIGATION PLAN DEVELOPMENT

ADVISORY COMMITTEE WORK SESSION #5 AGENDA

August 5, 2011

Work Session Purpose

The primary objective of this work session is to provide you with an update of the project status, specifically regarding the work conducted subsequent receipt of additional grant funds, review elements of the plan including mitigation action items and discuss the road to adoption and implementation.

Work Session Agenda

1. Hazard Mitigation Plan Progress Report

2. Central Point Hazard Mitigation Plan Elements
    a. Plan Organization
        i. Chapter 1 – Introduction
        ii. Chapter 2 – Central Point Community Profile
        iii. Chapter 3 – Planning Process
            1. Public Meeting #4 – August 9th
        iv. Chapter 4 – Mission Statement, Goals, Objectives and Action Items
            1. Review modified goals and new objectives
        v. Chapter 5 – Adoption and Implementation
            1. Submit draft plan to FEMA August 12th
        vi. Chapter 6 – Floods
            1. Griffin Creek Flood Mitigation Project
        vii. Chapter 7 – Earthquakes
        viii. Chapter 8 – Severe Storms
        ix. Chapter 9 – Other Hazards
        x. Appendix 1 – FEMA-Mitigation Grant Programs
        xi. Appendix 2 – Principles of Benefit Cost Analysis
        xii. Appendix 3 – Public Participation Documentation
        xiii. Appendix 4 – References

3. The Road to Adoption and Implementation
    a. Facilitate Public Meeting #4, which will be an open house event for the public to review the mitigation plan and provide final feedback on progress made to date.
    b. Submit draft plan to FEMA and Oregon Emergency Management for review and approval by August 12th.
    c. City Council to adopt the approved Central Point Hazard Mitigation Plan by resolution (See Chapter 5 Appendix).
    d. Begin Implementation
        i. Apply for grants to implement high priority measures identified in the plan
        ii. Implement actions as resources are available.
    iii. Advisory Committee – Meet at least one time per year to review progress, adapt strategy as needed.
    iv. Update the plan
        v. Begin in year 3, so the update is approved by FEMA by year 5.

4. Adjourn

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HAZARD MITIGATION PLAN DEVELOPMENT

ADVISORY COMMITTEE MEETING #5 SIGN-IN SHEET

August 5, 2011

NAME:	ORGANIZATION:	CONTACT #:	E-MAIL:
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TOM HUMPHREY	CITY	541-423-1025	tom.humphrey@centralpointoregon.gov
Rick Berryhill	CPSD #6	541-941-0681	Rick.Berryhill@District6.ORG
Kay Harrison	CP	541-621-0176	

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CENTRAL POINT

PUBLIC WORKS DEPARTMENT

Stephanie Holtey, CFM
Floodplain/Stormwater Coordinator

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Hazard Mitigation Advisory Committee Meeting #5

August 5, 2011

Meeting Summary

Attendees: Rick Berryhill (School District #6), Tom Humphrey (Central Point Community Development), Matt Samitore (Parks and Recreation, Public Works), Stephanie Holtey (Central Point Public Works, Project Facilitator)

Purpose: To revitalize our hazard mitigation planning effort by engaging the Advisory Committee, present the hazard mitigation plan elements, review mitigation action items and prepare for the road to adoption, maintenance and implementation.

The meeting commenced at 3:00 p.m. Stephanie Holtey began the meeting by welcoming attendees and providing an overview of the work session purpose, agenda and brief history of the project from the date of the committee's last meeting on January 14, 2010.

The mitigation planning effort in Central Point has been ongoing since 2007. Our plan was near completion in 2009 when FEMA released the Preliminary Flood Insurance Rate Map for the City, which presented significantly different flood hazard information. As we developed mitigation projects, it became readily apparent that the risk assessment for floods would need to be re-done to produce an effective mitigation strategy for Central Point. Insufficient data was available to accomplish this; therefore, additional funds were requested to acquire the needed data and enhance the plan with quantative risk assessments that would allow the planning team to develop meaningful projects to reduce risk over time.

Mrs. Holtey reported that there was a significant delay in the project due to lapses in the NFIP and funding appropriations barriers at the Federal government level. However, in the fall of 2010 funding was finally approved and appropriated to complete our project. Data was obtained in the form of Elevation Certificates and the City hired the consultant who developed the FEMA maps to evaluate flood mitigation alternatives on Griffin Creek particularly associated with the floodway and erosion hazard concerns adjacent to the Pacific Power Substation on Highway 99. With the newly acquired data, the City also brought Ken Goettel with Goettel and Associates on board to conduct the quantitative risk assessments for flood and earthquake. These assessments provide an over view of the estimated losses, which can then be used to determine the cost benefit of proposed mitigation items.

The group reviewed the plan elements including organization and results of the risk assessment for floods, earthquakes, severe weather and other hazards.

There are three types of flood hazards, including FEMA-mapped hazards along streams, as well as non-FEMA mapped hazards associated with urban drainage problems and the Emigrant Dam Failure. Mrs. Holtey reported that she was able to obtain a map of the dam inundation zone but was unable to obtain a report that provides more detailed information about the timing of inundation and the assumptions made in the mapping process. She also indicated that the Bureau of Reclamation is in the process of updating their Emergency Action Plan for the Rogue Basin, including Emigrant Dam. This plan will include updated information about dam failure scenarios, including risk of failure due to earthquake. We will evaluate and incorporate this data during the implementation, monitoring and maintenance phase.

A considerable amount of time was spent reviewing the Griffin Creek Flood Mitigation project and discussing channel constrictions, benefits to flood hazard reduction and resident safety. The first channel constriction mentioned on the

upper reach of the project appears to be an irrigation weir that, according to Rick, used to be used to dam the stream for summertime field irrigation. Matt suggested that, since the City owns the fields, that a water meter could be installed and the City could pay for the water for irrigation. This approach would allow implementation of one aspect of the project sooner rather than later. Rick agreed that this would make irrigation much easier, as there have been problems with using a sump pump. Tom also indicated that additional constrictions upstream also contribute to the severe flood hazard in the vicinity, including the Pine Street culvert and two privately owned bridges. Stephanie also suggested that we could consider forming a partnership with the Jackson Housing Authority to redevelop two multi-family complexes on West Pine Street adjacent to Griffin Creek to expand the open space area, as well as upgrade the existing facilities and provide an enhanced level of safety for residents through better design and orientation. The group liked this idea and confirmed that Jason Elzy is the contact with the Housing Authority. Matt also indicated that HUD has a new grant program for redevelopment projects that we can explore.

The group reviewed the earthquake hazards that could impact Central Point, including the Cascadia 9.0M event, Sky Lakes 7.0M event, and Central Point 6.0M event. Interestingly, the Cascadia event does not appear to pose as big a problem to Central Point as presented by the media. There are likely to be some injuries and about $49M in losses; however, this pales in comparison to a Central Point 6.0M earthquake whose epicenter is in the middle of town. Matt indicated that OSU has done extensive modeling for the Cascadia event for our region and the HAZUS estimates seem to overestimate the likely damages. Stephanie asked that this information be sent to her so she could share it with the consultant. She also reported that FEMA's HAZUS software utilizes a national dataset that does not necessarily provide high resolution data at the local level. Mitigation action items for earthquake involve developing a better understand of at risk structures in the community, promoting earthquake awareness and safety, and retrofitting high risk structures.

Severe weather encompasses winter and wind storms, thunder storms, lightning, severe hail, extreme temperatures and tornadoes. The area can experience all of these weather phenomena; however, tornadoes are unlikely. Mitigation action items for severe storms include continuing the good practices currently in force, such as the City's annual tree trimming program, formalizing the City's Community Forestry program to promote tree care and hazard reduction.

Other hazards include wildland/urban interface fires, landslides, volcanic eruptions, drought, subsidence, expansive soils and sinkholes. All of these have a very low to nil risk of occurrence. The exceptions are that landslides could occur along steep stream banks, volcanic eruptions pose a health risk due to ash and gases, and sinkholes do happen in Central Point almost every year due to abandoned wells, mining, and old sewer infrastructure. Kay indicated that a new cell tower is being constructed at Crater Lake to facilitate real time monitoring of volcanic activity in the region, including Crater Lake and Mt. McLoughlin. As more information becomes available about the hazards posed by these local hot spots, it will be incorporated into the plan. There are no action items identified for these hazards.

The group reviewed the complete action item list. It was noted that the severe weather action items were missing. Stephanie said missed that and would import those items into the table before the plan is submitted to FEMA. Kay requested that the group obtain emergency action plans for the School District, etc. to better integrate knowledge of other organizations' efforts into our own plan. While it is important to distinguish hazard mitigation from emergency planning and response, awareness of these items would be useful. Stephanie also said she would pass this recommendation along to Rick Bartlett who is spearheading the City's Emergency Action Plan update currently.

In wrapping up the meeting, Stephanie presented the remaining steps to the plan adoption and outlined the role and continued commitment needed by the Advisory Committee. We agreed to meet one time per year and increase that number if significant projects are underway that require greater oversight. During year three, the group will begin the process of evaluating the plan and making updates for submittal and approval by FEMA five years following its initial approval.

The meeting adjourned at 4:10 p.m.

Presentation to Hazard Mitigation Advisory Committee
August 5, 2011
Stephanie Holtey, CFM

CENTRAL POINT HAZARD MITIGATION PLAN

PROJECT HISTORY

- Hazard Mitigation Grant Program (HMGP) funded project
- Began in 2007 under direction of HMAC
- Project delayed 1.5 years due to funding
- Additional HMGP Funds Awarded Winter 2010
  - Elevation Certificates
  - Griffin Creek Mitigation
  - Enhanced Risk Assessment/Benefit Cost Analysis
- Project Completion Deadline September 2011.

PLAN ELEMENTS

- Chapter 1.0 – Introduction
- Chapter 2.0 – Community Profile
- Chapter 3.0 – Public Participation
- Chapter 4.0 – Mission, Goals, Objectives, Action Items
- Chapter 5.0 – Adoption & Implementation
- Chapter 6.0 – Floods
- Chapter 7.0 – Earthquakes
- Chapter 8.0 – Severe Weather
- Chapter 9.0 – Other Hazards
- Appendix 1 – Oregon & FEMA Grants
- Appendix 2 – Benefit Cost Analysis
- Appendix 3 – Public Participation Documentation
- Appendix 4 – References

PROJECT MISSION, GOALS & OBJECTIVES

MISSION:
Proactively facilitate and support community-wide policies, practices, and programs that make Central Point more disaster resistant and resilient.

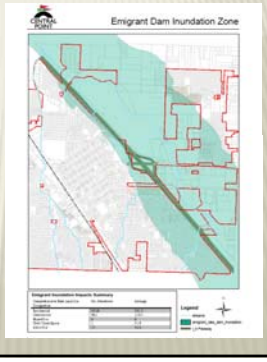
GOALS & OBJECTIVES

- Goal #1: Protect Life & Safety
  - Improve public awareness of natural hazards that pose risk to life safety
- Goal #2: Protect Central Point Buildings & Infrastructure
  - Identify high risk facilities
- Goal #3: Enhance Emergency Response Capability, Emergency Planning and Post-Disaster Recovery
  - Increase partnerships and collaboration among CP, nearby communities, utilities, businesses, etc. to ensure availability of adequate emergency and essential services during and after disaster events.
- Goal #4: Vigorously Seek Funding Sources for Mitigation Actions
  - Prioritize and fund action items that will maximize mitigation, response and recovery resources.
- Goal #5: Increase Public Awareness of Natural Hazards and Enhance Education and Outreach Efforts
  - Develop and implement education and outreach programs to raise public awareness of the risks from natural hazards.
- Goal #6: Incorporate Mitigation Planning into Natural Resource Management and Land Use Planning
  - Balance natural resource management, land use planning and natural hazard mitigation to protect life, property and the environment.

FLOOD HAZARD

HAZARD OVERVIEW

- Riverine Floods
  - Flood Hazard Zones mapped on Flood Insurance Rate Map (FIRM)
  - Impacts
    - 1,188 Parcels in 100-year floodplain, including floodway
    - 485 buildings in 100-year floodplain, including floodway
- Urban Floods
  - Hazard areas are not mapped
  - Impacts vary from year to year
- Dam Failure
  - Emigrant Dam
  - Impacts
    - 566.4 acres
    - 3017 buildings



FLOOD LOSS ESTIMATES

100-YEAR FLOOD DAMAGE ESTIMATES

- 242 Buildings Flooded
  - Replacement Value is $60,500,000
  - Building Damage: $8,107,000
  - Contents Damage: $4,900,000
  - Total Damage: $80, 007,500
- Include displacement cost, time value, infrastructure damages, the cost would likely be 50% higher or $20 million.

500-YEAR FLOOD DAMAGE ESTIMATES

- 1501 Buildings Flooded
  - Replacement Value: $375,250,000
  - Building Damage: $50,283,500
  - Contents Damage: $30,395,250
  - Total Damage: $80,678,7
- Include displacement cost, time value, infrastructure damages, the cost would likely be 50% higher or $120 million.

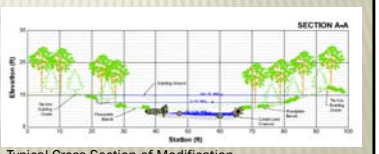
FLOOD MITIGATION OPPORTUNITIES

Flood risk and loss reduction measures in Central Point are likely to include: channel improvements to increase conveyance capacity and lower flood levels, elevation or acquisition of highly flood-prone structures, and stormwater drainage system improvements identified in an updated Stormwater Master Plan.

- Griffin Creek Flood Mitigation Project
  - Address the most significant flood risk
    - Floodway impacts 186 parcels and 65 structures
    - Floodplain impacts 416 parcels and 290 structures
  - Channel modification & reconstruction on two reaches
    - Scenic to Highway 99
    - Downstream of Mae Richardson Pedestrian Bridge to north extent of Flanagan Park

GRIFFIN CREEK FLOOD MITIGATION PROJECT

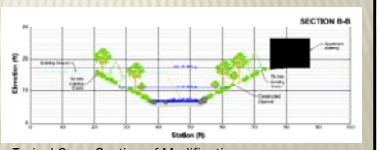
Lower Reach Near PP&L



Typical Cross-Section of Modification

GRIFFIN CREEK FLOOD MITIGATION PROJECT

Upper Reach



Typical Cross-Section of Modification

EARTHQUAKE

3 Types of Earthquakes:
- Interface
- Intraplate
- Crustal

- Intensity of ground shaking depends on:
  - Magnitude
  - Epicenter location
  - Depth
  - Soil or rock conditions

VULNERABILITY ASSESSMENT

Category	Cascadia M9.0	Sky Lakes M7.08	Central Point M6.0
Damages and Losses			
Number of Damaged Buildings - Total	2,505	481	5,357
Number of Damaged Buildings - Slight Damage	1,350	369	2,422
Number of Damaged Buildings - Moderate Damage	852	104	1,776
Number of Damaged Buildings - Extensive Damage	292	8	828
Number of Damaged Buildings - Complete Damage	11	0	331
Building-Related Damages and Economic Losses	$49,000,000	$5,250,000	$240,000,000
Transportation Systems Damages[1]	N/A	N/A	N/A
Utility Systems Damages[1]	N/A	N/A	N/A
Total Damages and Losses	$49,000,000	$5,250,000	$240,000,000
Casualties			
Injuries (2 pm)	17	1	155
Injuries (2 am)	11	1	73
Deaths (2 pm)	0	0	10
Deaths (2 am)	0	0	2

[1] Inventory data for transportation infrastructure and utility infrastructure are incomplete - meaningful damage estimates are not available.

EARTHQUAKE MITIGATION OPPORTUNITIES

- Evaluate the seismic vulnerability of:
  - City-owned buildings
  - Schools
  - Fire station
  - Water and wastewater systems
- Develop an inventory of vulnerable privately owned buildings and promote awareness of EQ hazards
- Obtain funding and retrofit important public facilities with significant seismic risk.

SEVERE WEATHER

Winter storms
Severe thunderstorms

Extreme Temperatures
Severe Hail Events

Lightning
Tornadoes

- Winter Storm Impacts
  - Flooding
  - Transportation System
  - Tree Falls from wind
  - Power outages
- Severe Thunderstorms
  - Localized damages from tree falls
  - Possible injuries and deaths
- Severe Hail Events
  - Localized damages to area with largest hail size
  - Damages to exposed items, such as roofs, windows, vehicles
- Lightning
  - Isolated damage to one or a few buildings
  - Possible injuries or death
- Tornadoes
  - Generally low risk but possible localized damage from F0 or F1
  - Slight possibility of injuries or death

MITIGATION ACTION ITEMS

- Formalize City's Community Forestry program to better organize and coordinate tree management efforts
- Promote awareness of tree selection, planting and care
- Ensure that all critical facilities have back-up power and EOP to deal with power outages
- Require new developments to place power lines under ground

OTHER HAZARDS

- Wildland/urban interface fires
- Landslides
- Volcanic Events
- Drought
- Subsidence
- Expansive Soils
- Sinkholes

THE ROAD TO ADOPTION & IMPLEMENTATION

- Public Meeting on August 9th
- Conduct the FEMA Crosswalk
- Submit the final draft plan to OEM/FEMA on August 12th
- Approval from FEMA
- Local adoption by City Council
- Implement, monitor, maintain the plan

IMPORTANT EVENTS/RESOURCES

- Public Meeting August 9th 6-8pm.
  - Council Chambers, City Hall
- Hazard mitigation website provides draft chapters. Visit www.centralpointoregon.gov. Navigate to the Flood Mitigation Page under the Public Works Department's Floodplain Management link.

QUESTIONS, DISCUSSION, SUGGESTIONS

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Public Meeting Documentation

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PUBLIC WORKS DEPARTMENT *Stephanie Woolett, CFM*

140 South 3rd Street · Central Point, OR 97502 · (541) 664-7602 · www.centralpointoregon.gov

Hazard Mitigation Plan Development

Public Meeting #1

July 15, 2008

Agenda

Meeting Objective: To introduce the hazard mitigation planning process to Central Point residents, to obtain feedback regarding the proposed mission and goals developed by the project's Advisory Committee and to provide information regarding ways that the public can be involved in the process of developing and implementing the plan.

1. Welcome
2. Hazard Mitigation Overview
    a. What is hazard mitigation?
    b. Why is hazard mitigation important?
    c. How is a hazard mitigation plan developed?
3. Central Point Natural Hazards
    a. Floods
    b. Severe Storms
    c. Earthquakes
    d. Volcanic Eruptions
    e. Landslides
    f. Wildland/Urban Interface Fires
4. Mission Statement
    a. *To protect people, property and the environment from the impact of natural disasters, and to become a more disaster resilient community by promoting and enhancing partnerships among public and private entities*.
5. Goals
    a. Goal #1: Protect Life and Property
    b. Goal #2: Enhance and Promote Public Education
    c. Goal#3: Coordinate and Enhance Emergency Services, including Utilities and Public Works.
    d. Goal #4: Promote Partnerships and Coordination to Improve Implementation
    e. Goal #5: Improve Structural Integrity of Public Buildings and Infrastructure
    f. Goal #6: Protect and Enhance Natural Resources
6. Public Involvement
    a. Future Public Meetings
    b. E-mail updates
7. Adjourn

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Central Point Hazard Mitigation Plan Development

Public Meeting #1 Sign-in Sheet

July 15, 2008

NAME:	ADDRESS:	CONTACT #:	E-MAIL:
Stephanie Woolett	140 S 3rd St Central Point	664.7602 Ext. 244	stephanieW@ci.central-point.or.us
Scott + Lori Marigold	640 Valley Oak Blvd Central Point	665-3313	scott@pawsitivepress.com * lori@pawsitivepress.com
DAVE ARKENS	2312 TULANE AVE.	261-9186	DMARKENS@ISO.COM*
Harold & Leona Ballard	452 W. Pine St. central Point	664-3248	N.A. *

* Updates

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CENTRAL POINT HAZARD MITIGATION PLAN DEVELOPMENT

PUBLIC MEETING #1 – SUMMARY

JULY 15, 2008

The meeting commenced at 6:10 p.m. in the Council Chambers of City Hall. There were five members of the public present. They were Scott and Lori Mangold, Harold and Leona Ballard and Dave Arkens. The primary purpose of this meeting was to introduce the hazard mitigation plan development process to Central Point residents, to obtain feedback regarding the proposed mission statement and goals developed by the project's Advisory Committee and to provide information regarding ways that the public can be involved in the process of developing and implementing the plan.

After welcoming the attendees, Stephanie Woollett, the project manager, provided an overview of the hazard mitigation concept. Specifically she defined hazard mitigation, explained why it is important, how the plan is developed. Emphasis was given to the importance of differentiating hazard mitigation from emergency response planning. Where emergency action plans deal with how we respond to disasters, a hazard mitigation plan is concerned with how we can reduce the need to respond to disasters by reducing or eliminating the risk associated with various natural disasters that affect a particular community. In the case of Central Point, she pointed out that floods and severe winter storms are the most frequently occurring hazards; however, we also are subject to earthquakes and volcanic explosions. Although landslides and wildland/urban interface fires are not likely to directly impact the City, these will also be studied and included in the plan. Consideration is also being given to include Air Quality and Droughts in the hazard annex.

Stephanie presented the proposed mission statement that was developed in conjunction with the project's Advisory Committee. The draft mission statement is as follows:

To protect people property and the environment from the impact of natural disasters, and to become a more disaster resilient community by promoting and enhancing partnerships among public and private entities.

One citizen suggested that the mission statement be amended to include both natural and human-made disasters, such as terrorism. Stephanie indicated that the Advisory Committee had discussed this at one point and that a human-caused disaster annex will likely be included in the plan; however, she will revisit this subject with the Advisory Committee.

Six goals were developed to support achievement of the plan's mission. Stephanie presented each of these goals and requested feedback from members of the public that were present. The goals presented and the associated suggestions/comments are provided below:

Goal #1: Protect Life and Property – No comments received.

Goal #2: Enhance and Promote Public Education – No comments received.

Goal #3: Coordinate and Enhance Emergency Services, including Utilities and Public Works – There was an inquiry regarding whether or not the City would be preparing an Emergency Action Plan in the near future. Stephanie indicated that this would be conducted following completion of the risk assessment by the Police Department.

Goal #4: Promote Partnerships and Coordination to Improve Implementation - One comment was received suggesting that we consider promoting an understanding of who is in charge during a disaster event and what facilities/resources are available in an event. Emphasis was placed on the importance of ensuring that there is adequate shelter and resources available for evacuees in the event of a catastrophic natural disaster event. Stephanie indicated that the majority of this information will be provided in the Emergency Action Plan; however, it may be worthwhile to specify this in the hazard mitigation plan.

Goal #5: Improve Structural Integrity of Public Buildings and Infrastructure – No comments received.

Goal #6: Protect and Enhance Natural Resources – A concern was raised regarding the conflict between encouraging development and the need to preserve and enhance resources. It was suggested to either modify Goal #6 or add another goal that addresses the need to ensure that hazard resistant development practices are implemented in high hazard areas, particularly associated with floods.

Following the discussion of the project goals, Stephanie indicated that the group could stay involved in the hazard mitigation process by attending future public meetings. There will be at least three more public meetings. The next one will focus on providing a characterization of the natural hazards impacting the City and the reviewing the vulnerability assessment. The meeting date will be announced in the City's newsletter, website and likely the Mail Tribune. Another way to stay involved is request e-mail updates. Not everyone in the group has e-mail, so Stephanie indicated that she would forward the information via regular hand-delivered mail.

Finally, there was a period for open discussion. One concern was raised regarding creek bank maintenance that is required by the City's Municipal Code. Specifically, there are several people who do not comply with the reminders that are sent out every year, which increases the flood risk to properties adjacent to streams. Stephanie indicated that she is only able to inspect the sections of the creeks that are visible from public rights-of-way. To do otherwise would require right-of-entry permission from property owners to inspect the creek. Instead, she relies on the concerns expressed by local citizens concerned about flooding to let her know when there are unlawful obstructions along the creek. There was discussion about the need to create a local stream team to help conduct annual stream clean-up activities throughout the City and provide much needed assistance to property owners who are unable to safely conduct the work or afford to pay for professional landscape services. Stephanie indicated that the City wants to move in that direction; however, volunteers are needed for this to be an effective program. Another concern was raised regarding tall grasses growing along both Griffin and Jackson Creeks in the Twin Creeks development. On the fourth of July, many property owners were standing ready to extinguish fires associated with illegal fireworks. This is a serious concern during the warm season and particularly on Independence Day. Stephanie indicated that she will look into who owns the property and see if a regular mowing or fire suppression could be implemented there.

The meeting adjourned at 7:05 p.m.

CENTRAL POINT HAZARD MITIGATION PLAN

Community Profile & Risk Assessment
Public Meeting: July 18, 2008

Hazard Mitigation Review

- $49,400 grant obtained to develop a plan
- Purpose of mitigation planning is to reduce a community's risk and prevent loss from future natural disasters by:
  - Identifying the location/extent of local hazards
  - Assessing community risk exposure/sensitivity
  - Developing mitigation goals
  - Recommend/implement activities to minimize loss.

Plan Mission

To protect people, property and the environment from the impact of natural disasters, and to become a more disaster resilient community by promoting and enhancing partnerships among public and private entities.

Plan Goals

- Goal #1: Protect Life and Property
- Goal #2: Enhance and Promote Public Education
- Goal#3: Coordinate and Enhance Emergency Services
- Goal #4: Promote Partnerships and Coordination to Improve Implementation
- Goal #5: Improve Structural Integrity of Public Buildings and Infrastructure
- Goal #6: Protect and Enhance Natural Resources

Community Profile - Character

- Bedroom Community
  - Serves Medford
  - Retirement destination
- Economy
  - Tourism
  - Retirement-related
  - Timber
  - Agriculture
- Major Employers:
  - Grange Co-op
  - School District
  - City of Central Point
  - Providence
  - RVCOG
- Highway System
  - Interstate 5
  - Hwy 99
- Local Street Network
  - 79 miles of streets and alleys
    - Major roadways
      - Pine Street
      - Beall Lane
      - Upton Road
      - Grant Road
      - Scenic Road
      - Freeman Road
      - Hopkins Road

Community Profile – General Statistics

- Population: 17,025
- Area:
  - City: 3.77 square miles
- Total Miles of Roads: 58
- Total Miles of Streams: 11.4
- Total # Stream Crossings: 27

Community Profile: Demographics

- Current Population: 17,025
- Age Characteristics
  - Between 1990 and 2000 Census, all age groups experienced growth.
  - Greatest growth seen in the 45 – 64 yr & 65yrs and over cohorts.
  - The following is a breakdown of the age demographics measured during the 2000 Census:
    - Under 5 years = 976 (7.8%)
    - 5 – 17 = 2,596 (20.8%)
    - 18 – 24 = 978 (7.8%)
    - 25 – 44 = 3,651 (29.2%)
    - 45 – 64 = 2,521 (20.2%)
    - 65 years and over = 1,771 (14.2%)
- Economic Characteristics
  - In Labor Force = 5952 (65.2%)
  - Mean travel time to work = 15.6 minutes
    - Commuters with highest travel times located west of Hwy 99 and south of E. Pine between Hwy 99 and I-5
  - Families below poverty level = 198 (5.9%)
    - Highest reported poverty rates clustered in downtown core
      - South of E. Pine Street from Hwy 99 to South 9th Street, and
      - North of E. Pine Street from N. 9th Street to I-5
  - Individuals below poverty level = 809 (6.6%)
    - Highest reported poverty rates clustered in Census blocks located in the downtown core & east of I-5

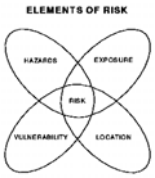
Community Profile – Critical Facilities

- Utilities
  - Pacific Power Substation
  - Avista Natural Gas Transfer Station & Pipeline
- Water and Wastewater Systems
  - Water provided by City
  - Purchased from Medford Water Commission
  - Stored in City-owned reservoirs & 83 miles of waterline.
  - Wastewater treatment plant near White City owned and operated by RVS.
- Government Offices
  - City of Central Point City Hall
  - City of Central Point Public Works Yard
  - Oregon State Police
  - U.S. Post Office
- Schools
  - Mae Richardson Elementary
  - Jewett Elementary
  - Central Point Elementary
  - Scenic Middle School
  - Crater High School
- Medical Facilities
  - Providence Medical Center
  - La Clinica de Valle

Natural Hazards Overview

- Floods
- Severe Storms
- Earthquakes
- Volcanic Eruptions
- Wildland – Urban Interface Fires
- Landslides

Risk Assessment Overview



Severe Storms: Overview

- Probability of annual occurrence is high.
  - October through April
  - Sustained winds of 40 mph; gusts up to 55 mph
  - Typical winter wind and snow storms last one to two days.
  - Severe snow and ice storms from the Siskiyous can occur in Central Point.
- Impacts to infrastructure
  - Hazardous driving conditions endanger people and may result in closures on I-5.
  - Power outages can impact the entire City and City services.
  - Downed trees endanger people, structures and travel routes.

Severe Storms: Vulnerability

- Structure: All areas & structures at risk; depends on event.
- Vulnerable Populations:
  - People who depend on electric-powered assistive devices & utilities (frail, elderly, disabled).
- Critical Facilities:
  - Medical facilities
  - Water Commission facilities
  - Transportation Network
  - RVS
- Economic Assets:
  - Commercial & industrial enterprises – operations
  - Commercial infrastructure
- Environmental Assets:
  - Large trees & debris from windstorms can jam waters of CP streams.

Severe Storms: Existing Mitigation

- Severe Weather Watches and Warnings
  - National Weather Service Station at Rogue Valley International Airport provides sever weather warnings and watches.
  - NWS River Forecast Center in Portland issues flood watches and warnings.
- The Power Grid
  - Pacific Power improving redundancy in the electric power system.
- Tree removal and trimming
  - Pacific Power and City of Central Point operate a program of regular tree removal and trimming.
- Others???

Floods: Overview

- Central Point is a flood-prone community that is generally flat and located at the downstream end of the Bear Creek Watershed.
  - Bear Creek and six of its tributaries flow through the City limits:
    - Griffin Creek
    - Jackson Creek
    - Horn Creek
    - Daisy Creek
    - Mingus Creek
    - Elk Creek
- History of Flooding
  - 1996/1997 last large flood
    - Only a 25-30 year magnitude event
    - $29,782.76 total cost to City
    - 19 Streets flooded
    - 34 homes evacuated
    - 204 homes saved by sand bags
    - 29,000 sand bags distributed

Floods: Vulnerability, Cont.

1982 Flood Insurance Rate Map (FIRM)

- Area zoned high-risk
  - 320 acres
- # Tax lots impacted
  - 139
- # Structure impacted
  - 45

Draft Flood Insurance Study Workmap

- Area zoned high-risk
  - 372 acres
- # Tax lots impacted
  - 593
- # Structures impacted
  - 196

Floods: Vulnerability

Critical Facilities

- Utilities
  - PP&L Substation
- Education Facilities
  - Crater Campus
  - Mae Richardson Elementary
- Government Facilities
  - Oregon State Police
- Transportation Network
  - Highway 99
  - Interstate 5
  - W. Pine Street
  - Taylor Road
  - Grant Road
  - Scenic Avenue
  - Beall Lane

Population & Environmental Assets

- Population
  - 2 Mobile Home Parks
    - Green Briar Terrace
    - Miller Estates
  - New Retirement Facility in TOD
  - Low-income, disabled, elderly and youth.
- Environmental Assets
  - ground and surface water pollution from sewage overflow
  - Stream bank erosion
  - Loss of riparian and fish habitat due to debis, pollution and infrastructure deposits to streams

Floods: Existing Mitigation

- NFIP/Community Rating System
  - City regulates development in high-risk floodplain areas to exceed the minimum requirements of the program.
  - City participates in the Community Rating System
    - Voluntary incentive program to earn flood insurance premium discounts in exchange for proactive, wise floodplain management practices.
- Stormwater Management
  - City requires protection of storm drain system to prevent pollution and collection of debris that increases stream overbank flooding and causes urban flooding conditions.
  - Annual drainage channel maintenance proactively removes debris and overgrown vegetation, such as Himalaya Blackberry, which would obstruct floodwaters and increase flood damages.

Earthquakes: Overview

- Klamath Fault
  - Cascade Mountain/Basin and Range Contact Zone
    - Magnitude up to 7.0
    - 1993 EQ Magnitude 5.9 and 6.9
      - Aftershocks 5.1 for 6 months
- Secondary Disasters a Major Concern
  - Disruption to water system
  - Dam Failure
    - Emigrant Lake Dam
    - Destruction of bridges
    - Transportation network disruption
      - Resources?

Earthquakes: Overview

- Subduction Zone Earthquakes
  - Juan de Fuca/North American Plate interface
    - 750 miles along PNW coast
    - High magnitude quakes
    - 1700 most recent according to tree rings and Japanese tsunami history
- Klamath Fault
  - Cascade Mountain/Basin and Range Contact Zone
    - Magnitude up to 7.0
    - 1993 EQ Magnitude 5.9 and 6.9
      - Aftershocks 5.1 for 6 months
- Secondary Disasters a Major Concern
  - Disruption to water system
  - Dam Failure
    - Emigrant Lake Dam
      - Loss of life
      - Damage to structures, roads
    - Destruction of bridges
      - Transportation network disruption
        - Resources problems
        - Economic Implications

Earthquakes: Vulnerability

- There is a medium (1 chance per 50 years) to high probability (more than 1 chance per 10 years) of an earthquake occurring in our area.
- Subduction Zone Earthquakes
  - Magnitude range 8.0 to 9.0
  - Likely to occur within the next 100 years
  - DOGAMI Study predicts economic losses in Jackson Co. related to damage to buildings, highways, airports and communication systems.
    - 22% homes
    - 32% educational facilities
    - 42% government buildings
    - 39% commercial structures
    - 42% industrial buildings
  - Following the quake, service operation interruption rate is as follows:
    - 25% fire stations
    - 38% police stations
    - 30% schools
    - 16% bridges

Earthquakes: Existing Mitigation

- Building and Development Codes
  - 1993 Seismic Zone Rating revised
  - New seismic construction standards
  - State and local government buildings required to meet higher standards

Volcanic Eruptions: Overview

- Mount McLoughlin
  - Low probability, but possible
  - Ash deposition depends on wind direction
  - Potential disruption to water service
  - Fires associated with air borne hot embers
  - Nuee Ardante/Pyroclastic flow
- Mount Shasta
  - Second in activity to Mount St. Helens
  - Potential ash deposition of 1"
  - Potential influx of northern California residents seeking shelter, medical care and sustenance
- Vulnerability
- Existing Mitigation
  - Cascade Volcano Observatory & Pacific Northwest Seismograph Network
    - Studies and evaluate potential hazards to provide lead time warning to local officials

Wildfire: Overview

- Wildfires don't directly impact urban interface
- Indirect impacts:
  - Air Quality
  - Destination for evacuees

Landslides: Overview

- Central Point topography is flat
  - Elevation ranges from 1,210 feet to 1,300 feet above sea level, per 3Di-West Lidar data.
    - Lowest point bottom of Bear Creek Channel at downstream end of the City.
    - Highest points along Beall Lane
- Prone to streambank erosion but not landslides

CENTRAL POINT

PUBLIC WORKS DEPARTMENT *Stephanie Woolett, CFM*

140 South 3rd Street · Central Point, OR 97502 · (541) 664-7602 · www.centralpointoregon.gov

Hazard Mitigation Plan Development

Public Meeting #2

July 6, 2009

Agenda

Meeting Objective: To review the hazard mitigation planning process and the draft plan's mission and goals developed by the project's Advisory Committee, and to provide information regarding natural hazards that have potential future impacts on the community , review the results of the community's vulnerability to those hazards and present the next step in the mitigation plan development process.

1. Welcome
2. Hazard Mitigation Review
    a. What is hazard mitigation?
    b. Why is hazard mitigation important?
    c. How is a hazard mitigation plan developed?
3. Mission Statement
    a. *To protect people, property and the environment from the impact of natural disasters, and to become a more disaster resilient community by promoting and enhancing partnerships among public and private entities*.
4. Goals
    a. Goal #1: Protect Life and Property
    b. Goal #2: Enhance and Promote Public Education
    c. Goal#3: Coordinate and Enhance Emergency Services, (utilities & public works)
    d. Goal #4: Promote Partnerships and Coordination to Improve Implementation
    e. Goal #5: Improve Structural Integrity of Public Buildings and Infrastructure
    f. Goal #6: Protect and Enhance Natural Resources
5. Central Point Natural Hazards & Vulnerability Assessment
    a. Floods
    b. Severe Storms
    c. Earthquakes
    d. Volcanic Eruptions
    e. Landslides
    f. Wildland/Urban Interface Fires
6. Public Involvement
    a. Next Public Meeting will be scheduled to take place in the Fall 2009 (October).
    b. New website: www.centralpointoregon.gov
    c. City Newsletter
7. Adjourn

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CENTRAL POINT

PUBLIC WORKS DEPARTMENT

Stephanie Woolett, CFM
Floodplain/Stormwater Coordinator

140 South 3rd Street · Central Point, OR 97502 · (541) 664-7602 · www.centralpointoregon.gov

Hazard Mitigation Plan Development

Public Meeting #2

July 6, 2009

Meeting Summary

The public meeting commenced at 6:15 p.m. Three Central Point residents attended the meeting; although, one resident left early because she thought that the meeting was going to be about the upcoming flood map changes.

The meeting facilitator, Stephanie Woolett, provided a presentation that included a review of hazard mitigation, the history of Central Point's mitigation planning process, the plan's goals and mission, an overview of the natural hazards and vulnerability assessment results and an overview of the next steps involved in developing the plan. Stephanie reported that the plan would be complete by December 31, 2009 so future meetings will be held in the Fall and Winter. The presentation materials are attached to this meeting summary for reference, including the following documents:

- Meeting Agenda
- Copy of the PowerPoint Presentation
- Critical Facilities, Flood Hazard and Earthquake Hazard Maps

Throughout the meeting, the importance of community involvement and partnership building were emphasized as prerequisites to effective implementation of the plan. One resident suggested that I provide a presentation tailored to school children as a way to help kids better understand natural hazards that occur in the area and what to do when one occurs as a means of reducing their vulnerability. One resident, also a City of Central Point employee, suggested that educating City staff would be effective by generating awareness of natural hazards and ways that City government can contribute to the plan's implementation, as well as ensure continuity of services to the maximum extent possible in the wake of a disaster.

During the review of flood hazards, one resident showed interest in low impact development techniques that can be implemented on her property and perhaps throughout her neighborhood to reduce the impacts of urban flooding due to excessive rains and overwhelmed storm drains. We discussed resources available currently and Stephanie reported that she is working on developing more information for homeowners interested in this form of property and natural resource protection mitigation.

As we discussed wildfire natural hazards, it was noted that, although Central Point is not located in a mapped wildfire hazard area, the City could be impacted by urban wildfires in the Bear Creek Greenway. There was a large fire located near the Greenway just north of Phoenix over the weekend that impacted a large area where a natural gas line was known to be located. Including the Greenway and discussing urban wildfire hazards in this section would be beneficial to reducing exposure to those hazards by providing education and ways that stakeholders can be involved in reducing the threat of fire ignition.

There were discussions about the impacts of climate change on Southern Oregon and how that information will be included in the hazard mitigation plan. Stephanie indicated that there is increasing literature available about the project impacts of climate change and that the plan will include a discussion of the findings they report. Over time, the City may want to include more natural hazards in its plan. Members of the public suggested that future plan amendments consider including drought, air quality and heat-related hazards.

The meeting adjourned at 8:10 p.m. after Stephanie reviewed ways that the local residents can stay informed and get involved in mitigation planning. She requested that those present talk to their neighbors and friends in town, so that there will be increased future attendance. In the meantime, she will work on diversifying ways that the public can contribute to the plan's development.

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Central Point Hazard Mitigation Plan Development Project

Public Meeting #2: July 6, 2009

Hazard Mitigation

Defined *"Any sustained action taken to reduce or eliminate long-term risk to human life and property from a hazard event."*

Purpose is to reduce or eliminate the long-term risk to humans and property from natural hazards.

Mitigation Planning creates more disaster resistant and resilient communities.

Mission & Goals

Plan Mission:

"To protect people, property and the environment from the impact of natural disasters, and to become a more disaster resilient community by promoting and enhancing partnerships among public and private entities."

Plan Goals

#1: Protect Life & Property
#2: Enhance and Promote Public Education
#3: Coordinate and Enhance Emergency Services
#4: Promote Partnerships and Coordination to Improve Implementation
#5: Improve Structural Integrity of Public Buildings and Infrastructure
#6: Protect & Enhance Natural Resources.

Vulnerability Assessment – Risk of Disaster

Community Profile: identifies assets/vulnerable systems.

Natural Hazard Inventory: identifies potential future natural hazards and their characteristics.

Vulnerability Assessment: determines where natural hazards impact vulnerable systems. This is our risk of disaster and represents where mitigation is needed.

Severe Storms

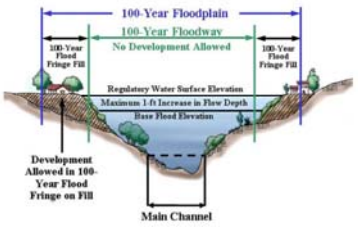
Hazard Characteristics

- Types of storms:
  - Windstorms
  - Snow Storms
- Snow and windstorms most common October through April.
- Significant wind storms have wind speeds of 40 mph with gusts over 55 mph.
- Greater than one chance per year occurrence.

Community Vulnerability

- Extent: Impacts for storms are city-wide. All structures at risk.
- Vulnerable populations: frail, elderly and/or disabled dependent on electrical assistive devices or utilities.
- Critical Facilities: transportation network, RVS sewage plant, MWC drinking water supply, hospitals that serve CP residents, medical offices, PP&L facilities.
- Economic Assets: Commercial, industrial and other employment centers may need to shut down temporarily. Interstate traffic disruption.
- Environmental Assets: loss of trees along streets, urban environment and riparian corridor. If event is accompanied by a flood, debris can worsen flood conditions and impact surrounding lands.

Floodplain | Overview



Floods | 100-year Floodplain

Hazard Characteristics

- 100-year floodplain
  - Severe riverine flood event.
  - 1% annual chance of occurrence.
  - Occurs along 7 streams in CP
  - Associated with rain on snow events that result in high water. Conditions worsen over time as development replaces natural flood storage areas.

Community Vulnerability

- Extent: 402 acres, 1094 tax lots and 1210 structures. Total Valuation $198, 571,600
- Vulnerable Populations: residents of 3 mobile home parks; frail, elderly or disabled persons; school children.
- Critical Facilities: PP&L Substation, OSP, transportation network, Red Cross Shelter at Mae Richardson Elementary.
- Economic Assets: Portions of Mt. View Plaza. Blocked traffic routes due to roadway damage could negatively impact CP businesses and employment centers. There are 376 employers in CP and 2,946 employees.
- Environmental Assets: Water resources will be polluted by sewage overflow, streambank erosion likely to impact adjacent lands, habitat loss for fish and wildlife along stream corridors due to pollutant loading and impacts of debris, damages to parks along creeks, including the Bear Creek Greenway.

Floods | 500-year Floodplain

Hazard Characteristics

- 500-year floodplain
  - Catastrophic riverine flood event.
  - 0.2% annual chance of occurrence.
  - Occurs along 7 streams in Central Point; however, it's only mapped along 3 of them.
  - Same causes as 100-year floodplain, but much more severe and longer duration.

Community Vulnerability

- Extent: 325 acres (does not include data from the 100-year floodplain). 815 tax lots, 915 structures. Total Valuation approximately $195,181,305.
- Vulnerable populations: Two mobile home parks; frail, elderly, disabled and young children; two retirement centers with total of 202 rooms; residential area between Griffin and Jackson Creeks (especially south of Taylor Road).
- Critical Facilities: Same as 100-year level flood plus additional damage to transportation network.
- Economic Assets: Commercial Center on Peninger Drive and Lark Lane, Knife River operation surrounding industrial lands, structures without flood insurance. Public roadway replacement costs extremely high.
- Environmental Assets: Water resources degraded due to sewage overflow (impacts to human health), other surface water pollution associated with debris deposition, loss of habitat, more extreme erosion along riparian corridors, significant loss of habitat for fish and wildlife.

Urban Floods – Unmapped Flood Hazard

Overview

Urban flooding occurs when heavy rains result in standing water in developed areas.

- Occurs largely due to conversion of natural land area to impervious surface area that reduces infiltration.
- Also occurs when storm drains become blocked or overwhelmed due to limitations in capacity.

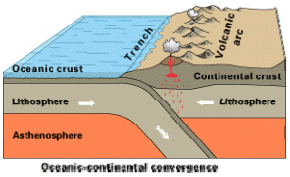
Since urban flooding is not tied to any specific source such as a stream or other waterbody, it is an unmapped hazard in Central Point making vulnerability difficult to determine.

2009 Flood Photos

Earthquakes | Overview

Cascadia Subduction Zone

Anatomy of a Subduction Zone



Oceanic-continental convergence

Earthquakes

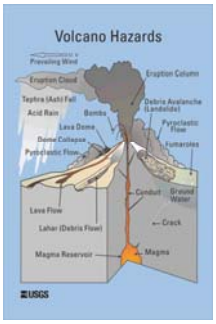
Hazard Characteristics

- Klamath Falls Fault
  - 7.0 magnitude (maximum) in Klamath area.
- Cascadia Subduction Zone
  - 8.0 – 9.0 magnitude
  - Result of Juan de Fuca plate colliding with North American plate.
  - 750-mile long fault
  - Occurs every 300 to 350 years.
  - Last Cascadia event occurred in 1700. (10-14% chance occurrence)
- Secondary Disasters
  - Dam Failures (Emigrant)
  - Volcanic Eruption

Community Vulnerability

- Extent: City-wide.
- Vulnerable populations: persons living in older structures, especially low income and elderly, disabled or frail individuals.
- Critical Facilities: Interstate 5, natural gas, electricity and telephone lines.
- Economic Assets: Older historically significant buildings (14 of them), all employment sectors (376 with 2,946 employees). If Emigrant Dam failed, 62 employers and 581 employees would lose their business front. Damage to roadways and clean up expensive.
- Environmental Assets: Water resources and air pollution, as well as health and safety hazards associated with hazardous materials spills, damage to riparian areas associated with debris jamming waterways.

Volcanic Eruptions | Overview



Volcanic Eruptions

Hazard Characteristics

- Originates from Cascadia subduction zone.
- Mount McLoughlin
  - Dormant – not likely to erupt unless in response to another disaster such as an earthquake.
  - Ash would normally be carried eastward by prevailing winds.
  - Close proximity to Central Point could lead to ash deposition and susceptibility to a Nuee Ardante.
- Mount Shasta
  - Located approximately 100 miles south of Central Point.
  - Second most active volcano in the Cascades. 1% chance per 100 years.
  - Risk of ash deposition and impacts.

Community Vulnerability

- Extent: City-wide (potentially)
- Vulnerable populations: Travelers, frail, elderly, infants, individuals with respiratory problems, people with outdoor occupations.
- Critical Facilities: Public utilities, sewers & sewage plants, emergency service vehicles, transportation network.
- Economic Assets: Industrial operations could be shut down due to damage to machinery, commerce will be slowed until transportation network cleared and customers mobile, all other employment centers dependent on HVAC systems for building ventilation, cleanup costs can be billions of dollars.
- Environmental Assets: Drinking water supplies, impaired habitat for fish and wildlife, air quality degradation.

Landslides

Hazard Characteristics

- Landslides are the down slope movement of soil, rock or combination of the two.
- There are different types, including rock falls, rockslides, slumps and debris flows.

Community Vulnerability

- Due to Central Point's generally flat topography, landslides are not likely to occur within the community.
- There are few isolated areas where our creeks have steep channel banks that are prone to erosion.
  - Jackson and Griffin Creeks.

Wildfire – Urban Interface Fires

Hazard Characteristics

- Interface is where development comes into contact with naturally vegetated areas that contribute to rapid fire spread and additional fuel loading.
- Suppression of smaller scale fires creates conditions that support catastrophic fires.
- Caused by human activities and natural events.
- All of Jackson County is in Critical Fire Weather Zone 3, which has the highest number of critical fire weather days per season.

Community Vulnerability

- Extent: Central Point is not located near any of the mapped wildland fire hazard areas.
- Vulnerable Populations: Smoke produced from wildland fires in the surrounding region will impact the elderly, frail, infants, individuals with respiratory disorders.
- Critical Facilities: none
- Economic Assets: none
- Environmental Assets: temporary impacts to air quality.

Existing Mitigation Measures

There are mitigation measures already in existence for most natural hazards that impact Central Point.

Severe Storms:
- Severe weather watches and warnings by NWS
- The power grid redundancy improvements
- Tree removal and trimming program

Wildfire:
- Chapter 8.08 - Weed abatement regulations

Floods:
- National Flood Insurance Program
- Community Rating System
- Stormwater Management
- Municipal Building Code
- Land Use Code

Volcanic Eruptions:
- United States Geological Survey (USGS)

Landslides:
- Special Stream Setback Requirements

Earthquakes:
- Building code seismic standards

Next Step: Mitigation Action Plan

- Now that the City has identified the community's areas of greatest vulnerability, the planning process will focus on identifying all possible mitigation actions that can be taken to reduce or eliminate exposure to the risk of disaster.
- There are 6 mitigation categories:
  - Prevention
  - Property Protection
  - Public Education and Awareness
  - Natural Resources Protection
  - Emergency Services
  - Structural Projects

Stay Informed, Get Involved

- We invite you to attend the next public meeting, which will be held in the City Council Chambers on Monday, July 6th from 6:00 – 8:00 p.m.
  - The purpose of the meeting will be to review progress made on the Mitigation Action Plan and to solicit your feedback and ideas prior to the plan's submittal.
- Check out the City's new website at www.centralpointoregon.gov for information about hazard mitigation. Staff will be creating a link to hazard mitigation information and an electronic version of the plan will be available for your review.
- Contact Stephanie Woolett with questions, comments, ideas or feedback at anytime.
- Read the City Newsletter. Hazard mitigation updates are published regularly.

Contact Information

- Hazard Mitigation Project Facilitator: Stephanie Woolett
  - Phone: 664-7602, Ext. 244
  - E-mail: stephanie.woolett@centralpointoregon.gov
  - Address: 140 South 3rd Street
    Central Point, OR 97502
  - Website: www.centralpointoregon.gov

Your feedback and ideas are important for the success of this project. The Advisory Committee and project facilitator look forward to hearing from you!

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Central Point
City Hall
541-664-3321

CITY OF CENTRAL POINT
Study Session Agenda
July 18, 2011

I. MEETING CALLED TO ORDER – 6:00 P.M.

II. DISCUSSION ITEMS

A. Central Point Hazard Mitigation Plan (Holtey)

B. Cross Connection and Backflow Prevention (Samitore)

III. ADJOURNMENT

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MEMORANDUM

July 15, 2011

TO: Mayor Hank Williams
City Council

FROM: Stephanie Holtey, CFM SH

RE: Central Point Hazard Mitigation Plan

The City is in the final phase of developing a hazard mitigation plan that evaluates potential natural hazards and impacts to the community, and identifies actions to reduce the identified risk. This planning effort is funded by the Federal Emergency Management Agency's (FEMA) Hazard Mitigation Grant Program (HMGP) and has been conducted under the direction of a Hazard Mitigation Advisory Committee that formed in 2007. The purpose of this memo is to brief you on this planning effort in preparation for the upcoming Study Session presentation.

Completion of the Central Point Hazard Mitigation Plan will be a significant achievement for the community. The plan not only promotes awareness of risk, potential losses and risk reduction actions for natural hazards, it also makes the City eligible for Pre-and Post-Disaster Mitigation grant funds from the FEMA that would not otherwise be available. These funds can be used to implement actions identified in the plan to reduce risk.

The plan addresses natural hazards that have the potential to affect the community. These include:

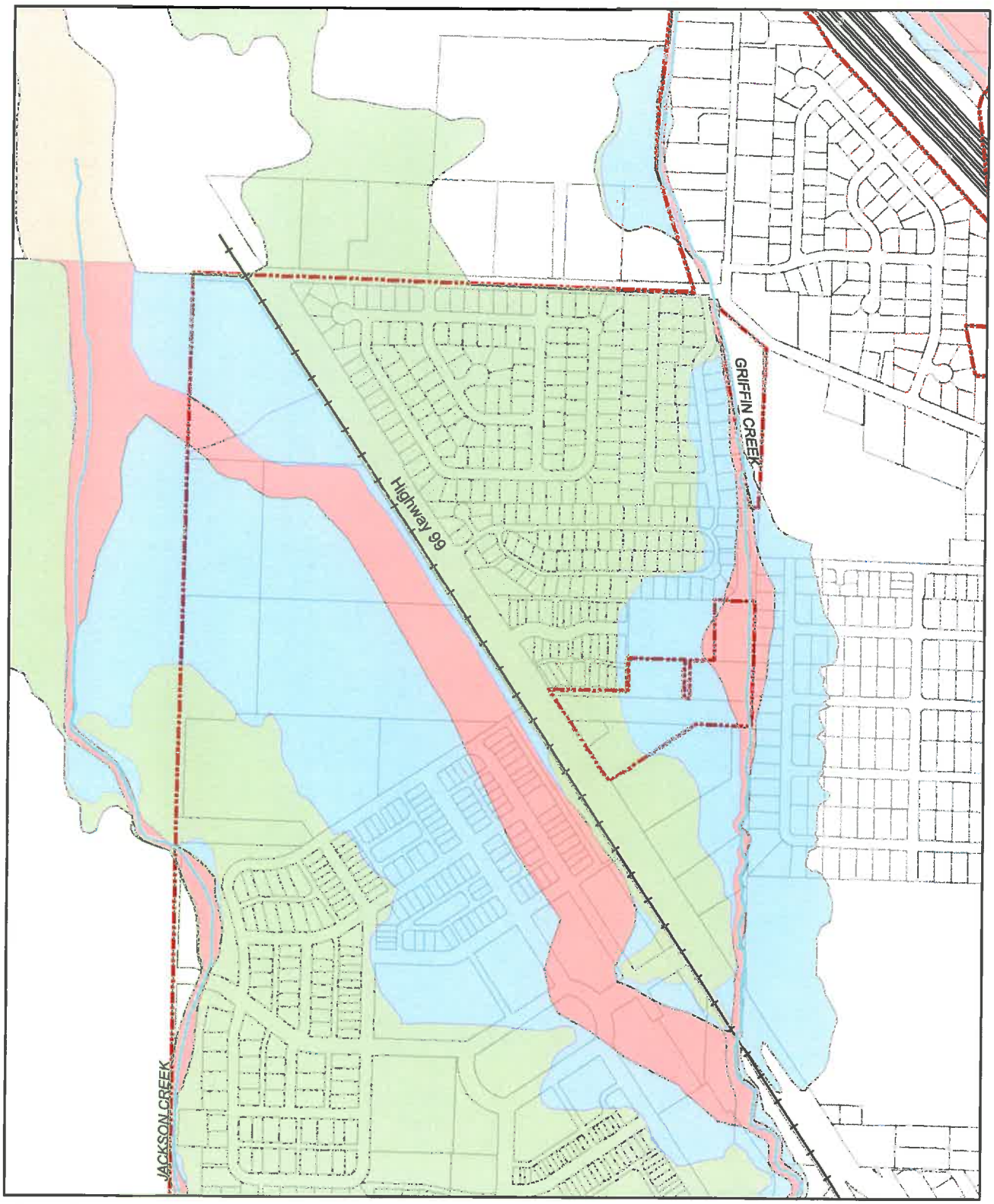
- Floods
- Earthquakes
- Severe Weather
- Other Hazards (Wildland/Urban Interface Fires, Landslides, Volcanic Events, Drought, Subsidence, Expansive Soils, and Sinkholes)

During Monday's study session we will briefly review the project history and the plan's organization. We will focus most of our attention on the hazard chapters and spend most of our time discussing flood hazards as they are represent the most significant risk for the community. I am very excited to share a flood mitigation project that was identified in the planning process on Griffin Creek that, if implemented, will reduce the Griffin Creek floodplain and re-zone many high risk properties to a lower risk hazard designation. Finally, we will go over what to expect in the coming weeks as move from planning to adoption and implementation.

I look forward to presenting the plan and hearing your feedback on the draft plan Monday evening. I've enclosed flood hazard maps for FEMA-mapped hazards, as well s the Emigrant Dam failure inundation zone.

CENTRAL POINT

FEMA-Mapped Floodplains: Griffin and Jackson Creeks, Northwest Portion



Legend

- streams

FEMA FIRM

FLD_ZONE

- A
- AE
- AO
- FLOODWAY
- X
- X-SHADED

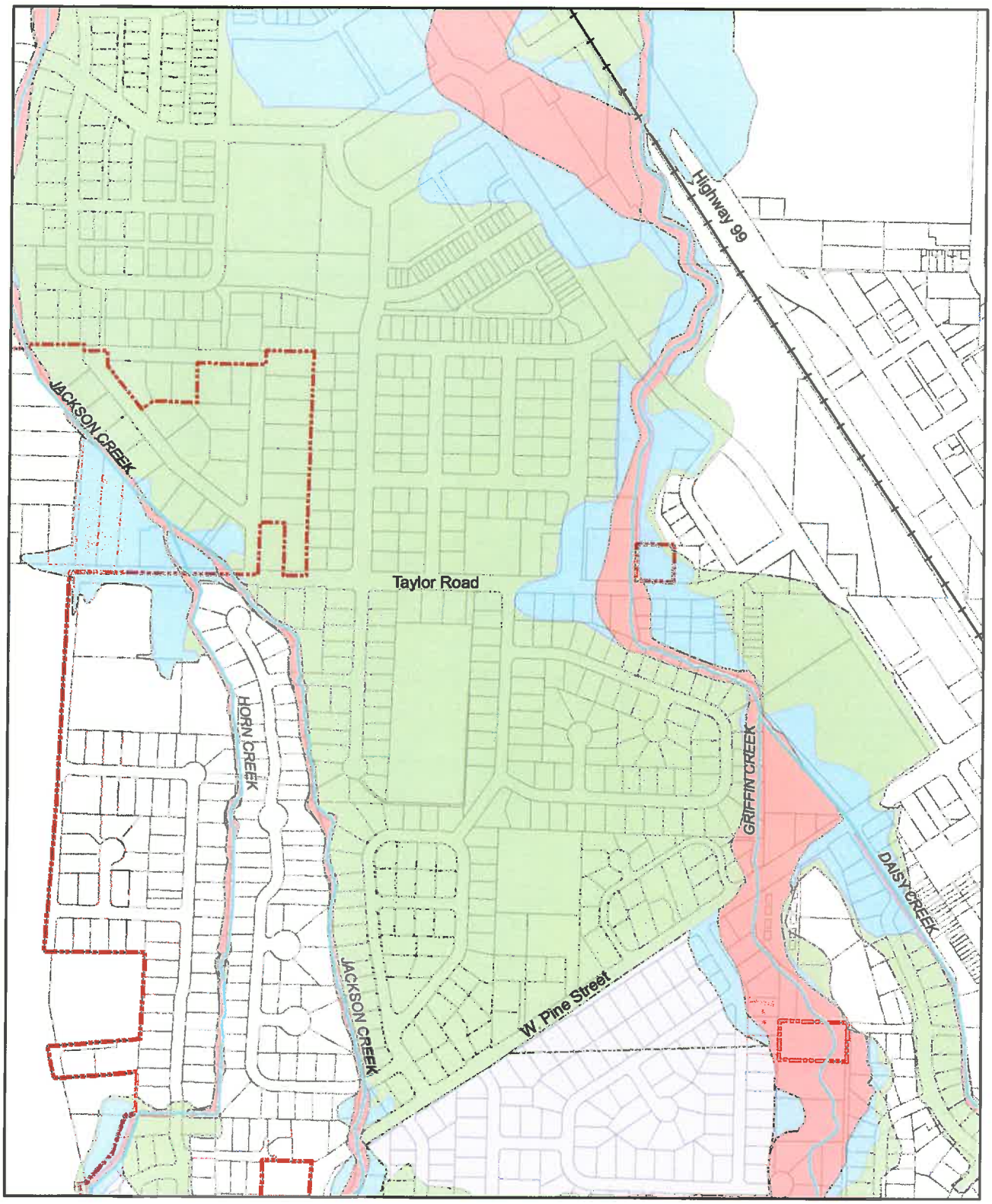
Source Information:

FEMA Flood Insurance Rate Map (FIRM)
Jackson County, Oregon and Incorporated Areas
Map and Panel No.: 41029C 1768F, 1769F, 1956F, 1957F
Community No.: 410092
Effective Date: May 3, 2011

N

CENTRAL POINT

FEMA-Mapped Floodplains: Griffin & Jackson Creeks, Central Portion



Legend

- streams
- FEMA FIRM
- FLD_ZONE
  - A
  - AE
  - AO
  - FLOODWAY
  - X
  - X-SHADED

Source Information:

FEMA Flood Insurance Rate Map (FIRM)
Jackson County, Oregon and Incorporated Areas
Map and Panel No.: 41029C 1768F, 1769F, 1956F, 1957F
Community No.: 410092
Effective Date: May 3, 2011

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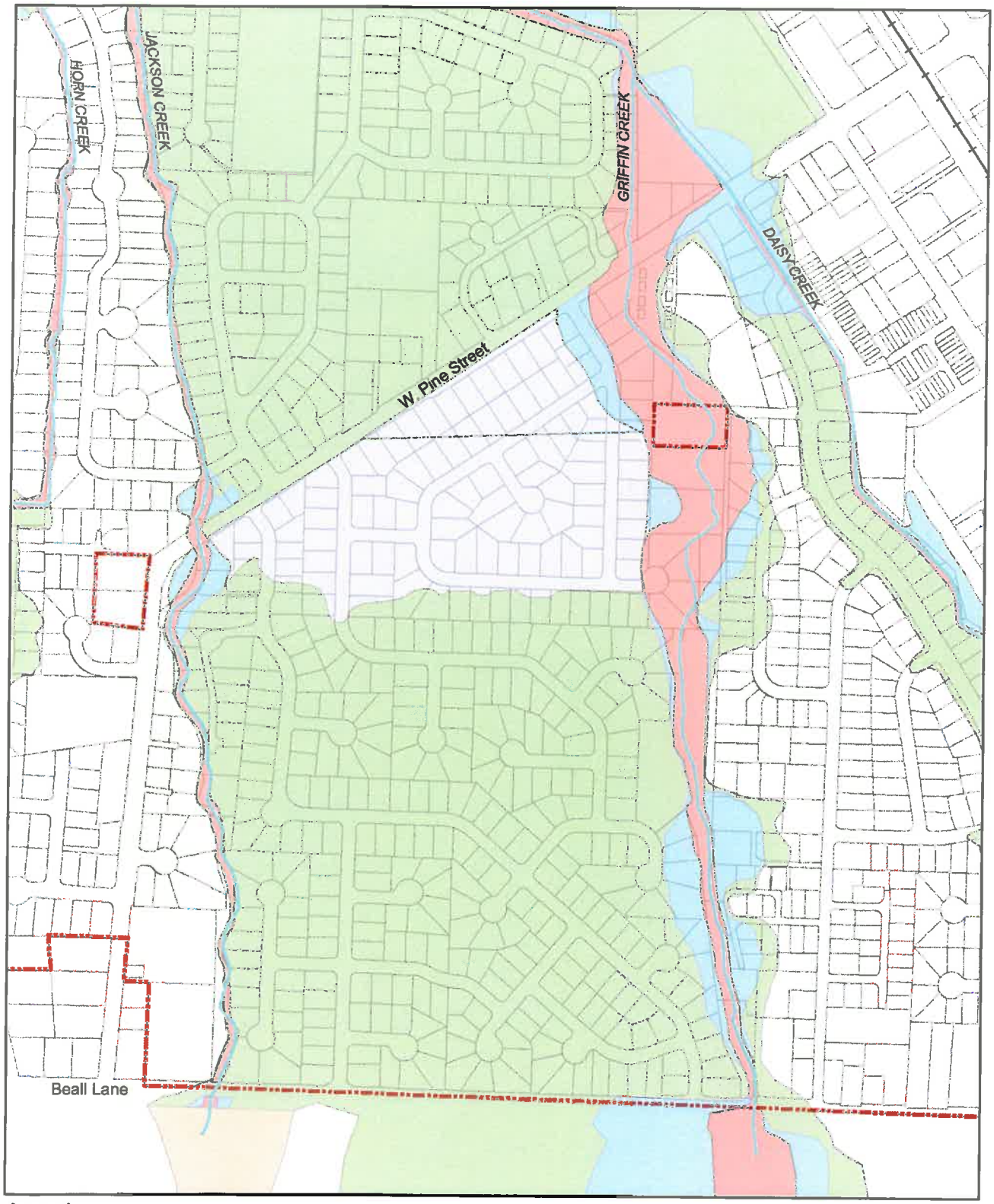
FEMA-Mapped Floodplains: Griffin & Jackson Creeks, Southwest Portion



Legend

- streams

FEMA FIRM

FLD_ZONE

- A
- AE
- AO
- FLOODWAY
- X
- X-SHADED

Source Information:

FEMA Flood Insurance Rate Map (FIRM)
Jackson County, Oregon and Incorporated Areas
Map and Panel No.: 41029C 1768F, 1769F, 1956F, 1957F
Community No.: 410092
Effective Date: May 3, 2011

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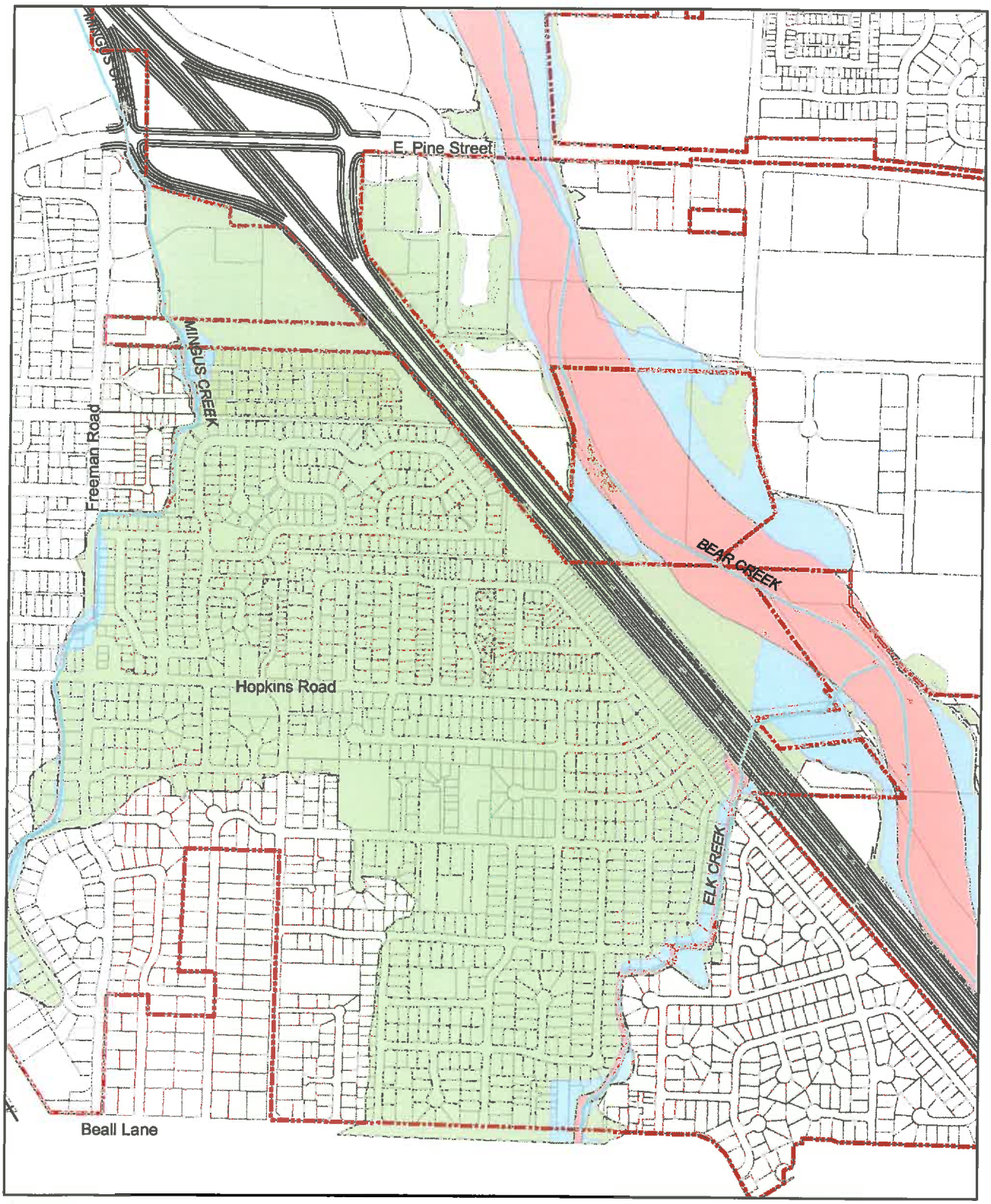
CENTRAL POINT

FEMA-Mapped Floodplains: Mingus, Elk, and Southeast Bear Creeks



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- streams

FEMA FIRM

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- FLOODWAY
- X
- X-SHADED

Source Information:

FEMA Flood Insurance Rate Map (FIRM)
Jackson County, Oregon and Incorporated Areas
Map and Panel No.: 41029C 1768F, 1769F, 1956F, 1957F
Community No.: 410092
Effective Date: May 3, 2011

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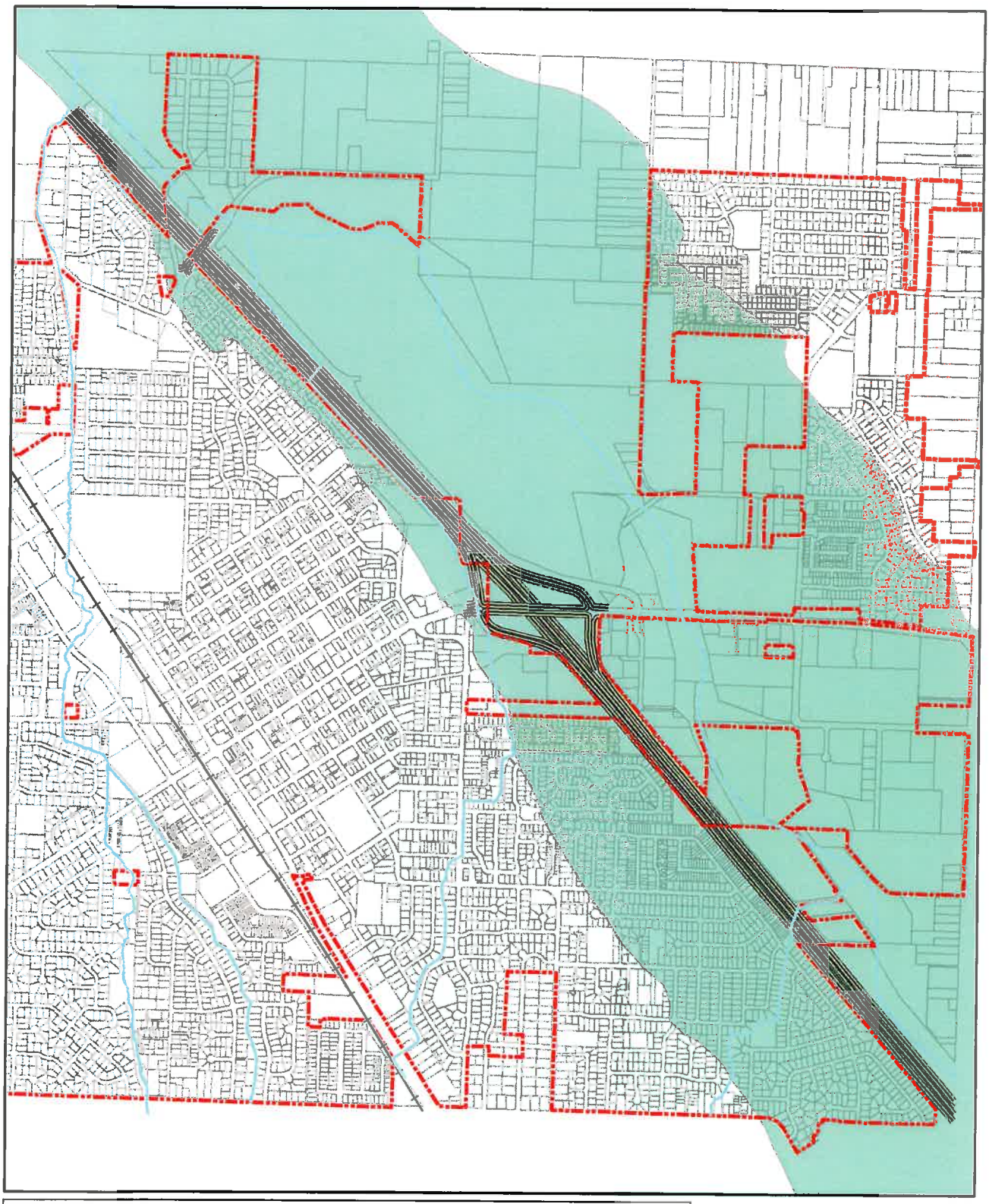
CENTRAL POINT

Emigrant Dam Inundation Zone



Emigrant Inundation Impacts Summary

Comprehensive Plan Land Use Designation	No. Structures	Acreage
Residential	2018	382.3
Commercial	981	115.7
Mixed Use	0	0
Civic/Open Space	1	31.8
Industrial	17	36.6

N

Legend

- streams
- emigrant_lake_dam_inundation
- I_5 Freeway

Griffin Creek Flood Mitigation Fact Sheet

July 15, 2011

Background

Griffin Creek poses the most significant flood risk to the community from the FEMA mapped 100-year flood (Floodway and Flood Zones AE and AO). As shown in Table 1, Griffin Creek has 385 existing structures in the Special Flood Hazard Area (SFHA), also referred to as the 100-year or 1% annual chance floodplain. This total represents 74 percent of all existing structures in the SFHA city-wide. A significant number of these properties are in the floodway.

Table 1
Buildings in the Special Flood Hazard Area by Stream

Creek	Number of Buildings			
	Floodway	Zone AE	Zone AO	Zone X-Shaded
Griffin Creek[1]	65	161	132	956
Daisy Creek	1	16	0	125
Jackson Creek	9	5	0	352
Horn Creek	0	1	6	58
Mingus Creek	5	38	0	796
Elk Creek	1	36	0	672
Bear Creek	2	7	0	43
TOTAL	83	264	138	3002

[1] Including overflow channel to Jackson Creek

Flood Mitigation Project

As part of the hazard mitigation planning process, the City hired Northwest Hydraulic Consultants, Inc. (NHC) to evaluate mitigation opportunities on Griffin Creek to achieve the following objectives:

- Minimize or eliminate erosion hazards to the Pacific Power Substation
- Minimize or eliminate floodway impacts to existing structures
- Minimize impacts of the high risk flood hazard areas on existing structures and infrastructure

As a result of this study, NHC identified mitigation activities on two reaches of Griffin Creek. The lower reach extends from Scenic Avenue, upstream to Highway 99; the upper reach extends from just downstream of the Mae Richardson/Palo Verde Way Pedestrian Bridge, upstream to the northerly extent of Flanagan Park. Each reach includes channel modification and reconstruction that will widen the channel and increase the conveyance capacity of Griffin Creek. The upper reach also includes additional actions to remove conveyance constrictions, including a grade control structure downstream of the pedestrian bridge, upgrade of the West Pine Street culvert to a freespan bridge, and removal of two private bridges. The mitigation projects will also include channel and riparian restoration, including placement of anchored large woody debris and native vegetation plantings. This efforts aim to reduce erosion, as well as promote natural and beneficial floodplain functions.

Figures 1 and 2 show the SFHA impacts to the lower and upper reach before and after mitigation. Upon completion, the lower reach mitigation effort would remove all 107 structures currently impacted by the FEMA-mapped 100-year floodplain. Of the existing 96 structures located in the SFHA, the upper reach mitigation project would remove 75 structures from the high risk flood hazard area. In total these projects re-zone 73% of the building stock identified in the existing Griffin Creek SFHA to a lower risk flood hazard designation. City-wide the two mitigation projects would reduce the number of structures in the SFHA by 58% (485 existing SFHA to 253 post mitigation SFHA structures).

According to the NHC report, the cost of both projects combined is $10,530,000, which includes $800,000 for replacement of the West Pine Street culvert with a freespan bridge. Completion of the hazard mitigation plan in September 2011 will make the City eligible for FEMA Pre-Disaster Mitigation grants that could help offset the cost;however, these grants require a 25% match commitment from the community.

While the cost of the project is high, the benefits include reduction of flood risk and costly flood damages, removal of the Federal mandatory flood insurance purchase requirement for approximately 282 buildings, improvements to Griffin Creek water quality to meet TMDL requirements, enhanced habitat for fish and wildlife, new community development opportunities to enhance community walkability, economic development, and residents wellbeing.

Community Development Opportunities in Post-Mitigation Environment

In the post-mitigation environment, the community would have the opportunity to expand existing Parks and create an inter-urban trail system that links residential neighborhoods with schools, the TOD and Old Town commercial centers, as well as recreation opportunities. A conceptual map of what this new trail network could look like is provided in Figure 3. The streamside corridor trails are shown in blue. These areas provide important links to existing pedestrian routes, shown in green that can be enhanced with sidewalks, street trees, landscape buffers, and/or bike lanes to promote safety, comfort and amenity to residents over time. In addition to promoting health, community vitality and environmental benefits, enhanced community walkability may also improve local economic development conditions.

According to a University of Wisconsin economic development publication, walkable communities provide a wide array of economic benefits to communities of all size. These include, but are not limited to:

- Higher housing values
- More effectively attracts new businesses, especially knowledge driven, service oriented businesses
- Attracts more tourists.

Conclusion

The Griffin Creek Flood Mitigation projects offer many benefits to existing residents living in high risk floodplains, as well as the community at large. Completion of the projects would require significant investment of funds, as well as development of partnerships between local government, property owners, businesses, and other agencies. It's an exciting opportunity for the community to proactively manage its flood hazard, save residents money on flood insurance premiums, and consider additional enhancements that provide opportunities for enhanced community vitality.

CITY OF CENTRAL POINT
City Council Study Session
July 18, 2011

I. MEETING CALLED TO ORDER

Mayor Williams called the meeting to order at 6:00 p.m.

II. ATTENDEES

Mayor: Hank Williams
Council Members: Bruce Dingler, Allen Broderick, Carol Fischer, Kelly Geiger, and Kay Harrison were present. Ellie George was excused.

City Manager Phil Messina; Parks and Public Works Director Matt Samitore; Community Development Director Tom Humphrey ; Human Resource Director Barb Robson; and City Recorder Deanna Casey were also present.

III. BUSINESS

A. Central Point Hazard Mitigation Plan

Floodplain Coordinator Stephanie Holtey presented a PowerPoint presentation to explain the overview and project history, plan organization, and Mission, Goals and Objectives of the Central Point Hazard Mitigation Plan (CPHMP). Planning efforts have been funded by the Federal Emergency Management Agency's (FEMA) Hazard Mitigation Grant Program (HMGP) and has been conducted under the direction of a Hazard Mitigation Advisory Committee formed in 2007.

The project mission is:

Proactively facilitate and support community-wide policies, practices, and programs that make Central Point more disaster resistant and resilient.

Project goals are:

1. Protect life & safety
2. Protect Central Point buildings and infrastructure
3. Enhance emergency response capability, emergency planning and post-disaster recovery
4. Vigorously seek funding sources for mitigation actions
5. Increase public awareness of natural hazards and enhance education and outreach efforts
6. Incorporate mitigation planning into natural resource management and land use planning.

Completion of the Central Point Hazard Mitigation Plan will be a significant achievement for the community. The plan promotes awareness of risk, potential losses and risk reduction actions for natural hazards; it also makes the city eligible for mitigation grant funding from FEMA once adopted by the City. These funds would be used to implement actions identified in the plan to reduce risk hazards.

The plan addresses natural hazards that have the potential to affect the community:

- Floods
- Earthquakes
- Severe Weather
- Other hazards that are low risk for our area but should be addressed (Wild land/Urban Interface Fires, Landslides, Volcanic Events, Drought, Subsidence, Expansive Soils, and Sinkholes).

Mrs. Holtey explained that the Griffin Creek area presents the biggest hazard to Central Point because some of the culverts are too small for a large amount of water. We currently see Griffin Creek back up in these locations with a heavy rain storm. If we were to experience weather severe enough to cause flood watches, these areas would be a huge risk for infrastructure damage and damage to property owners. There are funding options available to help with these issues but the CPHMP must be adopted by Council.

There was discussion in regards to property taxes and assessed value of the homes in the Griffin Creek Hazard areas. The damage to the infrastructure could be up to 10 million dollars for the city. Council members were in agreement the plan should be implemented so that we can apply for grants to help replace the culverts and avoid some of the flooding problems in the future.

There was discussion regarding some of the minor issues that could affect Central Point. There are mitigation options for the other lower risk hazards. These need to be addressed in the plan but are a lower priority at this time.

Conclusion:
Staff will continue forward with the public hearing set for August 9, 2011. The process is about 90% complete. The items remaining prior to adoption are the public hearing, submitting final plan to OEM/FEMA; approval from FEMA; then adoption by City Council. After the plan is adopted staff will begin submitting grant applications for the mitigation items listed in the plan.

B. Cross Connection and Backflow Prevention

Parks and Public Works Director Matt Samitore explained that OAR 333961 – 010 is an unfunded mandate from the State of Oregon requiring back flow prevention devices. Central Point Municipal Code 12.20.060 was established to set policy for the City of Central Point in regards to installation and annual inspections to comply with State requirements.

The Back Flow Prevention (BFP) device is a check valve that prevents water from flowing backwards into a water supply line resulting in a contaminated water. He explained different scenarios where back flow or cross connection could happen.

The State is asking cities to be diligent in enforcing the annual maintenance checks on BFP devices within their jurisdiction. To date the City has accepted any maintenance reports submitted by property owners, and printed articles in

the City News about getting backflow devices checked annually, but have not fully enforced the program. Staff is looking for direction from Council on how they would like to enforce this mandate.

Options could be:

- Set up a monthly fee to cover expenses for the City to check the devices annually.
- Revise the Ordinance allowing the City to test the devices if property owners are in non-compliance and bill the owners.
- Continue doing what we have been doing by educating the public with newsletter articles.

The BFP program began in 1980 and is still growing. Currently there are approximately 5,300 backflows in the City with 40% of those being tested and reported annually. Public Works would like to increase the annual testing to 80% or better by the end of 2012. They plan to divide the city up into sections creating a data base that can be updated annually once all the information is collected.

Conclusion:
The City could provide a letter to property owners from the state stating the mandate and reason for the devices and why they need to be tested annually to see if that would help with compliance. Mr. Samitore will submit a five year plan and cost estimate for the next budget.

IV. ADJOURNMENT

The Study Session for July 18, 2011, was adjourned at 7:23 p.m.

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Presentation to City Council & Central Point Residents
July 18, 2011
Stephanie Holtey, CFM

CENTRAL POINT HAZARD MITIGATION PLAN

AGENDA

- Hazard Mitigation Overview
- Central Point Hazard Mitigation Plan
  - Project History
  - Plan Organization
  - Mission, Goals, Objectives
  - Hazard Risk Assessment & Mitigation Actions
    - Floods
    - Earthquakes
    - Severe Weather
    - Other Hazards
  - The road to Adoption & Implementation

HAZARD MITIGATION OVERVIEW

Mitigation is any sustained action to reduce or eliminate long-term risk to humans and private property.

PROJECT HISTORY

- Hazard Mitigation Grant Program (HMGP) funded project
- Began in 2007 under direction of HMAC
- Project delayed 1.5 years due to funding
- Additional HMGP Funds Awarded Winter 2010
  - Elevation Certificates
  - Griffin Creek Mitigation
  - Enhanced Risk Assessment/Benefit Cost Analysis
- Project Completion Deadline September 2011.

PLAN ORGANIZATION

- Chapter 1.0 – Introduction
- Chapter 2.0 – Community Profile
- Chapter 3.0 – Public Participation
- Chapter 4.0 – Mission, Goals, Objectives, Action Items
- Chapter 5.0 – Adoption & Implementation
- Chapter 6.0 – Floods
- Chapter 7.0 – Earthquakes
- Chapter 8.0 – Severe Weather
- Chapter 9.0 – Other Hazards
- Appendix 1 – Oregon & FEMA Grants
- Appendix 2 – Benefit Cost Analysis
- Appendix 3 – Public Participation Documentation
- Appendix 4 – References

PROJECT MISSION, GOALS & OBJECTIVES

MISSION:

Proactively facilitate and support community-wide policies, practices, and programs that make Central Point more disaster resistant and resilient.

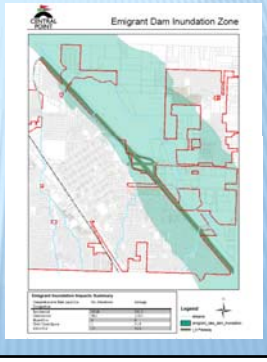
GOALS & OBJECTIVES

- Goal #1: Protect Life & Safety
  - Improve public awareness of natural hazards that pose risk to life safety
- Goal #2: Protect Central Point Buildings & Infrastructure
  - Identify high risk facilities
- Goal #3: Enhance Emergency Response Capability, Emergency Planning and Post-Disaster Recovery
  - Increase partnerships and collaboration among CP, nearby communities, utilities, businesses, etc. to ensure availability of adequate emergency and essential services during and after disaster events.
- Goal #4: Vigorously Seek Funding Sources for Mitigation Actions
  - Prioritize and fund action items that will maximize mitigation, response and recovery resources.
- Goal #5: Increase Public Awareness of Natural Hazards and Enhance Education and Outreach Efforts
  - Develop and implement education and outreach programs to raise public awareness of the risks from natural hazards.
- Goal #6: Incorporate Mitigation Planning into Natural Resource Management and Land Use Planning
  - Balance natural resource management, land use planning and natural hazard mitigation to protect life, property and the environment.

FLOOD HAZARD

HAZARD OVERVIEW

- Riverine Floods
  - Flood Hazard Zones mapped on Flood Insurance Rate Map (FIRM)
  - Impacts
    - 1,188 Parcels in 100-year floodplain, including floodway
    - 485 buildings in 100-year floodplain, including floodway
- Urban Floods
  - Hazard areas are not mapped
  - Impacts vary from year to year
- Dam Failure
  - Emigrant Dam
  - Impacts
    - 566.4 acres
    - 3017 buildings



FLOOD LOSS ESTIMATES

100-YEAR FLOOD DAMAGE ESTIMATES

- 242 Buildings Flooded
  - Replacement Value is $60,500,000
  - Building Damage: $8,107,000
  - Contents Damage: $4,900,000
  - Total Damage: $80, 007,500
- Include displacement cost, time value, infrastructure damages, the cost would likely be 50% higher or $20 million.

500-YEAR FLOOD DAMAGE ESTIMATES

- 1501 Buildings Flooded
  - Replacement Value: $375,250,000
  - Building Damage: $50,283,500
  - Contents Damage: $30,395,250
  - Total Damage: $80,678,7
- Include displacement cost, time value, infrastructure damages, the cost would likely be 50% higher or $120 million.

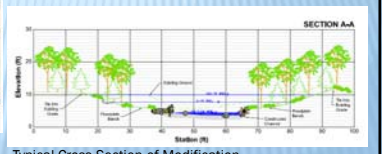
FLOOD MITIGATION OPPORTUNITIES

Flood risk and loss reduction measures in Central Point are likely to include: channel improvements to increase conveyance capacity and lower flood levels, elevation or acquisition of highly flood-prone structures, and stormwater drainage system improvements identified in an updated Stormwater Master Plan.

- Griffin Creek Flood Mitigation Project
  - Address the most significant flood risk
    - Floodway impacts 186 parcels and 65 structures
    - Floodplain impacts 416 parcels and 290 structures
  - Channel modification & reconstruction on two reaches
    - Scenic to Highway 99
    - Downstream of Mae Richardson Pedestrian Bridge to north extent of Flanagan Park

GRIFFIN CREEK FLOOD MITIGATION PROJECT

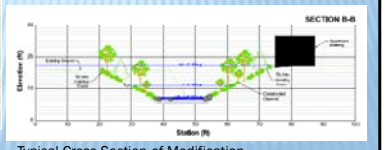
Lower Reach Near PP&L



Typical Cross-Section of Modification

GRIFFIN CREEK FLOOD MITIGATION PROJECT

Upper Reach



Typical Cross-Section of Modification

COMMUNITY DEVELOPMENT OPPORTUNITIES

SOME IDEAS TO ENHANCE COMMUNITY LIVABILITY & LOCAL ECONOMY

- Utilize new open space corridors to create inter-urban trail system
  - Connect residents/visitors to recreation, commercial centers, schools
  - Enhance livability & wellbeing
- Partner with Housing Authority to re-develop W. Pine Street apartments
  - Enhance safety, livability & aesthetics
  - Improve access to trail system, recreation, shopping, schools
- Improve existing routes for safety, comfort

EARTHQUAKE

3 Types of Earthquakes:
- Interface
- Intraplate
- Crustal

- Intensity of ground shaking depends on:
  - Magnitude
  - Epicenter location
  - Depth
  - Soil or rock conditions

VULNERABILITY ASSESSMENT

Category	Cascadia M9.0	Sky Lakes M7.08	Central Point M6.0
Damages and Losses			
Number of Damaged Buildings - Total	2,505	481	5,357
Number of Damaged Buildings - Slight Damage	1,350	369	2,422
Number of Damaged Buildings - Moderate Damage	852	104	1,776
Number of Damaged Buildings - Extensive Damage	292	8	828
Number of Damaged Buildings - Complete Damage	11	0	331
Building-Related Damages and Economic Losses	$49,000,000	$5,250,000	$240,000,000
Transportation Systems Damages*	N/A	N/A	N/A
Utility Systems Damages*	N/A	N/A	N/A
Total Damages and Losses	$49,000,000	$5,250,000	$240,000,000
Casualties			
Injuries (2 pm)	17	1	155
Injuries (2 am)	11	1	73
Deaths (2 pm)	0	0	10
Deaths (2 am)	0	0	2

* Inventory data for transportation infrastructure and utility infrastructure are incomplete - meaningful damage estimates are not available.

EARTHQUAKE MITIGATION OPPORTUNITIES

- Evaluate the seismic vulnerability of:
  - City-owned buildings
  - Schools
  - Fire station
  - Water and wastewater systems
- Develop an inventory of vulnerable privately owned buildings and promote awareness of EQ hazards
- Obtain funding and retrofit important public facilities with significant seismic risk.

SEVERE WEATHER

Winter storms
Severe thunderstorms

Extreme Temperatures
Severe Hail Events

Lightning
Tornadoes

- Winter Storm Impacts
  - Flooding
  - Transportation System
  - Tree Falls from wind
  - Power outages
- Severe Thunderstorms
  - Localized damages from tree falls
  - Possible injuries and deaths
- Severe Hail Events
  - Localized damages to area with largest hail size
  - Damages to exposed items, such as roofs, windows, vehicles
- Lightning
  - Isolated damage to one or a few buildings
  - Possible injuries or death
- Tornadoes
  - Generally low risk but possible localized damage from F0 or F1
  - Slight possibility of injuries or death

MITIGATION ACTION ITEMS

- Formalize City's Community Forestry program to better organize and coordinate tree management efforts
- Promote awareness of tree selection, planting and care
- Ensure that all critical facilities have back-up power and EOP to deal with power outages
- Require new developments to place power lines under ground

THE ROAD TO ADOPTION & IMPLEMENTATION

- Complete the draft plan and review with HMAC
- Public Meeting on August 9th
- Conduct the FEMA Crosswalk
- Submit the final draft plan to OEM/FEMA
- Approval from FEMA
- Local adoption by City Council
- Implement, monitor, maintain the plan

LEARN MORE, GET INVOLVED

- Next Public Meeting August 9th 6-8pm.
  - Council Chambers, City Hall
- Check out the hazard mitigation website at www.centralpointoregon.gov. Navigate to the Flood Mitigation Page under the Public Works Department's Floodplain Management link.

THANK YOU!

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CENTRAL POINT HAZARD MITIGATION PLAN DEVELOPMENT

Public Meeting/Open House Sign-in Sheet

August 9, 2011

NAME:	ADDRESS:	CONTACT #:	E-MAIL:
Stephanie Holtey (Facilitator)	140 S. 3rd St.	664.7602 Ext. 244	stephanie.holtey @centralpointoregon.gov
Karen Roeber	140 S 3rd St Central Point	664-7602 Ext 241	Karen.roeber@ centralpointoregon.gov

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CENTRAL POINT

PUBLIC WORKS DEPARTMENT

Stephanie Holtey, CFM
Floodplain/Stormwater Coordinator

140 South 3rd Street · Central Point, OR 97502 · (541) 664-7602 · www.centralpointoregon.gov

Hazard Mitigation Plan Development

Public Meeting

August 9, 2011

Meeting Summary

The public meeting was scheduled to commence at 6:00 p.m. The primary objective was to showcase the draft hazard mitigation plan and solicit feedback from residents and business owners. There were poster presentations displayed for casual viewing and a Power Point slide presentation to be delivered by the project Manager.

Despite publication of this event in the City Newsletter, Central Point Natural Resources Bulletin, and City Events Calendar, there were no attendees.

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Central Point Hazard Mitigation Plan At-a-Glance

Mission

Proactively facilitate and support community-wide policies, practices, and programs that make Central Point more disaster resistant and resilient.

Goals & Objectives

- Goal #1: Protect Life & Safety
  - Minimize potential for injuries and deaths
  - Improve public awareness of natural hazards that pose risk to life safety
- Goal #2: Protect Central Point Buildings & Infrastructure
  - Identify high risk facilities
  - Conduct risk assessments for high risk facilities and determine cost effective mitigation measures
  - Implement mitigation measures for buildings, facilities and infrastructure that pose an unacceptable risk.
  - Ensure that new buildings and infrastructure are adequately designed and located to minimize damages in future disaster events.
- Goal #3: Enhance Emergency Response Capability, Emergency Planning and Post-Disaster Recovery
  - Ensure that critical facilities and infrastructure are capable of withstanding disaster events with minimal damages and loss of function.
  - Enhance emergency planning to facilitate effective response and recovery from future disaster events.
  - Increase partnerships and collaboration among nearby communities, utilities, businesses, etc. to ensure availability of emergency services during and after disasters.
- Goal #4: Seek Funding Sources for Mitigation Actions
  - Prioritize and fund action items that will maximize mitigation, response and recovery resources.
  - Explore both public and private funding sources.
- Goal #5: Increase Public Awareness of Natural Hazards and Enhance Education and Outreach Efforts
  - Develop and implement education and outreach programs to raise public awareness of the risks from natural hazards.
  - Provide information on resources, tools, partnership opportunities and funding sources available to assist community mitigation implementation.
  - Develop and enhance partnerships with public agencies, non-profit organizations, business, industry and the public by enhancing communications and cooperation.
- Goal #6: Incorporate Mitigation Planning into Natural Resource Management and Land Use Planning
  - Balance natural resource management, land use planning and natural hazard mitigation to protect life, property and the environment.
  - Preserve, rehabilitate and restore natural systems to enhance habitats and serve natural hazard mitigation function

Project History

October 16, 2007 – FEMA Hazard Mitigation Grant Program (HMGP) funds awarded.

January 15, 2008 – Mailed Household Preparedness Questionnaire to all City residents and businesses

January 31, 2008 – Hazard Mitigation Advisory Committee Kick-off Meeting
- Began development of a mission statement and goals
- Developed a public information strategy

June 26, 2008 – Hazard Mitigation Advisory Committee Meeting
- Finalize mission statement and goals
- Review natural hazards and their characteristics
- Identify areas of greatest community vulnerability

July 15, 2008 – Public Meeting
- Three attendees
- Review hazard mitigation: what it is, why its important and how the community's plan in developed
- Present mission statement and goals and local natural hazard characteristics
- Request feedback, comments, suggestions

May 14, 2009 – Hazard Mitigation Advisory Committee Meeting
- Review the draft vulnerability assessment
- Begin process of developing mitigation actions and strategy

June 18, 2009 – Public Meeting
- No attendees

June 31, 2009 – FEMA released Preliminary Flood Insurance Rate Map for Jackson County and Incorporated Areas (including CP)

July 6, 2009 – Public Meeting
- Three attendees
- Review benefits of hazard mitigation, plan mission and goals
- Present draft vulnerability assessment, request feedback, comments, suggestions

January 13, 2010 – Hazard Mitigation Advisory Committee Meeting
- Reviewed progress made to date on vulnerability assessment and mitigation actions
- Discussed course of action to complete the plan following FEMA Preliminary FIRM release in June.
- Obtained concurrence to proceed with funding acquisition to eliminate data gaps, enhance risk assessment, develop mitigation actions and benefit cost analysis.

Fall 2010 – Additional FEMA HMGP funds awarded

October 28, 2010 – Modified Northwest Hydraulic Consultants (NHC), Inc. contract to examine Griffin Creek Flood Mitigation Alternatives to achieve the following objectives:
- Reduce erosion potential on the Pacific Power Substation
- Reduce or eliminate floodway impacts on existing structures and infrastructure
- Minimize high risk floodplain impacts on existing structures and infrastructure

December 2, 2010 – Signed contract with Neathamer Surveying to acquire Elevation Certificates in the high risk floodplain

December 2, 2010 – Elevation Certificate Acquisition Open House
- Forty attendees
- Reviewed Hazard Mitigation Plan Development project nexus to Elevation Certificate acquisition to eliminate flood risk data gaps in the Special Flood Hazard Area.

January 12, 2011 –Goettel & Associates hired to Conduct Enhanced Risk Assessment, Mitigation Action Benefit Cost Analysis

March 14, 2011 - NHC, Inc. produced final report for Griffin Creek Flood Mitigation Alternatives

July 18, 2011 – Public Meeting in conjunction with City Council Study Session
- Mayor, five Council members and five City staff were present. No public attendees.
- Presented draft hazard mitigation plan, including enhanced risk assessments for flood and earthquake and Griffin Creek mitigation action items. Requested feedback, comments and suggestions.

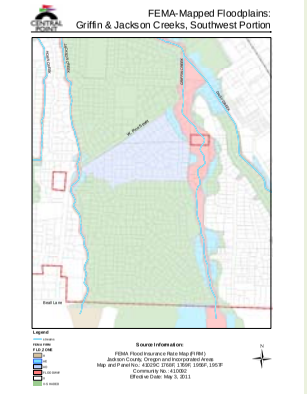
August 5, 2011 – Hazard Mitigation Advisory Committee Meeting
- Presented draft hazard mitigation plan, including enhanced risk assessments for flood and earthquake and Griffin mitigation action items.
- Discussed the road to adoption and implementation, including continuing role of the Advisory Committee.

August 9, 2011 – Public Meeting (Open House)
- Present the draft plan and request comments, suggestions, feedback.

August 12, 2011 – Submit the draft Central Point Hazard Mitigation Plan to FEMA for approval.

Natural Hazards & Mitigation Actions

FLOOD



3 Types of Flood Hazards in Central Point:
- Riverine – overbank inundation along streams
- Urban – Localized drainage problems
- Dam Failure – Emigrant Dam Inundation Zone

FEMA maps riverine flood hazards in Central Point along all seven streams. Urban flood hazards are not mapped. Emigrant Dam Inundation is mapped by the Bureau of Reclamation.

FEMA-mapped 100-year or high risk flood is estimated to cost the community $20 Million in damages
FEMA-mapped 500-year or moderate risk flood is estimated to cost the community $120 Million in Damages

Griffin Creek poses the greatest threat to Central Point from flood hazards due to the high number of existing structures in the floodplain and regulatory floodway.

Mitigation Opportunities:
Highest priority mitigation action for flood includes mitigating the Griffin Creek flood hazard shown on the FEMA Flood Map.

Griffin Creek Flood Mitigation Project includes:
- Removal of channel constrictions, such as undersized culverts, bridges
- Stream channel modification, like seen in the Twin Creeks Development would:
  - Enlarge the stream channel area
  - Restore stream and riparian habitat
  - Provide greater visual amenity to the community residents and visitors
  - Increase opportunities for recreation and community walkability
  - Reduce federal mandatory flood insurance purchase requirements
  - Enhance flood insurance discounts through the National Flood Insurance Program's Community Rating System (CRS)
  - Cost approximately $10 Million

EARTHQUAKE

3 Types of Earthquakes in Central Point
- Interface –along boundary of subducting oceanic plates
- Intraplate – within subducting oceanic plates
- Crustal – within North American Plate

Intensity of Ground Shakes Depends on:
- Magnitude
- Epicenter Location & depth
- Soil or rock conditions

Category	Cascadia M9.0	Sky Lakes M7.08	Central Point M6.0
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Deaths (2 pm)	0	0	10
Deaths (2 am)	0	0	2

[1] Inventory data for transportation infrastructure and utility infrastructure are incomplete - meaningful damage estimates are not available.

Mitigation Opportunities:
Evaluate seismic vulnerability of city-owned buildings, schools, fire station, water and wastewater systems
Develop an inventory of vulnerable privately owned buildings and promote earthquake hazard and preparedness awareness
Obtain funding to retrofit critical and essential facilities with significant seismic risk.

SEVERE WEATHER

Winter Storms, Extreme Temperatures, Severe Thunderstorms, Lightning, Severe Hail Events, Tornadoes

- Winter Storm Impacts
  - Flooding
  - Transportation System
  - Tree Falls from wind
  - Power outages
- Severe Thunderstorms
  - Localized damages from tree falls
  - Possible injuries and deaths
- Severe Hail Events
  - Localized damages to area with largest hail size
  - Damages to exposed items, such as roofs, windows, vehicles
- Extreme Temperatures
  - Transportation System
  - Tree Falls
  - Power Outages
- Lightning
  - Isolated damage to one or a few buildings
  - Possible injuries or death
- Tornadoes
  - Generally low risk but possible localized damage from F0 or F1
  - Slight possibility of injuries or death

Mitigation Opportunities:
Formalize the Community Forestry Program to better organize and coordinate tree management efforts.
Promote awareness of tree selection, planting and care to reduce hazards that can results in property damage, injury, death.
Ensure that all critical facilities have back-up power and Emergency Operation Plans to deal with power outages.
Require new development to place power lines underground.

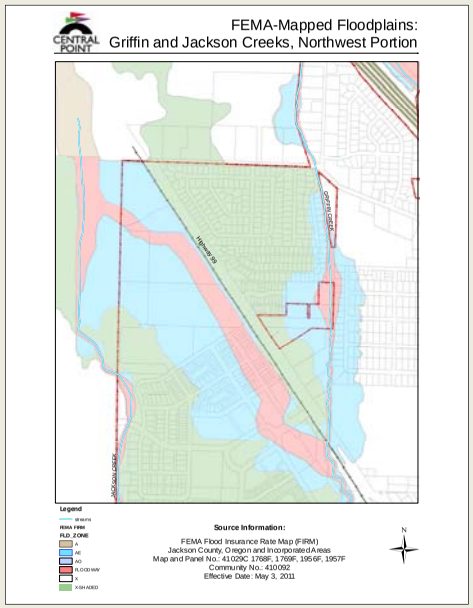
Central Point Hazard Mitigation Plan: Griffin Creek Flood Mitigation Project

Mitigation Project Objective:

Reduce erosion hazards to the Pacific Power Substation and flood hazards associated with the FEMA-mapped floodway and 100-year (high risk) floodplain on Griffin Creek.

Downstream Reach – Scenic to Hwy 99

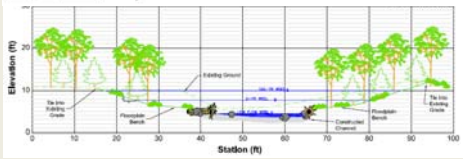
Floodplain Before Mitigation



Project Details

Downstream Griffin Creek - Construction Concepts

nhc



Project Impact Summary:

Notably reduce land area impacted by high risk hazard.

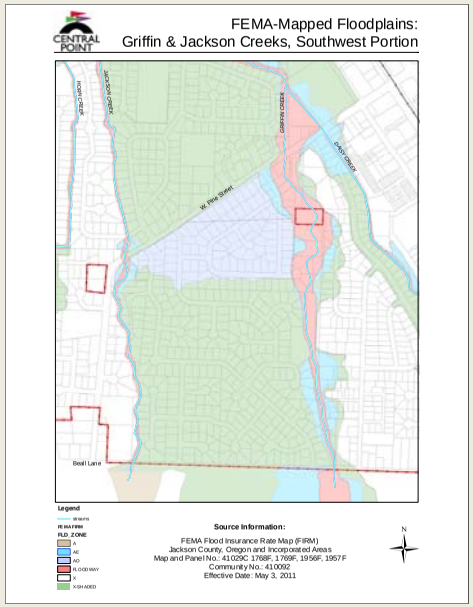
Remove all structures from the 100-year (high risk) floodplain and floodway.

Total Cost: $6,600,000 (includes W. Pine Street culvert replacement with a freespan bridge).

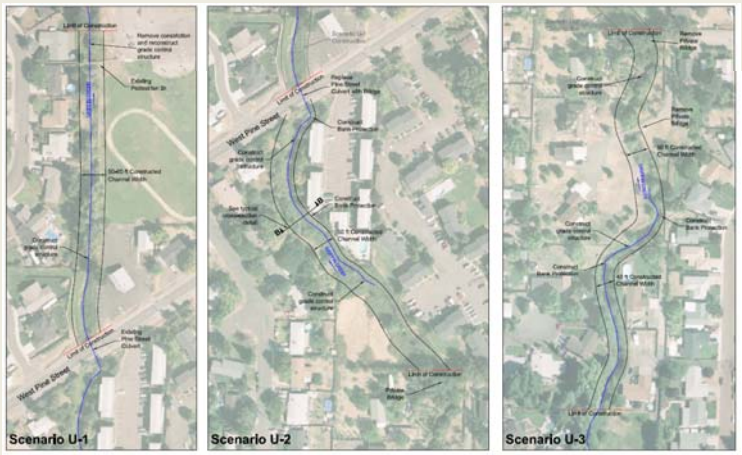
Floodplain After Mitigation

Upstream Reach – MR Pedestrian Bridge to Flanagan Park

Floodplain Before Mitigation

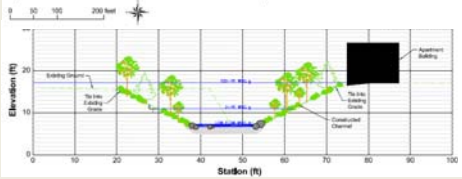


Project Details



Upstream Griffin Creek - Construction Concepts

nhc



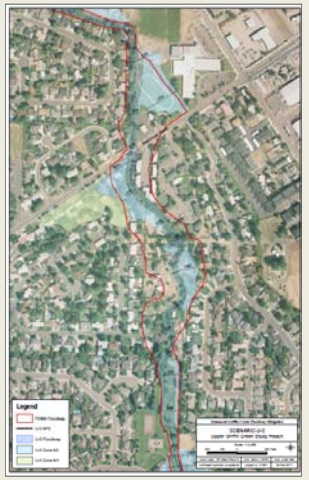
Project Impact Summary:

Notably reduce land area impacted by high risk hazard

Remove 174 Structures from the 100-year floodplain.
122 from Flood Zone AO
53 from Flood Zone AE and the Floodway

Total Cost: $2,580,000 (includes W. Pine Street culvert replacement with a freespan bridge).

Floodplain After Mitigation

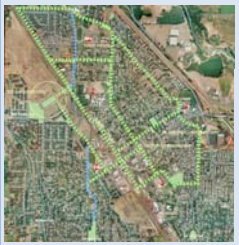


Project Challenges & Opportunities

Building this channel realignment will require coordination with every land owner adjacent to the stream. Dedication of easement or purchase of property may be needed, which is not included in the project cost. Project cost would need to be met through allocation of funds from grants if awarded and offset or completely funded by public sources (i.e. storm drain utility, bond, etc.).

Completion of this project will remove most structures from the regulatory floodplain and eliminate the federal mandatory flood insurance purchase requirement for those structures removed.

The stream realignment minimizes streambank erosion and restores stream and riparian habitat to improve water quality and essential salmon habitat to meet state and federal requirements. Like the Twin Creeks realignment areas, this project would enhance the appearance of the stream. It could also facilitate increased recreation and walkability if a community trail system were built to connect residences to business districts, parks and schools. Community walkability has many benefits, including healthier population, increased property values and improved local economic conditions.



ELEVATION CERTIFICATE ACQUISITION OPEN HOUSE

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Welcome to the
Flood Mitigation & Elevation Certificate Acquisition Open House

December 2, 2010

UPON ARRIVAL

Please sign-in at the desk in the lobby.

Pick up an event questionnaire and enjoy some refreshments.

Flood maps are available for viewing in the lobby. Information handouts are available.

A3-103

PRESENTATION TIMES

We will provide two rounds of the same presentation at the following start times.

4:45 Presentation #1

5:45 Presentation #2

BEFORE YOU LEAVE

Remember to complete the event questionnaire. This is your opportunity to tell us your concerns and request additional information.

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CENTRAL POINT

Elevation Certifi[illegible]e Acquisition

Open House Attendee
12/2/2010

Focus Area	EC NUMBER	ADDRESSNUM	STREETNAME	YEARBLT	Pre/Post-FIRM	BFE	Owner	Telephone No.	Notes
1	1	388	BROOKHAVEN DR	2004	Pre-FIRM		Mr. Hughes	665-5466	FZ: B (1982)
1	2	389	CASCADE DR	2005	Pre-FIRM				FZ: B (1982)
1	3	1000	COMET AVE	1963	Pre-FIRM				
1	4	1001	COMET AVE	1963	Pre-FIRM				
1	5	1003	COMET AVE	1963	Pre-FIRM				
1	6	1007	COMET AVE	1963	Pre-FIRM				
1	7	1020	COMET AVE	1963	Pre-FIRM				
1	8	1100	COMET AVE	1956	Pre-FIRM				
1	9	1101	COMET AVE	1966	Pre-FIRM				
1	10	1103	COMET AVE	1966	Pre-FIRM		Kevin Winter	541.664.6217	Unable to attend mtg.
1	11	1105	COMET AVE	1966	Pre-FIRM				
1	12	1120	COMET AVE	1966	Pre-FIRM		Gary Pearson	541.601.4399	Unable to attend mtg.
1	13	1201	COMET AVE	1966	Pre-FIRM				
1	14	1203	COMET AVE	1967	Pre-FIRM		Mark	541.601.0216	Unable to attend mtg.
1	15	1210	COMET AVE	1967	Pre-FIRM				
1	16	1220	COMET AVE	1967	Pre-FIRM				
1	17	900	COMET AVE	1963	Pre-FIRM				
1	18	901	COMET AVE	1965	Pre-FIRM				
1	19	903	COMET AVE	1962	Pre-FIRM				
1	20	905	COMET AVE	1963	Pre-FIRM		Sara Brookes	541.664.2493	
1	21	907	COMET AVE	1963	Pre-FIRM				
1	22	909	COMET AVE	1964	Pre-FIRM				
1	23	911	COMET AVE	1963	Pre-FIRM				
1	24	920	COMET AVE	1963	Pre-FIRM				
1	25	210	KINGS WAY	1963	Pre-FIRM		Mike Corcoran	541.665.1046	
1	26	212	KINGS WAY	1964	Pre-FIRM		Corey Gray	541 621-8718	
1	27	214	KINGS WAY	1964	Pre-FIRM				
1	28	2061	LENORA LN	1979	Pre-FIRM				Completed?
1	29	2066	LENORA LN	1980	Pre-FIRM				
1	30	386	MARIAN AVE	2002	Post-FIRM				MFD
1	31	435	MARIAN AVE	2004	Post-FIRM				MFD
1	32	436	MARIAN AVE	2005	Post-FIRM				MFD
1	33	1790	NANCY AVE	1980	Pre-FIRM				
1	34	1804	NANCY AVE	1984	Post-FIRM				
1	35	1824	NANCY AVE	1980	Pre-FIRM				

CENTRAL POINT

Elevation Certifi[illegible]e Acquisition

Focus Area	EC NUMBER	ADDRESSNUM	STREETNAME	YEARBLT	Pre/Post-FIRM	BFE	Owner	Telephone No.	Notes
1	36	1831	NANCY AVE	1979	Pre-FIRM				
1	37	1838	NANCY AVE	1978	Pre-FIRM				
1	38	1845	NANCY AVE	1978	Pre-FIRM				
1	39	1846	NANCY AVE	1978	Pre-FIRM				
1	40	1852	NANCY AVE	1978	Pre-FIRM				
1	41	4634	NORTH PACIFIC HWY	1966	Pre-FIRM		Larry Osborn	541.582.2896	
1	42	421	ORTH DR	2006	Post-FIRM		Eileen Thomas	541.664.1089	MFD
1	43	434	ORTH DR	2004	Post-FIRM				MFD
1	44	437	ORTH DR	2006	Post-FIRM				MFD
1	45	209	PRINCESS WAY	1964	Pre-FIRM				
1	46	211	PRINCESS WAY	1962	Pre-FIRM				
1	47	212	PRINCESS WAY	1962	Pre-FIRM				
1	48	209	VICTORIA WAY	1966	Pre-FIRM		Justin moore	5416214498	
1	49	210	VICTORIA WAY	1966	Pre-FIRM				
1	50	211	VICTORIA WAY	1967	Pre-FIRM				
1	51	212	VICTORIA WAY	1966	Pre-FIRM				
1	52	210	WINDSOR WAY	1963	Pre-FIRM				
1	53	211	WINDSOR WAY	1963	Pre-FIRM		Debbie Burroughs	541.664.7855	
1	54	212	WINDSOR WAY	1963	Pre-FIRM				
1	55	213	WINDSOR WAY	1963	Pre-FIRM				
3	56	1576	BEALL LN	1920	Pre-FIRM				
3	57	520	BEALL LN	1997	Pre-FIRM				FZ: C (1982)
3	58	556	BEALL LN	1930	Pre-FIRM		Darrell Alger	664-3797	FZ: C (1982)
3	59	566	BEALL LN	1930	Pre-FIRM				FZ: C (1982)
3	60	1026	FOREST GLEN DR	1997	Pre-FIRM				FZ: C (1982)
3	61	1030	FOREST GLEN DR	1996	Pre-FIRM		Ralph Bolt	541 261 1591	FZ: C (1982)
3	62	1158	HAMPTON DR	1996	Pre-FIRM		Harris Harper	541 664-3687	FZ: C (1982)
3	63	1140	MAYFAIR PL	1996	Pre-FIRM				FZ: C (1982)
3	64	1010	WESTROP WAY	1997	Pre-FIRM				FZ: C (1982)
3	65	1014	WESTROP WAY	1997	Pre-FIRM				FZ: C (1982)
3	66	1018	WESTROP WAY	1997	Pre-FIRM				FZ: C (1982)
3	67	1022	WESTROP WAY	1997	Pre-FIRM				FZ: C (1982)
3	68	1304	BENJAMIN CT	2000	Pre-FIRM				FZ: C (1982)
3	69	1158	White Chapel Drive	1996	Pre-FIRM				FZ: C (1982)
4	70	610	FREEMAN RD	1977	Pre-FIRM				

CENTRAL POINT

Elevation Certificate Acquisition

Focus Area	EC NUMBER	ADDRESSNUM	STREETNAME	YEARBLT	Pre/Post-FIRM	BFE	Owner	Telephone No.	Notes
4	71	620	FREEMAN RD	1977	Pre-FIRM		Wilfred Gerlits	541-664-1928	
4	72	800	FREEMAN RD	1975	Pre-FIRM		Denise Hirata	541-664-4266	
4	73	555	FREEMAN RD 197	1979	Pre-FIRM				MFD
4	74	555	FREEMAN RD 198	1993	Pre-FIRM				MFD - FZ: C (1982)
4	75	555	FREEMAN RD 199	1988	Pre-FIRM				MFD - FZ: C (1982)
4	76	555	FREEMAN RD 200	1992	Post-FIRM				MFD -Verify FZ
4	77	555	FREEMAN RD 201	1990	Post-FIRM				MFD
4	78	555	FREEMAN RD 202	1993	Post-FIRM				MFD
4	79	555	FREEMAN RD 203	1991	Post-FIRM				MFD
4	80	555	FREEMAN RD 204	1993	Post-FIRM				MFD
4	81	500	HEMLOCK AVE	1966	Pre-FIRM				MFD
4	82	521	HOPKINS RD	1953	Pre-FIRM		Laura Fernandez	541.776.8485	MFD
5	83	301	Freeman Rd 7	1974	Pre-FIRM				MFD
5	84	301	Freeman Rd 8	1973	Pre-FIRM		Ken Clark	541.933.8022	MFD
5	85	301	Freeman Rd 9	1972	Pre-FIRM				MFD
5	86	301	Freeman Rd 10	1974	Pre-FIRM				MFD
5	87	301	Freeman Rd 11	1991	Pre-FIRM				MFD - FZ: C (1982)
5	88	301	Freeman Rd 56	1979	Pre-FIRM				MFD
5	89	301	Freeman Rd 65	1974	Pre-FIRM				MFD
5	90	301	Freeman Rd 68	1971	Pre-FIRM				MFD
5	91	301	Freeman Rd 69	1974	Pre-FIRM				MFD
5	92	301	Freeman Rd 70	1972	Pre-FIRM				MFD
5	93	301	Freeman Rd 104	1995	Post-FIRM				MFD
2A	94	571	BACHAND CIR	2001	Pre-FIRM				FZ: C (1982)
2A	95	575	BACHAND CIR	2001	Pre-FIRM				FZ: C (1982)
2A	96	410	BRAD WAY	1978	Pre-FIRM				FZ: C (1982)
2A	97	120	BRANDON ST	1994	Pre-FIRM				FZ: C (1982)
2A	98	121	BRANDON ST	1992	Pre-FIRM		Ken White	541.664.8951	FZ: C (1982)
2A	99	122	BRANDON ST	1990	Pre-FIRM				FZ: C (1982)
2A	100	123	BRANDON ST	1992	Pre-FIRM		Dawn Walker	541.261.1710	FZ: C (1982)
2A	101	124	BRANDON ST	1990	Pre-FIRM				FZ: C (1982)
2A	102	125	BRANDON ST	1990	Pre-FIRM		Susan Chrysler	5416559104	FZ: C (1982)
2A	103	127	BRANDON ST	1990	Pre-FIRM				FZ: C (1982)
2A	104	128	BRANDON ST	1930	Pre-FIRM				FZ: A (1982)
2A	105	129	BRANDON ST	1991	Pre-FIRM				FZ: C (1982)

Focus Area	EC NUMBER	ADDRESSNUM	STREETNAME	YEARBLT	Pre/Post-FIRM	BFE	Owner	Telephone No.	Notes
2A	**106**	130	BRANDON ST	1991	Post-FIRM				FZ: A (1982)
2A	**107**	405	CENTRAL VALLEY DR	1970	Pre-FIRM				
2A	**108**	101	CORCORAN LN	1963	Pre-FIRM				
2A	**109**	102	CORCORAN LN	1962	Pre-FIRM				
2A	**110**	103	CORCORAN LN	1962	Pre-FIRM				
2A	**111**	105	CORCORAN LN	1964	Pre-FIRM				
2A	**112**	201	CORCORAN LN	1963	Pre-FIRM				
2A	**113**	202	CORCORAN LN	1966	Pre-FIRM				
2A	**114**	203	CORCORAN LN	1963	Pre-FIRM				
2A	**115**	204	CORCORAN LN	1966	Pre-FIRM				
2A	**116**	205	CORCORAN LN	1971	Pre-FIRM				
2A	**117**	206	CORCORAN LN	1965	Pre-FIRM				
2A	**118**	207	CORCORAN LN	1964	Pre-FIRM				
2A	**119**	208	CORCORAN LN	1965	Pre-FIRM				
2A	**120**	209	CORCORAN LN	1966	Pre-FIRM				
2A	**121**	210	CORCORAN LN	1965	Pre-FIRM				
2A	**122**	211	CORCORAN LN	1968	Pre-FIRM				
2A	**123**	212	CORCORAN LN	1965	Pre-FIRM				
2A	**124**	213	CORCORAN LN	1964	Pre-FIRM				
2A	**125**	217	CORCORAN LN	1965	Pre-FIRM				
2A	**126**	25	DONNA WAY	1971	Pre-FIRM				
2A	**127**	35	DONNA WAY	1973	Pre-FIRM				
2A	**128**	285	E PINE ST	1978	Pre-FIRM				
2A	**129**	111	GLENN WAY	1978	Pre-FIRM				
2A	**130**	112	GLENN WAY	1967	Pre-FIRM				
2A	**131**	114	GLENN WAY	1959	Pre-FIRM				
2A	**132**	119	GLENN WAY	1952	Pre-FIRM				
2A	**133**	130	GLENN WAY	1962	Pre-FIRM				
2A	**134**	136	GLENN WAY	1955	Pre-FIRM				
2A	**135**	3524	GRANT RD	1989	Post-FIRM				
2A	**136**	3542	HANLEY RD	1949	Pre-FIRM				
2A	**137**	3575	HANLEY RD	1959	Pre-FIRM				
2A	**138**	20	HICKORY LN	1970	Pre-FIRM				
2A	**139**	21	HICKORY LN	1969	Pre-FIRM				
2A	**140**	202	HOLIDAY LN	1964	Pre-FIRM				

CENTRAL POINT

Elevation Certificate Acquisition

Focus Area	EC NUMBER	ADDRESSNUM	STREETNAME	YEARBLT	Pre/Post-FIRM	BFE	Owner	Telephone No.	Notes
2A	141	203	HOLIDAY LN	1964	Pre-FIRM				
2A	142	204	HOLIDAY LN	1966	Pre-FIRM				
2A	143	205	HOLIDAY LN	1966	Pre-FIRM		Willie Edwards	541.261.0840	~~Unable to attend mtg.~~
2A	144	206	HOLIDAY LN	1964	Pre-FIRM		Gerald Armstrong	541.664.4153	
2A	145	207	HOLIDAY LN	1964	Pre-FIRM		Lillian Burns	541.664.3422	
2A	146	360	JANSCOURT	1951	Pre-FIRM				
2A	147	302	JOSEPH ST	1988	Post-FIRM				
2A	148	304	JOSEPH ST	1989	Post-FIRM				
2A	149	442	N CENTRAL VALLEY DR	1963	Pre-FIRM				
2A	150	443	N CENTRAL VALLEY DR	1964	Pre-FIRM				
2A	151	444	N CENTRAL VALLEY DR	1964	Pre-FIRM				
2A	152	446	N CENTRAL VALLEY DR	1964	Pre-FIRM				
2A	153	447	N CENTRAL VALLEY DR	1963	Pre-FIRM				
2A	154	448	N CENTRAL VALLEY DR	1964	Pre-FIRM				
2A	155	449	N CENTRAL VALLEY DR	1963	Pre-FIRM				
2A	156	450	N CENTRAL VALLEY DR	1964	Pre-FIRM				
2A	157	451	N CENTRAL VALLEY DR	1963	Pre-FIRM		Bob Lichlyter	541.664.4876	Unable to attend mtg.
2A	158	452	N CENTRAL VALLEY DR	1964	Pre-FIRM				
2A	159	453	N CENTRAL VALLEY DR	1964	Pre-FIRM				
2A	160	454	N CENTRAL VALLEY DR	1964	Pre-FIRM		Fred Nichols	541.665.3673	
2A	161	455	N CENTRAL VALLEY DR	1965	Pre-FIRM		Walt Schimke	541.664.6733	
2A	162	456	N CENTRAL VALLEY DR	1964	Pre-FIRM				
2A	163	457	N CENTRAL VALLEY DR	1965	Pre-FIRM		Walt Schimke	541.664.6733	
2A	164	458	N CENTRAL VALLEY DR	1968	Pre-FIRM				
2A	165	459	N CENTRAL VALLEY DR	1967	Pre-FIRM				
2A	166	460	N CENTRAL VALLEY DR	1969	Pre-FIRM				
2A	167	462	N CENTRAL VALLEY DR	1968	Pre-FIRM				
2A	168	464	N CENTRAL VALLEY DR	1967	Pre-FIRM				
2A	169	561	PALO VERDE WAY	1979	Pre-FIRM				
2A	170	567	PALO VERDE WAY	1979	Pre-FIRM		Nadine Shiflett	541.665.5429	Unable to attend mtg.
2A	171	573	PALO VERDE WAY	1980	Pre-FIRM		Banhart	665 5397	
2A	172		PINE ST (Bldg. A)	0					Multi-Family
2A	173		PINE ST (Bldg. B)						Multi-Family
2A	174		PINE ST (Bldg. C)						Multi-Family
2A	175	365	S CENTRAL VALLEY DR	1970	Pre-FIRM				

CENTRAL POINT

Elevation Certificate Acquisition

Focus Area	EC NUMBER	ADDRESSNUM	STREETNAME	YEARBLT	Pre/Post-FIRM	BFE	Owner	Telephone No.	Notes
2A	**176**	368	S CENTRAL VALLEY DR	1967	Pre-FIRM				
2A	**177**	378	S CENTRAL VALLEY DR	1966	Pre-FIRM				
2A	**178**	400	S CENTRAL VALLEY DR	1967	Pre-FIRM				
2A	**179**	402	S CENTRAL VALLEY DR	1970	Pre-FIRM		Brenna Shayne	541 301 1804	
2A	**180**	404	S CENTRAL VALLEY DR	1970	Pre-FIRM				
2A	**181**	406	S CENTRAL VALLEY DR	1970	Pre-FIRM				
2A	**182**	407	S CENTRAL VALLEY DR	1970	Pre-FIRM				
2A	**183**	408	S CENTRAL VALLEY DR	1970	Pre-FIRM				
2A	**184**	409	S CENTRAL VALLEY DR	1970	Pre-FIRM				
2A	**185**	410	S CENTRAL VALLEY DR	1970	Pre-FIRM				
2A	**186**	411	S CENTRAL VALLEY DR	1970	Pre-FIRM				
2A	**187**	412	S CENTRAL VALLEY DR	1971	Pre-FIRM				
2A	**188**	413	S CENTRAL VALLEY DR	1970	Pre-FIRM		Jay	541.664.3531	
2A	**189**	414	S CENTRAL VALLEY DR	1970	Pre-FIRM				
2A	**190**	417	S CENTRAL VALLEY DR	1970	Pre-FIRM				
2A	**191**	419	S CENTRAL VALLEY DR	1970	Pre-FIRM				
2A	**192**	421	S CENTRAL VALLEY DR	1970	Pre-FIRM				
2A	**193**	216	SNOWY BUTTE RD	1920	Pre-FIRM				
2A	**194**	218	SNOWY BUTTE RD	1920	Pre-FIRM				
2A	**195**	224	SNOWY BUTTE RD	1983	Post-FIRM		Curt Rodenmeyer	210-1348	
2A	**196**	1966	TAYLOR RD	1966	Pre-FIRM				
2A	**197**	1985	TAYLOR RD	1947	Pre-FIRM				
2A	**198**	2021	TAYLOR RD	1980	Pre-FIRM				
2A	**199**	2030	TAYLOR RD	1967	Pre-FIRM				
2A	**200**	2031	TAYLOR RD	1979	Pre-FIRM				
2A	**201**	2041	TAYLOR RD	1978	Pre-FIRM				
2A	**202**	2051	TAYLOR RD	1979	Pre-FIRM				
2A	**203**	2061	TAYLOR RD	1979	Pre-FIRM				
2A	**204**	1589	TIMOTHY ST	1980	Pre-FIRM				
2A	**205**	425	VALLEY OAK BLVD	2001	Post-FIRM				
2A	**206**	100	VINCENT AVE	1970	Pre-FIRM		Jennifer Hagenno	541 951-5649	
2A	**207**	101	VINCENT AVE	1970	Pre-FIRM		Ardelle Whitten	541.826.5883	
2A	**208**	102	VINCENT AVE	1970	Pre-FIRM				
2A	**209**	103	VINCENT AVE	1970	Pre-FIRM				
2A	**210**	104	VINCENT AVE	1971	Pre-FIRM				

CENTRAL POINT

Elevation Certifi[illegible] Acquisition

Focus Area	EC NUMBER	ADDRESSNUM	STREETNAME	YEARBLT	Pre/Post-FIRM	BFE	Owner	Telephone No.	Notes
2A	211	105	VINCENT AVE	1970	Pre-FIRM				
2A	212	106	VINCENT AVE	1970	Pre-FIRM				
2A	213	107	VINCENT AVE	1970	Pre-FIRM				
2A	214	108	VINCENT AVE	1970	Pre-FIRM		Carl/Laura McQuigg	826-2718	
2A	215	109	VINCENT AVE	1970	Pre-FIRM				
2A	216	110	VINCENT AVE	1970	Pre-FIRM				
2A	217	111	VINCENT AVE	1970	Pre-FIRM				
2A	218	112	VINCENT AVE	1970	Pre-FIRM				
2A	219	310	W PINE ST	1966	Pre-FIRM				
2A	220	319	W PINE ST	1940	Pre-FIRM				
2A	221	345	W PINE ST (Bldg. A)	0					Multi-Family
2A	222	345	W PINE ST (Bldg. B)	0					Multi-Family
2A	223	355	W PINE ST	1964	Pre-FIRM				
2A	224	443	W PINE ST	1963	Pre-FIRM				
2A	225	445	W PINE ST	1962	Pre-FIRM				
2A	226	447	W PINE ST	1962	Pre-FIRM				
2A	227	449	W PINE ST	1962	Pre-FIRM				
2A	228	451	W PINE ST	1962	Pre-FIRM		James Whetstone	541.664.9009	
2A	229	453	W PINE ST	1962	Pre-FIRM				
2A	230	455	W PINE ST	1962	Pre-FIRM				
2A	231	457	W PINE ST	1964	Pre-FIRM		Jerry Seng	541.779.6530	
2A	232	459	W PINE ST	1965	Pre-FIRM				
2A	233	461	W PINE ST	1964	Pre-FIRM		Larry Baker	541.826.4549	
2A	234	463	W PINE ST	1965	Pre-FIRM				
2A	235	497	W PINE ST	1994	Pre-FIRM				FZ: B (1982)
2A	236	506	W PINE ST	1974	Pre-FIRM				
2A	237	507	W PINE ST	1949	Pre-FIRM				
2B	238	687	GROUSE RIDGE DRIVE	2008	Post-FIRM				
2B	239	695	GROUSE RIDGE DRIVE	2008	Post-FIRM				
2B	240	639	GROUSE RIDGE DRIVE	2008	Post-FIRM				
2B	241	647	GROUSE RIDGE DRIVE	2007	Post-FIRM				
2B	242	655	GROUSE RIDGE DRIVE	2007	Post-FIRM				
2B	243	663	GROUSE RIDGE DRIVE	2007	Post-FIRM				
2B	244	671	GROUSE RIDGE DRIVE	2007	Post-FIRM				
2B	245	679	GROUSE RIDGE DRIVE	2007	Post-FIRM				

CENTRAL POINT

Elevation Certificate Acquisition

Focus Area	EC NUMBER	ADDRESSNUM	STREETNAME	YEARBLT	Pre/Post-FIRM	BFE	Owner	Telephone No.	Notes
2B	**246**	691	BUCK POINT STREET	2007	Post-FIRM				
2B	**247**	711	GROUSE RIDGE DRIVE	2007	Post-FIRM				
2B	**248**	703	GROUSE RIDGE DRIVE	2007	Post-FIRM				
2B	**249**	667	BUCK POINT STREET	2007	Post-FIRM				

Central Point Flood Hazard Mitigation

Elevation Certificate Acquisition Project

December 2, 2010

Meeting Overview

- Welcome/Introductions
- Flood Risk Introduction
- Hazard Mitigation Project Overview
  - Elevation Certificate Acquisition Project
    - Benefits to You
    - Scheduling
    - What You Can Expect
- Questions & Answers

New Flood Map Impacts

- Special Flood Hazard Area
  - 1% annual chance of experiencing a flood
  - Federal Government Requires Flood Insurance
    - Enforced by Lenders
      - New mortgage
      - Refinance
      - Review of existing portfolio
    - FEMA Elevation Certificate needed to rate a policy
    - Grandfathering rules may provide some relief

Central Point Hazard Mitigation Plan Development

- Grant funded project began in 2007
- Identifies hazards and community risk
  - Severe weather
  - Floods
  - Earthquake
  - Landslides
  - Wildfire
  - Drought
- Establishes a plan to reduce risk before a disaster occurs

Phases of Emergency Management

Hazard Mitigation: Any sustained action taken to reduce or eliminate long-term risk to people and their property from hazards.

Hazard Mitigation Planning

Grant Funds Awarded Enhance Planning Effort

- Funding supports four activities to enhance the plan:
  - Acquire FEMA Elevation Certificates
  - Conduct Risk Assessment
  - Assess Griffin Creek Mitigation Options
  - Establish mitigation action strategy with grant ready projects

Grant Funds Continued

Griffin Creek Project Identification

- Assessment of Griffin Creek
  - Identify mitigation opportunities
  - Map mitigation impacts to community
  - Establish a project list with cost estimates and implementation priorities

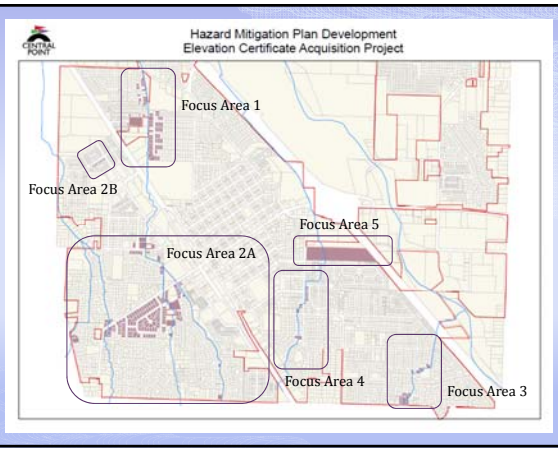
Risk Assessment & Mitigation Strategy

- Identify areas most at risk
- Estimate potential losses
- Develop mitigation action profiles
  - Action
  - Impacts
  - Benefit/Cost Analysis
    - Makes for grant-ready projects

Elevation Certificate Acquisition

- Benefits to property owners:
  - Save $450-750
  - Mitigation project support
  - Flood insurance discounts
  - LOMA eligibility determination
  - Actions needed to lower insurance premium


ELEVATION CERTIFICATE



Survey Information

- What is needed from the p. owners
  - Property access
    - Crawlspace, garage, finished floor, etc.
    - Etc.
- What to expect
  - Time commitment required – indicate approx. time.
- Outcome…FEMA Elevation Certificate when the project is complete.

Summary

- SFHA properties to receive FEMA Elevation Certificates
  - You Save $450-$750
  - City develops Hazard Mitigation Plan in effort to minimize/prevent future flood damages
- Limited window of opportunity – we need your help to make this a success.
  - Scheduling
  - Access to structure

REC'D DEC 0 9 2010

CENTRAL POINT

Does Park need Ins

Hazard Mitigation
Elevation Certificate Acquisition Project Open House
December 2, 2010

Thank you for attending the Flood Elevation Certificate Acquisition project Open House event this evening. The primary purpose of tonight's meeting has been to faciliate completion of Elevation Certificates in the City. Please complete the following questionnaire to let us know your concerns & questions so we can supply the information you need.

1. Did you know that your property would be located in the high risk (100-year) floodplain as a result of the pending map change prior to receiving the notice for this meeting?
   - ☐ Yes
   - ☒ No

2. Please indicate which of the following you are concerned about and would like additional information:
   - ☒ Flood Hazards & Risk
   - ☒ Flood Insurance
   - ☒ Flood Safety
   - ☒ Flood Mapping
   - ☐ Other (*Use the space below and the back of this page if needed*):
   - ☒ Flood Preparedness
   - ☒ Elevation Certificates
   - ☒ Property Protection

   OVER

3. Which of the following ways would you prefer to receive information about your concerns:
   - ☒ Public Meeting
   - ☒ E-mail
   - ☒ Direct mailing
   - ☐ City Website

4. Is there a day or time that you think would be more beneficial for increasing attendance at future public meeting and open house events?
   - ☐ Yes, I recommend the following day/time: ______
   - ☒ No, the day and time are sufficient.

5. To help us provide you with the information that you've indicated is important to you, please provide us with your contact information below:

Name: GREENBRIER TERRACE KATHY MONS, Mgr.

E-mail: AMONS6642@gmail.com

Telephone No.: 541-664-4812

Mailing Address: 301 FREEMAN Rd. Office CENTRAL PT. OR 97502

Site Address: 301 FREEMAN RD

THANK YOU SO MUCH FOR ATTENDING AND PROVIDING YOUR FEEDBACK. OUR STAFF WILL CONTACT YOU.

CENTRAL POINT

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   - [x] Yes
   - [ ] No

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   - [x] Flood Hazards & Risk
   - [ ] Flood Insurance
   - [x] Flood Safety
   - [x] Flood Mapping
   - [x] Flood Preparedness
   - [x] Elevation Certificates
   - [x] Property Protection
   - [ ] Other (*Use the space below and the back of this page if needed*):

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   - [ ] Direct mailing
   - [ ] City Website

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   - [x] Yes, I recommend the following day/time: weekday evening, or Saturday morning (if possible)
   - [ ] No, the day and time are sufficient.

5. To help us provide you with the information that you've indicated is important to you, please provide us with your contact information below:

Name: Donald F. Hughes E-mail: dhughes339@msn.com

Telephone No.: 541-665-5466 Mailing Address: 388 Brookhaven Dr.

Site Address: 388 BROOKHAVEN DR. CENTRAL POINT, OR Central Point, OR 97502

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   - ☐ Flood Mapping
   - ☐ Flood Preparedness
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   - ☐ Yes, I recommend the following day/time: _____
   - ☒ No, the day and time are sufficient.

5. To help us provide you with the information that you've indicated is important to you, please provide us with your contact information below:

Name: Fred Nichols E-mail: _____

Telephone No.: 541-665-3673 Mailing Address: 454 N Central Valley Dr

Site Address: 454 N Central Valley Dr _____

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5. To help us provide you with the information that you've indicated is important to you, please provide us with your contact information below:

Name: Walter L. Schinke Cell 541-840-9919 E-mail: wnkschinke@charter.net

Telephone No.: 541-664-6733 Mailing Address: 455 N. Central Valley Drive

Site Address: 455 and 457 N. Central Valley Drive.

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   - [ ] No

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   - [ ] Flood Hazards & Risk
   - [x] Flood Insurance
   - [ ] Flood Safety
   - [x] Flood Mapping
   - [ ] Other (*Use the space below and the back of this page if needed*):
   - [ ] Flood Preparedness
   - [x] Elevation Certificates
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Name:_____ E-mail:_____

Telephone No.:_____ Mailing Address:_____

Site Address:_____ _____

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   - ☐ Other (*Use the space below and the back of this page if needed*):
   - ☐ Flood Preparedness
   - ☑ Elevation Certificates
   - ☑ Property Protection

3. Which of the following ways would you prefer to receive information about your concerns:
   - ☐ Public Meeting
   - ☐ E-mail
   - ☒ Direct mailing
   - ☐ City Website

4. Is there a day or time that you think would be more beneficial for increasing attendance at future public meeting and open house events?
   - ☐ Yes, I recommend the following day/time: _____
   - ☒ No, the day and time are sufficient.

5. To help us provide you with the information that you've indicated is important to you, please provide us with your contact information below:

Name: Carl + Laura McQuigg E-mail: _____

Telephone No.: 541-826-2728 Mailing Address: 108 Vincent AV.

Site Address: 108 Vincent AV. _____

THANK YOU SO MUCH FOR ATTENDING AND PROVIDING YOUR FEEDBACK. OUR STAFF WILL CONTACT YOU.

CENTRAL POINT

Hazard Mitigation
Elevation Certificate Acquisition Project Open House
December 2, 2010

Thank you for attending the Flood Elevation Certificate Acquisition project Open House event this evening. The primary purpose of tonight's meeting has been to faciliate completion of Elevation Certificates in the City. Please complete the following questionnaire to let us know your concerns & questions so we can supply the information you need.

1. Did you know that your property would be located in the high risk (100-year) floodplain as a result of the pending map change prior to receiving the notice for this meeting?
   - ☐ Yes
   - ☒ No

2. Please indicate which of the following you are concerned about and would like additional information:
   - ☐ Flood Hazards & Risk
   - ☒ Flood Insurance
   - ☐ Flood Safety
   - ☐ Flood Mapping
   - ☐ Flood Preparedness
   - ☒ Elevation Certificates
   - ☒ Property Protection
   - ☐ Other (*Use the space below and the back of this page if needed*):

3. Which of the following ways would you prefer to receive information about your concerns:
   - ☐ Public Meeting
   - ☐ E-mail
   - ☒ Direct mailing
   - ☐ City Website

4. Is there a day or time that you think would be more beneficial for increasing attendance at future public meeting and open house events?
   - ☐ Yes, I recommend the following day/time: _____
   - ☒ No, the day and time are sufficient.

5. To help us provide you with the information that you've indicated is important to you, please provide us with your contact information below:

Please call me about Flood Risk

Name: Eileen Thomas E-mail: _____

Telephone No.: 541-664-1089 Mailing Address: 421 Orth Dr

Site Address: 421 Orth Dr. Central Point,

THANK YOU SO MUCH FOR ATTENDING AND PROVIDING YOUR FEEDBACK. OUR STAFF WILL CONTACT YOU.

CENTRAL POINT

Hazard Mitigation
Elevation Certificate Acquisition Project Open House
December 2, 2010

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1. Did you know that your property would be located in the high risk (100-year) floodplain as a result of the pending map change prior to receiving the notice for this meeting?
   - ☐ Yes
   - ☒ No

2. Please indicate which of the following you are concerned about and would like **additional** information:
   - ☐ Flood Hazards & Risk
   - ☐ Flood Insurance
   - ☐ Flood Safety
   - ☐ Flood Mapping
   - ☐ Flood Preparedness
   - ☐ Elevation Certificates
   - ☐ Property Protection
   - ☐ Other (*Use the space below and the back of this page if needed*):

3. Which of the following ways would you prefer to receive information about your concerns:
   - ☐ Public Meeting
   - ☐ E-mail
   - ☒ Direct mailing
   - ☐ City Website

4. Is there a day or time that you think would be more beneficial for increasing attendance at future public meeting and open house events?
   - ☐ Yes, I recommend the following day/time: _____
   - ☒ No, the day and time are sufficient.

5. To help us provide you with the information that you've indicated is important to you, please provide us with your contact information below:

Name: Jerry Seng TR E-mail: _____

Telephone No.: 541-779-6530 Mailing Address: 576 Maverick C.P.

Site Address: ~~457~~ 457 W. Pine C.P.

THANK YOU SO MUCH FOR ATTENDING AND PROVIDING YOUR FEEDBACK. OUR STAFF WILL CONTACT YOU.

CENTRAL POINT

Hazard Mitigation
Elevation Certificate Acquisition Project Open House
December 2, 2010

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1. Did you know that your property would be located in the high risk (100-year) floodplain as a result of the pending map change prior to receiving the notice for this meeting?
   - ☐ Yes
   - ☐ No

2. Please indicate which of the following you are concerned about and would like additional information:
   - ☐ Flood Hazards & Risk
   - ☐ Flood Insurance
   - ☐ Flood Safety
   - ☐ Flood Mapping
   - ☐ Flood Preparedness
   - ☒ Elevation Certificates
   - ☐ Property Protection
   - ☐ Other (*Use the space below and the back of this page if needed*):

3. Which of the following ways would you prefer to receive information about your concerns:
   - ☒ Public Meeting
   - ☐ E-mail
   - ☒ Direct mailing
   - ☐ City Website

4. Is there a day or time that you think would be more beneficial for increasing attendance at future public meeting and open house events?
   - ☐ Yes, I recommend the following day/time: _____
   - ☐ No, the day and time are sufficient.

5. To help us provide you with the information that you've indicated is important to you, please provide us with your contact information below:

Name: Corey Gray E-mail: _____

Telephone No.: 541 621 8718 Mailing Address: _____

Site Address: 212 King Way _____

THANK YOU SO MUCH FOR ATTENDING AND PROVIDING YOUR FEEDBACK. OUR STAFF WILL CONTACT YOU.

CENTRAL POINT

Hazard Mitigation
Elevation Certificate Acquisition Project Open House
December 2, 2010

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1. Did you know that your property would be located in the high risk (100-year) floodplain as a result of the pending map change prior to receiving the notice for this meeting?
   - ☐ Yes
   - ☒ No

2. Please indicate which of the following you are concerned about and would like additional information:
   - ☐ Flood Hazards & Risk
   - ☐ Flood Insurance
   - ☐ Flood Safety
   - ☐ Flood Mapping
   - ☐ Other (*Use the space below and the back of this page if needed*):
   - ☐ Flood Preparedness
   - ☒ Elevation Certificates
   - ☒ Property Protection

3. Which of the following ways would you prefer to receive information about your concerns:
   - ☒ Public Meeting
   - ☐ E-mail
   - ☒ Direct mailing
   - ☐ City Website

4. Is there a day or time that you think would be more beneficial for increasing attendance at future public meeting and open house events?
   - ☐ Yes, I recommend the following day/time: _____
   - ☒ No, the day and time are sufficient.

5. To help us provide you with the information that you've indicated is important to you, please provide us with your contact information below:

Name: EARL C BURNS E-mail: _____

Telephone No.: 541-664-3422 Mailing Address: Same as.

Site Address: 207 Holiday Lane Central Point, Ore 97502

THANK YOU SO MUCH FOR ATTENDING AND PROVIDING YOUR FEEDBACK. OUR STAFF WILL CONTACT YOU.

CENTRAL POINT

Hazard Mitigation
Elevation Certificate Acquisition Project Open House
December 2, 2010

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1. Did you know that your property would be located in the high risk (100-year) floodplain as a result of the pending map change prior to receiving the notice for this meeting?
   - ☐ Yes
   - ☒ No

2. Please indicate which of the following you are concerned about and would like additional information:
   - ☐ Flood Hazards & Risk
   - ☐ Flood Insurance
   - ☐ Flood Safety
   - ☒ Flood Mapping
   - ☐ Flood Preparedness
   - ☒ Elevation Certificates
   - ☐ Property Protection
   - ☐ Other (*Use the space below and the back of this page if needed*):

3. Which of the following ways would you prefer to receive information about your concerns:
   - ☒ Public Meeting
   - ☐ E-mail
   - ☒ Direct mailing
   - ☐ City Website

4. Is there a day or time that you think would be more beneficial for increasing attendance at future public meeting and open house events?
   - ☒ Yes, I recommend the following day/time: 6:30 → Thursdays
   - ☐ No, the day and time are sufficient.

5. To help us provide you with the information that you've indicated is important to you, please provide us with your contact information below:

Name: Gerald Armstrong E-mail: garmstrong@ccountry.net

Telephone No.: 541-664-4153 Mailing Address: 206 Holiday Lane

Site Address: 206 Holiday Lane CP

THANK YOU SO MUCH FOR ATTENDING AND PROVIDING YOUR FEEDBACK. OUR STAFF WILL CONTACT YOU.

CENTRAL POINT

Hazard Mitigation
Elevation Certificate Acquisition Project Open House
December 2, 2010

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1. Did you know that your property would be located in the high risk (100-year) floodplain as a result of the pending map change prior to receiving the notice for this meeting?
   - ☐ Yes
   - ☐ No

2. Please indicate which of the following you are concerned about and would like additional information:

   - ☐ Flood Hazards & Risk
   - ☐ Flood Insurance
   - ☐ Flood Safety
   - ☐ Flood Mapping
   - ☐ Flood Preparedness
   - ☑ Elevation Certificates
   - ☐ Property Protection
   - ☐ Other (*Use the space below and the back of this page if needed*):

   EXISTING STRUCTURES BUILT AFTR 1982 GRANDFATHERED

3. Which of the following ways would you prefer to receive information about your concerns:

   - ☐ Public Meeting
   - ☑ E-mail
   - ☑ Direct mailing
   - ☐ City Website

4. Is there a day or time that you think would be more beneficial for increasing attendance at future public meeting and open house events?
   - ☐ Yes, I recommend the following day/time: _____
   - ☐ No, the day and time are sufficient.

5. To help us provide you with the information that you've indicated is important to you, please provide us with your contact information below:

Name: CURT RODENMAYER E-mail: CURT AC1PLUMBING@GMAIL.COM

Telephone No.: 541-210-1348 Mailing Address: _____

Site Address: 224 SNOWY BUTTE RD _____

THANK YOU SO MUCH FOR ATTENDING AND PROVIDING YOUR FEEDBACK. OUR STAFF WILL CONTACT YOU.

CENTRAL POINT

Hazard Mitigation
Elevation Certificate Acquisition Project Open House
December 2, 2010

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1. Did you know that your property would be located in the high risk (100-year) floodplain as a result of the pending map change prior to receiving the notice for this meeting?
   - ☑ Yes
   - ☐ No

2. Please indicate which of the following you are concerned about and would like additional information:
   - ☐ Flood Hazards & Risk
   - ☑ Flood Insurance
   - ☐ Flood Safety
   - ☐ Flood Mapping
   - ☐ Flood Preparedness
   - ☐ Elevation Certificates
   - ☐ Property Protection
   - ☐ Other (*Use the space below and the back of this page if needed*):

3. Which of the following ways would you prefer to receive information about your concerns:
   - ☐ Public Meeting
   - ☐ E-mail
   - ☑ Direct mailing
   - ☐ City Website

4. Is there a day or time that you think would be more beneficial for increasing attendance at future public meeting and open house events?
   - ☐ Yes, I recommend the following day/time: _____
   - ☑ No, the day and time are sufficient.

5. To help us provide you with the information that you've indicated is important to you, please provide us with your contact information below:

Name: Galpin Bolt E-mail: _____

Telephone No.: 541-261-1591 Mailing Address: 1030 Forest Glen Dr

Site Address: Same _____

THANK YOU SO MUCH FOR ATTENDING AND PROVIDING YOUR FEEDBACK. OUR STAFF WILL CONTACT YOU.

CENTRAL POINT

Hazard Mitigation
Elevation Certificate Acquisition Project Open House
December 2, 2010

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1. Did you know that your property would be located in the high risk (100-year) floodplain as a result of the pending map change prior to receiving the notice for this meeting?
   - ☐ Yes
   - ☒ No

2. Please indicate which of the following you are concerned about and would like additional information:
   - ☐ Flood Hazards & Risk
   - ☐ Flood Insurance
   - ☐ Flood Safety
   - ☐ Flood Mapping
   - ☐ Flood Preparedness
   - ☒ Elevation Certificates
   - ☐ Property Protection
   - ☐ Other (*Use the space below and the back of this page if needed*):

3. Which of the following ways would you prefer to receive information about your concerns:
   - ☐ Public Meeting
   - ☐ E-mail
   - ☒ Direct mailing
   - ☐ City Website

4. Is there a day or time that you think would be more beneficial for increasing attendance at future public meeting and open house events?
   - ☒ Yes, I recommend the following day/time: ANY TIME BEFORE 12-28-10
   - ☐ No, the day and time are sufficient.

5. To help us provide you with the information that you've indicated is important to you, please provide us with your contact information below:

Name: W A Edwards E-mail: _____

Telephone No.: 541-064-3039 Mailing Address: 205 [illegible]

Site Address: Same _____

THANK YOU SO MUCH FOR ATTENDING AND PROVIDING YOUR FEEDBACK. OUR STAFF WILL CONTACT YOU.

CENTRAL POINT

Hazard Mitigation
Elevation Certificate Acquisition Project Open House
December 2, 2010

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1. Did you know that your property would be located in the high risk (100-year) floodplain as a result of the pending map change prior to receiving the notice for this meeting?
   - ☐ Yes
   - ☒ No

2. Please indicate which of the following you are concerned about and would like additional information:
   - ☐ Flood Hazards & Risk
   - ☐ Flood Insurance
   - ☐ Flood Safety
   - ☐ Flood Mapping
   - ☐ Flood Preparedness
   - ☐ Elevation Certificates
   - ☐ Property Protection
   - ☐ Other (*Use the space below and the back of this page if needed*):

3. Which of the following ways would you prefer to receive information about your concerns:
   - ☐ Public Meeting
   - ☐ E-mail
   - ☒ Direct mailing
   - ☐ City Website

4. Is there a day or time that you think would be more beneficial for increasing attendance at future public meeting and open house events?
   - ☐ Yes, I recommend the following day/time: _____
   - ☐ No, the day and time are sufficient.

5. To help us provide you with the information that you've indicated is important to you, please provide us with your contact information below:

Name:_____ E-mail:_____

Telephone No.:_____ Mailing Address:_____

Site Address:_____ _____

THANK YOU SO MUCH FOR ATTENDING AND PROVIDING YOUR FEEDBACK. OUR STAFF WILL CONTACT YOU.

CENTRAL POINT

Hazard Mitigation
Elevation Certificate Acquisition Project Open House
December 2, 2010

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1. Did you know that your property would be located in the high risk (100-year) floodplain as a result of the pending map change prior to receiving the notice for this meeting?
   - [X] Yes
   - [ ] No

2. Please indicate which of the following you are concerned about and would like additional information:
   - [X] Flood Hazards & Risk
   - [ ] Flood Insurance
   - [X] Flood Safety
   - [ ] Flood Mapping
   - [X] Flood Preparedness
   - [ ] Elevation Certificates
   - [ ] Property Protection
   - [ ] Other (*Use the space below and the back of this page if needed*):

3. Which of the following ways would you prefer to receive information about your concerns:
   - [ ] Public Meeting
   - [ ] E-mail
   - [X] Direct mailing
   - [ ] City Website

4. Is there a day or time that you think would be more beneficial for increasing attendance at future public meeting and open house events?
   - [X] Yes, I recommend the following day/time: earlier in the day
   - [ ] No, the day and time are sufficient.

5. To help us provide you with the information that you've indicated is important to you, please provide us with your contact information below:

Name: Sara Brooks E-mail: sjbrooks823@msn.com

Telephone No.: 541-664-2493 Mailing Address: 905 Comet

Site Address: 905 Comet CP 97502

THANK YOU SO MUCH FOR ATTENDING AND PROVIDING YOUR FEEDBACK. OUR STAFF WILL CONTACT YOU.

CENTRAL POINT

Hazard Mitigation
Elevation Certificate Acquisition Project Open House
December 2, 2010

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1. Did you know that your property would be located in the high risk (100-year) floodplain as a result of the pending map change prior to receiving the notice for this meeting?
   - [X] Yes
   - [ ] No

2. Please indicate which of the following you are concerned about and would like additional information:
   - [ ] Flood Hazards & Risk
   - [ ] Flood Insurance
   - [ ] Flood Safety
   - [X] Flood Mapping
   - [ ] Other (*Use the space below and the back of this page if needed*):
   - [ ] Flood Preparedness
   - [X] Elevation Certificates
   - [X] Property Protection

3. Which of the following ways would you prefer to receive information about your concerns:
   - [ ] Public Meeting
   - [ ] E-mail
   - [X] Direct mailing
   - [ ] City Website

4. Is there a day or time that you think would be more beneficial for increasing attendance at future public meeting and open house events?
   - [ ] Yes, I recommend the following day/time: _____
   - [X] No, the day and time are sufficient.

5. To help us provide you with the information that you've indicated is important to you, please provide us with your contact information below:

Name: WARREN & SHIRLEY BARNHART E-mail: barrego-desert-rat@PEOPLEPC.COM

Telephone No.: 541-665-5397 Mailing Address: 573 PALO VERDE WAY

Site Address: 573 PALO VERDE WAY CENTRAL POINT

THANK YOU SO MUCH FOR ATTENDING AND PROVIDING YOUR FEEDBACK. OUR STAFF WILL CONTACT YOU.

CENTRAL POINT

Hazard Mitigation
Elevation Certificate Acquisition Project Open House
December 2, 2010

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1. Did you know that your property would be located in the high risk (100-year) floodplain as a result of the pending map change prior to receiving the notice for this meeting?
   - ☐ Yes
   - ☒ No

2. Please indicate which of the following you are concerned about and would like additional information:
   - ☐ Flood Hazards & Risk
   - ☒ Flood Insurance
   - ☐ Flood Safety
   - ☐ Flood Mapping
   - ☐ Flood Preparedness
   - ☒ Elevation Certificates
   - ☐ Property Protection
   - ☐ Other (*Use the space below and the back of this page if needed*):

3. Which of the following ways would you prefer to receive information about your concerns:
   - ☐ Public Meeting
   - ☐ E-mail
   - ☒ Direct mailing
   - ☐ City Website

4. Is there a day or time that you think would be more beneficial for increasing attendance at future public meeting and open house events?
   - ☐ Yes, I recommend the following day/time: _____
   - ☒ No, the day and time are sufficient.

5. To help us provide you with the information that you've indicated is important to you, please provide us with your contact information below:

Brenna Sharpe

Name: Brenna Sharpe E-mail: Brenna5@oregonortho.com

Telephone No.: 301-1809 Mailing Address: 402 S. Central

Site Address: _____ Valley Dr

THANK YOU SO MUCH FOR ATTENDING AND PROVIDING YOUR FEEDBACK. OUR STAFF WILL CONTACT YOU.

CENTRAL POINT

Hazard Mitigation
Elevation Certificate Acquisition Project Open House
December 2, 2010

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1. Did you know that your property would be located in the high risk (100-year) floodplain as a result of the pending map change prior to receiving the notice for this meeting?
   - ☐ Yes
   - ☒ No

2. Please indicate which of the following you are concerned about and would like additional information:
   - ☐ Flood Hazards & Risk
   - ☐ Flood Insurance
   - ☐ Flood Safety
   - ☐ Flood Mapping
   - ☐ Flood Preparedness
   - ☒ Elevation Certificates
   - ☐ Property Protection
   - ☒ Other (*Use the space below and the back of this page if needed*): Grandfathering

3. Which of the following ways would you prefer to receive information about your concerns:
   - ☐ Public Meeting
   - ☐ E-mail
   - ☒ Direct mailing
   - ☐ City Website

4. Is there a day or time that you think would be more beneficial for increasing attendance at future public meeting and open house events?
   - ☐ Yes, I recommend the following day/time: _____
   - ☒ No, the day and time are sufficient.

5. To help us provide you with the information that you've indicated is important to you, please provide us with your contact information below:

Name: Debbie Burroughs work # 541-772-5165 E-mail: DBurro2001@aol.com

Telephone No.: 541-664-7855 Mailing Address: 211 Windsor Way

Site Address: same Central Point, OR 97502

THANK YOU SO MUCH FOR ATTENDING AND PROVIDING YOUR FEEDBACK. OUR STAFF WILL CONTACT YOU.

You will Needs to call me at work 541-772-5165 if you need to schedule the day.

CENTRAL POINT

Hazard Mitigation
Elevation Certificate Acquisition Project Open House
December 2, 2010

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1. Did you know that your property would be located in the high risk (100-year) floodplain as a result of the pending map change prior to receiving the notice for this meeting?
   - ☐ Yes
   - ☒ No

2. Please indicate which of the following you are concerned about and would like additional information:
   - ☒ Flood Hazards & Risk
   - ☒ Flood Insurance
   - ☒ Flood Safety
   - ☒ Flood Mapping
   - ☒ Flood Preparedness
   - ☒ Elevation Certificates
   - ☒ Property Protection
   - ☒ Other (*Use the space below and the back of this page if needed*):

3. Which of the following ways would you prefer to receive information about your concerns:
   - ☒ Public Meeting and/or ☒ Direct mailing
   - ☐ E-mail ☐ City Website

4. Is there a day or time that you think would be more beneficial for increasing attendance at future public meeting and open house events?
   - ☐ Yes, I recommend the following day/time: _____
   - ☒ No, the day and time are sufficient.

5. To help us provide you with the information that you've indicated is important to you, please provide us with your contact information below:

Name: Susan Chrysler E-mail: oregonchrysler@gmail.com

Telephone No.: 541-665-0464 Mailing Address: 125 Brandon St. CP

Site Address: 125 Brandon St. CP, Or. 97502

THANK YOU SO MUCH FOR ATTENDING AND PROVIDING YOUR FEEDBACK. OUR STAFF WILL CONTACT YOU.

CENTRAL POINT

Central Point's Flood Hazard Map is changing on May 3, 2011

According to our review of the map, your property at 203 CORCORAN LN is located in the high risk (100-year) floodplain on the Preliminary Flood Insurance Rate Map (FIRM).

Flood Insurance is required in this flood zone.

You are receiving this notice because you are eligible for a limited opportunity to receive a FEMA Elevation Certificate paid by the City, which provides you with a cost savings of $450 to $750. The Elevation Certificate is required to rate a flood insurance policy, and it is needed if you think you might request a map amendment to remove a structure from the high risk flood zone.

Flood Insurance is Required

If you have a mortgage, you will be required to purchase flood insurance by the mortgage lender. In order to rate the flood insurance policy, an official rating form called a FEMA Elevation Certificate must be prepared by a licensed land surveyor. This form documents the risk of damage to your structure(s) by comparing finished construction elevations and characteristics of the property to the projected height of the 100-year flood elevation. The cost of preparing an Elevation Certificate is typically born by the property owner and varies between $450 and $750.

Limited Window for City Assistance is Available to Save You Money

The City was awarded a grant to develop a hazard mitigation plan to reduce our community's risk to natural hazards. This planning effort benefits you by:

- Identifying opportunities to reduce risk from floods, as well as other hazards.
- Gathering flood risk information on FEMA Elevation Certificates for all properties in the high risk floodplain to identify vulnerable areas, estimate losses and support risk reduction projects.

This is a limited opportunity for you to save money, and you can help support identification of projects that may reduce the risk of damage to your structure! To maximize benefits to you and the community, we need your help with scheduling access to complete the survey work. Please attend the Open House on December 2nd.

Attend the Open House Event on Tuesday, December 2nd to Learn More

The City will host an Open House event on December 2nd from 4:30 p.m. to 6:30 p.m. in City Hall Council Chambers for all property owners and residents living in the high risk floodplain. The purpose of this meeting will be to help you better understand what living in a high risk floodplain means, clarify flood insurance requirements, and provide you with more information about the hazard mitigation and the FEMA Elevation Certificate acquisition effort. The City's surveyor will be present to discuss scheduling needs for Elevation Certificate surveys, so please remember to attend this event on Tuesday, December 2nd.

If you have questions, please contact the Floodplain/Stormwater Coordinator at (541) 664-7602, Ext. 244 or by e-mail at stephanie.holtey@centralpointoregon.gov

EC Acquisition Open House Mailing Summary		
Site Address	**Mailing Address**	**Reason Returned**
285 E. Pine St.	Same	No Such Number
1120 Comet Ave.	Same	Temporarily Away
1985 Taylor Rd.	Same	Temporarily Away
407 S. Central Valley Dr.	Same	Vacant
457 W. Pine St.	Same	Vacant
208 Corcoran Ln.	Same	Vacant
1003 Comet Ave.	408 Westwind Cir.	Other
210 Victoria Way	Same	Other
102 Corcoran Ln.	Same	Other
213 Windsor Way	Same	Other
1100 Comet Ave.	Same	Other
911 Comet Ave.	Same	Other
208 Corcoran Ln.	P.O. Box 2894 White City	Other
Pine St. (Bldg. A)	Same	Other
Pine St. (Bldg. B)	Same	Other
Pine St. (Bldg. C)	Same	Other
444 N. Central Valley Dr.	Same	Other
450 N. Central Valley Dr.	Same	Other

Household Preparedness Questionnaire

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Public Works Department

City of CENTRAL POINT Oregon

Bob Pierce, Director
Stephanie Woolett, Floodplain Specialist

January 15, 2008

Dear Resident:

We need your help! The City of Central Point is currently engaged in a cooperative planning process to reduce the risks and losses associated with natural disasters. As a part of this process, the City is conducting a household survey. This survey provides an opportunity for you to share your opinions about preparing for and reducing your household's and your community's risks from natural disasters. The information you provide about your household's needs for disaster preparedness could help our community improve local disaster preparedness and risk reduction activities.

Your opinions are important to us! Please complete the enclosed survey and return it to the City by placing it in one of the City's payment drop boxes, US mail or by hand-delivering to the Public Works Department at City Hall. You may also complete the survey online. Simply navigate to the City's homepage (www.ci.central-point.or.us) and click on the Household Natural Hazards Preparedness Questionnaire link. All mailed questionnaires should be addressed to:

City of Central Point
Attn: Stephanie Woolett
Re: Natural Hazards Preparedness Questionnaire
140 South 3rd Street
Central Point, OR 97502

The survey will take 15-20 minutes to complete. **Please complete and return this survey by Friday, February 15, 2008.**

Your returned survey indicates your willingness to take part in the study. Your participation in this study is voluntary. All individual survey responses are strictly confidential and are for research purposes only. If you have any questions, regarding the survey or the hazard mitigation planning process, please contact me at 664.7602, Ext. 244.

Thank you for your participation. We look forward to hearing your opinions.

Sincerely,

Stephanie Woolett, CFM
Floodplain/Stormwater Specialist

Enclosure

CRS 510

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Household Natural Hazards Preparedness Questionnaire

This questionnaire is designed to help gauge household preparedness for disasters, and knowledge of tools and techniques that assist in reducing risk and loss from natural hazards. The questionnaire should be completed by an adult, preferably the homeowner or head of household. The information you provide about your needs for disaster preparedness could help improve public/private coordination of preparedness and risk reduction activities within your community. We ask that you please take a few minutes to complete this questionnaire.

Natural Hazard Household Risk Reduction

Households can do many things to prepare for a natural disaster or emergency. What you have on hand or are trained to do when a disaster strikes can make a big difference in your comfort and safety in the hours and days following a natural disaster or emergency. In addition, modifications to your home, including retrofits to strengthen your home's structure, can protect your home and its contents. The following questions focus on your household's preparedness for disaster events.

1. How concerned are you about the following natural disasters affecting your community?
(Check the corresponding box for each hazard)

Natural Disaster	Very Concerned	Somewhat Concerned	Neither Concerned nor Unconcerned	Not Very Concerned	Not Concerned
Drought	☐	☐	☐	☐	☐
Dust Storm	☐	☐	☐	☐	☐
Earthquake	☐	☐	☐	☐	☐
Flood	☐	☐	☐	☐	☐
Landslide / Debris Flow	☐	☐	☐	☐	☐
Wildfire	☐	☐	☐	☐	☐
Household Fire	☐	☐	☐	☐	☐
Volcanic Eruption	☐	☐	☐	☐	☐
Wind Storm	☐	☐	☐	☐	☐
Severe Winter Storm	☐	☐	☐	☐	☐

2. Did you consider the possible occurrence of a natural hazard when you bought/moved into your current home?

☐ Yes ☐ No

3. Does your household have insurance coverage for flood events?

☐ Yes ☐ No

If you answered Yes, please skip to Question 4.

3.1 If "NO" for flood, what is the main reason your household does not have insurance for flood events? ***(Please check one)***

☐ Not available ☐ Deductibles too high/not worth it ☐ Not necessary
☐ Not located in the floodplain ☐ Not familiar with it/don't know ☐ Too expensive
☐ Other: _____

4. Does your household have insurance coverage for earthquake events?

☐ Yes ☐ No

If you answered Yes, please skip to Question 5.

4.1 If "NO" for earthquake, what is the main reason your household does not have insurance for earthquake events? ***(Please check one)***

☐Not available ☐Deductibles too high/not worth it ☐Too expensive
☐Not necessary ☐Not familiar with it/don't know ☐Other: _____

5. In the following list, please check those activities that you have done in your household, plan to do in the near future, have not done, or are unable to do. For Questions F-K, there is also the option to check does not apply, if the preparation action does not apply to a feature of your home. ***(Please check one answer for each preparedness activity)***

In your household, have you or someone in your household:	Have Done	Plan To Do	Not Done	Unable To Do	Does Not Apply
A. Attended meetings or received written information on natural disasters or emergency preparedness?	☐	☐	☐	☐	
B. Talked with members in your household about what to do in case of a natural disaster or emergency?	☐	☐	☐	☐	
C. Developed a "Household/Family Emergency Plan" in order to decide what everyone would do in the event of a disaster?	☐	☐	☐	☐	
D. Prepared a "Disaster Supply Kit" (Stored extra food, water, batteries, or other emergency supplies)?	☐	☐	☐	☐	
E. In the last year, has anyone in your household been trained in First Aid or Cardio-Pulmonary Resuscitation (CPR)?	☐	☐	☐	☐	
F. Have you secured your water heater, cabinets and bookcases to the wall?	☐	☐	☐	☐	☐
G. Have you fit your gas appliances with flexible connections?	☐	☐	☐	☐	☐
H. Used fire-resistant building or roofing materials?	☐	☐	☐	☐	☐
I. Secured your home to its foundation?	☐	☐	☐	☐	☐
J. Braced unreinforced masonry, concrete walls, and chimney?	☐	☐	☐	☐	☐
K. Elevated your home in preparation for floods?	☐	☐	☐	☐	☐

Household Risk Reduction

6. Who is your preferred information source and what is the preferred way for you to receive information about how to make your household and home safer from natural disasters? ***(Please check all that apply)***

Information Sources:

- ☐ Chamber of Commerce
- ☐ University or research institution
- ☐ Schools
- ☐ Fire Department/Rescue
- ☐ Utility company
- ☐ Insurance agent or company
- ☐ University or research institution
- ☐ Government agency
- ☐ American Red Cross
- ☐ Other non-profit organization

Methods:

- ☐ Fact Sheet/brochure
- ☐ Internet
- ☐ Mail
- ☐ Outdoor advertisements (signs, etc.)
- ☐ Radio
- ☐ Television
- ☐ Magazine
- ☐ Public workshops/meetings
- ☐ Newspapers
- ☐ Other (please explain):

Community Risk Reduction

7. Natural hazards can have a significant impact on a community, but planning for these events can help lessen the impacts. The following statements will help determine citizen priorities for planning for natural hazards. Please tell us how important each one is to you.

Statements	Very Important	Somewhat Important	Neither Important nor Unimportant	Not Very Important	Not Important
A. Protecting private property	☐	☐	☐	☐	☐
B. Protecting critical facilities (e.g., transportation networks, hospitals, fire stations)	☐	☐	☐	☐	☐
C. Preventing development in hazard areas	☐	☐	☐	☐	☐
D. Enhancing the function of natural features (e.g., streams, wetlands)	☐	☐	☐	☐	☐
E. Protecting historical and cultural landmarks	☐	☐	☐	☐	☐
G. Protecting and reducing damage to utilities	☐	☐	☐	☐	☐
H. Strengthening emergency services (e.g.,- police, fire, ambulance)	☐	☐	☐	☐	☐
I. Disclosing natural hazard risks during real estate transactions	☐	☐	☐	☐	☐

8. A number of activities can reduce your community's risk from natural hazards. These activities can be both regulatory and non-regulatory. An example of a *regulatory* activity would be a policy that limits or prohibits development in a known hazard area such as a floodplain. An example of a *non-regulatory* activity would be to develop a public education program to demonstrate steps citizens can take to make their homes safer from natural hazards. **Please check the box that best represents your opinion of the following strategies to reduce the risk and loss associated with natural disasters.**

Community-wide Strategies	Strongly Agree	Agree	Neither Agree nor Disagree	Disagree	Strongly Disagree	Not Sure
A. I support a regulatory approach to reducing risk.	☐	☐	☐	☐	☐	☐
B. I support a non-regulatory approach to reducing risk.	☐	☐	☐	☐	☐	☐
C. I support a mix of both regulatory and non-regulatory approaches to reducing risk.	☐	☐	☐	☐	☐	☐
D. I support policies to prohibit development in areas subject to natural hazards.	☐	☐	☐	☐	☐	☐
E. I support the use of tax dollars (federal and/or local) to compensate land owners for not developing in areas subject to natural hazards.	☐	☐	☐	☐	☐	☐
F. I support the use of local tax dollars to reduce risks and losses from natural disasters.	☐	☐	☐	☐	☐	☐
G. I support protecting historical and cultural structures.	☐	☐	☐	☐	☐	☐
H. I would be willing to make my home more disaster-resistant.	☐	☐	☐	☐	☐	☐
I. I support steps to safeguard the local economy following a disaster event.	☐	☐	☐	☐	☐	☐
J. I support improving the disaster preparedness of local schools.	☐	☐	☐	☐	☐	☐
K. I support a local inventory of at-risk buildings and infrastructure.	☐	☐	☐	☐	☐	☐
L. I support the disclosure of natural hazard risks during real estate transactions.	☐	☐	☐	☐	☐	☐

General Household Information

9. Please indicate your age: _____

10. Gender: Male ☐ Female ☐

11. Zip Code: _____

12. County: _____

13. Do you have access to the internet?
- ☐ Yes
- ☐ No

14. Do you rent or own your home?
- ☐ Yes
- ☐ No

15. Please indicate your level of education:
- ☐ Grade School/No Schooling
- ☐ Some high school
- ☐ High school graduate/GED
- ☐ Some college/trade school
- ☐ College degree
- ☐ Postgraduate degree
- ☐ Other, please specify: _____

16. How long have you lived in Oregon?
- ☐ Less than a year
- ☐ 1-5 years
- ☐ 5-9 years
- ☐ 10-19 years
- ☐ 20 years or more

17. Do you rent/own
- ☐ Single-family home
- ☐ Duplex
- ☐ Apartment (3-4 units in structure)
- ☐ Apartment (5 or more unit structures)
- ☐ Condominium / townhouse
- ☐ Manufactured home
- ☐ Other: _____

18. If you have lived in Oregon for less than 20 years, in what state did you live before you moved to Oregon?
- ☐ Not Applicable
- ☐ California
- ☐ Idaho
- ☐ Washington
- ☐ Other_____

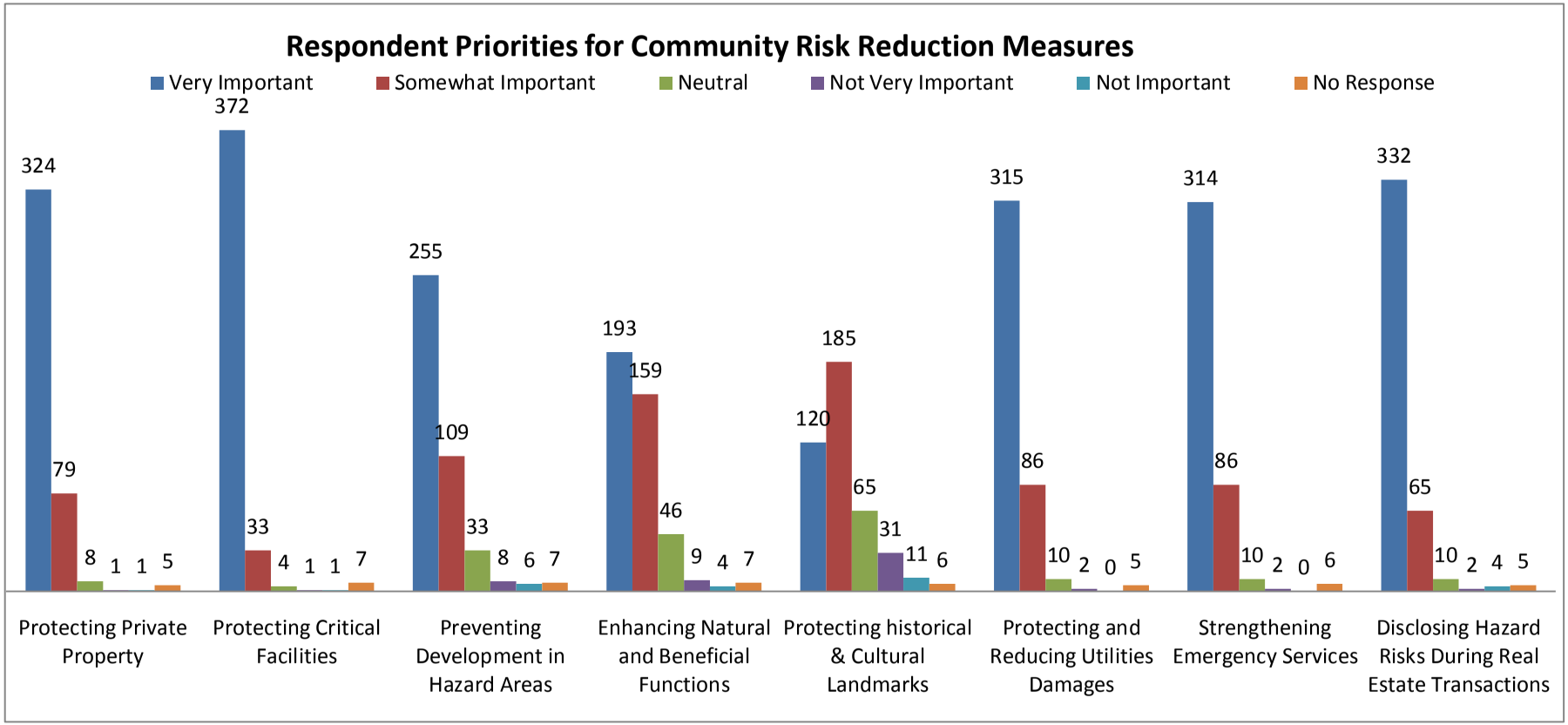
Please feel free to provide any additional comments in the space provided below:

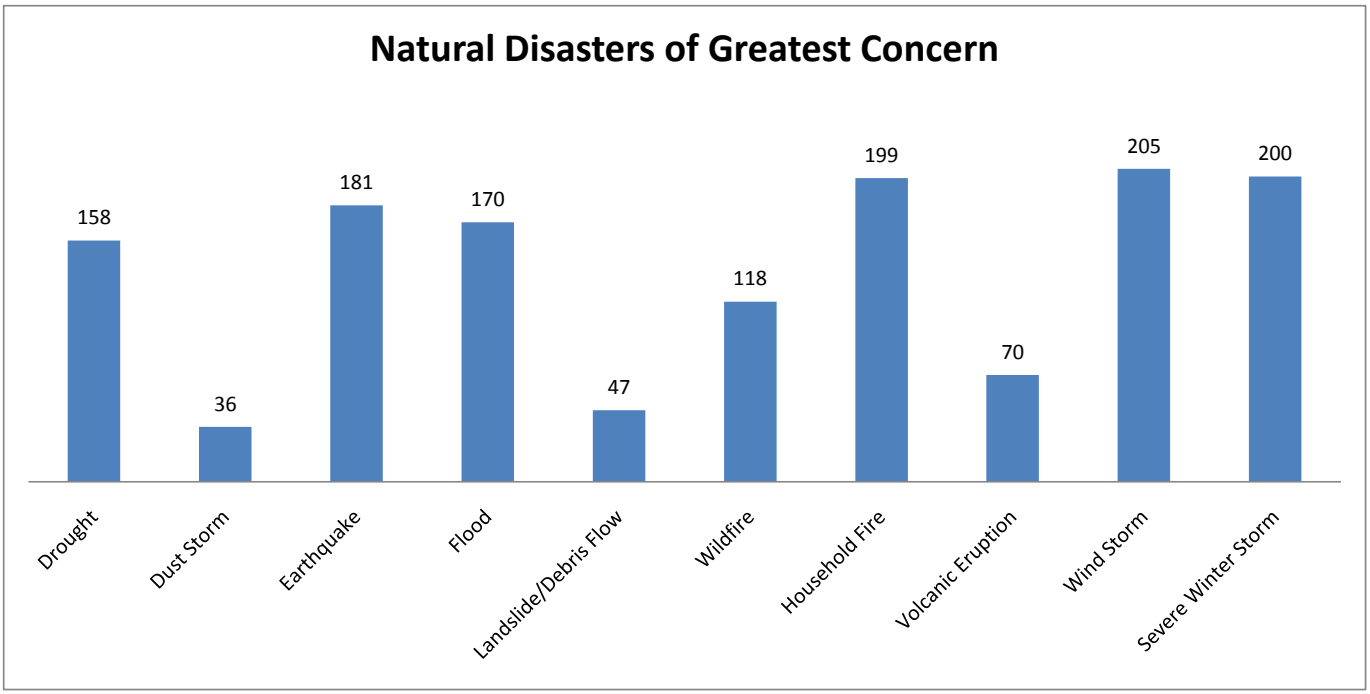
THANK YOU VERY MUCH FOR PROVIDING THIS INFORMATION

140 South 3rd Street ◦ Central Point, OR 97502 ◦ 541.664.3321 ◦ Fax 541.664.6384

Community Risk Reduction Measures - Respondent Priorities

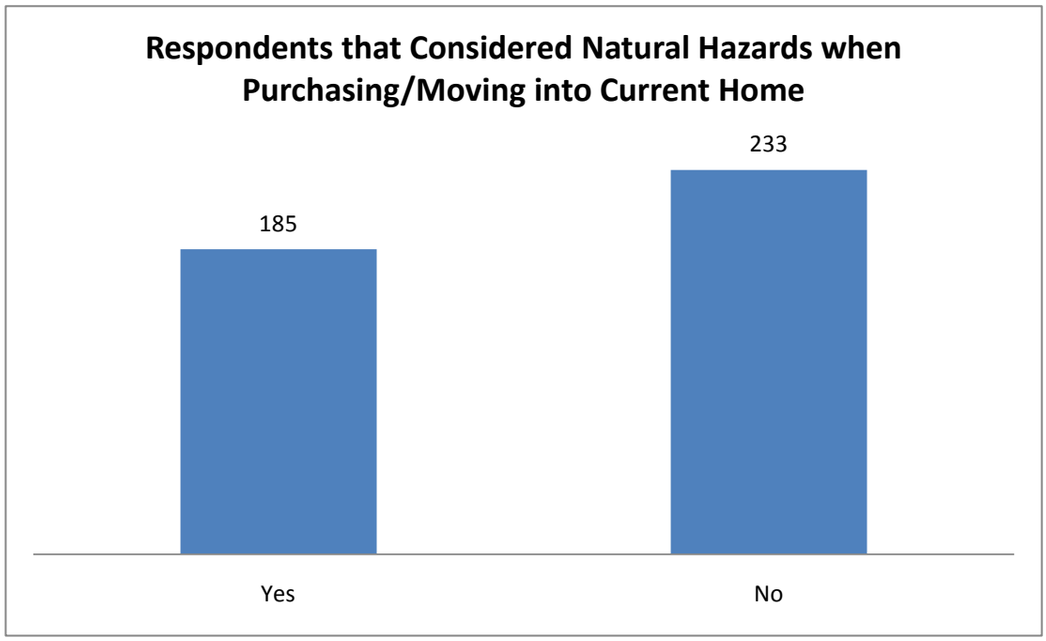
Risk Reduction Measures	Very Important	Somewhat Important	Neutral	Not Very Important	Not Important	No Response
Protecting Private Property	324	79	8	1	1	5
Protecting Critical Facilities	372	33	4	1	1	7
Preventing Development in Hazard Areas	255	109	33	8	6	7
Enhancing Natural and Beneficial Functions	193	159	46	9	4	7
Protecting historical & Cultural Landmarks	120	185	65	31	11	6
Protecting and Reducing Utilities Damages	315	86	10	2	0	5
Strengthening Emergency Services	314	86	10	2	0	6
Disclosing Hazard Risks During Real Estate Transactions	332	65	10	2	4	5

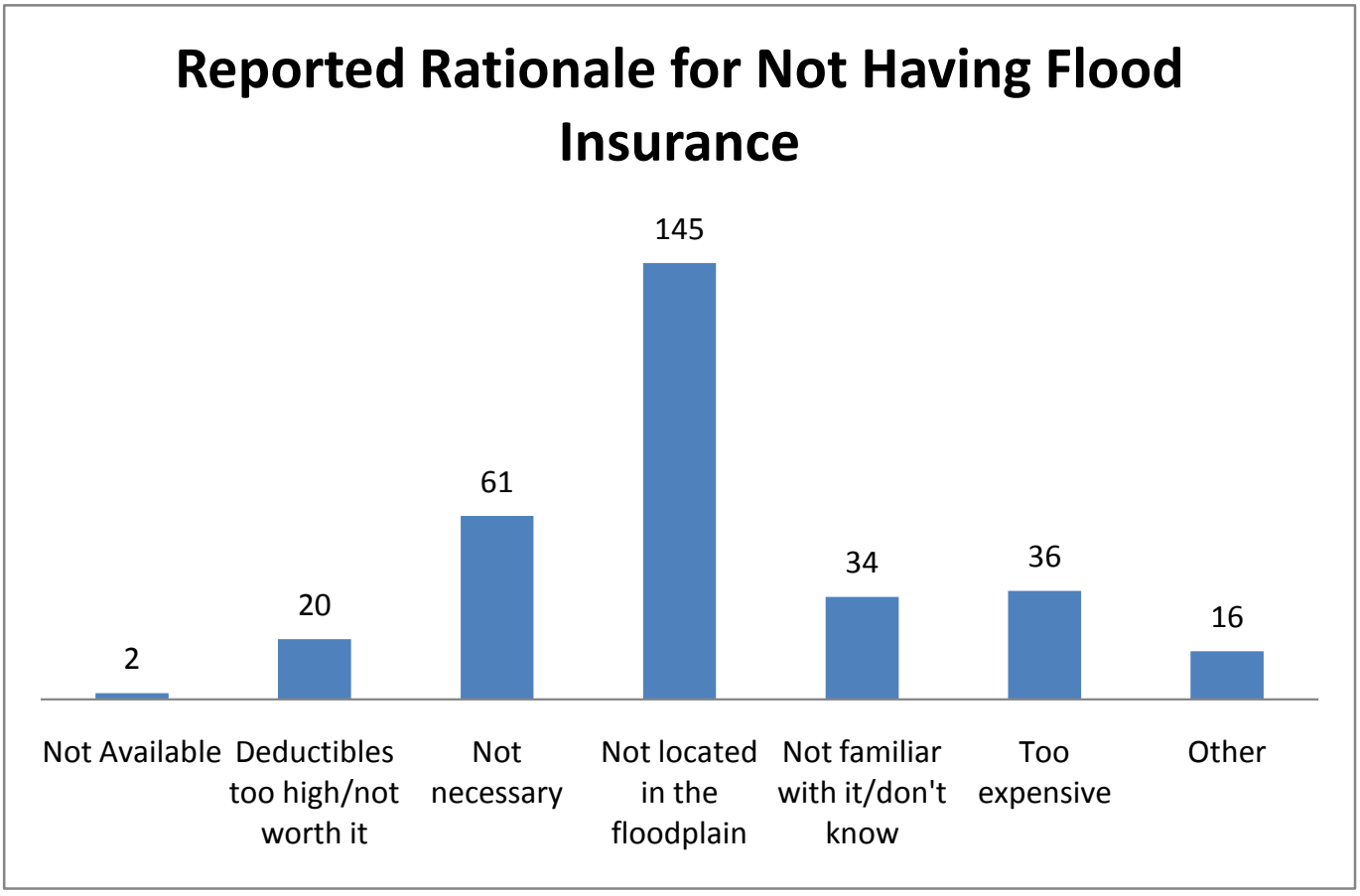



Natural Disasters of Greatest Concern
158
36
181
170
47
118
199
70
205
200
Drought
Dust Storm
Earthquake
Flood
Landslide/Debris Flow
Wildfire
Household Fire
Volcanic Eruption
Wind Storm
Severe Winter Storm

Question 2: Did you consider the possible occurrence of a natural hazard when you bought/moved into your current home?

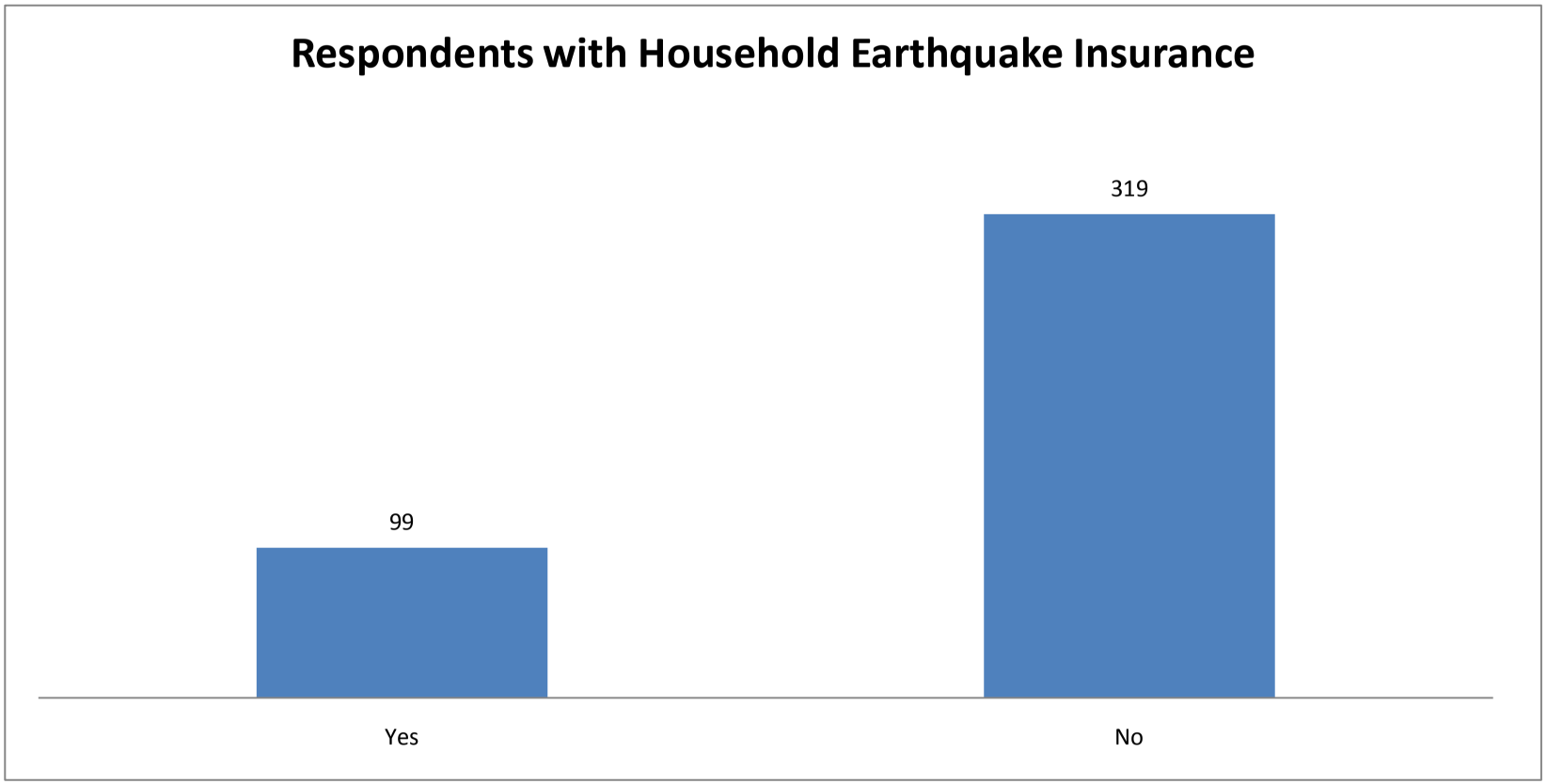
Yes	No
185	233




Reported Rationale for Not Having Flood Insurance
2
20
61
145
34
36
16
Not Available
Deductibles too high/not worth it
Not necessary
Not located in the floodplain
Not familiar with it/don't know
Too expensive
Other

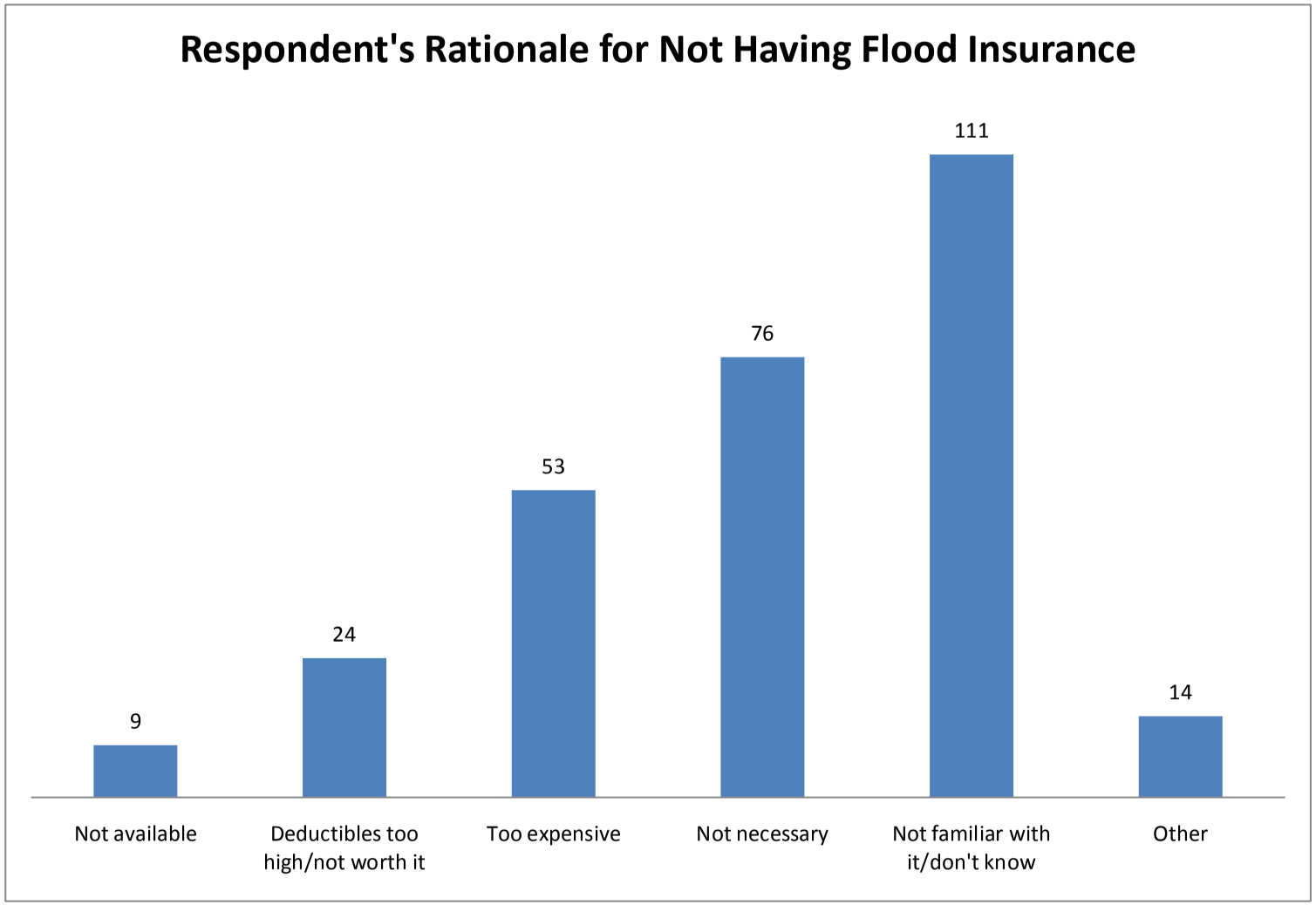
Household Earthquake Insurance

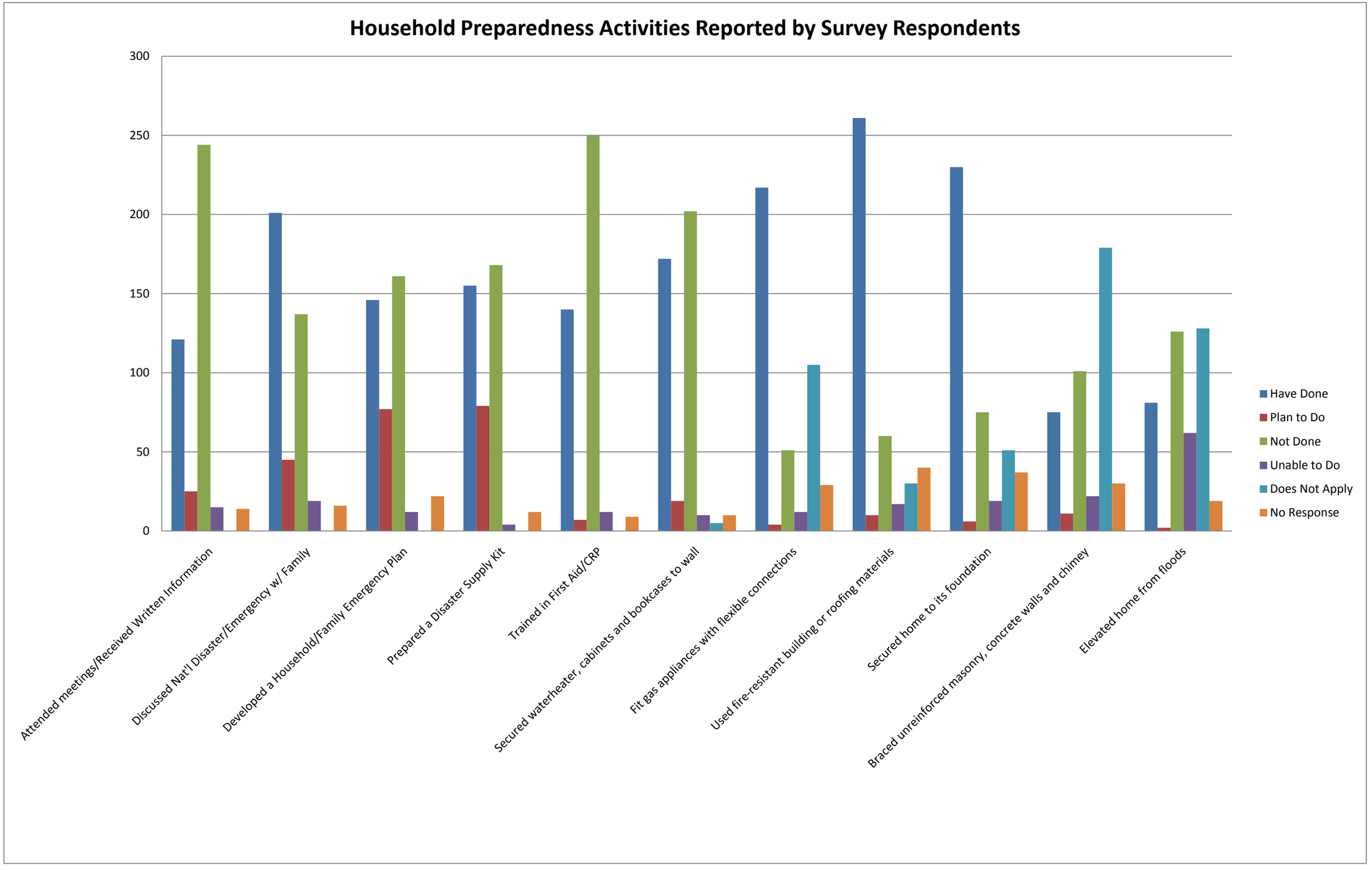
Yes	No
99	319



Rationale for Not Having Household Earthquake Insurance

Not availab	Deductible	Too expen	Not necess	Not familia	Other
9	24	53	76	111	14




Household Preparedness Activities Reported by Survey Respondents
300
250
200
150
100
50
0
Have Done
Plan to Do
Not Done
Unable to Do
Does Not Apply
No Response
Attended meetings/Received Written Information
Discussed Nat'l Disaster/Emergency w/ Family
Developed a Household/Family Emergency Plan
Prepared a Disaster Supply Kit
Trained in First Aid/CRP
Secured waterheater, cabinets and bookcases to wall
Fit gas appliances with flexible connections
Used fire-resistant building or roofing materials
Secured home to its foundation
Braced unreinforced masonry, concrete walls and chimey
Elevated home from floods

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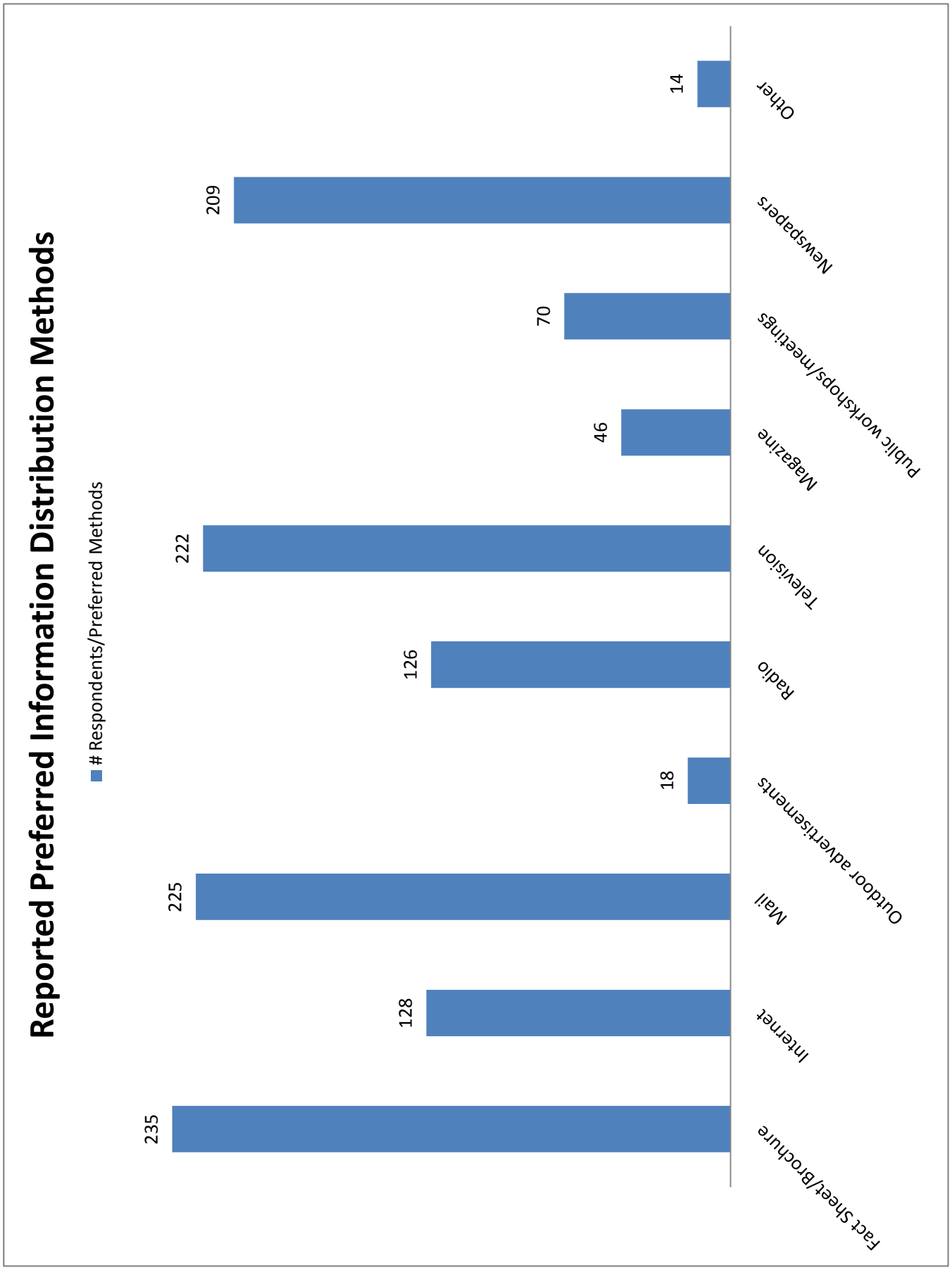
Reported Preferred Information Distribution Methods
Respondents/Preferred Methods
235
128
225
18
126
222
46
70
209
14
Fact Sheet/Brochure
Internet
Mail
Outdoor advertisements
Radio
Television
Magazine
Public workshops/meetings
Newspapers
Other

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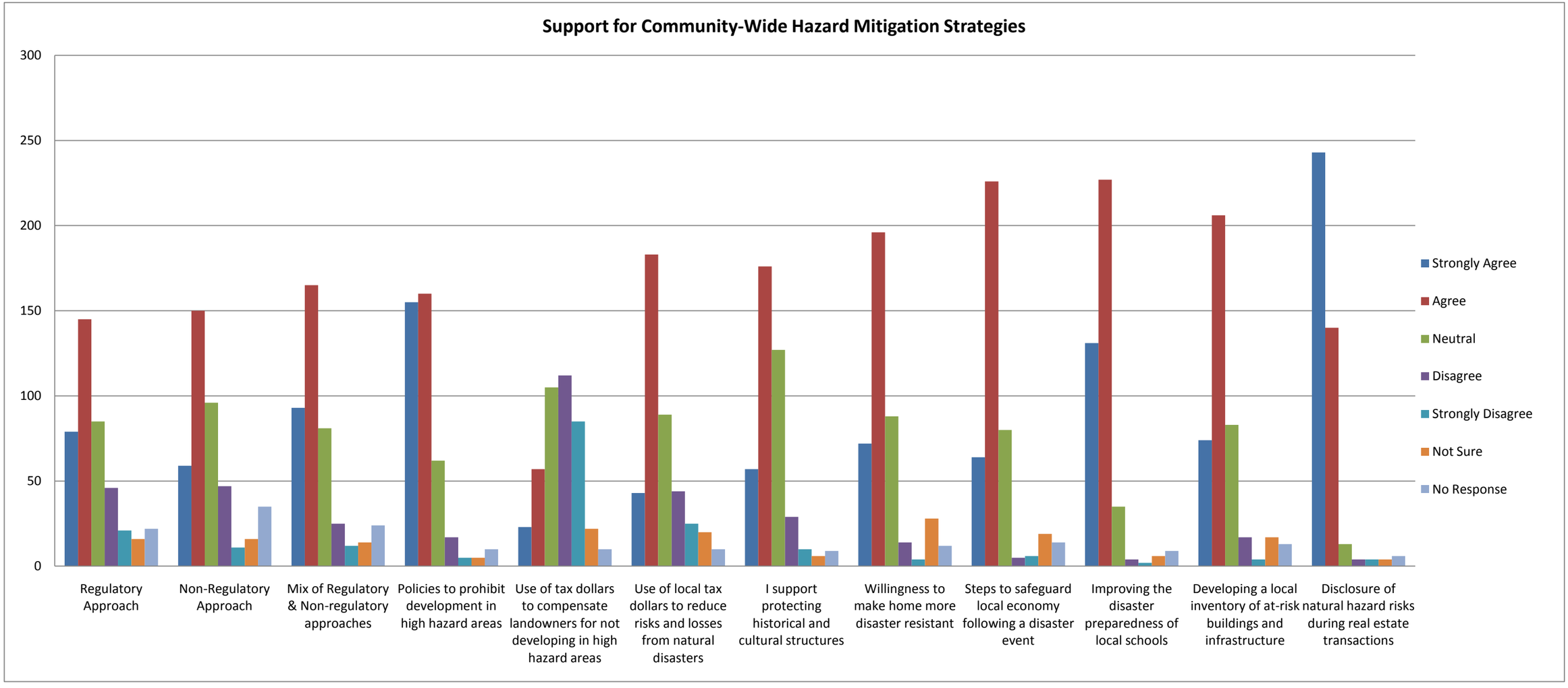
Support for Community Wide Strategies

Community-wide Risk Reduction Strategies	Strongly Agree	Agree	Neutral	Disagree	Strongly Disagree	Not Sure	No Response
Regulatory Approach	79	145	85	46	21	16	22
Non-Regulatory Approach	59	150	96	47	11	16	35
Mix of Regulatory & Non-regulatory approaches	93	165	81	25	12	14	24
Policies to prohibit development in high hazard areas	155	160	62	17	5	5	10
Use of tax dollars to compensate landowners for not developing in high hazard areas	23	57	105	112	85	22	10
Use of local tax dollars to reduce risks and losses from natural disasters	43	183	89	44	25	20	10
I support protecting historical and cultural structures	57	176	127	29	10	6	9
Willingness to make home more disaster resistant	72	196	88	14	4	28	12
Steps to safeguard local economy following a disaster event	64	226	80	5	6	19	14
Improving the disaster preparedness of local schools	131	227	35	4	2	6	9
Developing a local inventory of at-risk buildings and infrastructure	74	206	83	17	4	17	13
Disclosure of natural hazard risks during real estate transactions	243	140	13	4	4	4	6



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Question 9: Respondent Age

Range	24-92
Average	61

Question 10: Gender

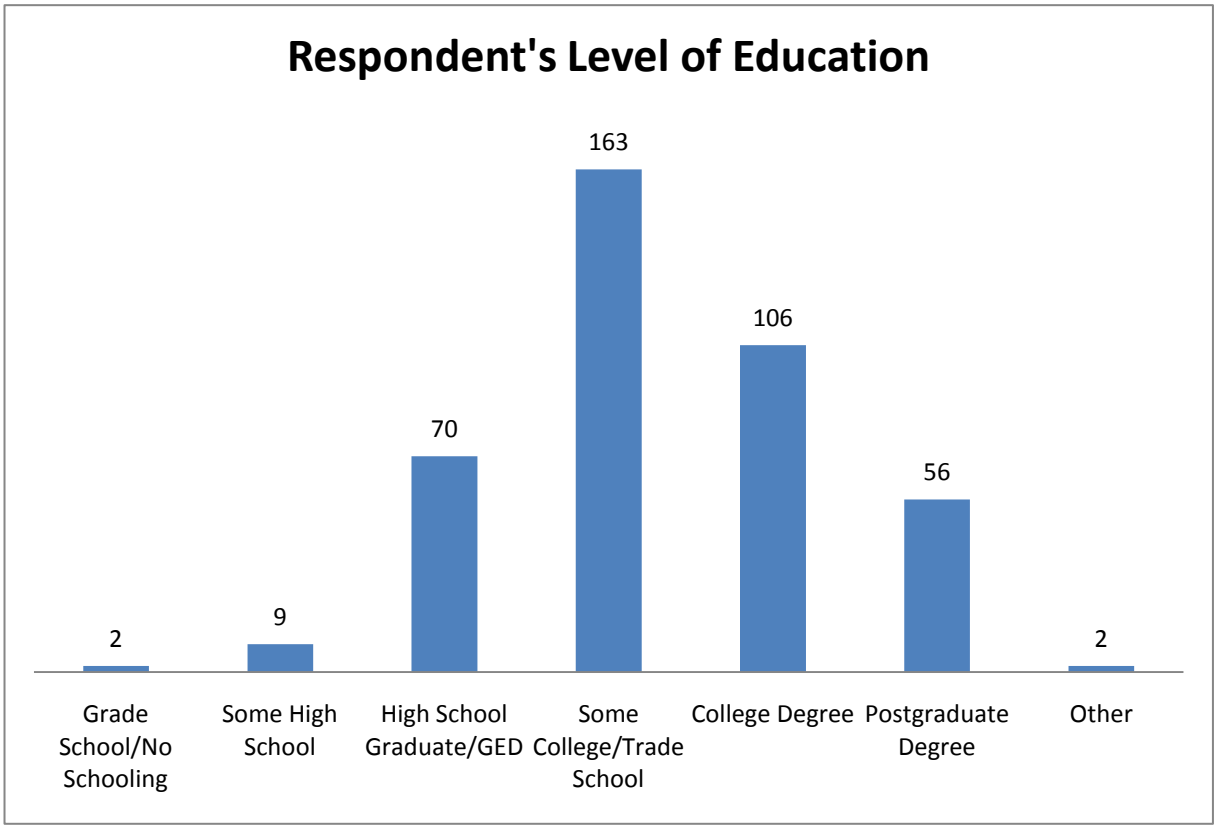
Male	202
Female	207

Question 13: Internet

Yes	332
No	77

Question 15: Education

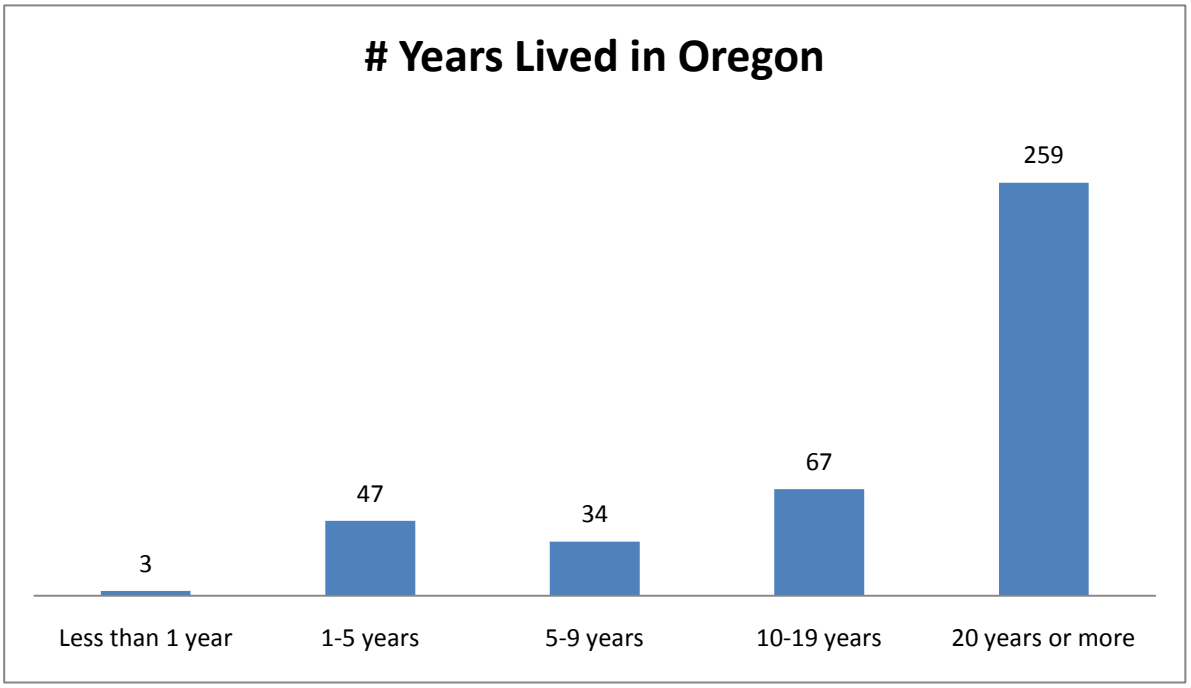
Level of Education	
Grade School/No Schooling	2
Some High School	9
High School Graduate/GED	70
Some College/Trade School	163
College Degree	106
Postgraduate Degree	56
Other	2



Question 16: Residency

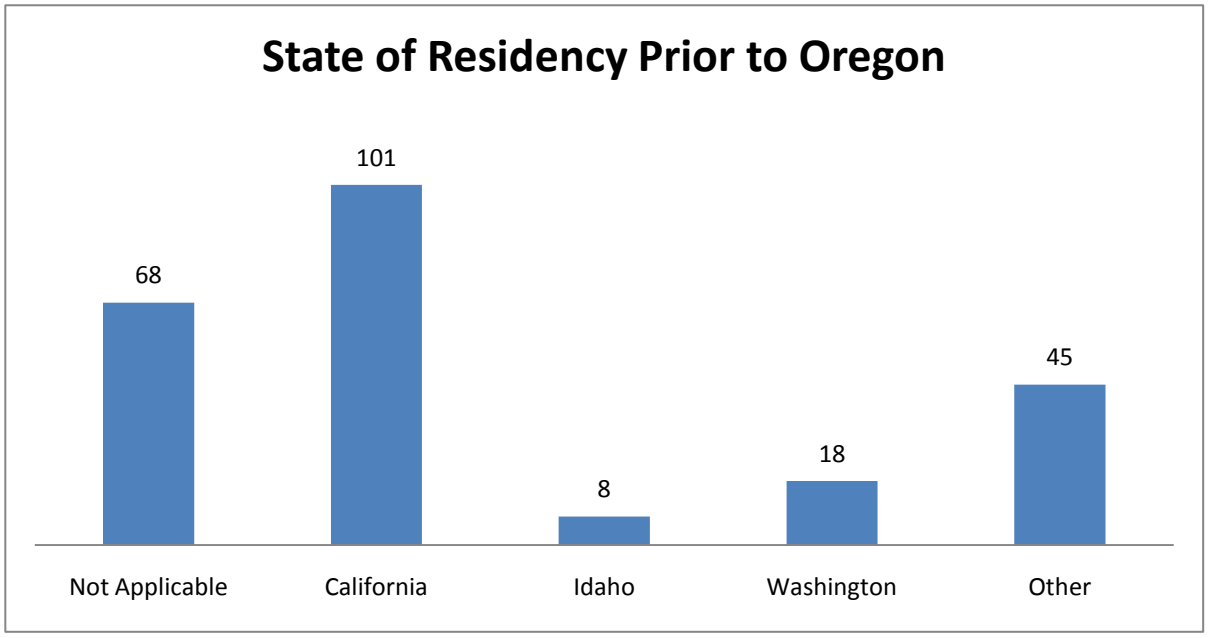
	# Years Lived in Oregon
Less than 1 year	3

1-5 years	47
5-9 years	34
10-19 years	67
20 years or more	259



Question 18: Residency

State of Residency Prior to Oregon	
Not Applicable	68
California	101
Idaho	8
Washington	18
Other	45



AGENCY AND STAKEHOLDER INVOLVEMENT DOCUMENTATION

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PUBLIC WORKS DEPARTMENT

Stephanie Woolett, CFM
Floodplain/Stormwater Coordinator

140 South 3rd Street · Central Point, OR 97502 · (541) 664-7602 · www.centralpointoregon.gov

November 16, 2009

State of Oregon
Department of Land Conservation and Development
Natural Hazards Division
635 Capitol St. NE, Suite 150
Salem, OR 97301-2540

To Whom May It Concern:

The City of Central Point is in the process of developing a natural hazard mitigation plan to assess vulnerability and identify mitigation actions that can be taken to increase the community's resilience in the face of a natural disaster. We are interested in DLCD's feedback regarding our plan. Draft sections of our plan are available on our website at www.centralpointoregon.gov in the Flood Mitigation page under Public Works.

Central Point is a small community in Southern Oregon with a population of 17,160 people. There are seven small streams that run through the city, which is generally flat and near the downstream end of the Bear Creek Watershed. The Rogue Valley and Bear Creek are surrounded by mountains. The Cascades are located to the east, the Siskiyous to the south and the Coast Range to the west. The natural hazards evaluated in the City's hazard mitigation plan are:

- Severe storms
- Flooding
- Earthquakes
- Volcanic Eruptions
- Landslides
- Wildfires

The City's plan is being developed under the direction of an Advisory Committee composed of local stakeholders, including local government officials, the fire district, the school district, and representatives from the local electric utility company, the development community and a floodplain resident. Due to a lack of recorded history of the identified hazards that impact the region and insufficient data for local assets, Central Point's vulnerability assessment is basic and provides a baseline understanding of the community's vulnerability. The mitigation action plan is currently under development and will includes actions to fill data gaps and improve the ability of the City to document the likely impact of natural disasters in the future.

We appreciate your interest in our planning process and look forward to receiving any feedback that you may have. You can reach me by phone at 541.664.7602, Ext. 244 or by e-mail at stephanie.woolett@centralpointoregon.gov.

Sincerely,

Stephanie Woolett, CFM
Floodplain/Stormwater Coordinator

Cc: Advisory Committee Members
Project File

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PUBLIC WORKS DEPARTMENT

Stephanie Woolett, CFM
Floodplain/Stormwater Coordinator

140 South 3rd Street · Central Point, OR 97502 · (541) 664-7602 · www.centralpointoregon.gov

November 16, 2009

Federal Emergency Management Agency
Mitigation Assistance Branch
Federal Regional Center
130 228th Street, Southwest
Bothell, WA 98021-8627

To Whom May It Concern:

The City of Central Point is in the process of developing a natural hazard mitigation plan to assess vulnerability and identify mitigation actions that can be taken to increase the community's resilience in the face of a natural disaster. We are interested in FEMA's feedback regarding our plan. Draft sections of our plan are available on our website at www.centralpointoregon.gov in the Flood Mitigation page under Public Works.

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Sincerely,

Stephanie Woolett, CFM
Floodplain/Stormwater Coordinator

Cc: Advisory Committee Members
Project File

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PUBLIC WORKS DEPARTMENT

Stephanie Woolett, CFM
Floodplain/Stormwater Coordinator

140 South 3rd Street · Central Point, OR 97502 · (541) 664-7602 · www.centralpointoregon.gov

November 16, 2009

State of Oregon
Department of Fish and Wildlife
Rogue Watershed District Office
ATTN: Chuck Fustish
1495 E. Gregory Road
Central Point, OR 97502

Dear Chuck:

The City of Central Point is in the process of developing a natural hazard mitigation plan to assess vulnerability and identify mitigation actions that can be taken to increase the community's resilience in the face of a natural disaster. We are interested in Fish and Wildlife's feedback regarding our plan. Draft sections of our plan are available on our website at www.centralpointoregon.gov in the Flood Mitigation page under Public Works.

Central Point is a small community in Southern Oregon with a population of 17,160 people. There are seven small streams that run through the city, which is generally flat and near the downstream end of the Bear Creek Watershed. The Rogue Valley and Bear Creek are surrounded by mountains. The Cascades are located to the east, the Siskiyous to the south and the Coast Range to the west. The natural hazards evaluated in the City's hazard mitigation plan are:

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Sincerely,

Stephanie Woolett, CFM
Floodplain/Stormwater Coordinator

Cc: Advisory Committee Members
Project File

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TELEPHONE INTERVIEW: MONTE MENDENHALL, PACIFIC POWER & LIGHT, INC.

DECEMBER 10, 2009

VULNERABILITIES

Central Point substation located in the 100-year floodplain. sandy substrate appears to be subject to erosion hazards. Monte interested in a scientific evaluation to determine risk of structure and potential mitigation options. At this point, the risk is based on visual assessment and projection. System vulnerabilities are associated with regular wear and tear on equipment, demand that exceeds system capacity (summer greatest demand, winter second). The latter is more likely to occur during a high demand season that experiences extreme weather that could damage a transmission line or a generator. During cold weather, deteriorated lines and fuses are more apt to fail. Hot summer weather combined with peak demand increases the rate that equipment wears out. When a localized outage occurs, it could take one hour to a day to repair the failed equipment. When a generator or transmission line fails, it could take a couple of hours to a couple of days to fix. Family preparedness is vital to surviving during these times. Our power region covers four counties. So far this fall, there have been only 3 outages which were all located in rural areas. Economic impacts of power outages to Pacific Power result from loss of rates during an outage. In residential areas this equates to approximately $0.20 per hour per customer, which is a minimal impact to the company if the outage is limited to Central Point.

FUTURE MITIGATION

Creation of an underground utility district, per Rule 13 of the Oregon Administrative rules, allows PP&L to retrofit overhead power utilities by locating them underground. Much like a Local Improvement District, the cost of the retrofit project would be passed on to either the city or residents of the community. The cost for locating electric utilities underground is upwards of $200k per block. According to Monte, the cost associated with such retrofits does not exceed the maintenance cost for overhead power lines due to regular wear and tear or failures due to tree collapse. One of the challenges in retrofit projects is the need to utilize private property to locate facilities underground, the time needed to determine where utilities can be located. Utilities require vaults and overhead space, as well as access points.

EXISTING MITIGATION

PP&L conducts three mitigation activities to safeguard their system: Facility inspections/corrections – overhead and underground; Tree trimming – most beneficial; Pole replacement – no longer uses creosote.

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STAKEHOLDER INTERVIEW WITH JERRY MARMIN, ODOT REGIONAL MANAGER (DISTRICT 8)

JANUARY 8, 2010

During our telephone conversation, Jerry and I reviewed his role with the Oregon Department of Transportation, discussed the known vulnerabilities to state owned infrastructure in Central Point and Medford and the seismic standards for ODOT infrastructure.

Mr. Marmin is the Regional Manager for District #8 and is a point of contact for any projects or partnership opportunities between the City and the State with regard to infrastructure. Prior to his current position, he was the Natural Resources Coordinator for ODOT; therefore, he has a good understanding of natural resource issues that concern transportation projects, etc.

According to Jerry, the I-5 Viaduct in Medford is the most vulnerable structure in Southern Oregon. In the event of an earthquake this structure has the potential to collapse resulting in the closure of I-5, potential loss of life and injury, millions of dollars in damages, and limiting east to west travel in Medford around the downtown. This structure is the most critical ODOT structure.

In Central Point, the Pine Street overpass was widened and upgraded to meet current seismic standards; however, during a Cascadia event with a magnitude of 8.5 or greater, none of the structures are expected to withstand the severe ground shaking. This would pose a serious problem to the entire region. He is not aware of the exact limitations of the current seismic design standard, so he referred me to Pete Gastro out of the Roseburg office. He is a geotechnical expert and may be able to help me understand the limitations of structural design in the face of a Cascadia event. His telephone number is 541.957.3603.

Failure of Emigrant Dam would inundate the vast majority of I-5 within the Bear Creek Valley. This would devastate the infrastructure and result in its closure and create an a barrier to east to west traffic flow. Extensive loss of life and injuries would be expected.

Economic impacts of I-5 closure are not specifically known by Mr. Marmin. He referred me to Greg Ek-Collins, the Statewide Emergency Response Coordinator to discuss socioeconomic impacts of I-5 closure to Oregon State and our region. His telephone number is 503.986.3020.

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Agency Contacts

First Name	Last Name	Organization	Address	City	State	Zip	E-mail
John	Schwenderer	Avista	Unknown	-	-	-	john.schwendener@avistacorp.com
Jerry	Marmin	Oregon Department of Transportation	100 Antelope Road	White City	OR	97503	Unknown
Dick	Converse	Rogue Valley Council of Governments	P.O. Box 3275	Central Point	OR	97502	dconverse@rvcog.org
Tom	Wiley	DOGAMI	Unknown	-	-	-	tom.wiley@dogami.state.or.us
Michael	Curry	Jackson County Emergency Management	10 S. Oakdale, Room 214	Medford	OR	97501	CurryMC@jacksoncounty.org
Christine	Shirley	Department of Land Conservation and Development	635 Capitol Street NE, Suite 150	Salem	OR	97301-2540	Christine.Shirley@state.or.us
McGinnes	Karen	FEMA Region X	130 - 228th Street, Southwest	Bothell	WA	98021-8627	Unknown
Denny	Wade	Rogue Valley Sewer Services	P.O. Box 3130	Central Point	OR	97502	wdenny@rvss.us
Hoke	Bill	City of Medford	411 W. 8th Street	Medford	OR	97501	bill.hoke@cityofmedford.org
N/A	N/A	Medford Water Commission	200 S. Ivy Street, Room 177	Medford	OR	97501	Unknown
Lobdell	Bob	Department of State Lands	775 Summer St. NE Suite 100	Salem	OR	97301-1279	robert.lobdell@dsl.state.or.us
Meyers	Bill	Department of Environmental Quality	221 Stewart Avenue, Ste 201	Medford	OR	97501	Meyers.Bill@deq.state.or.us
VanDyke	Dan	Oregon Department of Fish & Wildlife	1495 E. Gregory Road	Central Point	OR	97502	daniel.j.vandyke@state.or.us
Elsy	Jason	Jackson County Housing Authority	2251 Table Rock Road	Medford	OR	97501	Unknown
Healy	Mark	Bureau of Reclamation	1375 SE Wilson Ave, Suite 100	Bend	OR	97702-1435	mhealy@usbr.gov

From:	Stephanie Holtey
To:	"john.schwendener@avistacorp.com"; "dconverse@rvcog.org"; "tom.wiley@dogami.state.or.us"; "CurryMC@jacksoncounty.org"; "Christine.Shirley@state.or.us"; "Huff, Jamie"; "wdenny@rvss.us"; "bill.hoke@cityofmedford.org"; "robert.lobdell@dsl.state.or.us"; "Meyers.Bill@deq.state.or.us"; "daniel.j.vandyke@state.or.us"
Cc:	Karen Roeber; Matt Samitore
Subject:	Draft Central Point Hazard Mitigation Plan
Date:	Friday, August 12, 2011 1:33:00 PM
Attachments:	image001.png
Importance:	High

Good afternoon,

The City of Central Point has completed a draft hazard mitigation plan that addresses natural hazards and community vulnerability. This effort has been ongoing since 2008 and includes quantitative assessments of risk for flood and earthquake. The planning team is interested in your feedback regarding the draft plan as we prepare to submit it to FEMA for approval and move into the implementation phase. The draft plan is available online at http://www.centralpointoregon.gov/publicworks.aspx?id=1059.

Based on the assessment of hazards and vulnerability, the Plan establishes that floods, earthquakes and severe weather pose the greatest risk to Central Point, in descending order. Other hazards considered include wildland/urban interface fires, landslides, volcanic activity, drought, expansive soils, subsidence and sinkholes. These hazards posed very little to no risk to the City. Mitigation action items are included in the plan to reduce risk over time as resources become available and are prioritized according to their risk reduction potential..

Since floods are the most commonly occurring, severe hazard event in Central Point, the highest priority action item identified by the planning team is a large scale flood mitigation project. This action item includes removal of flow constrictions, channel realignment and restoration. The overall objective is to reduce erosion potential to identified critical facilities and residences and significantly reduce flood hazard impacts on existing buildings. This effort would require coordination and collaboration among many stakeholders, including residential property owners, utilities, local governments, etc.

The planning team appreciates your interest in the Central Point Hazard Mitigation Plan and look forward to receiving any feedback that you may have. Please forward any written comments to the Central Point Public Works Department, Attn: Hazard Mitigation Plan or by responding to this e-mail. If you have any questions, please contact Stephanie Holtey, at 541.664.7602, Ext. 244 or Matt Samitore at 541.664.7602, Ext. 205. Thank you for your consideration of the City's Hazard Mitigation Plan.

Best Regards,

Stephanie Holtey, CFM
Floodplain/Stormwater Coordinator
Public Works Department
City of Central Point

CITY NEWSLETTER & NATURAL RESOURCES BULLETIN PUBLICATIONS

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City of Central Point

News from City Hall

January, February, and March, 2008

Don Jones Water Spray Park Update

The City of Central Point and the Parks and Recreation Foundation would like to thank all residents and business owners who have given money for the water spray park in Don Jones Park. Since our last update, the Foundation has received over $2000 dollars in donations!

The spray park is estimated to cost approximately $80,000. To date the City and Parks and Recreation Foundation have raised over $54,000. If the Foundation can raise the additional $26,000 before next April the spray park will be built with the main park construction and be open for next summer.

Tax Benefits

An added benefit this time of year is that each donation made to the Central Point Parks and Recreation Foundation is tax deductible. The chart below gives the deduction for a single person in each tax bracket making a cash donation of $100. The instructions for Form 1040 will help determine the exact amount of your deduction, which will vary depending on your tax bracket and whether you file single or jointly.

Donation Information:

If you'd like to give money to the water spray park project, send it to Central Point Parks and Recreation Foundation
144 South Third Street
Central Point, OR 97502

Coming in January

A Utility Payment Drop Box will be located in the parking lot on Oak Street north of City Hall.

Tax Bracket	Donation Amount	Benefit	Out-of-Pocket Cost
10%	$100	$10	$90
15%	$100	$15	$85
25%	$100	$25	$75
28%	$100	$28	$72
33%	$100	$33	$67
35%	$100	$35	$65

City Awarded Grant for Hazard Mitigation Plan

The City of Central Point recently received a grant to develop a Hazard Mitigation Plan. We are currently looking for one or two community members to serve on the advisory committee, which will guide the development of this plan over the next year. Hazard mitigation aims to reduce our community's risks associated with natural hazards before disaster occurs. This is accomplished by: identifying at-risk areas, establishing a shared vision for hazard mitigation, and identifying action items that can be implemented by various organizations throughout the City. Contact the City's Floodplain Specialist by January 8th at 664.7602, Ext. 244, to learn more about becoming a member of the Hazard Mitigation Advisory Committee.

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City of Central Point

News from City Hall

April, May, and June, 2008

Letter from the Mayor

I have been your mayor for the past five years. During this time, many changes have occurred. Most dramatically, home prices escalated and then during 2007 home prices softened, resulting in slowed population growth. Even so, Central Point's population exceeded 17,000 before the end of 2007. Jackson County projects that Central Point's population will exceed that of Ashland by 2022 which would make Central Point the second largest city in Jackson County.

In 2007 Central Point:

- Reorganization of the Parks and Recreation Department to run more efficiently (significant cost savings).
- Reorganization of the Building Department to eliminate the position of Department Head and eliminate one building inspector position. These changes were mandated by the reduction of new building permits, resulting in decreased work loads.
- Helped sponsor the largest Community Christmas program supported by the downtown businesses to date.
- Expanded the Labor Day Music Festival.

Since I have not decided to seek another two year term as mayor, there are two things I would like to see addressed this year.

The first would be to complete Regional Problem Solving wherein seven cities and Jackson County would actually plan the growth areas of the Rogue Valley for the next fifty years. This process has been going on for nearly ten years and I hope that we can come to an agreement with both the cities and the state.

The second would be to resolve the traffic configuration on Pine Street. There are differing opinions on this. One option would reduce the traffic lanes along Pine Street to one lane in each direction with a center turn lane and bulb-outs beginning at Sixth Street. The rational for this is that this is "traffic calming" for pedestrians and allows traffic to flow more freely.

Several years ago Pine Street was widened from two lanes to four lanes. Some people would like to see the intersection in front of Ray's Market redesigned to accommodate four lanes and not narrow from two lanes heading west to one lane, as it is now without the possibility of left turns at First Street from Pine Street in either direction. Some people have suggested a traffic signal could be installed at Pine and Second Street's and another at Sixth or Seventh Street's by the Post Office.

I would like to hear from the citizens. Please let Deanna Gregory, City Recorder know how you feel by answering one of the questions below. Call 664-3321 ext 231 or email deannag@ci.central-point.or.us.

Thanks for your help and support, Hank Williams, Mayor

_____ I prefer East Pine Street to be converted to one lane each direction with continuous turn lanes and bulb outs.

_____ I prefer the intersection of East Pine Street and Highway 99 be converted to four lanes and leave the rest of Pine Street alone.

Parks And Recreation Events

WATERCOLOR CLASS A HUGE SUCCESS! Central Point Parks and Recreation is pleased to offer a continuation of the very successful watercolor class offered by Tony Antonides. The new class will begin April 15th at 6:30-8:30 pm and continue each Tuesday evening for 6 weeks. Class is $60 for 2 hours per week. A materials list is available at time of registration at the Parks and Recreation Office. This class, while a continuation, is still great for beginners.

Part-Time Summer Employment Opportunities:
Art & Science Camp Counselors (16 years and older)
Women's Self Defense
Kinder Dance
Creative Dance
Hatha Yoga
Little Kickers Soccer
Pre-K Soccer
Girls Volleyball
Contact Central Point Parks for details on the job opportunities 541-664-3321 ext 263 or 261.

Central Point 46th Annual 4th of July Celebration

NOTICE

THE CENTRAL POINT 4TH OF JULY PARADE BEGINS AT 9:30 A.M. THIS YEAR.

MORE INFORMATION IN THE JUNE NEWSLETTER.

FOR MORE INFORMATION CALL THE COMMITTEE CHAIR PERSON DEBBIE SAXBURY 664-3433 OR EMAIL SAXBURY@CHARTER.NET

Natural Hazard Mitigation Planning is Under Way

The City is in the process of developing a Hazard Mitigation Plan to identify and characterize natural hazards that affect Central Point and to establish a prioritized plan that will help reduce losses from future disasters. In addition to reducing losses, hazard mitigation facilitates increased resilience to natural disasters through the formation of local partnerships, implementation of cost-effective risk reduction actions, and increased public awareness regarding the potential impacts of natural hazards. Once adopted, the Central Point Hazard Mitigation Plan can be used to help the City acquire grant funds to implement action items addressed in the plan.

Central Point's Hazard Mitigation Plan is being funded by federal disaster assistance funds that were allocated to Jackson County in the wake of the New Year's Day Flood events in 1996/1997. In Central Point, this flood event resulted in the evacuation of 34 homes and over approximately $312,500 in losses to the community. According to the City's 1996 Flood Report and Statistical Summary, disaster preparedness saved approximately 204 homes from being flooded. By developing a community-wide Natural Hazard Mitigation Plan, the City aims to continue to reduce community losses and get back to "business as usual" in the wake of any disaster, whether it be a flood event, earthquake, severe winter storm, or volcanic eruption.

The City of Central Point Floodplain/Stormwater Specialist is facilitating the development of the Hazard Mitigation Plan in accordance with the guidance provided by Oregon Emergency Management, the Federal Emergency Management Agency, and the project's Advisory Committee. The committee is comprised of representatives from the local community, School District #6, Fire District #3, Pacific Power, Twin Creeks Development, LLC and the Central Point Police, Planning, Public Works, and Parks Departments. The plan's development will occur in four phases:

Phase 1: Organize Resource; Phase 2: Assess Community Risks; Phase 3: Develop the Mitigation Plan; Phase 4: Implement the Plan and Monitor Progress

Look for hazard mitigation updates in the City's quarterly newsletter. If you have any questions or would like more information, please contact Stephanie Woolett at 664.7602, Ext. 244 or by e-mail stephaniew@ci.central-point.or.us.

News from City Hall

Protect Your Family from Fireworks Related Fires and Injuries

The 283 reported fireworks-related fires for the year 2006 show almost a 46 percent increase from the 194 fireworks related fires for the year 2005. (2007 stats are not available at this time). The last seven years show a declining trend in the number of reported fireworks related fires. Of the 283 fires reported in 2006, 241 (85 percent) occurred from June 1 through July 31, 2006, and resulted in an estimated dollar loss of $1,095,857. Youths, seventeen and younger, were responsible for ninety-two (33 percent) of the 283 fireworks related fires. Parents are liable for any damage or injuries caused by their children using fireworks.

Illegal Fireworks are any fireworks that:

- Fly through the air or explode.
- Move more than twelve feet on smooth ground.
- Act in an uncontrolled manner. (Example; Firecrackers, bottle or sky rockets, and roman candles).

Firework Safety Tips:

- Always purchase fireworks from an Oregon Licensed firework location.
- Always have an adult present when using fireworks.
- Never allow children to use or play with matches or lighters.
- Have a hose or a bucket of water handy for emergencies and to douse misfired and spent fireworks.
- Read and follow label directions carefully.
- Use fireworks outdoors.
- Light one at a time and move away quickly.
- Never point or throw fireworks at people, pets, cars, or buildings.
- Keep fireworks away from small children.
- Do not alter fireworks or attempt to make your own.
- Remember fireworks can frighten pets, so be aware and put pets inside.

CENTRAL POINT

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It's not New Orleans, But 6

4TH OF JULY POINTS OF INTEREST

- FREE bike, trike and stroller decorating event at Central Point Elementary, July 3rd at 4:30 p.m.
- Pancake Breakfast is BACK hosted by the Boy Scouts at the Grange Hall ONLY $5.00.
- NEW Parade start time is 9:30 a.m.
- NEW location for Sonic Fun Run and Race Pine Street ant 3rd.
- FREE FUN ZONE will be on 6th Street
- Watch for pre-parade activities along Pine Street.

PINE STREET SURVEY RESPONSES

We would like to thank everyone that responded to the Mayors informal survey from our last newsletter regarding Pine Street Issues. In response to that survey, the Central Point City Council has appointed an Ad-Hoc Committee of council members, city staff and Central Point citizens to review Pine Street from Hwy 99 to 2nd Street.

They are also charged with reviewing the long term look of Pine Street from 2nd to 6th Streets. Business Owners and the Downtown Revitalization Committee would like to improve Pine Street and encourage more citizens and businesses in our downtown core.

The City realizes that stop lights need to be adjusted or moved to different locations. Because of the cost of redesigning those intersections, we want to be sure it is the best option, and not just change for the sake of change.

If you are interested in participating on any of the Central Point Committees, please contact City Recorder Deanna Casey at 664-3321 ext 231, or email deannac@ci.central-point.or.us.

Again we would like to thank all of you who responded to the Mayor's survey.

WHAT IS A VIDMIC?

The Central Point Police Department (CPPD) has enthusiastically begun the field deployment of "VIDMIC," a crucial risk-management tool which is integrated into an Officers portable radio microphone; able to record up to three-hours of audio and color video, along with still photographs. The CPPD purchased 12-VIDMICS at a cost of $630.00 each for use by all sworn-personnel working uniformed field assignments. The purchase price includes the VIDMIC unit, software, and USB cable for data downloads.

Accountability works: a 2002 study completed by the International Association of Chiefs of Police found that when video of an incident was available, that video record exonerated officers of allegations more than 96% of the time. That same study also revealed video provided other significant monetary and efficiency benefits such as a reduction in frivolous lawsuits, reduced agency liability, increased likelihood of prosecution, reduced court appearance time for officers, improved community/media perceptions of police, enhanced officer safety, enhanced in-service training (i.e. post-incident review of video), enhanced officer performance and professionalism, simplified incident review, and less time spent on written reports through the precise documentation of citizen behavior and officer conduct.

The CPPD has extensively used digital dashboard video cameras with remote microphones in all marked police vehicles for a number of years. However, it has been found that these systems have some limitations; a limited signal transmission range creating a possible interruption in recording capability. The VIDMIC will routinely be worn as a part of the Officers uniform; at all times having this essential tool with them to accurately document events as they occur in an incontrovertible medium that is date-time stamped and that can be downloaded into electronic files to preserve VIDMIC recordings. If you have any questions and/or would like a VIDMIC demonstration, please contact Sgt. Josh Moulin, City of Central Point Police Department TSB Manager by phone at (541) 664-5578, or by e-mail at joshm@cp-pd.com .

HAZARD MITIGATION PUBLIC MEETING

You are invited to a public meeting regarding the development of the Natural Hazard Mitigation Plan: **Tuesday, July 15th from 6:00 to 8:00 p.m.**

All communities, including Central Point, are subject to a variety of natural hazards. The purpose of hazard mitigation is to create a more disaster resilient community by developing an understanding of natural hazards and their potential impacts to our community, and then implement actions to reduce hazard impacts and increase the City's ability to recover. We want your input on the proposed Mission and Goals of the mitigation plan, as well as the development of the plan. We look forward to seeing you on Tuesday, July 15th. Please feel free to contact the City's Floodplain Specialist if you have any questions or would like more information.

News From City Hall

Hazard Mitigation Planning Public Meeting Scheduled for May 7th

A Public Meeting will be held on Thursday, May 7th from 6:00 to 8:00 p.m. in the Central Point Council Chambers, to provide an update on the Hazard Mitigation Plan Development project currently under way in Central Point. Hazard mitigation planning aims to identify potential hazards facing the community, the impact on our community's resources and ways that we can reduce our vulnerability and increase our resilience to those disasters.

To date, the City has developed a draft profile of our community's assets, natural hazards that could impact Central Point and a vulnerability assessment of those hazards. Please join us to learn more about natural hazards facing our community and provide your feedback, ideas and concerns. Your input will be instrumental in identifying potential mitigation projects to reduce our risks associated with various natural hazards, including: severe storms, floods, earthquakes, volcanic eruptions, wildfires and landslides.

Please feel free to contact the City's Floodplain/Stormwater Specialist for more information by phone at 664-7602, Ext. 244 or by e-mail at stephaniew@ci.central-point.or.us . We look forward to seeing you on May 7th at 6:00 p.m.

Central Point turned 120 this year.
We are working on a presentation of City events throughout time. If you have OLD photos or stories that would be of historical interest please contact City Recorder Deanna Casey at deannac@ci.central-point.or.us, or call 423-1026.

CENTRAL POINT

Community Events:

Saturday May 16
8:30 to 3:00
Hidden Treasures Market and City Wide Yard Sale

Saturday, July 4
Central Point Chamber Annual 4th of July Parade and Celebration at Robert Pfaff Park
Celebrating Oregon's 150th Birthday

Saturday August 22, 10—7
Summer Art Walk and Public Market at Robert Pfaff Park

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News From City Hall

D.A.R.E OFFICER OF THE YEAR DAN BROWN

City of Central Point Police Officer Dan Brown has been selected by the Oregon D.A.R.E. Officers Association as D.A.R.E. Officer of the Year for the State of Oregon. Officer Brown was presented with this prestigious award during a special ceremony during "D.A.R.E. Night with the Portland Beavers" at P.G.E. Park on Friday June 12th, 2009.

Officer Brown has capably served the citizens of Central Point for over twenty-five years, and has been a D.A.R.E. Officer for the City of Central Point Police Department (C.P.P.D.) for eleven years. During that time Officer Brown has been the principal coordinator of a number of praiseworthy events in support of the D.A.R.E. program including the much loved and heavily attended community wide event, the annual "D.A.R.E. to Cruise." The "D.A.R.E. to Cruise" is a highly anticipated City-wide event, which requires a great deal of Officer Brown's time and dedication to assure its lasting success. It has been conservatively estimated that this event alone has raised over $45,000.00 to help support the D.A.R.E. program in the City of Central Point and School District #6.

The City of Central Point Police Department recently added two additional D.A.R.E. Officers as a direct result of the exceptional reputation and untiring efforts of Officer Brown with D.A.R.E. in our School District. That same reputation and dedication also paved the way for the C.P.P.D. to train and place a G.R.E.A.T. Officer in our middle-school.

Officer Brown is assigned as the SRO at Crater High School; the genuine admiration and success he enjoys is due in large part to the trust he has fostered with his students during their D.A.R.E. classes. Officer Brown is reverently known as a "local legend," and his obvious heartfelt love for "his kids," schools, and the D.A.R.E. program is undeniable.

CENTRAL POINT

Community Events:

Saturday, July 4
Central Point Chamber Annual 4th of July Parade and Celebration at Robert Pfaff Park Celebrating Oregon's 150th Birthday

Friday evenings
July 10 & 24
August 7 & 21
Music & Movie Festival
Robert Pfaff Park
Beginning at 5:30 p.m.

Saturday August 22, 10—7
Summer Art Walk and Public Market at Robert Pfaff Park

September 12—13
Battle of the Bones
Twin Creeks Park

Natural Hazard Mitigation Public Meeting Scheduled for July 6th

Figure: Urban flooding in Central Point following the June 2009 severe thunderstorms. Source: Mail Tribune Monday June 1, 2009.

A public meeting will be held on Monday July 6th at 6:00 p.m. in the Central Point Council Chambers to provide an update on the Hazard Mitigation Plan Development project currently under way in Central Point. Natural hazards can and do happen in the Rogue Valley. The severe thunderstorms and localized flooding experienced in Central Point in early June is a good example. During that event, we saw urban flooding along streets that made travel difficult, impacts to public and personal safety from lightening and hazardous trees, and power interruption. By understanding the impacts that natural hazards like severe storms, flooding, earthquakes and volcanic eruptions have on our community we are able to design strategies to minimize their impacts and can get on with normal day to day life quickly.

Please remember to attend this important public meeting on July 6th. It's a great opportunity for you and your family to learn more about the natural history of our area and the natural hazard events that have shaped it over time. We are interested in your feedback, ideas and concerns about natural hazards and the potential impacts that they can have on your family and our community. Your input will be instrumental in identifying potential mitigation projects, reducing our risks, and becoming a disaster resilient community.

For more information contact Stephanie Woolett, the City's Floodplain/Stormwater Specialist by phone at 664-3321, Ext. 244 or e-mail at stephanie.woolett@centralpointoregon.gov. We look forward to seeing you on July 6th at 6:00 p.m.

IS YOUR BACKFLOW WORKING?

Summer is here and that means lots of watering to keep your yard green and beautiful. If your yard has an in-ground sprinkler system, that means you probably have a backflow device attached to your water system. Backflow devices are what protect your drinking water from unwanted chemicals and fecal matter that could enter back through the sprinkler heads. According to the Oregon Health Division OAR 333-61-070 and Central Point Code 13.20.060 backflow devices must be tested annually to ensure they are in working order to keep your water safe. The cost typically ranges between $25 - $45 and these tests are independent from the City, meaning the City receives no money from these tests.

To get a list of qualified testers in Central Point stop by City Hall or visit our *new* website www.centralpointoregon.gov . If you have questions or would like more information call Mike Ono at 664-3321 ext. 243.

DO YOU HAVE AN INGROUND SPRINKLER SYSTEM? YOU MIGHT NEED YOUR BACKFLOW TESTED

Summer is rapidly approaching, which means you'll want to keep your yard green. If your yard has an in ground sprinkler system, the Oregon Department of Human Services OAR 333-61-070 and CPMC 13.20.030 requires that you have a backflow assembly installed. A backflow assembly is a unit that prevents harmful contaminates such as fertilizers, lawn chemicals, dog feces, etc., from entering the City's water system. It is also required that these devices be tested annually to ensure they are in proper working order.

If you do not have a required backflow assembly, we recommend having one installed by a licensed plumber or a licensed landscape contractor. Residential homeowners, however, may install backflow assemblies themselves after first obtaining a plumbing permit. If a homeowner elects to install the backflow assembly, be sure to "call before you dig". Calling 811 before you dig will prevent injuries and costly repairs due to existing underground utilities.

To get a list of qualified testers or licensed plumbing/landscape contractors in Central Point, stop by the City Hall Public Works Dept. or visit the City's website www.centralpointoregon.gov . For more information call Mike Ono at 541-664-3321 ext. 243 or Ed Cobb at 541-664-3321 ext.213.

COMMUNITY PLANNING FOR NATURAL HAZARDS & PROACTIVE RISK REDUCTION

The City has been engaged in a natural hazard mitigation planning process since winter of 2007 when a grant from the Federal Emergency Management Agency's (FEMA) Hazard Mitigation Program was awarded. The primary goal is to identify natural hazards that impact the community and determine the actions to reduce the risk before a hazardous event, such as an earthquake or flood, occurs. This proactive risk reduction or prevention approach to hazard management is an important part of emergency management and has been found to be effective in reducing costly damages.

The Central Point natural hazard mitigation planning process was temporarily stalled when FEMA released the Preliminary Flood Insurance Rate Map (FIRM) on June 30, 2009. The City and Hazard Mitigation Advisory Committee determined that the Preliminary FIRM presented new information that needed to be incorporated in order to develop an effective mitigation strategy for the community.

As we began the task of revising the draft plan, we discovered insufficient information available to establish an accurate assessment of flood risk, or an effective mitigation strategy. The City requested additional grant funds from FEMA, which were awarded in 2010. Nearly all structures in the Special Flood Hazard Area (SFHA) now have elevation certificates, which are used to create a detailed building inventory assessing the risk. A study was conducted to evaluate flood mitigation options alleviating impacts of the high risk floodplain on residents and public infrastructure. Ultimately, the study identified a total of six projects on two reaches of Griffin Creek that, if constructed, would significantly reduce the Griffin Creek floodway and SFHA, providing for cheaper flood insurance rates, reduced flood insurance requirements, and enhance Griffin Creek aquatic and riparian habitat.

We are interested in your feedback regarding the Central Point Natural Hazard Mitigation Plan. To learn more, please visit the City's website at www.centralpointoregon.gov and navigate to the Flood Information pages under the Public Works Department directory. Copies of the draft plan, meeting agendas, presentations and summaries are available there. You are also encouraged to attend the public meeting scheduled for the evening of August 9th from 6:00 to 7:30 p.m. at City Hall in the Council Chambers. Your feedback is essential to the success of this planning process. If you have any questions, contact the Floodplain Coordinator directly at 541-664-7602, Ext. 244.

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Central Point Natural Resources Bulletin

Floodplains | Stormwater | Trees | Natural Hazards Summer 2011

Annual Stream Clean-up Reduces Flood Damage & Beautifies Community

Central Point is home to seven streams that meander through the community: Bear, Griffin, Jackson, Horn, Daisy, Mingus, and Elk Creeks. Although they can pose a hazard during high water events, streams can also add amenity to property and the community when their natural condition is preserved or enhanced through proper care. Everyone can help make our streams an amenity by keeping litter where it belongs: in the trash or recycling bin; volunteering time to restore degraded stream areas; and, promoting awareness of our local streams as a natural resource to neighbors, friends and family.

Information for Streamside Residents

If you live next to a stream, it's important to inspect the stream bank area and remove any obstructions or debris to minimize the risk of damages if a flood occurs during the rainy season, which occurs between October and April in our region. In addition to being a good practice, keeping streams free of obstructions is actually a requirement in Central Point. This program promotes safety, flood damage reduction, and natural resource protection.

City staff will be conducting an inspection of the streams in early August to assess the stream corridor conditions. To make sure that you are doing your part to keep our community safe, take action to make sure the following measures have been met:

- Compost materials, including grass-clippings, etc. are located outside the stream corridor. In addition to blocking small culverts and pipes, these materials pollute the water and contribute to gross and sometimes dangerous algae blooms.
- Trim blackberries to allow the passage of water during a high water event. Remember that chemicals are not allowed in or near streams.
- Clean up litter and construction debris. Unfortunately this junk floats downstream and requires continual monitoring and action. If we work together, we can minimize the litter that impairs our waterways, threatens wildlife, and increases flood risk.
- Address any other obstruction that could cause a safety concern for residents, property, infrastructure, and our local natural resources.

No matter where you live, remember that you can help keep our community safe and beautiful. For more information about the City's Stream and Drainage Channel Maintenance program, please contact the Public Works Department or check out our website resources.

Inside this issue…

- *Annual Stream Clean-up Overview: Benefits & Requirements*
- *Natural Hazard Mitigation Plan Meeting: August 9th*
- *Floodplain Development Primer for existing residents and new development.*
- *Benefits of Trees*
- *City Natural Resource Directory: Floodplain, Stormwater, Natural Hazards*

Hazard Mitigation Plan is Nearly Complete! Upcoming Public Meeting to Showcase the Draft Plan.

Where: Central Point City Hall
When: Tuesday, August 9th from 6:00 to 7:30 p.m.
Why: To preview the draft hazard mitigation plan, learn more about hazards, community risk, and potential risk reduction projects.

Did you know that litter, debris, and overgrown blackberries caused water level increases during the 1996/1997 New Year's Day Flood?

City staff observed backed up water due to clogged culverts and storm drains that caused water height increases over 1-foot. When water cannot flow through the stream channel it must find another route, which means that more people get flooded – some outside mapped high risk flood hazard areas. Sadly, the vast majority of these properties are not protected by advanced building techniques to minimize flood damages or by flood insurance that covers the cost of damages when they occur.

Floodplain Development Primer: Flood Damage Prevention & Resource Protection

The City regulates development in the high risk flood hazard areas, also known as the Special Flood Hazard Area (SFHA). The purpose of these regulations is primarily to protect life and safety, reduce costly damages, and protect the natural and beneficial functions of the floodplain through careful site planning and development of land. The Flood Damage Prevention regulations are set forth in Chapter 8.24 of the Central Point Municipal Code and are available for viewing online (Floodplain Management, Resources page).

Protect Life & Safety

The best way to protect life and safety is to keep development out of harm's way to the greatest degree possible. This requires awareness of flood risk and regulations that provide incentives for locating new development outside of known SFHAs.

Critical facility protection is essential. These are facilities that provide life support to a community, such as water, sewer, electricity, and emergency services.

Recent revisions to Chapter 8.24 incorporate these and other life safety protection measures.

Reduce Costly Flood Damages

By keeping new development out of known high risk hazard areas and protecting existing development to the greatest extent practicable, we can minimize damages. This is achieved through requirement of a Floodplain Development Permit for SFHA projects.

New and substantially improved or damaged structures (structures that have improvements or damages that exceed 50% of the market value of the pre-existing structure, counted over a 10-year period) must meet specific construction standards, such as elevating the lowest floor and using flood damage resistant materials. In addition, there are provisions that require new site improvements and subdivision proposals to demonstrate no adverse impact to existing or anticipated future development, and to provide the opportunity for public comment.

Protect Natural Functions

Floodplains, when preserved or restored to a natural condition, provide many beneficial functions such as filtering pollutants, absorbing excess rainfall, providing habitat, and recharging groundwater.

The Central Point flood regulations require new subdivision and site improvement proposals to ensure adequate area outside the SFHA and special stream setback, which is to be reserved as open space by easement.

The code also encourages use of best practices, such as low impact development to slow and/or reduce water runoff into streams.

Benefits of Trees

The right tree planted in the right place that is properly cared for can provide a variety of benefits to private property owners and the community. Here are the highlights:

- Trees are beautiful.
- Trees provide cooling shade and reduce urban heat island temperatures.
- Trees can improve property values.
- Trees, properly located can reduce energy bills by shading a structure in the summer and allowing natural sunlight to warm a structure in the winter.
- Trees help improve water quality by absorbing, transpiring, and reducing the amount of water that runs off the land into storm drains where it gathers pollutants and then empties into streams *untreated*.

The benefits are too numerous to list here, but stay tuned for future articles that focus on specific tree benefits, tree planting, care techniques, and community forestry programs and ways you can get involved.

City Natural Resources Directory

Floodplain Management Web Pages
www.centralpointoregon.gov
(Flood Information Quicklink)

- CP Flood Hazard
- Floodplain Benefits
- Floodplain Development
- Flood Insurance
- Flood Mitigation
- Flood Preparedness & Safety
- Flood Mapping
- Contact Information
- Resources

Stormwater Management Web Pages
www.centralpointoregon.gov
(Departments & Services, Public Works, Stormwater Management)

- Stormwater 101
- National Pollution Discharge Elimination System
- Bear Creek Watershed Water Quality
- Low Impact Development
- Make a Difference, Get Involved

Natural Hazard Mitigation Plan
www.centralpointoregon.gov
(Flood Information Quicklink, Flood Mitigation)

Central Point Public Works Department | 541.664.7602, | 140 South 3rd Street, Central Point, OR

HAZARD MITIGATION WEBSITE CONTENT

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Natural Hazard Mitigation Plan (6/3/2011 Update)

Disaster mitigation planning creates more resistant and resilient communities by identifying actions that a community can take to reduce or eliminate the long-term risk to humans and property from natural hazards. This web page provides an overview of the hazard mitigation and provides an overview and resources about the planning process currently underway in Central Point.

Central Point Hazard Mitigation Planning Process

Central Point began the hazard mitigation planning process in the Fall of 2007 after receiving a grant from the Federal Emergency Management Agency's (FEMA) Hazard Mitigation Grant Program to develop the plan. The Natural Hazard Mitigation Plan identifies natural hazards that are likely to Central Point, assesses how the identified natural hazards are likely to impact our community, describes the community's vulnerability to natural hazards and identifies mitigation actions that can reduce or eliminate the risk if those actions are implemented.

Benefits of Mitigation Planning:

- Leads to cost-effective selection of risk reduction actions
- Builds partnerships
- Contributes to sustainable communities
- Establishes funding priorities for potential future projects

Plan Development Process

The hazard mitigation planning process involves four distinct phases:

- Phase I – Organize Resources - obtain support for planning, form an Advisory

Committee, identify community assets.
- Phase II – Assess Risks - Idenfity hazards, profile hazard events, assess vulnerability, and estimate potential losses.
- Phase III – Develop a Mitigation Plan - Idenfity potential mitigation actions and funding sources.
- Phase IV – Implement the Plan and Monitor Progress - Adopt the plan, implement action items, monitor the plan's success and update every 5 years.

Currently Central Point is transitioning from Phase II to Phase III in the plan development process. The Advisory Committee, which is comprised of community stakeholder representatives, has met three times and there have been two public meetings. Provided below are links to resources to the Planning meetings for the Advisory Committee and the Public.

Advisory Committee Resources:
- Meeting #1 - Planning Process Introduction
  - Agenda
  - Meeting Summary
- Meeting #2 - Community Profile and Hazard Overview
  - Agenda
  - PowerPoint Presentation
  - Meeting Summary
- Meeting #3 - Vulnerability Assessment and Mitigation Plan Development
  - Agenda
  - Meeting Summary

Public Meeting Resources:
- Meeting #1 - Plan Introduction - Mission and Goals, Community Profile
  - Agenda
  - Meeting Summary
- Meeting #2 - Hazard Overview and Vulnerability Assessment
  - Agenda
  - PowerPoint Presentation
  - Meeting Summary

Central Point Natural Hazard Mitigation Plan - Draft

Introduction (Draft)
Community Profile - Fact Sheet
Vulnerability Assessment - Fact Sheet

Natural Hazard Mitigation Plan (8/5/2011 Update)

The Central Point Hazard Mitigation Plan is near completion. This plan aims to ***Proactively facilitate and support community-wide policies, practices, and programs that make Central Point more disaster resistant and resilient.***

Central Point Natural Hazard Mitigation Plan – 8/5/2011 Draft

Cover Page, Acknowledgements, Executive Summary, Table of Contents
Chapter 1 – Introduction
Chapter 2 – Central Point Community Profile
Chapter 3 – Mitigation Planning Process
Chapter 4 – Mission, Goals, Objectives and Action Items
Chapter 5 – Plan Adoption, Maintenance and Implementation
Chapter 6 – Floods
Chapter 7 – Earthquakes
Chapter 8 – Severe Weather
Chapter 9 – Other Hazards
Appendix 1 – FEMA Mitigation Grant Programs
Appendix 2 – Principles of Benefit Cost Analysis
Appendix 3 – Public Participation Documentation
Appendix 4 – References

Your feedback is vital to the success of hazard mitigation planning and implementation in Central Point. Please forward your written comments and suggestions to the Floodplain Coordinator by e-mail or by sending them to the following address:

City of Central Point
Public Works Department
RE: Hazard Mitigation Plan
140 South 3rd Street
Central Point, OR 97502

Benefits of Hazard Mitigation Planning

Central Point began the hazard mitigation planning process in the Fall of 2007 after receiving a grant from the Federal Emergency Management Agency's (FEMA) Hazard Mitigation Grant Program to develop the plan. The Natural Hazard Mitigation Plan identifies natural hazards that are likely to Central Point, describes the community's vulnerability to natural hazards, and identifies mitigation actions that can reduce or eliminate the risk if those actions are implemented. There are many benefits to mitigation

planning:

- Leads to cost-effective selection of risk reduction actions
- Builds partnerships
- Contributes to sustainable communities
- Establishes funding priorities for potential future projects that reduce risk
- Makes the community eligible to compete for Federal mitigation grants before a disaster occurs

Flood Mitigation

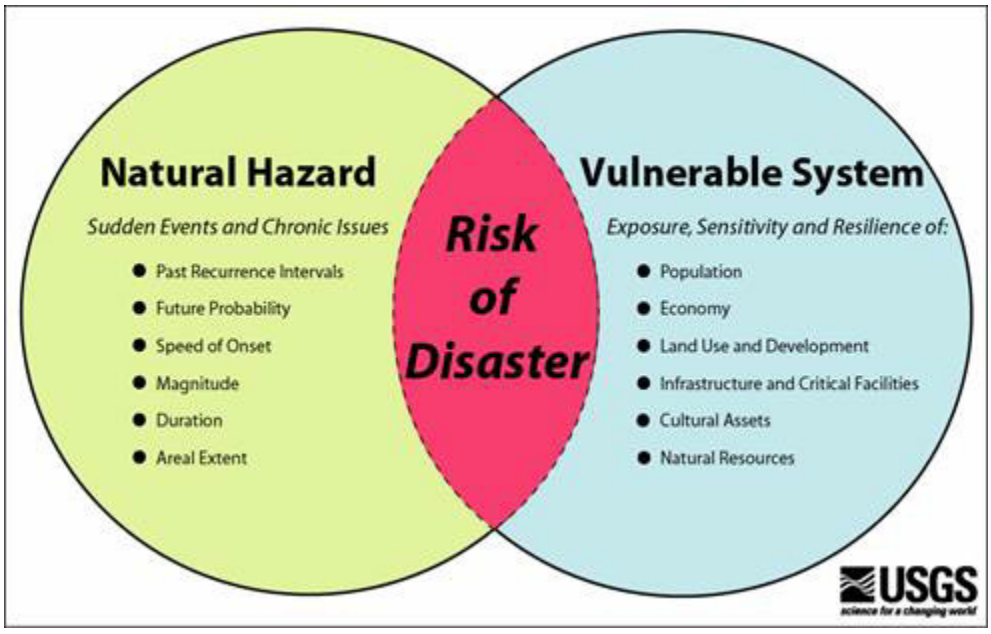
(June 3, 2011 Update)

Flood mitigation is any sustained action taken to reduce or eliminate long-term risk to life and property from a flood event. Mitigation is often confused with preparedness. Where preparedness planning and preparation activities are taken to facilitate response efforts to save lives and proeprty, mitigation activities are taken to reduce the need to respond by reducing exposure to a hazard before it occurs and results in disaster.

The City is the process of developing a Natural Hazard Mitigation Plan that evaluates the risk associated with all the natural hazards that could impact Central Point. Floods represent the most significant hazard event known to impact the City. By understanding our risk to floods and other hazards, the plan aims to identify actions that will reduce the community's exposure to them over time making Central Point a more disaster resistant and resilient community over time. Once complete, the City will have identified a strategy for reducing the community's exposure to flood hazards and established eligibility for federal grant opportunities to implement projects identified in the strategy.

Enhanced Risk Assessment

When FEMA released the Preliminary Flood Insurance Rate Map (FIRM) on June 30, 2009, the City and the Hazard Mitigation Advisory Committee reviewed the information and determined that a revised flood risk assessment needed to be completed to develop an effective mitigation action strategy.



As we began the task of revising the risk assessment, we discovered that we had insufficient information to establish an accurate assessment of risk. To overcome this challenge, the City requested additional grant funds from FEMA to help the City acquire Elevation Certificates for all structures in the Special Flood Hazard Area (SFHA) and to evaluate what-if mitigation scenarios along the most severely affected areas of Griffin Creek. As a result of our forward-thinking vision, FEMA approved our request for additional funds. As a result, nearly all structures in the SFHA have an Elevation Certificate and a report was prepared that identifies a total of six projects on two reaches of Griffin Creek. If constructed, these projects would significantly reduce the Griffin Creek floodway and SFHA, providing for cheaper flood insurance rates, reduced flood insurance requirements, and enhance Griffin Creek aquatic and riparian habitat for the benefit of people and the environment. This information will be presented at an upcoming public meeting this spring.

Flood Mitigation Projects

Central Point Natural Hazard Mitigation Plan Development

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