

## ***Edmonds School District***

The Edmonds School District is located and operates within unincorporated south Snohomish County and the borders of the Cities of Brier, Edmonds, Lynwood, Mountlake Terrace, and Woodway. The District has 36 (elementary, K-8, middle, and high) school sites, one Home School Resource Center, one administrative support building, one maintenance support complex (multiple buildings), one transportation support complex, one warehouse, and a sports stadium.

During the 2002-03 school year, the Edmonds School District employed over 2,100 employees while providing educational services for 22,000 students. This means that if a major disaster occurred during the school day, the Edmonds School District could be responsible for the welfare and safety of 24,000 people. In addition to caring for its employees and students, the School District would have to accommodate an influx of parents looking for their children. This influx of parents could increase the onsite headcounts by several thousand concerned adults, who themselves could become absorbed in the secondary effects of a disaster.

Although schools weren't designed to provide 24-hour student care during a major disaster, such as an earthquake or severe storm, the schools may be required to do just that, provide 24-hour care to their local communities. The District's resources may be overtaxed if it is required to provide emergency shelter for its community members.

The Edmonds School District provides its critical facilities list in ***Annex H***.



## Hazard Identification

Based on past experience and regional histories, Edmonds School District rates its risk of natural hazards as follows:

HAZARD		RATING (out of a possible 80)
Drought		14
Earthquake		40
Flood		
	100-year	20
	Urban	20
Landslide		30
Severe Storm		44
Tsunami & Seiche		05
Volcano		05
Wildland Urban Interface Fire		10

### Drought

Rating: 14

The School District's potable water is supplied by the local water districts and is relatively stable for short-term (one season) droughts. The School District cooperates with the cities and water districts in conservation measures as requested.

Drought is considered to be a *low-risk* hazard for the Edmonds School District.

### Earthquake

Rating: 40

The School District is located in Seismic Zone 3, between several fault lines. An earthquake in Zone 3 is considered to be a significant risk.

As discussed in this document's HIVA, earthquakes occur in Washington State on an almost daily basis. While most earthquakes are minor in force, many seismologists believe that we can expect a magnitude 7.0 deep- or intra-plate earthquake about every 70 years and an 8.0 or greater subduction earthquake every 150 to 1,100 years.

Based on this information, the Edmonds School District can expect significant damage, injuries, and possible deaths, if and when a major earthquake occurs in the region. However, due to the relative infrequency of major earthquake events, this risk is rated as *moderate*.

## **Flooding**

The Edmonds School District does not have any major rivers running next to its buildings. It does, however, have property with wetlands, detention ponds, and several streams and tributaries either on or near the district-owned property.

### **100-Year Flood**

Rating: 20

The risk for a 100-year flood is *moderately-low* based on the proximity of wetlands, detention ponds, and streams or tributaries, in relation to schools and other district-owned buildings.

### **Urban Flooding**

Rating: 20

Some schools are prone to urban flooding on a regular basis. This is due to excessive rainfall or snowmelt which overwhelms the stormwater system, wetlands, lake, and streams. Because this flooding is generally short-term in nature and does not usually include significant levels of water or rapid water movement, this is considered to be a *moderately-low* risk.

## **Landslide and Soil Displacement**

Rating: 30

The School District has several sites located near geologically hazardous areas comprised of steep slopes and unstable soils. These areas are made more vulnerable by the fact that the Edmonds School District is in Seismic Zone 3 and is therefore exposed to the possibility of earthquakes from several fault lines in the area. A large earthquake may destabilize and displace soil resulting in landslides.

Some areas of the School District are also made more vulnerable because of creeks. If the creeks flood, or even have an unusually high waterflow, the water may undercut or wash away sections of the creek banks. Heavy, saturating rains may also erode soil, wash away creek beds, and form sinkholes.

Landslide is considered to be a *moderate* risk.

## **Severe Storm**

Rating: 44

The Edmonds School District is in an area that is seasonally and on a regular basis, subjected to severe storms. Windstorms occur nearly every winter, while rainstorms may occur throughout the winter, spring and fall seasons. Although

infrequent, the lower elevations of the region have also experienced heavy snowstorms and freezing rainstorms.

Winds, snow, or ice regularly cause tree branches to break and/or trees to fall. This often results in power outages and damage to houses and business structures.

The Inaugural Day Storm in 1993 had wind speeds of up to 66 mph. This storm interrupted power to portions of the District for more than three days.

Due to the frequency of these types of events, this natural hazard has this highest risk rating. It is a *moderate risk* for the School District.

### **Tsunami and Seiche**

Rating: 05

Tsunami is one of the lowest rated hazards to affect Edmonds School District. The lack of risk from tsunami is due to the fact that schools and other district properties are not located on the oceanfront, and the region is protected by the landmasses in Puget Sound.

Seiche is an even less viable hazard, primarily because of the School District's distance from any lakes. As a result, these natural hazards are considered to be an *extremely low risk* for the School District.

### **Volcano**

Rating: 05

The Edmonds School District is highly unlikely to suffer direct damage from a volcano eruption. In the event of an eruption, the District may experience ashfall, which can interfere with the operation of motor vehicles, require expensive clean-up efforts, and cause respiratory distress to the students and teachers. The School District is highly unlikely to experience any lava flow, lahar activity, or any of the other risks associated with volcanoes.

Volcanic eruption is an *extremely low* risk for Edmonds School District.

### **Wildland-Urban Interface Fire**

Rating: 10

Wildland-urban interface fire is a concern to the Edmonds School District due to the parks, wetlands, greenbelts, and undeveloped land parcels that are near some of the schools. The threat is in reverse proportion to the amount of rainfall in the region. When rain is scarce, the fire threat increases.

During the summer of 2003, new records were set for the number of days without rain. As a result, the north King and south Snohomish Counties region experienced several fires that were caused by careless smokers, or sparks from machinery being operated next to dry grass. These fires were quickly contained and extinguished, but the close proximity of houses to these wildland areas, and the relative density of the housing units, makes wildland-urban interface fires a significant risk during periods of drought or excessive dryness.

During the summer of 2003, grass fires occurred on four school sites: College Place Middle, Madrona K-8, Old Woodway High, and Meadowdale High. The District sustained damage to approximately 75 feet of fencing on the Meadowdale High site.

The level of risk from wildland-urban interface fire is *very low*.

## **Mitigation**

### **Existing and Ongoing Mitigation Activities**

The Edmonds School District is taking the following actions in ongoing efforts to mitigate for natural hazards and to maintain public safety.

#### **All Hazards**

##### ***Codes***

New buildings are built in compliance with current code. Older buildings are upgraded and brought up to code as permitted by budgetary constraints.

##### ***Rapid Responder Program***

Eight District high and middle schools were selected to participate in the Snohomish County Rapid Responder pilot program. The District has created its own database for its 24 elementary schools not currently included in the Rapid Responder pilot program.

#### **Drought**

- Cooperate with Cities' water conservation requests and cooperate with regional drought education programs.

#### **Earthquake**

- Planning, Preparing, and Training:
  - Comprehensive Emergency Response and Recovery Plan (CERRP) and Procedures have been adopted and exercised at the local level with periodic earthquake drills.
  - Conducting staff and custodial training: ATC-20 Post-Earthquake Safety Evaluation of Buildings
  - Terrace Park School (Mountlake Terrace) hosted a condensed Community Emergency Response Teams (CERT) training for interested staff and parents. This group later participated in an urban search-and-rescue exercise with the local CERT Leadership Team on the school premises.
  - Madrona Elementary (Edmonds) conducted a search and rescue drill in coordination with ESCA and the CERT Leader teams in May 2004.
- A Comprehensive Seismic Deficiency Study was completed in March 2002. The results are evaluated and prioritized. Building needs and upgrades will be addressed as permitted by budgetary constraints and levy passage.
- Conducted a pilot seismic mitigation program at former Woodway High School and Alderwood Elementary School in 2002. Also installed roof

diaphragms at Sherwood and Hilltop schools during the re-roofing project in 2000.

**Flood**

- Build all new schools and support buildings to current code.

**Landslide**

- Build all new schools and support buildings to current code.

**Severe Storm**

- Work with Cities and utilities to minimize damage to power and telephone lines from trees.

**Tsunami and Seiche**

- None at this time.

**Volcano**

- None at this time.

**Wildland-Urban Interface Fire**

- School grounds maintenance to minimize dry grasses and undergrowth.
- Ban fireworks from school premises.

## **Mitigation Action Items**

The Mitigation Plan identifies short- and long-term action items developed through data collection, research, and the public participation process. Mitigation Plan activities may be considered for funding through federal and state grant programs and when other funds are made available through the school budgeting process or the passage of school capital bonds and/or levies.

Action items address multi-hazard (MH) and hazard-specific issues. To help ensure activity implementation, each action item includes information on the timeline and coordinating organizations. Upon implementation, the coordinating organizations may look to partner organizations for resources and technical assistance.

To help ensure activity implementation, each action item includes several pieces of information in the description. These include:

- *Coordinating Organization*  
The coordinating organization is that which is willing and able to organize resources, find appropriate funding, or oversee activity implementation, monitoring and evaluation. The coordinating organizations may be local or regional agencies. Organizations written in *italics* are not participating in this Plan but have an established relationship with this jurisdiction.
- *Timeline*  
Action items include both long- and short-term activities. Each action item includes an estimate of the timeline for implementation. *Short-term* action items (ST) are activities that organizations may implement with existing resources and authorities within one to two years. *Long-term* action items (LT) may require new or additional resources or authorities, and may take between two and five years to implement.
- *Ideas for Implementation*  
Each action item includes ideas for implementation. This may be individual steps for one project, or it may be several related projects that address the natural hazard.
- *Plan Goals Addressed*  
The plan goals are identified to monitor and evaluate how well the Mitigation Plan is achieving its goals once implementation begins.
- *Benefit-to-Cost Review*  
Due to limitations in staff time, and because project priorities may shift based on changes in funding options and local events, a generalized

benefit-to-cost review is used. The steps associated with prioritizing the mitigation projects are as follows:

1. The jurisdiction rates the project cost as “high,” “medium,” or “low” in relation to budget and previous projects, and each rating is assigned a numerical value.
2. The project outcome is then rated as “low,” “medium,” or “high,” and each of these ratings is assigned a numerical value.
3. The two values are added together, and the total provides the cost-benefit and the priority.

Example:

If a project has a *medium approximate cost*, and is considered to be *highly effective*, the boxes would be marked as shown below.

<u>Approx Cost</u>	<u>+</u>	<u>Effectiveness</u>	<u>=</u>	<u>Priority / Cost-to Benefit Review</u>
<input type="checkbox"/> 1 – High		<input type="checkbox"/> 1 – Low		<input type="checkbox"/> 2 – Lowest
<input checked="" type="checkbox"/> 2 – Medium		<input type="checkbox"/> 2 – Medium		<input type="checkbox"/> 3
<input type="checkbox"/> 3 – Low		<input checked="" type="checkbox"/> 3 – High		<input type="checkbox"/> 4
				<input checked="" type="checkbox"/> 5
				<input type="checkbox"/> 6 – Highest

The priority and cost-to-benefit review ratings with the highest numbers are considered to be the highest priorities. As always, however, these are subject to financial realities and may not be carried out in the exact order indicated.

**MULTI-HAZARD MITIGATION ITEMS (MH)**

**LT-01-MH-ES: Replace or upgrade obsolete or high-risk buildings to minimize threats from natural hazards. Develop and build schools and auxiliary school buildings to current building code to ensure safest environment possible.**

**Ideas for Implementation:**

- Maintain and update building inventory to identify buildings that are inadequate for safety and usage in the Edmonds School District.
- Develop and implement ongoing strategy to maintain, upgrade, or replace buildings to ensure safety of students, staff, and public.
- Ensure that new buildings are built to current standards and are located in a way that minimizes risk from flood, landslide, tsunami/seiche, and wildland-urban interface fires.

**Coordinating Organization:** Edmonds School District’s Planning, Property, Risk, Safety, Emergency & Custodial Services Department; Edmonds School Board; Bond Committee

**Estimated Price:** \$13,755,000

**Funding Source:** School Construction Bonds

**Timeline:** Approximately 4 to 10 years, and ongoing

**Plan Goals Addressed:** Protect Life and Property; Provide for Emergency Services; Facilitate Continuity and Recovery

**Benefit-to-Cost Review:** 4

<u>Approx Cost</u>	+	<u>Effectiveness</u>	=	<u>Priority / Cost-to Benefit Review</u>
<input checked="" type="checkbox"/> 1 – High		<input type="checkbox"/> 1 – Low		<input type="checkbox"/> 2 – Lowest
<input type="checkbox"/> 2 – Medium		<input type="checkbox"/> 2 – Medium		<input type="checkbox"/> 3
<input type="checkbox"/> 3 – Low		<input checked="" type="checkbox"/> 3 – High		<input checked="" type="checkbox"/> 4
				<input type="checkbox"/> 5
				<input type="checkbox"/> 6 – Highest

**DROUGHT MITIGATION ITEMS (D)**

**ST-01-D-ES: Educate staff, students and their families about the effects of drought and encourage conservation efforts.**

**Ideas for Implementation:**

- Work with Alderwood Water District to distribute information to staff, students, and families.
- Encourage the Science Department to develop and implement curriculum appropriate to Biology, Ecology, and/or other science classes.

**Coordinating Organization:** Edmonds School District Administration;  
Edmonds School District Science Department;  
Olympic View Water and Sewer District;  
*Alderwood Water District*

**Estimated Price:** To be determined (low to medium cost)

**Funding Source:** To be determined

**Timeline:** Ongoing

**Plan Goals Addressed:** Increase Public Awareness; Encourage Partnerships

**Benefit-to-Cost Review:** 3

---

<u>Approx Cost</u>	<u>+</u>	<u>Effectiveness</u>	<u>=</u>	<u>Priority / Cost-to Benefit Review</u>
<input type="checkbox"/> 1 – High		<input checked="" type="checkbox"/> 1 – Low		<input type="checkbox"/> 2 – Lowest
<input checked="" type="checkbox"/> 2 – Medium		<input type="checkbox"/> 2 – Medium		<input checked="" type="checkbox"/> 3
<input type="checkbox"/> 3 – Low		<input type="checkbox"/> 3 – High		<input type="checkbox"/> 4
				<input type="checkbox"/> 5
				<input type="checkbox"/> 6 – Highest

---

## EARTHQUAKE MITIGATION ACTIONS (E)

### **ST-02-E-ES: Conduct non-structural retrofit activities.**

#### **Ideas for Implementation:**

- Conduct annual school risk management/safety survey visits.
- Strap down TV's, heaters, and shelves.
- Modify shelving to minimize falling objects.
- Store heavy items on or near the floor.
- Conduct preventative maintenance inspections on equipment (e.g., HVAC equipment, freezers, etc.).
- Ensure all fire codes are followed.

**Coordinating Organization:** Edmonds School District Maintenance  
**Estimated Price:** \$5,000 (plus periodic continuing expenses)  
**Funding Source:** General Fund  
**Timeline:** Annual and ongoing  
**Plan Goals Addressed:** Protect Life and Property; Facilitate Continuity and Recovery  
**Benefit-to-Cost Review:** 6

Approx Cost	+	Effectiveness	=	Priority / Cost-to Benefit Review
<input type="checkbox"/> 1 – High		<input type="checkbox"/> 1 – Low		<input type="checkbox"/> 2 – Lowest
<input type="checkbox"/> 2 – Medium		<input type="checkbox"/> 2 – Medium		<input type="checkbox"/> 3
<input checked="" type="checkbox"/> 3 – Low		<input checked="" type="checkbox"/> 3 – High		<input type="checkbox"/> 4
				<input type="checkbox"/> 5
				<input checked="" type="checkbox"/> 6 – Highest

---

**FLOOD ACTION ITEMS (F)**

**ST-03-F-ES: Monitor and maintain drains during heavy rains and post-snowstorms.**

**Ideas for Implementation:**

- Visually inspect school drainage systems to ensure they remain free from clogs. Free blockage as necessary.
- Visually inspect storm drains located adjacent to school properties to ensure they remain free from clogs. Free blockage as necessary. Notify the appropriate City or County, as necessary.

**Coordinating Organization:** Edmonds School District Maintenance Department; Site Administration; Custodial Department  
**Estimated Price:** \$5,000  
**Funding Source:** General Fund  
**Timeline:** Annual and ongoing  
**Plan Goals Addressed:** Protect Life and Property; Facilitate Continuity and Recovery  
**Benefit-to-Cost Review:** 5

<u>Approx Cost</u>	<u>+</u>	<u>Effectiveness</u>	<u>=</u>	<u>Priority / Cost-to Benefit Review</u>
<input type="checkbox"/> 1 – High		<input type="checkbox"/> 1 – Low		<input type="checkbox"/> 2 – Lowest
<input type="checkbox"/> 2 – Medium		<input checked="" type="checkbox"/> 2 – Medium		<input type="checkbox"/> 3
<input checked="" type="checkbox"/> 3 – Low		<input type="checkbox"/> 3 – High		<input type="checkbox"/> 4
				<input checked="" type="checkbox"/> 5
				<input type="checkbox"/> 6 – Highest

---

**LANDSLIDE MITIGATION ACTIONS (L)**

**ST-04-L-ES: Monitor and stabilize slopes located on school properties.**

**Ideas for Implementation:**

- As part of annual school risk management/safety survey visits, inspect and evaluate slopes for erosion or slippage.
- Develop plan for slope stabilization as necessary.

**Coordinating Organization:** Edmonds School District Grounds Crew;  
*Consultants*  
**Estimated Price:** \$5,000 staff time + *Amount to be determined*  
**Funding Source:** General Fund  
**Timeline:** Annual and ongoing  
**Plan Goals Addressed:** Protect Life and Property; Facilitate Continuity and Recovery  
**Benefit-to-Cost Review:** 4

<u>Approx Cost</u>	<u>+</u>	<u>Effectiveness</u>	<u>=</u>	<u>Priority / Cost-to Benefit Review</u>
<input type="checkbox"/> 1 – High		<input checked="" type="checkbox"/> 1 – Low		<input type="checkbox"/> 2 – Lowest
<input type="checkbox"/> 2 – Medium		<input type="checkbox"/> 2 – Medium		<input type="checkbox"/> 3
<input checked="" type="checkbox"/> 3 – Low		<input type="checkbox"/> 3 – High		<input checked="" type="checkbox"/> 4
				<input type="checkbox"/> 5
				<input type="checkbox"/> 6 – Highest

---

## SEVERE STORM MITIGATION ITEMS (S)

### **ST-05-S-ES: Maintain trees to minimize potential damage.**

#### **Ideas for Implementation:**

- Inspect trees on school grounds and other properties for general health and viability. Remove trees that are diseased or considered a danger to life or property.
- Coordinate with utilities to trim and maintain trees as necessary to keep branches free from power lines.

**Coordinating Organization:** Edmonds School District Grounds Crew;  
*Snohomish County PUD; Verizon*

**Estimated Price:** \$5,000 (plus periodic continuing expenses)

**Funding Source:** General Fund

**Timeline:** Annual and ongoing

**Plan Goals Addressed:** Protect Life and Property; Facilitate Continuity and Recovery

**Benefit-to-Cost Review:** 4

Approx Cost	+	Effectiveness	=	Priority / Cost-to Benefit Review
<input type="checkbox"/> 1 – High		<input checked="" type="checkbox"/> 1 – Low		<input type="checkbox"/> 2 – Lowest
<input type="checkbox"/> 2 – Medium		<input type="checkbox"/> 2 – Medium		<input type="checkbox"/> 3
<input checked="" type="checkbox"/> 3 – Low		<input type="checkbox"/> 3 – High		<input checked="" type="checkbox"/> 4
				<input type="checkbox"/> 5
				<input type="checkbox"/> 6 – Highest

---

## TSUNAMI & SEICHE MITIGATION ACTIONS (T)

*Edmonds School District does not have any property that is in danger from tsunami or seiche. No school or auxiliary building is located near the coast or on any large body of water.*

*The Edmonds Elementary School is located about one mile east of the Puget Sound waterline. The City of Edmonds has rated the City's tsunami exposure as a low risk.*

**VOLCANO MITIGATION ACTIONS (V)**

**ST-06-V-ES: Develop and implement policy for maintaining stock of filters for key vehicles and pieces of equipment.**

**Ideas for implementation:**

- Identify key vehicles and equipment such as: back-up generators, HVAC systems, and other large or unusual equipment requiring filters.
- Establish policy and budget to maintain spare filters.

**Coordinating Organization:** Edmonds School Board; Edmonds School District’s Planning Property, Risk, Safety, Emergency & Custodial Services Department  
**Estimated Price:** To be determined (low costs)  
**Funding Source:** General Fund  
**Timeline:** 2 years  
**Plan Goals Addressed:** Protect Life & Property; Provide for Emergency Services; Facilitate Continuity and Recovery  
**Benefit-to-Cost Review:** 4

<u>Approx Cost</u>	<u>+</u>	<u>Effectiveness</u>	<u>=</u>	<u>Priority / Cost-to Benefit Review</u>
<input type="checkbox"/> 1 – High		<input checked="" type="checkbox"/> 1 – Low		<input type="checkbox"/> 2 – Lowest
<input type="checkbox"/> 2 – Medium		<input type="checkbox"/> 2 – Medium		<input type="checkbox"/> 3
<input checked="" type="checkbox"/> 3 – Low		<input type="checkbox"/> 3 – High		<input checked="" type="checkbox"/> 4
				<input type="checkbox"/> 5
				<input type="checkbox"/> 6 – Highest

---

**WILDLAND-URBAN INTERFACE FIRE MITIGATION ACTIONS (W)**

**ST-07-W-ES: Develop and implement fire-resistant policies.**

**Ideas for implementation:**

- Work with local fire departments to develop and deliver fire-education programs to students and staff.
- Develop a list of drought-resistant plants and use these plants to the greatest extent possible in landscaping or redeveloping planting beds.
- Minimize potential fuels by mowing grass and thinning shrubbery.
- Ban the use of fireworks or cigarettes on school property.

**Coordinating Organization:** Edmonds School District’s Planning, Property, Risk, Safety, Emergency & Custodial Services Department

**Estimated Price:** To be determined (low cost)

**Funding Source:** General fund

**Timeline:** 5 years

**Plan Goals Addressed:** Protect Life & Property; Provide for Emergency Services; Facilitate Continuity and Recovery

**Benefit-to-Cost Review:** 4

<u>Approx Cost</u>	<u>+</u>	<u>Effectiveness</u>	<u>=</u>	<u>Priority / Cost-to Benefit Review</u>
<input type="checkbox"/> 1 – High		<input checked="" type="checkbox"/> 1 – Low		<input type="checkbox"/> 2 – Lowest
<input type="checkbox"/> 2 – Medium		<input type="checkbox"/> 2 – Medium		<input type="checkbox"/> 3
<input checked="" type="checkbox"/> 3 – Low		<input type="checkbox"/> 3 – High		<input checked="" type="checkbox"/> 4
				<input type="checkbox"/> 5
				<input type="checkbox"/> 6 – Highest