

CITY OF LYNNWOOD

RESOLUTION 2011 – 03

A RESOLUTION OF THE CITY OF LYNNWOOD, WASHINGTON, ADOPTING THE NORTH KING AND SOUTH SNOHOMISH COUNTIES REGIONAL MITIGATION PLAN UPDATE AS DEVELOPED THROUGH THE EMERGENCY SERVICES COORDINATING AGENCY AND IN COOPERATION WITH A TOTAL OF FOURTEEN CITIES TOWNS AND SPECIAL PURPOSE DISTRICTS.

WHEREAS, the Federal Emergency Management Agency requires each local jurisdiction to adopt and have in place a Mitigation Plan in order to minimize loss of life, and recurring property damage; and

WHEREAS, the Federal Emergency Management Agency has indicated that future mitigation grant monies will not be made available to jurisdictions without a current and adopted Mitigation Plan; and

WHEREAS, mitigation planning is a logical and reasonable step in public safety as well as emergency management, response, and recovery; and

WHEREAS, the City of Lynnwood recognizes the benefit and necessity of mitigation as well as regional planning and cooperation; and

WHEREAS, the Emergency Services Coordinating Agency developed and coordinated a Regional Plan in 2004 involving the Cities of Kenmore, Brier, Edmonds, Lynnwood, Mill Creek, Mountlake Terrace, and Woodway; and the Edmonds School District, Olympic View Water and Sewer District, and the Port of Edmonds; and

WHEREAS, the Emergency Services Coordinating Agency updated and coordinated a Regional Plan in 2010 involving the original jurisdictions from 2004, plus the addition of the Cities of Lake Forest Park, Mukilteo, and Woodway and Edmonds Community College; and

WHEREAS, this plan maintains consistency with existing emergency response plans, promotes regional cooperation, and meets the Federal Emergency Management Agency's requirements; and

WHEREAS, this Regional Mitigation Plan is made up of both regional and localized, jurisdiction-specific information; and

WHEREAS the City of Lynnwood is a member of the Emergency Services Coordinating Agency; and

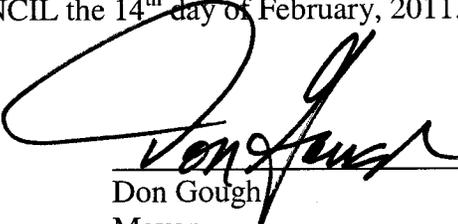
WHEREAS, updates to the North King and South Snohomish Counties Regional Mitigation Plan are conducted on a five-year cycle and therefore, the Regional Plan is due for update; and

WHEREAS, the City of Lynnwood is responsible only for funding and implementing those projects as funds are available and as specified under the Section III entitled, the City of Lynnwood; now, therefore

THE CITY COUNCIL OF THE CITY OF LYNNWOOD DOES HEREBY RESOLVE AS FOLLOWS:

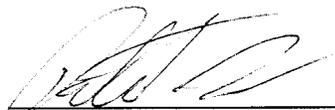
Section 1: The Lynnwood City Council does hereby adopt the North King and South Snohomish Counties Regional Mitigation Plan Update.

PASSED BY THE CITY COUNCIL the 14th day of February, 2011.



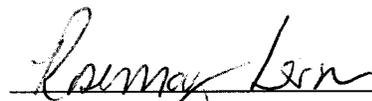
Don Gough
Mayor

ATTEST/AUTHENTICATE:



Patrick Dugan
Interim Finance Director

APPROVED AS TO FORM:



Rosemary Larson
City Attorney

PASSED BY THE CITY COUNCIL: 2-14-11
RESOLUTION NUMBER: 2011-03

Lynnwood

The City of Lynnwood is located in the southwest corner of Snohomish County, at the intersection of the I-5 and I-405 freeways. The City consists of approximately 7.7 square miles (4,943 acres) of land and is home to 35,680¹ people living in more than 14,000 housing units. (See maps, page III-164 and page III-200.)

While many of Lynnwood's residents work outside the City, Lynnwood businesses and organizations provide jobs for more than 24,000² people in the region. Retail makes up approximately 38%³ of these positions.

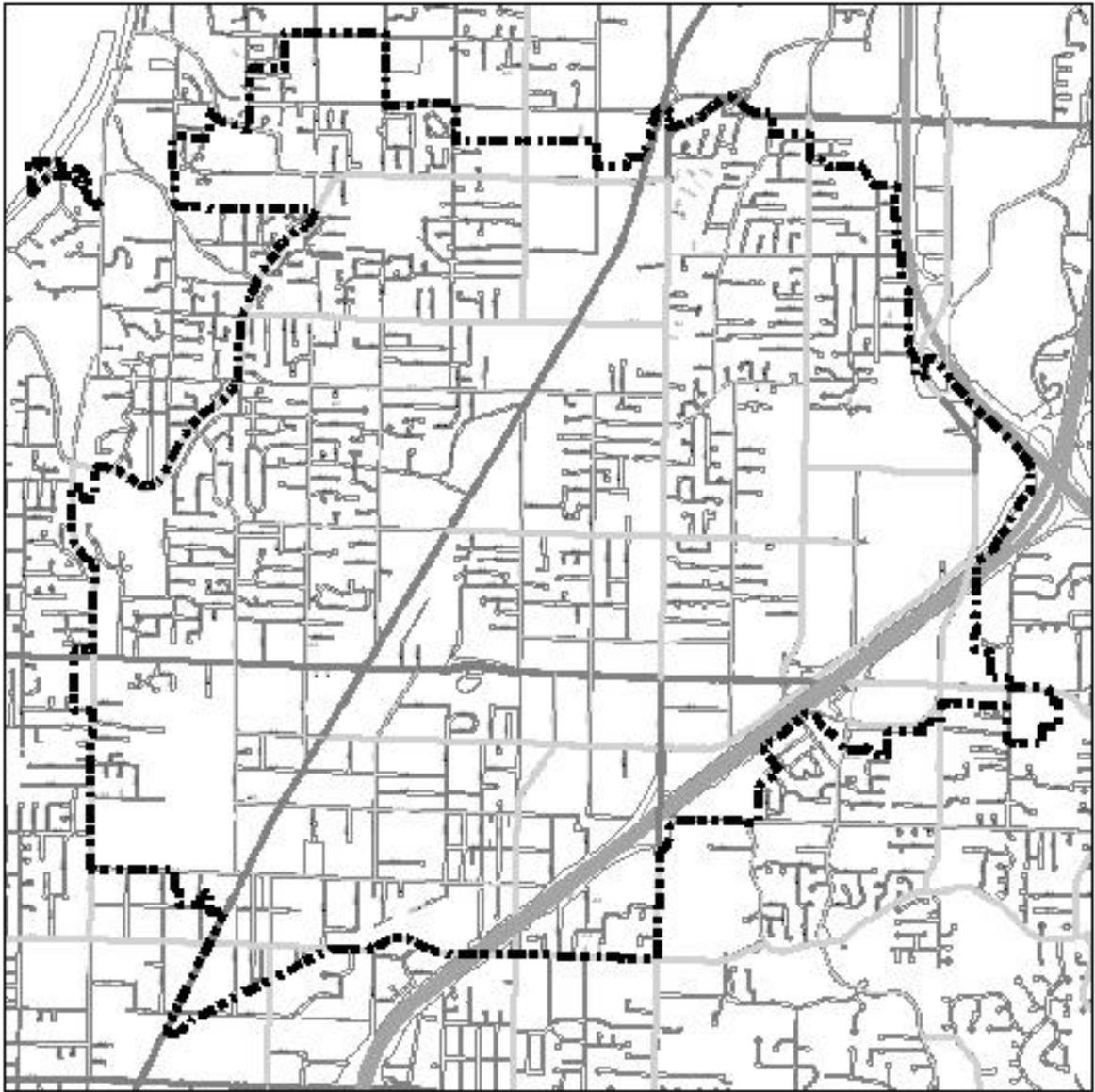
The major employers within the City include: Edmonds School District, Edmonds Community College, the City of Lynnwood (government), Nordstrom, Macy's, J.C. Penney, Cobalt, Fred Meyer and Cypress Semiconductor.

Lynnwood incorporated in 1959 and is now a mature city with only about 5.2% of its land remaining undeveloped.⁴ The City has supported regional growth management objectives by providing an abundance of housing choices and by planning for future growth and increased population densities. Lynnwood is continuing to plan within its Subregional Center and adopted a City Center Plan that includes a greater diversity and mix of land uses, including high density housing opportunities within a pedestrian-friendly environment and multiple transportation options.

Lynnwood's terrain is characterized by gently rolling hills and valleys. The City is extensively developed and has very few remaining "natural" or forested areas. A significant percentage of the City's land area is covered with buildings, asphalt, and other impervious surfaces. The large amount of commercial, office and multiple-family development raises Lynnwood's proportion of impervious surface to a level higher than would normally be found in a community with less business development and mostly single-family homes.⁵

The City of Lynnwood's critical structures are identified in **Annex E**.

Map 1: Boundaries, City of Lynnwood



Hazard Identification

Based on past experience, the City of Lynnwood rates its risk of natural hazards as follows:

| HAZARD | RATING (out of 80 possible) |
|-------------------------------|---------------------------------------|
| Drought | 32 |
| Earthquake | 39 |
| Flood | |
| 100-year | 20 |
| Urban | 20 |
| Landslide | 20 |
| Severe Storm | 28 |
| Tsunami & Seiche | 05 |
| Volcano | 16 |
| Wildland Urban Interface Fire | 05 |

Drought

Rating: 32

Drought is not considered to be a high-risk hazard for the City of Lynnwood. The City's potable water is supplied by Alderwood Water District and is relatively stable for short-term (one season) droughts. Citizens may be asked to take conservation measures and limit lawn watering, but the City will still receive adequate potable water for its needs.

At greater risk are the streams running through Lynnwood. Even a short-term drought is likely to reduce water levels in the City's streams. Reduced water levels lead to higher water temperatures which, in turn, may make the streams uninhabitable for salmon and other aquatic organisms downstream. With several species of salmon listed as "endangered" or "threatened," this could delay recovery efforts.

The City regards drought as a MODERATE threat.

Earthquake

Rating: 39

Lynnwood is located in Seismic Zone 3, between several fault lines. An earthquake is therefore considered to be a significant risk for the City.

As discussed in this document's HIVA, earthquakes occur in Washington State on an almost daily basis. While most quakes are minor, seismologists tell us that we can expect a 7.0 magnitude deep or intraplate earthquake

about every 70 years and an 8.0 or greater subduction quake every 150 to 1,100 years.

Based on this information, when a major earthquake occurs in the region, the City can expect significant damage, injuries, and possibly deaths. This is due in part to the relatively dense concentration of both buildings and people in less than eight square miles.

Lynnwood has many small shopping centers and strip-malls that are gathering points for significant populations at any given time. Alderwood Mall is a major shopping center and another significant gathering point. If a major earthquake was to occur during a major event or shopping season, it is possible that several thousand victims could be found in the Alderwood Mall and other smaller shopping centers scattered throughout the City.

It should be noted here that, while Lynnwood has a population of 35,680 citizens, a large percentage of residents of surrounding cities also shop in Lynnwood. In addition, the Mall draws people from as far away as Vancouver, B.C. This significantly expands the number of people that Lynnwood would need to take into consideration during a natural disaster.

Another concern is the fact that Interstate-5 (I-5) runs north and south through the City and has multiple on- and off-ramps and overpasses. If a piece of this infrastructure collapses, it could block or limit access to key transportation corridors. Such a collapse would push large volumes of traffic onto local streets, resulting in massive congestion and possible delay of emergency vehicles and other services that would be needed in a disaster situation.

During the 2001 Nisqually Earthquake, Lynnwood did not experience any significant damage. This was due to a combination of factors including the distance away from the epicenter, the direction the shockwave traveled, and relatively short length of time the ground actually shook. The fact that most of Lynnwood's buildings are relatively new (less than 40 years old), are mostly woodframe construction, not more than two stories high also played a part in how well the City rode out the earthquake. A different combination of factors could lead to very different levels of damage.

The City of Lynnwood rates the risk from earthquake as MODERATE.

Flood

Rating: 20

The City of Lynnwood has limited exposure for flood hazard. The City contains very little property in the 100-year floodplain. It has more regular, though limited, urban flooding events.

Lynnwood has 18 major drainage areas which feed the following small creeks and ponds within the City of Lynnwood or its vicinity.

- Hall Lake
- Scriber Lake
- Golde Creek
- Hall Creek
- Poplar Creek
- Scriber Creek
- Hall Lake Watershed
- Lund's Gulch Watershed
- Scriber Creek Watershed
- Swamp Creek Watershed

The City of Lynnwood has been a participant in the National Flood Insurance Program (NFIP) since 1985. The Public Works Department maintains paper copy of the Flood Insurance Rate Map (FIRM); and the Public Works Director is designated as the NFIP Coordinator.

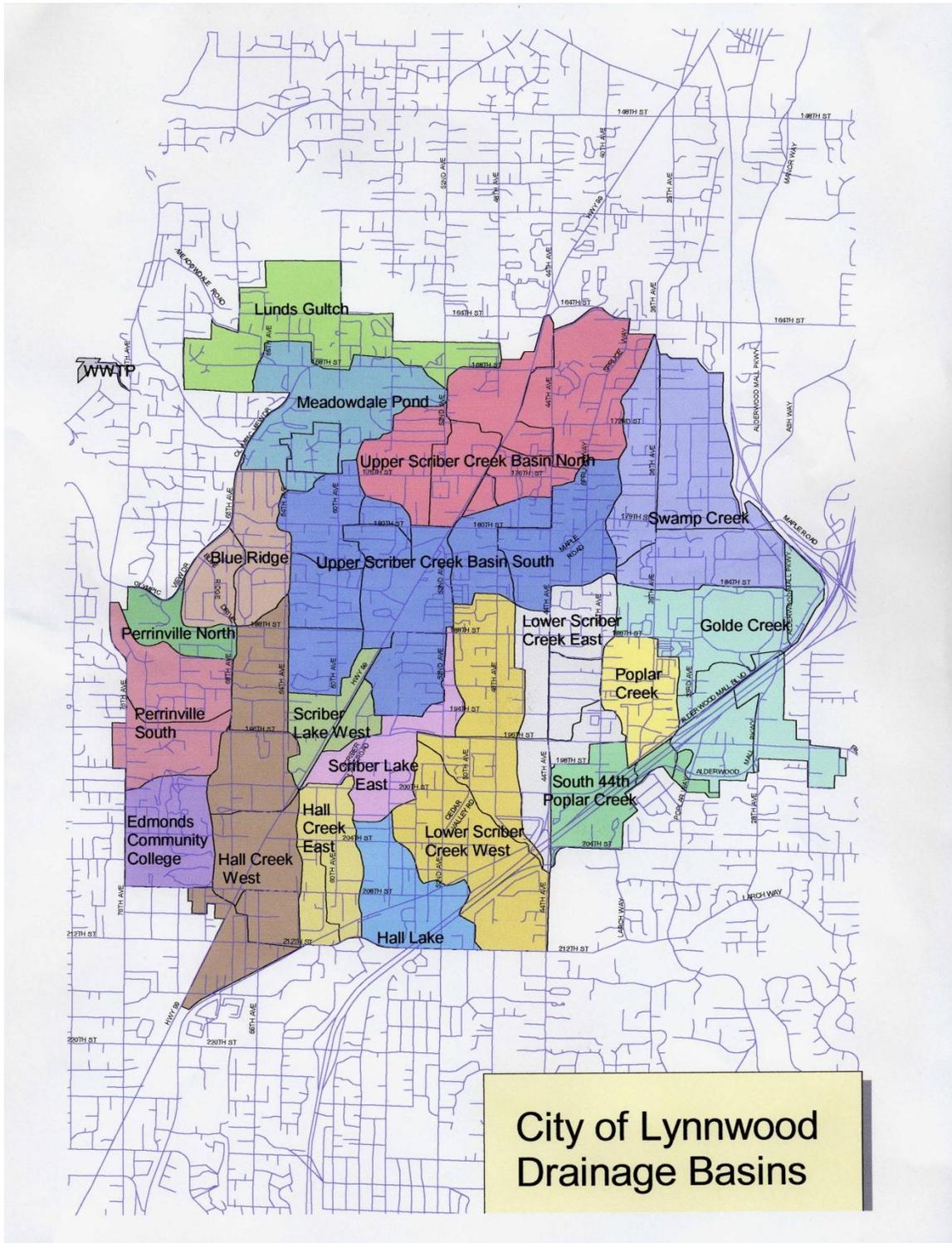
The City utilizes a variety of tools and documents to minimize any potential repetitive flood losses. These include maintaining and enforcing:

- Current building codes
- Lynnwood Comprehensive Plan
- Sensitive Areas Ordinance
- Comprehensive Flood and Drainage Management Plan

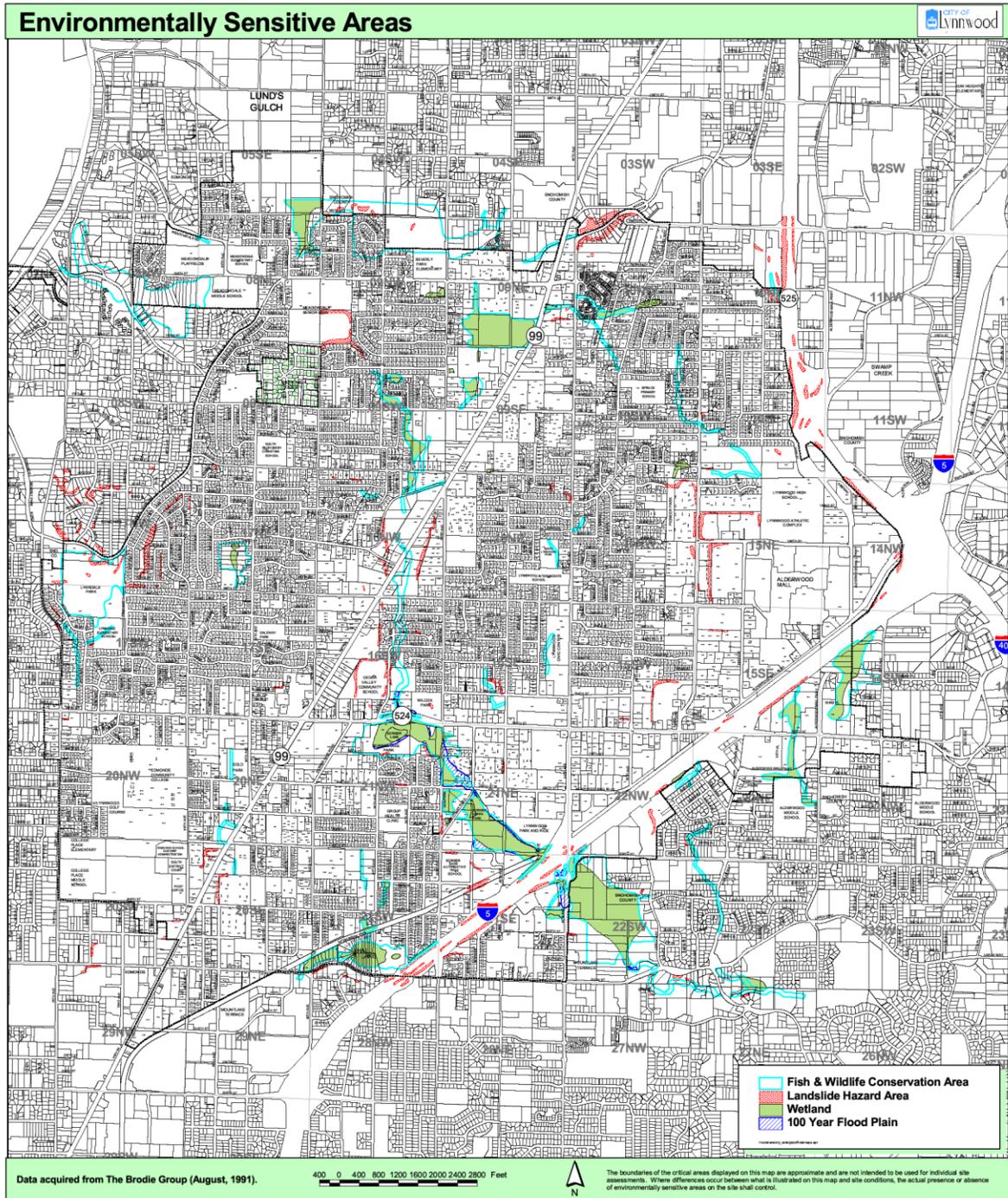
There are no repetitive loss properties (RLP) within the City limits and the City of Lynnwood is in good standing with the NFIP with no findings. In addition, the City participates in FEMA's Community Rating System (CRS).

*For more complete information on the City's NFIP standings, please see **Section VI, Addendum E.***

Map 2: Lynnwood Water Basin Map



Map 3: Map of Environmentally Sensitive Areas



100-Year

The City of Lynnwood has 17 lots encompassing about 48.5 acres that lie within the 100-year floodplain. These lots have a combined assessed value of approximately \$13,567,000.

The City has worked to minimize damage and repetitive losses to these properties through zoning restrictions and building code enforcement. Properties have been purchased and zoned for Parks and Recreation, and the Comprehensive Plan provides appropriate setbacks and building restrictions in accordance with the current “best science” standards.

Urban

Lynnwood has a higher-than-average amount of impervious surface within the City limits. This is due to the large number of commercial and multiple-family developments that exist within the City, including the Alderwood Mall, Edmonds Community College, and the Lynnwood Park-n-Ride. Such large areas of impervious surface tend to increase the amount of run-off and can result in regular urban flooding events as the remaining pervious land attempts to absorb heavy rains and snow-melt.

In December 2007 over 4 inches of rain fell in the greater Seattle area within a 24-hour period. However, the usual Snohomish County flooding event where the county’s riverbanks are breached did not occur as the rivers were contained within their banks. Instead, the urban areas in the south part of the county took the brunt of the damage and experienced urban flooding.

While the pictures of individual properties are dramatic, the reality is still that these situations are unusual for the City and very limited in scope. Wide-spread damage from flooding is not expected from past experience or from any projections into the future.

Overall, the risk from flood is rated LOW.

Photograph 1:



Source: City of Lynnwood Public Works

Photograph 2: Intersection at 216th and 66th Avenue



Source: City of Lynnwood Public Works

Photograph 2: Intersection under I-5; Maple and Ash Way



Source: City of Lynnwood Public Works

Landslide

Rating: 20

The City of Lynnwood is located in the Puget Lowlands, which generally are characterized by glacial soils on steep slopes. Glacial soils are prone to debris flows and shallow landslides. Lynnwood, however, contains few landslide hazard areas. Most areas of concern are located adjacent to Lund's Gulch.

Planning to reduce landslide hazards involves the identification of hazardous slopes and an assessment of future hazards. Much of that work has already been done and mapped. Further, the City's Sensitive Areas Ordinance, which was updated in 2005, regulates development in these areas and requires building setbacks from steep slopes.⁶

Some areas of the city 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 cause soil erosion, wash creek banks away, and cause sinkholes.

Lynnwood rates the landslide risk as LOW.

Severe Storm

Rating: 28

Lynnwood is subjected to severe storms on a regular basis. Windstorms occur nearly every winter, and rainstorms are not unusual. On rare occasions, the City has also experienced heavy snows and freezing rains.

In many storm events, secondary issues affect the City and surrounding jurisdictions. Winds and snow or ice regularly cause tree branches to break and/or trees to fall. This may cause power outages or damage buildings. Heavy rains or freezing/thawing cycles may bring about localized or urban flooding. Several examples of storms are provided below:

- The Inaugural Day Storm in 1993 had winds of 66 mph. This storm interrupted power to the City for more than three days. Branches and trees were downed and laid across streets, roads, and yards. Roofs were damaged from a combination of branches and the wind itself.
- On October 28, 2003, Lynnwood experienced high winds that downed several trees in and around the City's parks. This occurred after heavy rainfall had flooded a large portion of the State over several days. Though the north King and south Snohomish Counties area didn't experience significant flooding, the soil saturation certainly assisted the windstorm in uprooting trees in the area.
- The most recent event occurred on December 4, 2007 and resulted in urban flooding. Numerous intersections were flooded in the area around Scriber Lake and some were impassable for as much as two days while the water was absorbed by the lake, wetlands and stormwater systems. (See the "Flood" section of this document for a more comprehensive discussion of this event.)

Lynnwood rates the hazard from severe storm as MODERATE.

Photograph 4: Lynndale Park Tennis Courts



Source: City of Lynnwood Public Works

Photograph 5: Lynndale Park General Area



Source: City of Lynnwood Public Works

Tsunami & Seiche

Rating: 5

The City of Lynnwood has very little risk of damage or destruction from either tsunami or seiche. This is because most of Lynnwood is not located on Puget Sound and does not have any large lakes within its borders.

The City's waste water and sewage treatment facility located on Puget Sound in a small ravine. Although the existing railroad along the shoreline provides a partial barrier, it is possible that a seiche or tsunami in Puget Sound could damage or destroy this important public facility.

The risk to Lynnwood from tsunami or seiche is considered to be **EXTREMELY LOW.**

Volcano

Rating: 16

The City of Lynnwood is unlikely to suffer direct damage from a volcano eruption. However, in the event of a nearby eruption, Lynnwood may experience ashfall which could interfere with the operation of motor vehicles, require expensive clean-up efforts by the City, and cause respiratory distress to citizens. The City is highly unlikely to experience any lava flow, lahar activity, or any of the other risks associated with volcanoes.

A secondary effect of a volcano eruption is the influx of refugees into the area. This may be an issue to the City, and the region as a whole, as resources are overwhelmed by numbers of people that the infrastructure is not designed to handle. This includes everything from roads and highways, water and electric utilities, to the regional hospital and shelter facilities.

Lynnwood's risk from a volcanic eruption is LOW.

Wildland-Urban Interface Fire

Rating: 5

Wildland-urban interface fire is a concern to Lynnwood due to the parks, wetlands, greenbelts, and undeveloped land parcels scattered throughout the City. 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 number of days without rain. As a result, the City of Lynnwood and the north King and south Snohomish Counties region experienced several fires next to the freeway (I-5) 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.

The City of Lynnwood considers this risk to be EXTREMELY LOW.

Mitigation

Existing and Ongoing Mitigation Activities

The City of Lynnwood is taking the following actions in ongoing efforts to mitigate for natural hazards and to maintain public safety.

All Hazards

The City of Lynnwood is a member of the Emergency Services Coordinating Agency (ESCA) and receives emergency management planning and response services through this regional agency.

As part of the preparation and mitigation services, ESCA provides education in the form of Community Emergency Response Team (CERT) training. This training is provided to the citizens of the member Cities and Towns. The goal is to prepare people to be self-sufficient for as much as three days after a major disaster until safety personnel can get to them.

As identified in the 2004 Mitigation Plan, the City of Lynnwood completed the following all-hazards mitigation activities:

- Scriber Lake Rd. at 198th Street: Replaced inlet pipes with catch basins and install larger capacity pipes.
- Scriber Creek at 44th Avenue: Reviewed design options and corrected a problem of an undersized culvert under 44th Avenue.
- Updated the Stormwater Comprehensive Plan.
- Updated Sewer Comprehensive Plan for 2006-2012.

Codes

Table 1: Lynnwood City Codes

| Name of Document | Purpose | Review Schedule* |
|---|---|--|
| State Environmental Policy Act – City Environmental Policy (SEPA) | Implement procedures and policies to improve and coordinate plans, functions, programs, and resources consistent with state and county policies for environmental protection. | Revised 2002 Revision in progress |
| Sensitive Areas Ordinance | Protect the public from damages from landslides, subsidence erosion and flooding. | Adopted 2005 |
| Comprehensive Flood and Drainage Management Plan | Minimize adverse effects of alterations in groundwater quantities, locations, and flow patterns. | Adopted 1998 |
| International Building Code | Construct to the highest standards available. | 2006 Edition with Local and State Amendments |
| International Residential Code | Construct to the highest standards available. | 2006 Edition with Local and State Amendments |
| International Fire Code | Construct to the highest standards available. | 2006 Edition with Local and State Amendments |
| International Mechanical Code | Construct to the highest standards available. | 2006 Edition with Local and State Amendments |
| Uniform Plumbing Code | Construct to the highest standards available. | 2006 Edition with Local and State Amendments |
| National Electric Code | Construct to the highest standards available. | 2005 Edition with Local and State Amendments |
| NFPA 96 for Type I Hood and Duct Systems | Construct to the highest standards available. | 2008 Edition |
| 2006 Washington State Energy Code | To use construction techniques and materials that conserve energy. | Adopted 1998 To be updated in 2004 |
| 2006 Washington State Ventilation and Indoor Air Quality Code | Construct to the highest standards available. | Adopted 1998 To be updated in 2004 |
| Uniform Housing Code | To protect life and safety in the construction of housing. | 1997 Edition |
| Uniform Code for Abatement of Dangerous Buildings with Local Amendments | To protect life and safety. | 1997 Edition |
| Lynnwood Comprehensive Plan | Contains community's vision of the City's future, provides a statement of long-range goals and policies. | Adopted 1995. Updated annually through 2007. |
| Lynnwood Municipal Code, Chapter 21.12 – Non-Conforming Uses and Structures | Regulates the repair or reconstruction of buildings damaged by natural disasters. | Adopted 1994 |
| National Flood Insurance Program | To protect life and safety from flooding hazards. | Adopted June 5, 1985 |
| Community Assistance Visit (NFIP) | | Completed 1995. Closed 1999. No significant findings |

Drought

- Encourage water conservation. The City provides several hundred conservation kits to citizens free of charge each summer. These kits include low-volume shower heads, toilet tank “balloons,” hose nozzles, rain/watering gauges, and information booklets on how to conserve water.
- In 2008, the City of Lynnwood implemented a rebate program for low-volume toilets and water efficient clothes washers.
- The City of Lynnwood is evaluating its current and future needs for water on a regular basis. The City has a Water System Comprehensive Plan (2000) that includes an evaluation of the existing water system, incorporates anticipated growth, and presents a plan for water system improvements. This is consistent with rules and regulations for public water systems from the State Board of Health.⁷

Earthquake

- The City of Lynnwood is participating in Project Impact, a regional seismic structural retrofit program for upgrading residences to resist damage from earthquakes.

Flood

- Lynnwood uses “best available science” and has adopted policies and codes to protect, maintain, and improve wetlands. The Sensitive Areas Ordinance sets standard buffer widths for wetlands.
- The Swamp Creek Regional Stormwater Facility, at the junction of I-5 and I-405, is about a 100-acre facility that was constructed with Snohomish County and provides flood attenuation for Swamp Creek.
- The North Scriber Regional Pond, located on 18 acres just west of SR-99 at 170th Street SW, provides regional stormwater detention in the Scriber Creek Basin.

Landslide

- Lynnwood has identified and mapped hazardous slopes and completed assessments for future hazards.
- The City’s Sensitive Areas Ordinance regulates development in steeply-sloped areas and requires setbacks from steep slopes. Site-specific buffers can be established on less hazardous sites to separate out the buildable lands. The type and extent of a buffer can be determined by geotechnical analysis, which measures the type and speed of the landslide, and the distance of the deposition of material (CTED, 1999).⁸
- Updated the Sensitive Areas Ordinance in 2005.

Severe Storm

- Work with 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

- Maintain right-of-way to minimize dry grasses and undergrowth.

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 budgeting process or the passage of bonds.

Action items address multi-hazard (MH) or hazard-specific issues. 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 and prioritization process 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>Effectiveness=</u> | <u>Priority / Benefit-to-Cost 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/benefit-to-cost 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 Actions (MH)

LW-01-MH-ST: Update sewer, water and stormwater planning documents.

Ideas for implementation:

- Conduct a wastewater collection system study.
- Incorporate study results into the respective long-range plans.
- Cross-reference approved plans in the City’s budget, CFP and other internal documents.

Coordinating Organization: Lynnwood Public Works; Lynnwood Administration

Estimated Price: \$145,000 – Sewer Plan

Funding Source: Utility Fund

Timeline: 5 years

Plan Goals Addressed: Protect Life and Safety; Provide for Emergency & Critical Services; Facilitate Continuity & Recovery; Protect Natural Systems

Benefit-to Cost Review: 4

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

LW-02-MH-LT: Protect life and property from storm impacts by making needed improvements to the stormwater and sewer systems that will minimize inflow, leakage and potential soil erosion.

Ideas for implementation:

- Use wet and dry weather flow monitoring and television (camera) inspections to identify problems and prioritize repairs to the City’s stormwater and sewer systems.
- Incorporate identified projects into future repair and replacement schedules.

Coordinating Organization: Lynnwood Public Works
Estimated Price: \$1,400,000
Funding Source: Utility Fund
Timeline: Six years: 2007-2012
Plan Goals Addressed: Protect Life and Property; Facilitate Continuity & Recovery
Benefit-to Cost Review: 3

| <u>Approx Cost</u> | <u>+</u> | <u>Effectiveness</u> | <u>=</u> | <u>Priority / Benefit-to-Cost Review</u> |
|--|----------|--|----------|--|
| <input checked="" 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 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 |

LW-03-MH-LT: Reduce disaster-related impacts on the sewer system by correcting problems and upgrading lines to handle current and future demands.

Ideas for implementation:

- A. 76th Street: Replace existing 24” diameter concrete pipe with 24” HDPE pipe.
- B. 202nd Street: Replace 900 ft. sewer collection main with an 8” pipe.
- C. New Sewer Lift Station: Scriber Creek corridor to relieve PS 10.

Coordinating Organization: Lynnwood Public Works
Estimated Price: A: \$ 575,000 (2009)
 B: \$ 175,000 (2010)
 C: \$4,867,000 (2010)
Funding Source: Utility Fund
Timeline: Six years: 2007-2012
Plan Goals Addressed: Protect Life and Property; Provide for Emergency & Critical Services; Facilitate Continuity & Recovery
Benefit-to Cost Review: 4

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

LW-04-MH-LT: Establish a long-range cycle for repair and replacement of water lines throughout the city to ensure continuity of service, including adequate fire flows and delivery of potable water.

Ideas for implementation:

- Based on a citywide survey of water utilities, establish and prioritize a system for the ongoing repair and replacement of water mains.
- Incorporate the repair/replacement cycle into the Capital Facilities Plan (CFP).

Coordinating Organization: Lynnwood Public Works
Estimated Price: \$3,698,000
Funding Source: Utility Fund
Timeline: Six years: 2007-2012
Plan Goals Addressed: Protect Life and Property; Provide for Emergency & Critical Services; Facilitate Continuity& Recovery
Benefit-to Cost Review: 3

| <u>Approx Cost</u> | <u>+</u> | <u>Effectiveness</u> | <u>=</u> | <u>Priority / Benefit-to-Cost Review</u> |
|--|----------|--|----------|--|
| <input checked="" 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 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 |

DROUGHT Mitigation Actions (D)

LW-05-D-ST: Work with Alderwood Water District to educate consumers about drought impacts and ways to minimize water waste.

Ideas for implementation:

- Insert water conservation information in utility bills.
- Work with schools to educate young people on the importance of water conservation and the impact of drought on watersheds.
- City loans out a Car Wash Kit that removes pollutants from the water and this comes with a brochure for water conservation.
- Provide information on the City’s website and citywide newsletter.

Coordinating Organization: Lynnwood Administration; Lynnwood Public Works; *Alderwood Water District*

Estimated Price: \$1,000 annually

Funding Source: Water/Sewer Fund

Timeline: Ongoing

Plan Goals Addressed: Increase Public Awareness; Encourage Partnerships; Protect Natural Systems

Benefit-to Cost Review: 4

| <u>Approx Cost</u> | + | <u>Effectiveness</u> | = | <u>Priority / Benefit-to-Cost 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 |

EARTHQUAKE Mitigation Actions (E)

LW-06-E-ST: Integrate new earthquake hazard mapping data for the City of Lynnwood and improve technical analysis of earthquake hazards.

Ideas for implementation:

- Update GIS system data and conduct HAZUS analysis.

Coordinating Organization: Lynnwood Community Development
Estimated Price: \$10,000
Funding Source: General Fund or Grants, as available
Timeline: 1-2 years
Plan Goals Addressed: Protect Life & Property; Increase Public Awareness; Facilitate Continuity and Recovery
Benefit-to Cost Review: 5

| <u>Approx Cost</u> | <u>+</u> | <u>Effectiveness</u> | <u>=</u> | <u>Priority / Benefit-to-Cost 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 |

LW-07-E-ST: Conduct non-structural retrofit activities.

Ideas for implementation:

- Strap down and secure computers and other office equipment and machinery.
- Secure shelves, lockers, and furniture to walls.
- Conduct walk-throughs to ensure that heavy items are not stored overhead. Secure in place or move to safer locations.
- Mount computer servers on seismic isolation platforms, or use other appropriate technology to secure servers.
- Ensure facility water heaters are strapped securely to wall studs in accordance with current requirements.
- Secure ceiling tiles and light fixtures with wires.
- Secure back-up generator and HVAC equipment.
- Secure ducts and piping.
- Use plastic sleeves on fluorescent lighting tubes.
- Secure artwork.
- Replace untempered glass with tempered glass, or install polyester shatter-resistant film over existing glass.
- Install child-proof latches on drawers and cabinets in appropriate locations.

Coordinating Organization: Lynnwood Public Works & Facilities Maintenance
Estimated Price: \$15,000
Funding Source: General Fund; Grants
Timeline: 3 years, ongoing
Plan Goals Addressed: Protect Life & Property; Provide for Emergency & Emergency Services; Facilitate Continuity & Recovery
Benefit-to Cost Review: 5

| Approx Cost | + | Effectiveness | = | Priority / Benefit-to-Cost Review |
|---|---|--|---|---------------------------------------|
| <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 |

LW-08-E-ST: Encourage reduction of nonstructural and structural earthquake hazards in homes, schools, businesses, and government offices.

Ideas for implementation:

- Provide information to Edmonds School District, City and government departments and school facility managers and teachers on securing bookcases, filing cabinets, light fixtures, and other objects that can cause injuries and block exits.
- Explore partnerships to provide retrofitting classes for homeowners, renters, building professionals, and contractors.

Coordinating Organization: Lynnwood Administration; Lynnwood Community Development; Edmonds School District
Estimated Price: \$1,000 annually
Funding Source: General Fund or Grant, as available
Timeline: Ongoing
Plan Goals Addressed: Protect Life & Property; Increase Public Awareness; Encourage Partnerships; Facilitate Continuity and Recovery
Benefit-to Cost Review: 5

| <u>Approx Cost</u> | <u>+</u> | <u>Effectiveness</u> | <u>=</u> | <u>Priority / Benefit-to-Cost Review</u> |
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| <input type="checkbox"/> 1 – High | | <input type="checkbox"/> 1 – Low | | <input type="checkbox"/> 2 – Lowest |
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| <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 |

LW-09-E-ST: Identify City-owned public buildings and infrastructure that may require structural retrofiting.

Ideas for implementation:

- Determine the time and cost involved in conducting a seismic survey of all public buildings and infrastructure in Lynnwood.
- Coordinate with State to identify transportation infrastructure in Lynnwood that requires seismic retrofits.

Coordinating Organization: Lynnwood Public Works and Community Development – Permits & Inspections

Estimated Price: \$5,000 + undetermined cost of seismic survey

Funding Source: Grants

Timeline: 2 years & ongoing

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

Benefit-to Cost Review: 5

| <u>Approx Cost</u> | <u>+</u> | <u>Effectiveness</u> | <u>=</u> | <u>Priority / Benefit-to-Cost 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 |

FLOOD Mitigation Actions (F)

LW-10-F-ST: Reduce urban flooding and damage to the natural environment through enhanced information about, and improvements to, Lynnwood’s natural drainage areas.

Ideas for implementation:

- Map flood-prone areas outside designated floodplains in Lynnwood.
- Map and inventory existing improvements and urban drainage problems within the City.
- Target deficient or deteriorated infrastructure for repairs or retrofitting.
- Update flood plain and critical areas maps.
- Implement the Stormwater Comprehensive Plan.

Coordinating Organization: Lynnwood Public Works and Community Development
Estimated Price: Included in the \$100,000 for the Comprehensive Plan update
Funding Source: Surface Water Utility
Timeline: 1-2 years and ongoing
Plan Goals Addressed: Protect Life & Property; Provide for Emergency & Critical Services; Facilitate Continuity & Recovery; Protect Natural Systems
Benefit-to Cost Review: 4

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

LANDSLIDE Mitigation Actions (L)

LW-11-L-ST: Ensure that subdivision design and new construction on or near steep slopes complies with all development code and engineering requirements to reduce potential adverse impacts.

Ideas for implementation:

- Continue to implement City Comprehensive Plan policies and Municipal Code requirements that encourage the retention of natural features of the land and minimizes impacts to steep slopes.
- Work with Lynnwood Planning Commission and City Council to determine the need for – and to develop – guidelines to mitigate and prevent landslides or damage resulting from landslides.

Coordinating Organization: Lynnwood Community Development; Lynnwood Public Works; Lynnwood Planning Commission and City Council

Estimated Price: \$30,000

Funding Source: General Fund

Timeline: 1 year

Plan Goals Addressed: Protect Life & Property; Increase Public Awareness; Provide for Emergency & Critical Services

Benefit-to Cost Review: 5

| Approx Cost | + | Effectiveness | = | Priority / Benefit-to-Cost Review |
|---|---|--|---|---------------------------------------|
| <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 |

SEVERE STORM Mitigation Actions (S)

LW-12-S-ST: Enhance life safety strategies for road safety and debris management during severe storm events.

Ideas for implementation:

- Develop coordinated management strategies for de-icing roads, plowing roads, clearing roads of fallen trees, and clearing debris from public and private property.

Coordinating Organization: Lynnwood Public Works
Estimated Price: \$5,000
Funding Source: Streets Fund
Timeline: 2 years
Plan Goals Addressed: Protect Life & Property; Provide for Emergency or Critical Services; Facilitate Continuity and Recovery; Protect Natural Systems
Benefit-to Cost Review: 6

| <u>Approx Cost</u> | <u>+</u> | <u>Effectiveness</u> | <u>=</u> | <u>Priority / Benefit-to-Cost Review</u> |
|---|----------|--|----------|---|
| <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 |

LW-13-S-ST: Develop and implement programs to keep trees from threatening lives, property, and public infrastructure during severe storm events.

Ideas for implementation:

- Partner with responsible agencies and organizations to design and disseminate education information to property owners to reduce risk from tree failure to life, property, and utility systems.
- Develop partnerships between utility providers and local public works agencies to document known hazard areas.
- Continue to identify potentially hazardous trees in urban areas.

Coordinating Organization: Lynnwood Administration; Lynnwood Public Works; *Snohomish County PUD*

Estimated Price: \$5,000

Funding Source: General Fund

Timeline: Ongoing

Plan Goals Addressed: Protect Life & Property; Increase Public Awareness; Encourage Partnerships; Provide for Emergency or Critical Services; Facilitate Continuity and Recovery

Benefit-to Cost Review: 5

| <u>Approx Cost</u> | <u>+</u> | <u>Effectiveness</u> | <u>=</u> | <u>Priority / Benefit-to-Cost 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 |

LW-14-S-LT: Require electrical utilities to use underground construction methods where possible to minimize power line dangers and reduce power outages from severe storms.

Ideas for implementation:

- Continue to require the use of underground utilities where possible to be consistent with the City of Lynnwood Municipal Code.

Coordinating Organization: Lynnwood Community Development;
Snohomish County PUD

Estimated Price: \$0

Funding Source: N/A

Timeline: Ongoing

Plan Goals Addressed: Protect Life & Property; Encourage Partnerships; Provide for Emergency or Critical Services; Facilitate Continuity & Recovery

Benefit-to Cost Review: 6

| <u>Approx Cost</u> | + | <u>Effectiveness</u> | = | <u>Priority / Benefit-to-Cost Review</u> |
|---|---|--|---|---|
| <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 |

TSUNAMI AND SEICHE Mitigation Actions (T)
 None identified at this time.

VOLCANO MITIGATION ACTIONS (V)

LW-15-V-ST: Collaborate with other regional or state agencies to develop ash fall models that are specific to the north King and south Snohomish Counties area.

Ideas for implementation:

- Determine critical activities that must be implemented for varying degrees of ash fall.
- Integrate those activities into Lynnwood’s disaster mitigation process.

Coordinating Organization: Lynnwood Administration;
Washington State Department of Natural Resources

Estimated Price: \$5,000

Funding Source: General Fund

Timeline: 2 years

Plan Goals Addressed: Protect Life & Property; Increase Public Awareness; Encourage Partnerships; Provide for Emergency or Critical Services; Facilitate Continuity & Recovery

Benefit-to Cost Review: 4

| Approx Cost | + | Effectiveness | = | Priority / Benefit-to-Cost 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 |

LW-16-V-ST: 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, fire and police vehicles, HVAC and/or other large or unusual equipment requiring filters.
- Establish policy and budget to maintain spare filters.

Coordinating Organization: Lynnwood Executive Department; Lynnwood Public Works; Lynnwood Fire Department; Lynnwood Police Department

Estimated Price: \$1,000

Funding Source: General fund

Timeline: 1 year

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

Benefit-to Cost Review: 4

| Approx Cost | + | Effectiveness | = | Priority / Benefit-to-Cost 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 |

WILDLAND-URBAN INTERFACE FIRE Mitigation Actions (W)

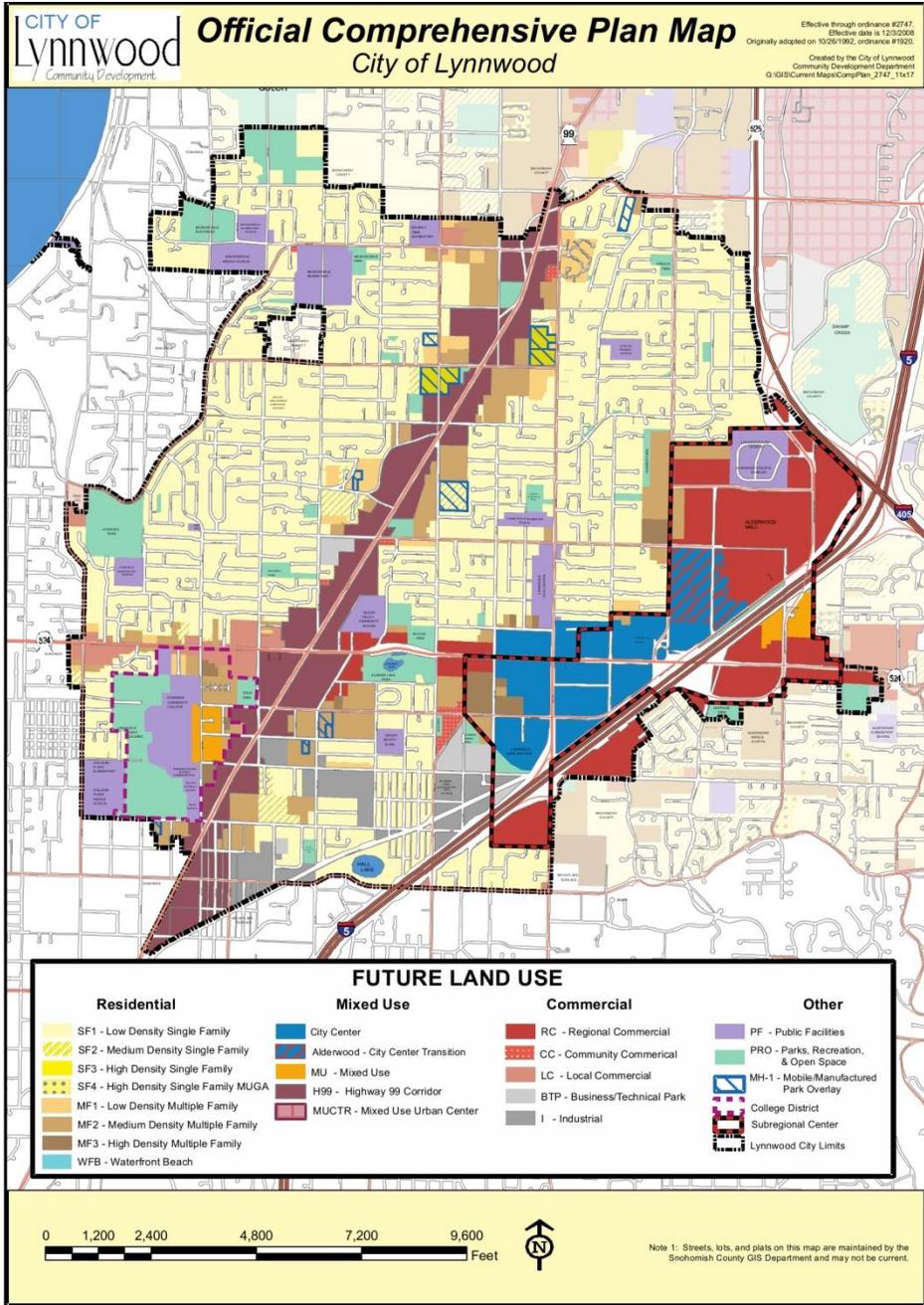
LW-17-W-LT: Increase communication, coordination and collaboration to reduce fire danger in wildland-urban interface areas.

Ideas for implementation:

- Increase communication and cooperation with wildland-urban interface property owners.
- Improve the communication, coordination and collaboration of property owners, planners, fire prevention crews and City officials when addressing risks and mitigation.
- Encourage family fire prevention and escape plans.
- Use code requirements to mitigate conditions that contribute to fire hazards.

Coordinating Organization: City of Lynnwood
Estimated Price: \$9,000/yr. – Estimate based on 1% of building permit revenues per year over past 5 years.
Funding Source: Utility Fund
Timeline: 2004-2005
Plan Goals Addressed: Protect Life & Property; Increase Public Awareness; Encourage Partnerships Provide for Emergency & Critical Services
Benefit-to Cost Review: 4

| <u>Approx Cost</u> | + | <u>Effectiveness</u> | = | <u>Priority / Benefit-to-Cost 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 |



¹ April 1 Population of Cities, Towns, and Counties. Washington State Office of Financial Management, Forecasting Division. June 2008

² City of Lynnwood Community Profile.

³ *Ibid.*

⁴ Comprehensive Plan. City of Lynnwood (September 2007).

⁵ *Ibid.*

⁶ *Ibid.*

⁷ *Ibid.*

⁸ *Ibid.*