

RESOLUTION R-5095

A RESOLUTION OF THE CITY COUNCIL OF THE CITY OF KIRKLAND ADOPTING THE 2014 REGIONAL HAZARD MITIGATION PLAN UPDATE, INCLUDING THE COMPONENTS THAT ARE SPECIFIC TO THE CITY OF KIRKLAND.

1 WHEREAS, hazard mitigation is the use of long-term and short-
2 term policies, programs, projects, and other activities to alleviate the
3 death, injury, and property damage that can result from a disaster; and
4

5 WHEREAS, the City of Kirkland is committed to creating and
6 sustaining a community that is more resilient in disasters; and
7

8 WHEREAS, King County and a partnership of local governments
9 within the County have developed and maintained a Regional Hazard
10 Mitigation Plan to reduce risks from natural disasters; and
11

12 WHEREAS, the Plan complies with hazard mitigation planning
13 requirements which must be met in order to maintain eligibility for
14 funding under Federal Emergency Management Grant Programs; and
15

16 WHEREAS, federal regulations require periodic updates of
17 hazard mitigation plans to reevaluate recommendations, monitor the
18 impacts of actions that have been accomplished, and determine if there
19 is a need to change the focus of mitigation strategies; and
20

21 WHEREAS, the King County Office of Emergency Management
22 and representatives from 53 different cities, schools, fire districts,
23 hospitals and utility districts ("Partners") have collaborated to develop
24 an updated Regional Hazard Mitigation Plan; and
25

26 WHEREAS, the updated Plan contains two volumes: Volume 1
27 which contains components that apply to all Partners and the broader
28 planning area; and Volume 2 which contains the components that are
29 jurisdiction-specific, with a dedicated "Annex" for each Partner; and
30

31 WHEREAS, the Council has determined the entire Regional
32 Hazard Mitigation Plan Update should be adopted, including the City of
33 Kirkland Annex.
34

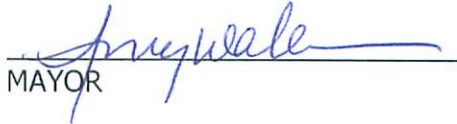
35 NOW, THEREFORE, be it resolved by the City Council of the City
36 of Kirkland as follows:

37 Section 1. The 2014 Regional Hazard Mitigation Plan Update,
38 Volumes 1 and 2, are adopted and shall be available on file with Kirkland
39 Fire and Building Department Emergency Management Division.

40
41 Section 2. The City of Kirkland Annex to the 2014 Regional
42 Hazard Mitigation Plan Update, attached as Exhibit A and incorporated
43 by this reference, is adopted and will be available on file with the City
44 Clerk.

45
46 Passed by majority vote of the Kirkland City Council in open
47 meeting this 6th day of January, 2015.

48
49
50 Signed in authentication thereof this 6th day of January, 2015.


MAYOR

Attest:


City Clerk

CHAPTER 1. CITY OF KIRKLAND ANNEX

1.1 HAZARD MITIGATION PLAN POINT OF CONTACT

Primary Point of Contact

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1.2 JURISDICTION PROFILE

The following is a summary of key information about the jurisdiction and its history:

- **Date of Incorporation** – October 9, 1905
- **Current Population** – 81,730 as of April 1, 2013
- **Population Growth** – Since its incorporation in 1905, the population of the City of Kirkland has grown from 392 people to 81,730. Most of this growth can be attributed to numerous annexations and the consolidation of the cities of Kirkland and Houghton in 1968. The Rose Hill and South Juanita areas were annexed into the City in the 1980s. The 2011 annexation of Finn Hill, North Juanita, and Kingsgate also significantly increased the City's population and geographic area. Each of the large annexations/consolidations almost doubled the existing population of Kirkland causing it to reach its current stage.
- **Location and Description** – The City of Kirkland is located in the Pacific Northwest Puget Sound Region on the east side of Lake Washington. Kirkland is located across Lake Washington from the City of Seattle. Nearby cities also include Hunts Point located southwest, Bellevue located on the south, Redmond, located on the east, Bothell and Woodinville located on the north. Interstate 405 runs north to south bisecting portions of the City and State Route 520 borders a part of the City on the south.
- **Brief History** – Kirkland incorporated in 1905 with a population of 392 people and was primarily a logging and farming community. In the early 1900s, Kirkland was a transportation center for the eastside with ferries transporting commuters and goods to Seattle 18 hours a day. The opening of the Lake Washington Floating Bridge in 1940 signaled the end of the lake ferries. Kirkland's downtown is located on Lake Washington. The City has grown beyond a bedroom community and has become a commercial and employment center characterized by a mix of small businesses, corporate headquarters, light industrial and manufacturing, and a growing base of high-tech businesses (with branches of IBM, Microsoft, and Google).
- **Climate** – Kirkland's climate is mild during the summer months when temperatures tend to be in the 70s and cool during winter when temperatures tend to be in the 40s. The warmest month of the year is August with an average maximum temperature of 75.8 degrees Fahrenheit. The coldest month of the year is January with an average minimum temperature of 35.2 degrees Fahrenheit. Daily temperature variations tend to be limited in range throughout the year. During

summer the range can reach 19 degrees Fahrenheit, and during winter the average difference is 12 degrees Fahrenheit between daytime and evening temperatures. The annual average precipitation at Kirkland is 35.96 inches. More precipitation generally occurs in winter months rather than summer months. The wettest month of the year is December with an average rainfall of 5.45 inches.

- **Governing Body Format** – Kirkland operates under the *council-manager* form of government. The City Council is comprised of seven non-partisan members who are elected by the registered voters of Kirkland to serve *at-large*. Council Members are elected every two years to serve four-year terms. The Mayor and Deputy Mayor are elected among the members to serve two-year terms. The City consists of ten departments: City Manager’s Office, Finance & Administration, Fire & Building, Police, City Attorney’s Office, Human Resources, Information Technology, Parks and Community Services, Planning & Community Development, and Public Works. The Office of Emergency Management assumes responsibility for the adoption of this plan; and will coordinate with the other City Departments oversee its implementation.
- **Development Trends** – Development levels have increased significantly in the past three years partially due to the 2011 annexation. The development consists of infill and some larger subdivisions. There are some currently some large, non-residential redevelopment plans that have been approved and will be implemented in the coming years. Kirkland is currently in the process of updating its Comprehensive Plan, which serves as the guiding policy document for the City’s vision for the future. City actions relating to zoning, subdivision, design review, redevelopment, and capital improvements must be consistent with the Comprehensive Plan.

1.3 CAPABILITY ASSESSMENT

The assessment of the jurisdiction’s legal and regulatory capabilities is presented in Table 1-1. The assessment of the jurisdiction’s fiscal capabilities is presented in Table 1-2. The assessment of the jurisdiction’s administrative and technical capabilities is presented in Table 1-3. Information on the community’s National Flood Insurance Program (NFIP) compliance is presented in Table 1-4. Classifications under various community mitigation programs are presented in Table 1-5.

**TABLE 1-1.
LEGAL AND REGULATORY CAPABILITY**

	Local Authority	State or Federal Prohibitions	Other Jurisdictional Authority	State Mandated	Comments
Codes, Ordinances & Requirements					
Building Code	Yes	No	No	Yes	O-4410 05.21.13
Zonings	Yes	No	No	Yes	O-4408 05.21.13
Subdivisions	Yes	No	No	Yes	O-4372 08.02.12
Stormwater Management	Yes	No	No	Yes	R-4350 11.01.05
Post Disaster Recovery	No	No	No	No	
Real Estate Disclosure	No	No	Yes	Yes	RCW 64.06 – this is a State mandated seller disclosure requirement. Not enforced by the City of Kirkland.
Growth Management	Yes	No	No	Yes	We update our comprehensive plan annually to be consistent with State Growth Management Act. O-4392 on 12.11.12
Site Plan Review	Yes	No	No	No	Development Services (Planning, Public Works, Building & Fire Departments) group performs site plan review
Public Health and Safety	Yes	No	No	No	O-4392 12.11.12
Environmental Protection	Yes	No	No	Yes	O-4150 10.21.08
Planning Documents					
General or Comprehensive Plan	Yes	No	No	Yes	O-4392 12.11.12
	<i>Is the plan equipped to provide linkage to this mitigation plan?</i> Yes. Plan includes a land use and environment elements				
Floodplain or Basin Plan	No	No	No	No	
Stormwater Plan	Yes	No	No	Yes	R-4350 11.01.05
Capital Improvement Plan	Yes	No	No	Yes	Must be of Public Work and greater than \$50,000. Transportation, Water/Sewer/Utilities, Surface Water Improvements, Parks, Facilities and IT
	<i>What types of capital facilities does the plan address?</i> Annually				
	<i>How often is the plan revised/updated?</i>				
Habitat Conservation Plan	Yes	No	No	Yes	O-4320 09.06.11
Economic Development Plan	Yes	No	No	No	Economic development element of Comprehensive Plan
Shoreline Management Plan	Yes	No	No	Yes	O-4302 06.07.11
Community Wildfire Protection Plan	No				

**TABLE 1-1.
LEGAL AND REGULATORY CAPABILITY**

	Local Authority	State or Federal Prohibitions	Other Jurisdictional Authority	State Mandated	Comments
Response/Recovery Planning					
Comprehensive Emergency Management Plan	Yes	No	No	Yes	2010 Resolution R-4865
Threat and Hazard Identification and Risk Assessment	No	No	No	No	
Terrorism Plan	Yes	No	No	No	2010 Resolution R-4865
Post-Disaster Recovery Plan	No	No	No	No	
Continuity of Operations Plan	No	No	No	No	
Public Health Plans	No	No	No	No	

**TABLE 1-2.
FISCAL CAPABILITY**

Financial Resources	Accessible or Eligible to Use?
Community Development Block Grants	Yes (through regional consortium)
Capital Improvements Project Funding	Yes
Authority to Levy Taxes for Specific Purposes	Yes (vote may be required)
User Fees for Water, Sewer, Gas or Electric Service	Yes
Incur Debt through General Obligation Bonds	Yes
Incur Debt through Special Tax Bonds	Yes (by vote)
Incur Debt through Private Activity Bonds	No (would require change in policy)
Withhold Public Expenditures in Hazard-Prone Areas	Yes
State Sponsored Grant Programs	Yes
Development Impact Fees for Homebuyers or Developers	Yes (if project is eligible per statute)
Other	Real Estate Excise Tax King County Flood Control District-Basin Opportunity Fund

**TABLE 1-3.
ADMINISTRATIVE AND TECHNICAL CAPABILITY**

Staff/Personnel Resources	Available?	Department/Agency/Position
Planners or engineers with knowledge of land development and land management practices	Yes	Planning/City of Kirkland/Planners
Engineers or professionals trained in building or infrastructure construction practices	Yes	Public Works, Building and Fire /City of Kirkland/Engineers
Planners or engineers with an understanding of natural hazards	Yes	Public Works/City of Kirkland/Engineers
Staff with training in benefit/cost analysis	Yes	Finance/City of Kirkland/Director of Finance
Surveyors	No	
Personnel skilled or trained in GIS applications	Yes	GIS/City of Kirkland
Scientist familiar with natural hazards in local area	No	
Emergency manager	Yes	Fire Department/City of Kirkland/Manager
Grant writers	Yes	Public Works/City of Kirkland/Analyst

**TABLE 1-4.
NATIONAL FLOOD INSURANCE PROGRAM COMPLIANCE**

What department is responsible for floodplain management in your community?	Building Department
Who is your community's floodplain administrator? (department/position)	Fire and Building/Building Official
Do you have any certified floodplain managers on staff in your community?	No
What is the date of adoption of your flood damage prevention ordinance?	Ordinance 4376 effective on October 12, 2012 updated flood damage prevention code to meet current NFIP and Ecology standards.
When was the most recent Community Assistance Visit or Community Assistance Contact?	June 14, 2005
To the best of your knowledge, does your community have any outstanding NFIP compliance violations that need to be addressed? If so, please state what they are.	No
Do your flood hazard maps adequately address the flood risk within your community? (If no, please state why)	No -- floodplain mapping and updates to current floodplain designations are needed on Juanita Creek, Totem Lake, and Forbes Lake.
Does your floodplain management staff need any assistance or training to support its floodplain management program? If so, what type of assistance/training is needed?	Sources of assistance in requiring and reviewing floodplain modeling would be helpful.

**TABLE 1-4.
NATIONAL FLOOD INSURANCE PROGRAM COMPLIANCE**

Does your community participate in the Community Rating System (CRS)? If so, is your community seeking to improve its CRS Classification? If not, is your community interested in joining the CRS program?	No. Kirkland's Office of Emergency Management has made joining CRS a goal for the upcoming year (2015).
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**TABLE 1-5.
COMMUNITY CLASSIFICATIONS**

	Participating?	Classification	Date Classified
Community Rating System	No	N/A	N/A
Building Code Effectiveness Grading Schedule	Yes	2	Not available
Public Protection	Yes	4	Not available
StormReady	No	N/A	N/A
Firewise	No	N/A	N/A
Tsunami Ready (if applicable)	No	N/A	N/A

1.4 JURISDICTION-SPECIFIC NATURAL HAZARD EVENT HISTORY

Table 1-6 lists all past occurrences of natural hazards within the jurisdiction. Repetitive flood loss records are as follows:

- Number of FEMA-Identified Repetitive Loss Properties: 1
- Number of FEMA-Identified Severe Repetitive Loss Properties: 0
- Number of Repetitive Flood Loss/Severe Repetitive Loss Properties That Have Been Mitigated: 1

**TABLE 1-6.
NATURAL HAZARD EVENTS**

Type of Event	FEMA Disaster # (if applicable)	Date	Preliminary Damage Assessment
Severe Winter Weather	4056-DR-WA	1/14-1/23/12	127,818
Flooding	1963-DR-WA	1/11-1/21/11	9,410
Severe Winter Weather	1825-DR-WA	12/12/08-1/5/09	68,046
Severe Storm Flooding	1734-DR-WA	12/1/07	4,7186
Severe storm		12/3/07	
Severe wind		1/6/07	
Severe Wind		12/15/06	
Severe winter weather		11/26/06	
Severe wind		2/3-2/4/06	

Earthquake	2/28/01
Severe storm	3/1-3/15/99
Severe wind	11/23/11/24/98
Severe Winter Weather	12/28/96
Severe Wind	1/20/93

1.5 HAZARD RISK RANKING

Table 1-7 presents the ranking of the hazards of concern. Hazard area extent and location maps are included at the end of this chapter. These maps are based on the best available data at the time of the preparation of this plan, and are considered to be adequate for planning purposes.

Rank	Hazard Type	Risk Rating Score (Probability x Impact)
1	Earthquake	48
2	Severe Weather	45
3	Severe Winter Weather	45
4	Flood	27
5	Landslide	27
6	Wildfire	26
7	Volcano (Ash fall)	5
8	Avalanche	0
9	Dam Failure	0
10	Tsunami	0

1.6 HAZARD MITIGATION ACTION PLAN AND EVALUATION OF RECOMMENDED INITIATIVES

Table 1-8 lists the initiatives that make up the jurisdiction's hazard mitigation plan. Table 1-9 identifies the priority for each initiative. Table 1-10 summarizes the mitigation initiatives by hazard of concern and the six mitigation types.

**TABLE 1-8.
HAZARD MITIGATION ACTION PLAN MATRIX**

Applies to new or existing assets	Hazards Mitigated	Objectives Met	Lead Agency	Estimated Cost	Sources of Funding	Timeline
<p>KL-1 - Continue to maintain compliance and good standing under the National Flood Insurance Program. This will be accomplished through the implementation of floodplain management programs that will meet or exceed the minimum requirements of the NFIP, which include the following:</p> <ul style="list-style-type: none"> • Enforcement of the adopted flood damage prevention ordinance, • participating in floodplain identification and mapping updates, and • providing public assistance/information on floodplain requirements and impacts 						
New and Existing	All Hazards	2,4,10,12	Building	Low	General Fund	Ongoing
<p>KL-2 - Floodplain management staff require assistance reviewing floodplain modeling and floodplain mapping. Updates to current floodplain designations are needed on Juanita Creek, Totem Lake, and Forbes Lake.</p>						
New and Existing	All Hazards	2,4,10,12,	Public Works	Medium	Grant/General fund/CIP PDM	Short
<p>KL-3 - Develop and implement a public education campaign to community members (homes, businesses, community organizations) on how to prevent damage from earthquakes.</p>						
Existing	Earthquake	11,14,15	Office of Emergency Management	Medium	Grant/ General Fund	Short
<p>KL-4 - Develop a City of Kirkland Continuity of Operations Plan (COOP) to be able to serve the community better during and after a disaster.</p>						
New and Existing	All Hazards	1	Office of Emergency Management	Medium	Grant/ General Fund	Long term
<p>KL-5 - COCHRAN SPRINGS / LAKE WASHINGTON BLVD CROSSING ENHANCEMENT- Sedimentation deposits in the channel downstream of this culvert results in backwater conditions and sedimentation presenting an ongoing maintenance task for City crews. The backwater condition impedes the culvert's capacity to convey large peak events. Additionally, sediment deposition downstream of Lake Washington Boulevard increases the risk of overbank flooding water in the Yarrow Bay business park. Improving fish passage at the culvert will allow access to approximately 375 feet of breeding and rearing habitat. Increasing the culvert's flow capacity will reduce the risk of flooding on Lake Washington Boulevard.</p>						
New and Existing	Severe winter weather/ severe weather/ flood	5,9,12,	Public works	High	Grant/ General Fund, King County Flood Control District	Long term

**TABLE 1-8.
HAZARD MITIGATION ACTION PLAN MATRIX**

Applies to new or existing assets	Hazards Mitigated	Objectives Met	Lead Agency	Estimated Cost	Sources of Funding	Timeline
KL-6 - TOTEM LAKE BOULEVARD FLOOD CONTROL MEASURES - Totem Lake Totem Lake Boulevard has a history of flooding during mid and large storm events. Evaluation of the storm drainage system previously completed under this project has identified options for implementing flood control improvements. The improvements include emergency pumping and removal of sediment and vegetation along the conveyance channel. This work will reduce the frequency and magnitude of flooding on Totem Lake Boulevard.						
New and Existing	Severe winter weather/ severe weather/ flood	5,9,12,	Public works	High	Grant/ General Fund, King Co Flood Control District	Short
KL-7 - NEIGHBORHOOD DRAINAGE ASSISTANCE PROGRAM (NDA) - City-wide Design and construct small-scale flooding solution occurring outside the public right of way. Projects qualifying for assistance include those situations that are too small to rank highly in the regular Surface Water CIP, will benefit several homes or businesses while serving a general public benefit, and are primarily caused by the cumulative impacts of upstream development. Individual projects will be evaluated and those that qualify will be prioritized. Staff will produce a report each year summarizing the number type and priority of problems that qualify for NDA fixes, and a list of NDA projects completed in the previous year.						
New and Existing	Severe winter weather/ severe weather/ flood	5,9,12,	Public works	Med	General Fund	Ongoing
KL-8 - CHEMICAL DEICE/BRINE STORAGE AND DISPERSING FACILITY - Winter weather events including ice and snow on roadways critically impact commercial, private, and public transportation systems. Kirkland's current snow policies include plowing, sanding, and pre-event roadway treatment. Current chemical storage facilities do not process commercially available products efficiently. The current practice of manual mixing and storage of materials is inadequate for significant events. This project will provide for additional hard storage capable of holding liquid product for distribution by existing City vehicles. Structurally sufficient storage and the appropriate dispersing apparatus at this facility will improve operations of the transportation system during events.						
New and Existing	Severe winter weather/ severe weather/ flood	1, 5,12,	Public works	High	Grant/ General Fund	Long
KL-9 - Plan and apply as a participant in the Community Rating System (CRS)						
New and Existing	Flood, Severe Weather, Severe Winter Weather	2,4,5,9,10,12	Building Department, Emergency Management	High	General Fund	Short-term
KL-10 - Integrate the hazard mitigation plain into other plans, ordinances or programs to dictate land uses within the jurisdiction.						
New	All Hazards	2,4,8,10	Planning	Low	General Fund	Short-term

**TABLE 1-8.
HAZARD MITIGATION ACTION PLAN MATRIX**

Applies to new or existing assets	Hazards Mitigated	Objectives Met	Lead Agency	Estimated Cost	Sources of Funding	Timeline
KL-11 —Where appropriate, support retrofitting, purchase, or relocation of structures located in hazard-prone areas to protect structures from future damage, with properties with exposure to repetitive losses as a priority.						
Existing	All Hazards	5,9,13	Public Works	High	FEMA grants, Local sources for local Match	Long-term
KL-12 —Continue to support the county-wide initiatives identified in this plan.						
New and Existing	All Hazards	4,6,11,12,13, 14, 15	City of Kirkland	Low	General Fund	Ongoing
KL-13 —Actively participate in the plan maintenance strategy identified in this plan.						
New and Existing	All Hazards	4,6,11,12,13, 14, 15	City of Kirkland	Low	General Fund	Ongoing

**TABLE 1-9.
MITIGATION STRATEGY PRIORITY SCHEDULE**

Initiative #	# of Objectives Met	Benefits	Costs	Do Benefits Equal or Exceed Costs?	Is Project Grant- Eligible?	Can Project Be Funded Under Existing Programs/ Budgets?	Priority ^a
KL-1	4	med	Low	yes	No	Yes	High
KL-2	4	Med	Med	Yes	Yes	No	Medium
KL-3	3	High	Med	Yes	No	No	Medium
KL-4	1	Low	Med	No	No	No	Low
KL-5	3	High	High	Yes	Yes	No	Medium
KL-6	3	High	High	Yes	Yes	No	Medium
KL-7	3	High	Med	Yes	Yes	Yes	High
KL-8	3	High	High	Yes	Yes	No	Medium
KL-9	6	Medium	Low	Yes	No	Yes	High
KL-10	4	Medium	Low	Yes	No	Yes	High
KL-11	3	High	High	Yes	Yes	No	Medium
KL-12	7	Medium	Low	Yes	No	Yes	High
KL-13	7	Low	Low	Yes	Yes	Yes	High

a. See Chapter 1 for explanation of priorities.

**TABLE 1-10.
ANALYSIS OF MITIGATION INITIATIVES**

Hazard Type	Initiative Addressing Hazard, by Mitigation Type ^a					
	1. Prevention	2. Property Protection	3. Public Education and Awareness	4. Natural Resource Protection	5. Emergency Services	6. Structural Projects
Avalanche	--	--	--	--	--	--
Dam Failure	--	--	--	--	--	--
Earthquake	10,13	11	3,12		4,12	
Flood	1,2,9,10,13	1,9,11	1,9,12	1,9	1,4,8,9,12	5,6,7
Landslide	10,13	11	12		4,12	
Severe Weather	10,13	11	9,12		4,8,9,12	5,6,7
Severe Winter Weather	10,13	11	9,12		4,8,9,12	5,6,7
Tsunami	--	--	--	--	--	--
Volcano	10,13	11	12		4,12	
Wildfire	10,13	11	12		4,12	

a. See Chapter 1 for explanation of mitigation types.