

Yelm Community School’s Annex to the Natural Hazards Mitigation Plan for the Thurston Region

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YELM COMMUNITY SCHOOLS, DISTRICT NO. 002

RESOLUTION 12-17-09-05

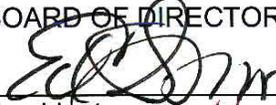
A RESOLUTION BY THE BOARD OF DIRECTORS OF YELM COMMUNITY SCHOOLS DISTRICT NO. 002 APPROVING AND ADOPTING THE YELM COMMUNITY SCHOOLS NATURAL HAZARDS MITIGATION PLAN, UPDATED 2009, PURSUANT TO THE DISASTER MITIGATION ACT OF 2000 (44CFR 201.6)

- WHEREAS,** the Federal Disaster Mitigation Act of 2000 requires that all disasters declared on or after November 1, 2004, local and tribal government applicants for sub-grants following any disaster must have an approved Natural Hazards Mitigation Plan in accordance with 44CFR 201.6 prior to receipt of hazard Mitigation Grant Program project funding; and
- WHEREAS,** the Federal Disaster Mitigation Act of 2000 requires that for Pre-Disaster Mitigation Grant Programs project funding on or after November 1, 2003, local and tribal government applicants for sub-grants following any disaster must have an approved Natural Hazards Mitigation Plan in accordance with 44CFR 201.6 prior to receipt of hazard Mitigation Grant Program project funding; and
- WHEREAS,** the Natural Hazards Mitigation Plan represents the commitment of the Yelm Community Schools district, along with other surrounding government entities, to reduce the risk from natural and man-made hazards and is in the public interest to proceed with the planning process in a timely manner; and
- WHEREAS,** the District, in cooperation and partnership with surrounding Thurston County government entities, participated in the development of a Natural Hazards Mitigation Plan; and
- WHEREAS,** an open public involvement process is essential to the development of an effective plan, and the process was coordinated with affected jurisdictions, agencies, businesses and other private and non-profit interests in the region to insure a comprehensive approach to mitigating the effects of natural and man-made disasters; and
- WHEREAS,** the plan includes documentation of the planning process and an updated risk assessment that provides the factual basis for activities proposed in the strategy to reduce losses, sufficient to enable the District to identify and prioritize mitigation actions; and
- WHEREAS,** the plan shall include a detailed mitigation strategy that provided the blueprint for reducing the potential losses identified in the risk assessment, a five-year cycle for plan maintenance, and documentation of formal adoptions by the District; and
- WHEREAS,** the plan will also serve as the basis for the State and Federal governments to provide technical assistance and to prioritize project funding;

NOW, THEREFORE, BE IT RESOLVED, that the Board of Directors of Yelm Community Schools District No. 002, Thurston County, State of Washington, does hereby approve and adopt the 2009 Natural Hazards Mitigation Plan for the Thurston Region, referenced at <http://www.co.thurston.wa.us/em/hmp/hazmitplan.htm>.

ADOPTED by the Board of Directors of Yelm Community Schools at a regular meeting held on the 17th day of December, 2009.

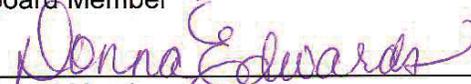
YELM COMMUNITY SCHOOLS
BOARD OF DIRECTORS



President



Board Member



Board Member



Board Member



Board Member

ATTEST:



Secretary to the Board

School District Profile Yelm Community Schools

(360)458-1900

www.ycs.wednet.edu

Governance: Five Board of Directors; each representing a director district; each is elected to a four year term

Demographics

District Size (square miles):	197.7
Population, 2000:	17,090
Population, 2008:	23,010
Population, 2030:	37,560
Student Body Growth 2000-2008	3.9%
Students Per Classroom Teacher	19

Mission

It is the responsibility of Yelm Community Schools to provide the best education possible for all of our students in a safe and caring environment.

Ethnicity (October 2007):

American Indian/Alaskan Native	3.1%
Asian	2.2%
Pacific Islander	0.9%
Black	2.4%
Hispanic	6.6%
White	79.5%

Special Programs (October 2007):

Transitional Bilingual	1.1%
Special Education	11.7%
Free or Reduced Price Meals	35.4%

Enrollment

2007-08 School Year:	Number	Students	Faculty	Staff
Administration/Service Center			35	97
High Schools	1	1055	64	52
Middle Schools	2	1344	74	59
Elementary Schools	6	2833	169	147
Other Schools	1	165	6	4
Total	10	5397	348	359

Financial

Assets (2008):

Valuation of Infrastructure	\$132,616,931.00
Valuation of Contents	\$6,425,317.00
Total	\$139,042,248.00

Revenues (2007-08):

	Per Student Amounts	
State	\$6,467	75%
Federal	\$610	7%
Local Tax	\$1,464	17%
Other Sources	\$3	1%
Total	\$8,544	100%

Expenditures (2007-08):

	Per Student Amounts	
Central Administration	\$549	6%
Building Administration	\$488	6%
Maintenance and Operations	\$770	9%
Food Services	\$291	3%
Transportation Services	\$425	5%
Teaching	\$5,874	69%
Other	\$199	2%
Total	\$8,596	100%

Sources:

Washington State Superintendent of Public Instruction
Thurston Regional Planning Council

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Yelm Community Schools Plan Development Process

Hazard Mitigation Plan Development Staff

The following staff served as Yelm Community School's hazards mitigation planning development team:

Title	Representative
Operations Manager, Project Lead	Jeff Role
Facilities Manager	Erling Birkland

Hazard Mitigation Plan Development

The following activities supported the development of Yelm Community Schools local hazard mitigation planning process:

Date	Location	Activity	Subject
June 17, 2009	District Office	Meeting /Work Session	Intercity Transit Risk Assessment and Hazards Mitigation Plan
TBA	District Office	Superintendent Review/Work Session	Review of the Natural Hazards Mitigation Plan for the Thurston Region and YCS
TBA	District Board Room	School Board Adoption	Adoption of The Natural Hazards Mitigation Plan for the Thurston Region and YCS Annex

Mitigation Initiative Prioritization Process

Yelm Community Schools reviewed mitigation initiatives YCS-EH-1, YCS-MH-1 and YCS-MH-2. No new initiatives were initiated and the original prioritization remains valid.

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Yelm Community Schools Risk Assessment

Introduction

The risk assessment provides information about the hazards that threaten Yelm Community Schools. This information provides the factual basis to identify and support a strategy that can effectively mitigate the effects of the hazards that threaten this jurisdiction's safety and challenge its ability to perform essential functions.

The content and structure of this plan's risk assessment was developed using the Federal Emergency Management Agency's (FEMA) 2008 "Local Multi-Hazard Mitigation Planning Guidance." Table 1 shows the Disaster Mitigation Act (DMA) Risk Assessment Planning Requirements that must be met in order for this plan to receive a "satisfactory" score. Each of these planning requirements is met through the information contained in both the regional risk assessment and in this local annex.

Table 1: Disaster Mitigation Act Risk Assessment Planning Requirements

DMA Section	Requirement
§201.6(c)(2)(i):	[The risk assessment shall include a] description of the type ... of all natural hazards that can affect the jurisdiction ...
§201.6(c)(2)(i):	[The risk assessment shall include a] description of the ... location and extent of all natural hazards that can affect the jurisdiction. The plan shall include information on previous occurrences of hazard events and on the probability of future hazard events.
§201.6(c)(2)(ii):	[The risk assessment shall include a] description of the jurisdiction's vulnerability to the hazards described in paragraph (c)(2)(i) of this section. This description shall include an overall summary of each hazard and its impact on the community.
§201.6(c)(2)(ii):	[The risk assessment in all] plans approved after October 1, 2008 must also address National Flood Insurance Program (NFIP) insured structures that have been repetitively damaged by floods.
§201.6(c)(2)(ii)(A):	The plan should describe vulnerability in terms of the types and numbers of existing and future buildings, infrastructure, and critical facilities located in the identified hazard areas ...
§201.6(c)(2)(ii)(B):	[The plan should describe vulnerability in terms of an] estimate of the potential dollar losses to vulnerable structures identified in paragraph (c)(2)(ii)(A) of this section and a description of the methodology used to prepare the estimate ...
§201.6(c)(2)(ii)(C):	[The plan should describe vulnerability in terms of] providing a general description of land uses and development trends within the community so that mitigation options can be considered in future land use decisions.
§201.6(c)(2)(iii):	For multi-jurisdictional plans, the risk assessment must assess each jurisdiction's risks where they vary from the risks facing the entire planning area.

In general the Federal DMA planning requirements with the words "**shall**" and "**must**" indicate that the item is mandatory and must be included in the plan, otherwise it will not be approved by FEMA. Regulations with the word "**should**" indicate that the item is strongly recommended to be included in the plan, but its absence will not cause FEMA to disapprove the plan.

Hazard Analysis Definitions

The adjective descriptors (High, Moderate, and Low) for each hazard's probability of occurrence, vulnerability, and risk rating are consistent with the terms used in the regional assessment.

The following terms are used in this plan to analyze and summarize the risk of the hazards that threaten this jurisdiction:

Risk Rating:

An adjective description (High, Moderate, or Low) of the overall threat posed by a hazard is assessed for the next 25 years. Risk is the subjective estimate of the combination of any given hazard's probability of occurrence and vulnerability.

- High: There is strong potential for a disaster of major proportions during the next 25 years; or History suggests the occurrence of multiple disasters of moderate proportions during the next 25 years.
- Moderate: There is medium potential for a disaster of less than major proportions during the next 25 years.
- Low: There is little potential for a disaster during the next 25 years.

Probability of Occurrence:

An adjective description (High, Medium, or Low) of the probability of a hazard impacting the jurisdiction within the next 25 years.

- High: There is great likelihood that a hazardous event will occur within the next 25 years.
- Moderate: There is medium likelihood that a hazardous event will occur within the next 25 years.
- Low: There is little likelihood that a hazardous event will occur within the next 25 years.

Vulnerability:

Vulnerability can be expressed as combination of the severity of a natural hazard's effect and its consequential impacts to the community. An adjective description (High, Medium, or Low) of the potential impact a hazard could have on the community. It considers the population, property, commerce, infrastructure and services at risk relative to the entire jurisdiction.

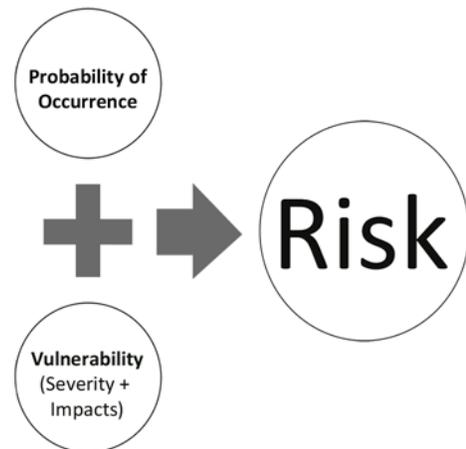


Figure 1: Risk is a subjective estimate of the combination of a hazard's probability of occurrence and a community's vulnerability.

- **High:** The total population, property, commerce, infrastructure and services of the community are uniformly exposed to the effects of a hazard of potentially great magnitude. In a worse case scenario, there could be a disaster of major to catastrophic proportions.
- **Moderate:** The total population, property, commerce, infrastructure, and services of the community are exposed to the effects of a hazard of moderate influence; or the total population, property, commerce, infrastructure, and services of the community are exposed to the effects of a hazard of moderate influence, but not all to the same degree; or an important segment of population, property, commerce, infrastructure and services of the community are exposed to the effects of a hazard. In a worst case scenario there could be a disaster of moderate to major, though not catastrophic, proportions.
- **Low:** A limited area or segment of population, property, commerce, infrastructure, or service is exposed to the effects of a hazard. In a worst case scenario, there could be a disaster of minor to moderate proportions.

Summary Risk Assessment

Based on the regional risk assessment and the local risk assessment in the subsequent section, the following hazards pose the greatest threat to local jurisdiction name.

Hazard	Probability of Occurrence	Vulnerability	Risk
Earthquake	High	High	High
Storm	High	High	High
Flood	High	Moderate	Moderate
Landslide	Moderate	Low	Low
Wildland Fire	Moderate	Low	Low
Volcanic Event	High	Low	Low

Local Risk Assessment

A comprehensive risk assessment of the major natural hazards that threaten Yelm Community Schools was developed for this plan through the regional risk assessment process described in Chapter 4.0. The regional risk assessment and its hazard profiles serve as the foundation for this jurisdiction's risk assessment. A list of all of the potential natural hazards that could impact this jurisdiction is located in Chapter 4. Chapter 4 includes six natural hazard profiles for earthquake, storm, flood, landslide, wildland fire, and volcanic events. Each profile defines the hazard and describes its effects, severity, impacts, probability of occurrence, and historical occurrences. The regional profiles describe this jurisdiction's local vulnerabilities in terms of the portion of the jurisdiction's land base or service area, population, employment, dwelling units, jurisdiction-owned assets, and critical facilities that are within each hazard zone.

This section of the plan provides additional details or explains differences where this jurisdiction's risks for each hazard vary from the risks facing the entire planning area. Maps of the hazards that affect Yelm Community Schools are scaled to local boundaries and are included in this section.

Earthquake

Severity

McKenna Elementary is the only site in the district that falls within the Liquifaction Hazard Map developed by TRPC.

Impacts

With the exception of the McKenna Site there is a very low expectation of damage or injury.

Probability of Occurrence

Historically a pattern of earthquake events occurs on a 26 year cycle resulting in a high probability of occurrence.

Historical Occurrences and Impacts Specific to this Jurisdiction

The most recent event was the Nisqually earthquake on 2001. There were no injuries or major property damages reported.

Summary Assessment

The probability of an event is high however only a single site is located within an area likely to sustain severe damage

Summary Risk Assessment for Earthquake in Yelm Community Schools

Probability of Occurrence	Vulnerability	Risk
High	High	High

Storm

Severity

Storms causing damage have been limited to wind, flooding and ice. Although surrounding areas have experienced heavy snow events the Yelm District has not.

Impacts

None of the school sites with the exception of Lackamas and McKenna Elementary have had a direct impact due to flooding. The Lackamas and McKenna sites have been closed due to flooding of the roadways to and from the sites.

Probability of Occurrence

The McKenna Elementary site is the only site located within a flood plane.

Historical Occurrences and Impacts Specific to this Jurisdiction

Storms in 1996 closed the roads to McKenna Elementary. Floods in 2007 and 2008 closed the roads to Lackamas Elementary. No school site have flooded. Wind storms have shut down electrical power to all sites on various occasions.

Summary Assessment

The district has sustained damage from storms in the region however all damage has been of a minor nature.

Summary Risk Assessment for Storm in Yelm Community Schools

Probability of Occurrence	Vulnerability	Risk
High	High	High

Flood

Severity

McKenna Elementary is the single site in the Yelm District that is within a flood plane. Other areas have flooded however these occurrences are localized and generally result in road closures at the height of flooding.

Impacts

There have been no damages caused to structures as a result of flooding within the district.

Probability of Occurrence

Part of the district approximately 14% is within the 100 year flood plane of the Nisqually river and its tributaries. Floods have occurred in 1996, 2006, 2007 and 2008. The recent flooding events would suggest that future flooding has a high probability.

Historical Occurrences and Impacts Specific to this Jurisdiction

Recent flooding in 1996,2006,2007 and 2008 caused road closures but no damage to the district property.

Summary Assessment

With the exception of the Nisqually River flood plane there are no site that should expect to sustain physical damage or require evacuation within the district.

Summary Risk Assessment for Flood in Yelm Community Schools

Probability of Occurrence	Vulnerability	Risk
High	Low	Moderate

Landslide

Severity

Prairie Elementary is the only site within a landslide hazard area. The placement of the buildings on this site are such that damage by a landslide is unlikely.

Impacts

There are no impacts to the buildings or personnel predicted to occur

Probability of Occurrence

The soil composition in this area is mostly cobble and secured by roadbeds at the mid point. A landslide is unlikely.

Historical Occurrences and Impacts Specific to this Jurisdiction

There are no known landslides in the district.

Summary Assessment

The occurrence of a landslide which would effect the district is very low.

Summary Risk Assessment for Landslide in Yelm Community Schools

Probability of Occurrence	Vulnerability	Risk
Low	Low	Low

Wildland Fire

Severity

Approximately 50% of the school sites are surrounded by forest and grass land. Although the potential for a wildfire exists the sites are all within one and one-half miles from fire stations.

Impacts

Approximately 8% of the district is within the TRPC Wildfire Hazard areas. The major impact is expected to be the closure of roads to the sites.

Probability of Occurrence

As more timberland is cut and developed the probability of fire has been reduced over time to very low

Historical Occurrences and Impacts Specific to this Jurisdiction

The only major wildfire in the district occurred several decades ago and had little impact on the district.

Summary Assessment

The growth of housing and harvesting of timber has reduced the potential for wildfire. The sites are surrounded by maintained grounds which would act as a barrier to a wildfire. In addition all of the sites are within one and one-half miles of a fire station.

Summary Risk Assessment for Wildland Fire in Yelm Community Schools

Probability of Occurrence	Vulnerability	Risk
Moderate	Low	Low

Volcanic Hazards

Severity

McKenna Elementary is the only school site located in a lahar hazard area along the Nisqually River. The remainder of the district could be potentially subject to ash fall in the event of an eruption of either Mt. Rainier, Mt. Adams or Mt. St. Helens. The eruption of Mt. St. Helens in 1980 did not effect the district.

Impacts

Impacts to McKenna Elementary in the event of a lahar originating at Mt. Rainier could be catastrophic to the site. All other sites are far from the Nisqually drainage and outside of any predictable lahar hazards. Depending on the wind the potential for ash fall exists.

Probability of Occurrence

Mt. St. Helens is still active and potentially could erupt at any time. There has not been any indication that an eruption may occur at either Mt. Rainier or Mt. Adams.

Historical Occurrences and Impacts Specific to this Jurisdiction

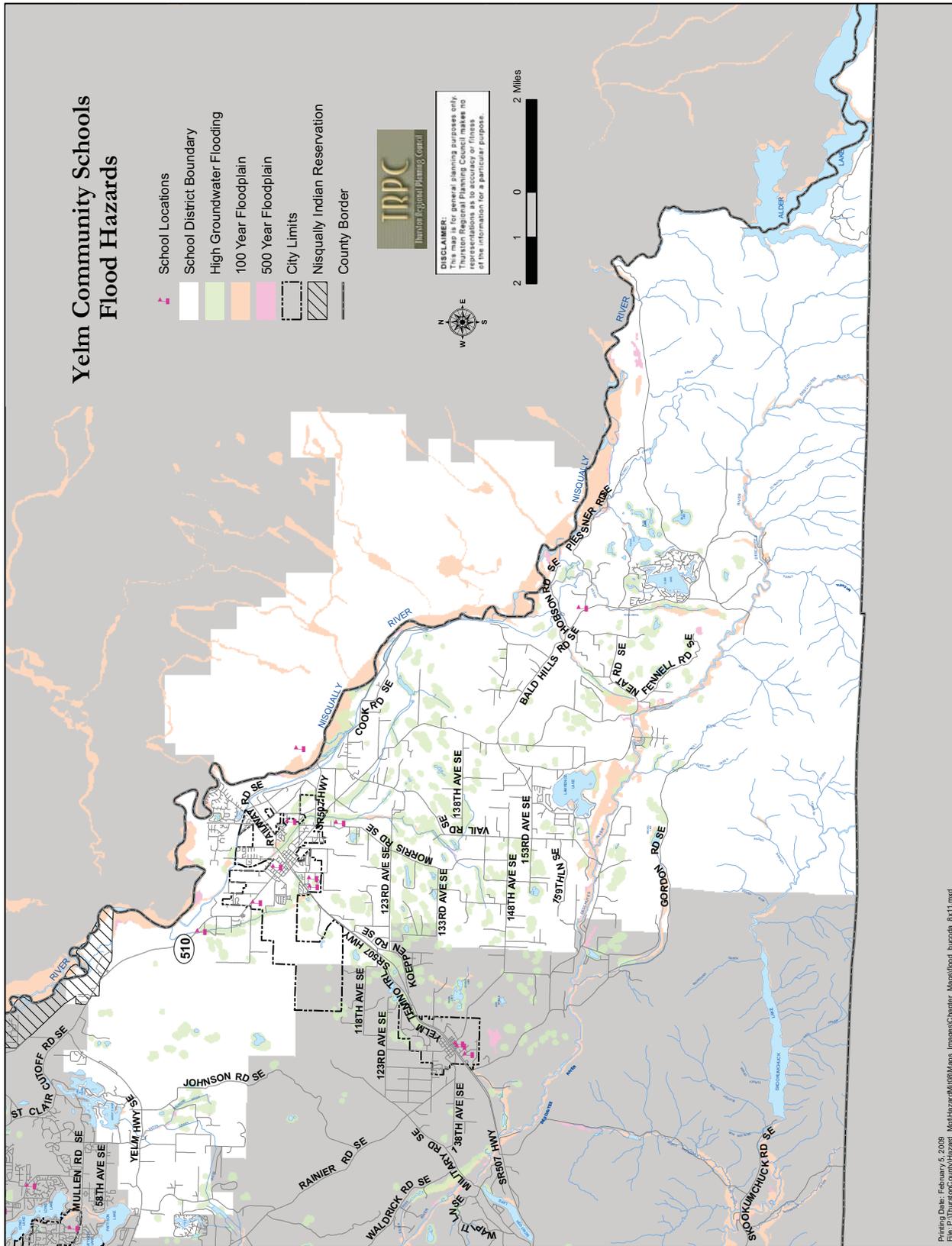
1980 eruption of Mt. St. Helens did not effect the district.

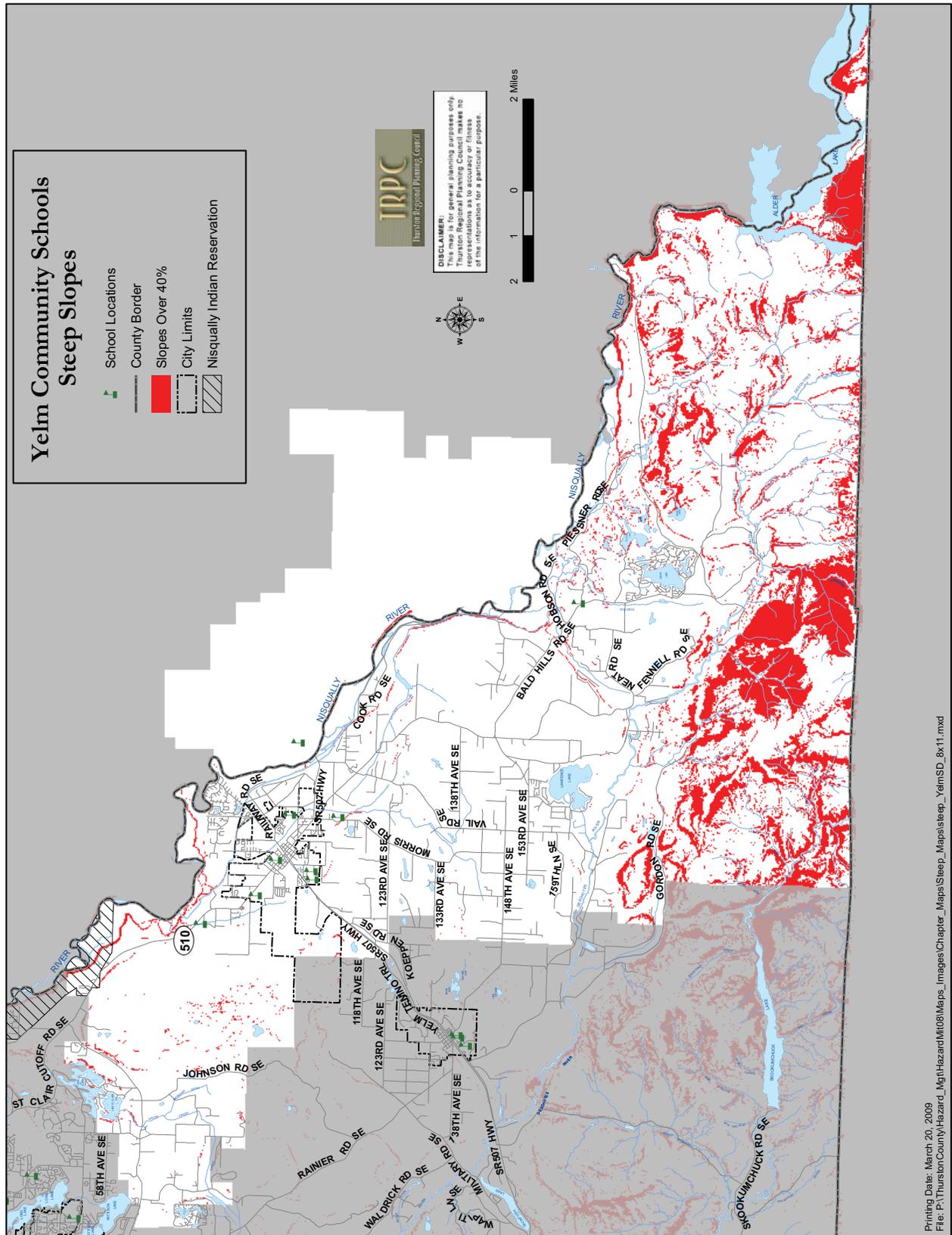
Summary Assessment

The potential for an eruption or a lahar that could effect the district exists and with Mt. St. Helens still active the probability is high.

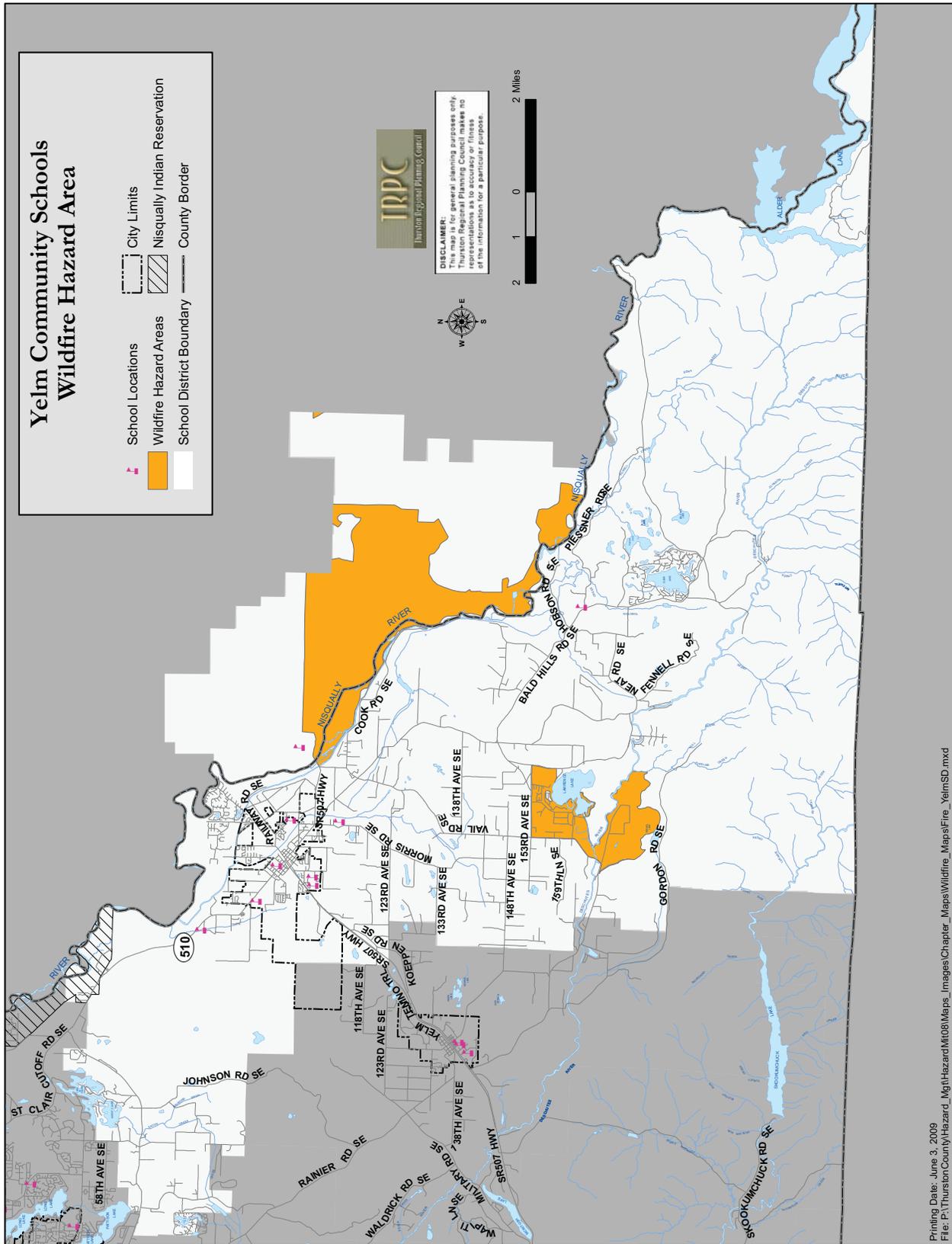
Summary Risk Assessment for Volcanic Events in Yelm Community Schools

Probability of Occurrence	Vulnerability	Risk
High	Low	Low

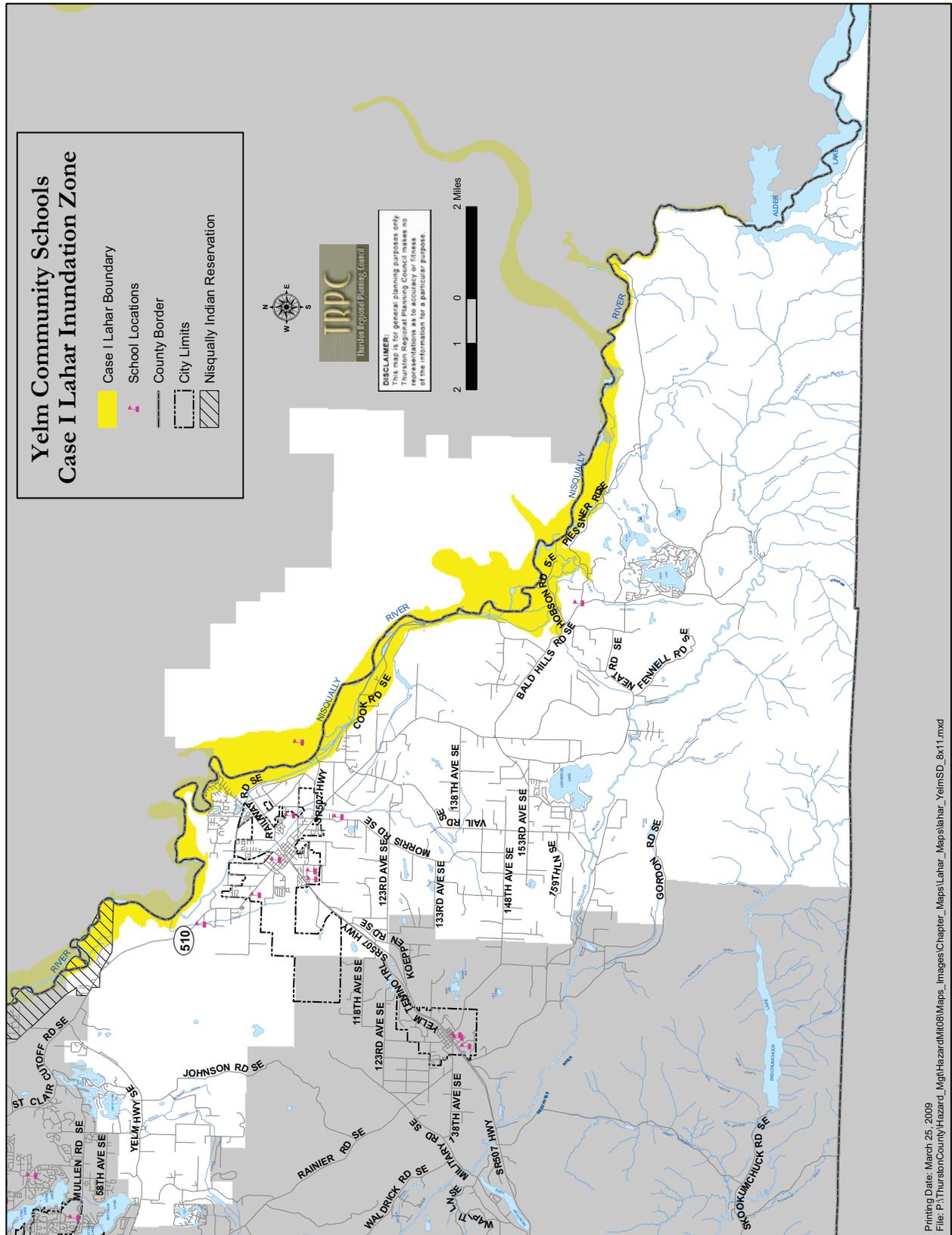




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Yelm Community Schools Mitigation Initiatives

Current Adopted Mitigation Initiatives

Current Mitigation Initiatives consist of actions that have not yet begun or require additional work. These initiatives were reviewed by Yelm Community Schools during the plan update process. These initiatives were carried over from the first hazard mitigation plan.

Priority	I.D. Number	Category	Action	Status
1 of 3	YCS-EH 1	Critical Facilities Replacement/Retrofit	Identify seismic requirements and bring buildings up to current adopted building codes at the time buildings are remodeled	Existing
2 of 3	YCS-MH 1	Plan Coordination and Implementation	Develop emergency preparedness policy and procedures to coordinate with local governments and integrate with the Capital Facilities Plan	Existing
2 of 3	YCS-MH 2	Plan Coordination and Implementation	Purchase computerized bus routing system and incorporate with emergency road closure policies	Existing

Hazard Category Codes are as follows: EH=Earthquake Hazard; FH=Flood Hazard; LH=Landslide Hazard; MH=Multi Hazard; SH=Storm Hazard; WH=Wildland Fire Hazard; and VH=Volcanic Hazard.

Priority: 1 of 3**Status: Existing****YCS-EH 1: Identify seismic requirements and bring buildings up to current adopted building codes at the time buildings are remodeled****Hazard Addressed: Earthquake Hazard****Category: Critical Facilities Replacement/Retrofit**

Rationale: The buildings within the school district are used for evacuation points and must be available and serviceable in the event of an emergency. Most of the district buildings have been updated and those remaining will be updated in future bond proposals.

Relates to Plan Goal(s) and Objectives: 3B**Implementer:** Yelm community Schools

Estimated Cost: Unknown. Costs will vary depending on construction required and material costs at time of bid.

Time Period: 2009-2015**Funding Source:** Future bond issue.

Source and Date: Capital Facilities Plan 2009 and Natural Hazards Mitigation Plan for the Thurston Region

Adopted Plan Number: YCS-EH-1**Reference Page:** Addendum 5-7

Initiative and Implementation Status: This initiative was previously ranked 1 of 3. McKenna, Yelm High School, Ridgeline Middle School and Lackamas were completed in 2008.

Priority: 2 of 3**Status: Existing****YCS-MH 1: Develop emergency preparedness policy and procedures to coordinate with local governments and integrate with the Capital Facilities Plan****Hazard Addressed: Multi Hazard****Category: Plan Coordination and Implementation****Rationale:** Adopt plans for reporting and responding to road closures. Agencies and companies include City of Yelm, Thurston County Sheriff and local timber companies whose private roadway systems can be used in emergencies.**Relates to Plan Goal(s) and Objectives:** 2B, 4D, 4E, 6A**Implementer:** Yelm community Schools**Estimated Cost:** \$20,000**Time Period:** 2009 to 2015**Funding Source:** Operating Budget**Source and Date:** Capital Facilities Plan 2009, Natural Hazards Mitigation Plan for the Thurston Region**Adopted Plan Number:** YCS-MH-1**Reference Page:** Addendum 5-9**Initiative and Implementation Status:** This initiative was previously ranked 2 of 3. Procedures are reviewed every school year and modified to include new issues as they arise.

Priority: 3 of 3**Status: Existing****YCS-MH 2: Purchase computerized bus routing system and incorporate with emergency road closure policies.****Hazard Addressed: Multi Hazard****Category: Plan Coordination and Implementation**

Rationale: Provide immediate location information on all busses and vehicles that transport students. This will provide data necessary to route busses away from areas in which an event has occurred.

Relates to Plan Goal(s) and Objectives: 2B, 4D, 4E, 6A**Implementer:** Yelm community Schools**Estimated Cost:** \$20,000**Time Period:** 2009 to 2015**Funding Source:** Operating Budget**Source and Date:** Capital Facilities Plan 2009, Natural Hazards Mitigation Plan for the Thurston Region**Adopted Plan Number:** YCS-MH-2**Reference Page:** Addendum 5-10

Initiative and Implementation Status: The software required for the transportation routing has been purchased. GPS tracking units will be purchased and installed as funds become available.