



CITY OF KIRKLAND
Department of Public Works
123 Fifth Avenue, Kirkland, WA 98033 425.587.3800
www.kirklandwa.gov

MEMORANDUM

To: Kurt Triplett, City Manager

From: Kelli Jones, Surface Water Utility Engineer
Jenny Gaus, P.E., Surface Water Engineering Supervisor
Ray Steiger, P.E., Public Works Director

Date: July 26, 2012

Subject: Adoption of Kirkland Municipal Code (KMC) updates to comply with the National Floodplain Insurance Program (NFIP)

RECOMMENDATION:

It is recommended that Council adopt the attached ordinance relating to flood damage prevention, KMC Title 21.56, in order to remain in compliance with the NFIP and the Federal Endangered Species Act (ESA).

BACKGROUND DISCUSSION:

Kirkland has only a small amount of land that lies within the FEMA-mapped 100-year floodplain. There are a total of 35 tax parcels that contain floodplain area, of which 17 are currently owned by the City as open space within park land (Attachment A). The City is a member of the NFIP, and thus all properties in Kirkland qualify for reduced flood insurance rates as a result of that membership.

The NFIP was created in 1968 as a way to offer flood damage assistance in exchange for regulated development within FEMA mapped floodplains. This program focuses on public health, safety, and welfare by protecting all new and substantially improved buildings. It has proven to reduce flood damage by 80% for buildings not designed to meet the development standards for construction within floodplains. At the time it was created, NFIP was focused solely on flood damage-reduction without consideration of the impacts on aquatic habitat. Listing of Chinook salmon as a threatened species under the 1999 ESA has required a review of NFIP policies and requirements with regards to aquatic habitat.

A study was conducted by the National Marine Fisheries Services (NMFS) on how floodplain development affects aquatic habitat. NMFS issued a Biological Opinion that required changes to the NFIP in order to meet the requirements of the ESA as well as protect buildings from flood damage. To remain in compliance with the NFIP, cities and counties now need to update their regulations to meet the requirements of the Biological Opinion. Other than the option of prohibiting all development within the FEMA mapped floodplain and floodways, FEMA offered

three options in order for agencies to be compliant with the Biological Opinion, and agencies were required to submit their option selection by September 22, 2011. The options were as follows:

- Option 1: Adopt the Model Ordinance prepared by FEMA.
- Option 2: Enforce the same requirements in the Biological Opinion through an ordinance, such as zoning or critical areas regulations.
- Option 3: Require each development proposed in a FEMA mapped floodplain or floodway to show compliance with the Biological Opinion on a permit by permit basis through a biological assessment report.

Option 1 was developed more for rural settings and is not an appropriate option for an urban environment, such as Kirkland. Option 2 would be the most straight forward option for individual properties owner and will eventually be addressed in the update of the Critical Areas Ordinance of Chapter 90 in the Kirkland Zoning Code (KZC) which is tentatively scheduled for 2015. However, after discussing the City's options with John Graves, Senior NFIP Specialist from the FEMA Region X office located in Bothell, WA, he indicated that Option 3 would be most appropriate for the City. Given the few number of parcels in Kirkland that contain FEMA mapped floodplains and floodways, and the City's plan to update its Critical Areas Ordinance by 2015, Option 3 was recommended.

In order to comply with the September 22, 2011, FEMA deadline, staff provided FEMA with a letter dated September 12, 2011, indicating that forthcoming amendments to KMC Title 21.56 would be proposed to the City Council, and the amendments would implement Option 3. A biological assessment would be required for each development in the FEMA mapped area in order to determine impact to aquatic habitat.

On December 28, 2011, a letter along with an aerial photo of their property and fact sheets about the changes, were mailed to each of the 18 private property owners of property located in the FEMA mapped areas (recall that 17 of the 35 total properties are owned by the City). The information was to inform them of the new FEMA regulations should they want to develop in the floodplain or floodway on their property (Attachment B). A second letter was sent out on June 7, 2012, to notify the property owners of when the KMC changes would be presented to Council and to encourage them to provide comments so that the City could address any concerns prior to the Council meeting (Attachment C). And in addition, a web page has been created that provides information on the new FEMA regulations, Option 3, and a copy of the draft ordinance. To date, no comments have been received by the City.

Summary of Code Changes

To meet Option 3, minor changes are proposed to the KMC to address and implement the new FEMA regulations. Along the same lines, the Department of Ecology (DOE) has also submitted to the City a checklist to update the Flood Damage Prevention section located within the KMC. To comply with both FEMA and DOE, the following is a summary of the changes that are proposed to the KMC:

- 1) Addition of language to require any development within the FEMA mapped floodplain or floodway to provide a Biological Assessment to ensure that their project is in compliance with the Biological Opinion.
- 2) Addition of new definitions, such as breakaway wall, elevated building, new manufactured home park or subdivision, and substantial damage to clarify content in the ordinance.
- 3) Addition of text to clarify regulations, such as specifying lowest floor elevations allowed, when permanent foundations are required for manufactured homes, record keeping, and spelling / tense changes.

Please refer to the Ordinance with this memo for the full redlined changes to Title KMC 21.56. In many cases, existing City code requirements in Chapters 83 and 90 KZC for limiting development within the critical areas of wetland and streams already restrict development in the floodplain, such that the new FEMA regulations would be met.

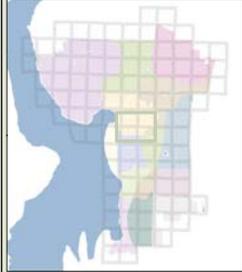
Next Steps

With updates to the KMC, the City will remain in compliance with the NFIP and remain a part of the program to assist with any occurrences to flood damaged properties. DOE has already completed a courtesy review of the proposed KMC updates, and their comments have been addressed in the Ordinance. Pending adoption of the Ordinance by the Kirkland City Council, DOE will require a final review of the KMC to ensure that their comments have been addressed.

Attachments (3)

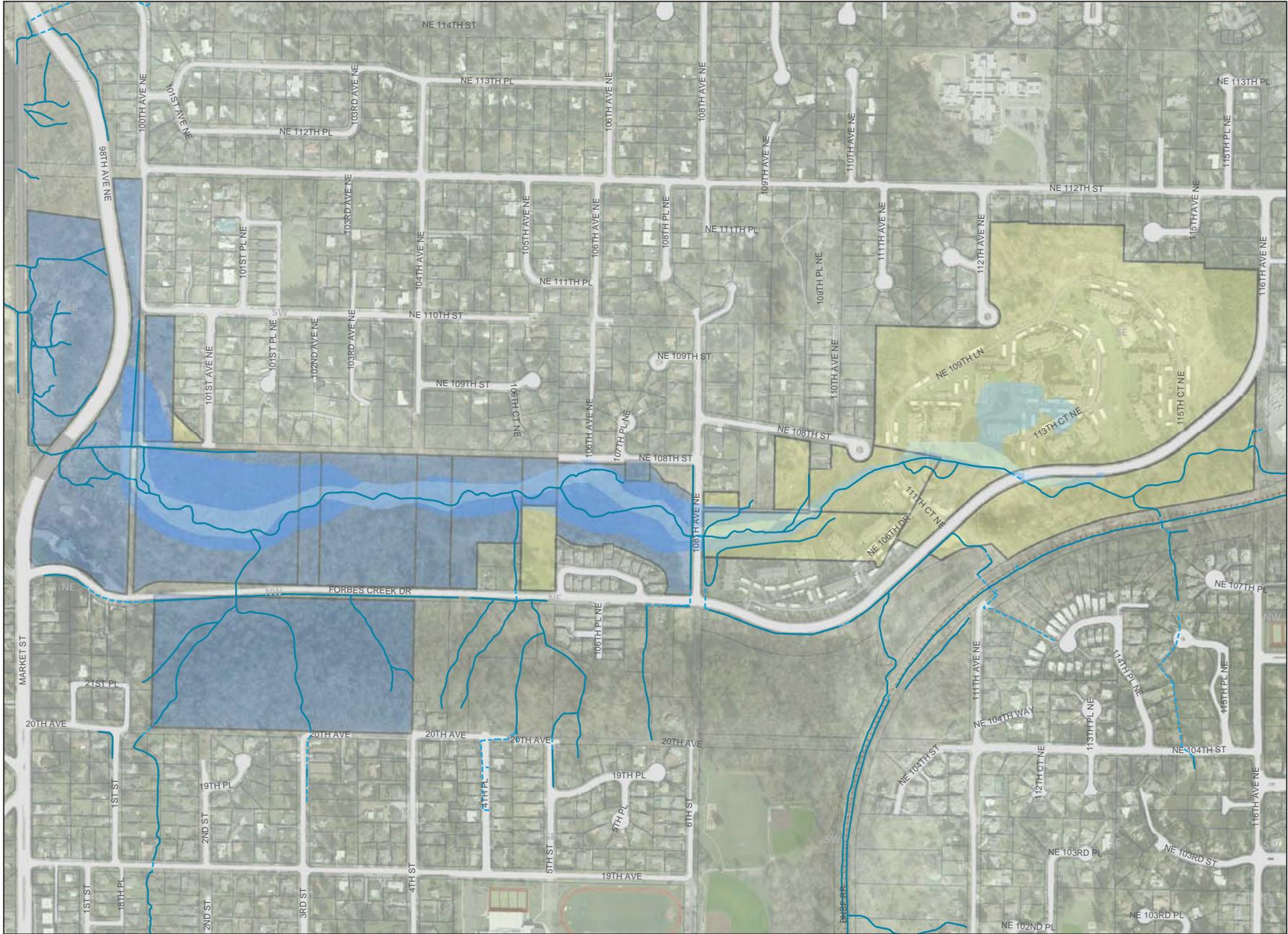
Forbes Creek - Floodplain

 Floodway
 100-Year Floodplain



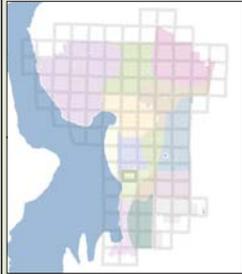
Produced by the City of Kirkland.
 © 2011, the City of Kirkland, all rights reserved.
 No warranties of any sort, including but not
 limited to accuracy, fitness or merchantability,
 accompany this product.

Author:
 Name:
 Date Saved: never never



Peter Kirk - Floodplain

 Floodway
100-Year Floodplain



Produced by the City of Kirkland.
© 2011, the City of Kirkland, all rights reserved.
No warranties of any sort, including but not limited to accuracy, fitness or merchantability, accompany this product.

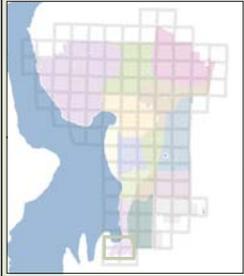
Author:
Name:
Date Saved: never never



Path:

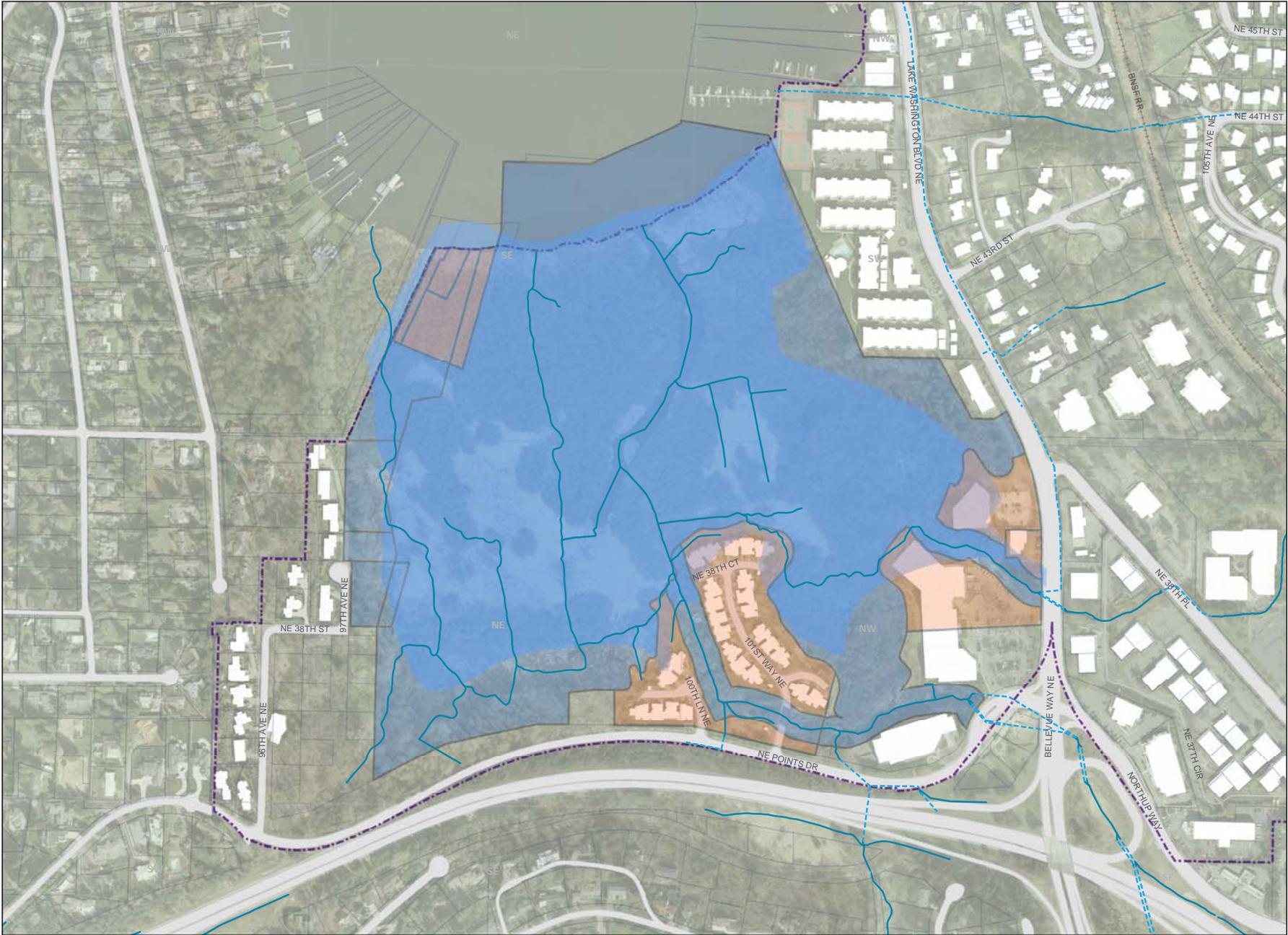
Yarrow Bay - Floodplain

Floodway
100-Year Floodplain



Produced by the City of Kirkland.
© 2011, the City of Kirkland, all rights reserved.
No warranties of any sort, including but not limited to accuracy, fitness or merchantability, accompany this product.

Author:
Name:
Date Saved: never never



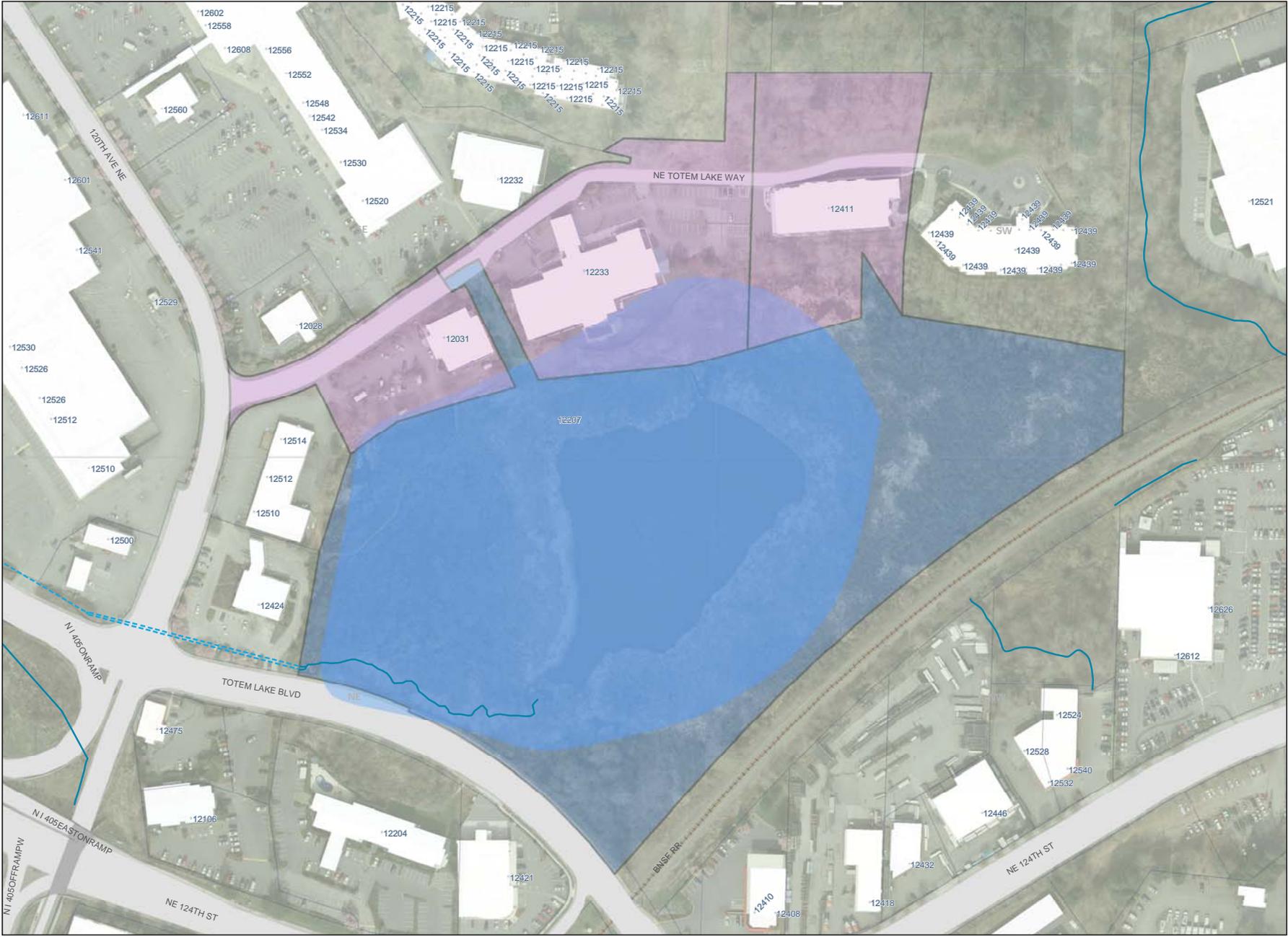
Totem Lake - Floodplain

Floodway
100-Year Floodplain



Produced by the City of Kirkland.
© 2011, the City of Kirkland, all rights reserved.
No warranties of any sort, including but not limited to accuracy, fitness or merchantability, accompany this product.

Author:
Name:
Date Saved: never never



December 28, 2011

Lauren and Barbara Simonds
10807 101st Ave NE
Kirkland, WA 98033
Parcel #: 3758900187



123 Fifth Avenue

Kirkland, Washington

98033-6189

RE: Property within a Special Flood Hazard Area

Dear Property Owner:

The purpose of this letter is to inform you of the Federal Emergency Management Agency's (FEMA) new requirements that apply to properties that have FEMA floodplain areas located on them. Our records indicate that your property has a FEMA floodplain area identified on it as shown in the attached aerial photo. These new requirements apply *only if you decide to apply for a permit* from the City of Kirkland to develop or redevelop your property *or if you wish to make any other changes* within the floodplain. No action is required on your part at this time if you do not plan to make any changes.

The FEMA regulation change is a result of the listing of Chinook salmon as a threatened species under the Federal Endangered Species Act (ESA) which took place in 1999. The National Marine Fisheries Services (NMFS), which is responsible for implementation of the ESA, has found that the previous FEMA requirements have had an adverse impact on the salmon's habitat, and updates were necessary. Development in floodplains prior to the new FEMA regulations were determined to create a disconnection between existing streams and their floodplain and in turn lead to destruction of the natural vegetation. Research has found that there is a direct correlation between the disconnection of floodplains and the declining salmon runs. The new FEMA requirements will continue to reduce flooding of properties but will also help to reduce impacts to floodplains in order to preserve those that are remaining. For more information on the importance of floodplains, please see the attached fact sheet -- *The Importance of Healthy Floodplains to Puget Sound Salmon*.

FEMA has provided the City of Kirkland and other local jurisdictions with three options to comply with these new requirements:

- Option 1 requires adoption of a model ordinance; the City has determined that this is not the most appropriate option for an urban environment such as in Kirkland.
- Option 2 necessitates that the City amend its Critical Area Ordinance (CAO) for wetlands and streams (Chapter 90 of the Kirkland Zoning Code) and potentially make other amendments. This option is the most straight forward approach for individual property owners since the environmental regulations would be in place City-wide. Option 2 would eliminate the need for each individual property owner to provide evaluation of their proposals using a biological assessment on a site by site basis (which are the requirements of Option 3).
- Option 3 requires an individual biological assessment for property owner activities.

For more information on the three available FEMA options, see attached sheet, *The Biological Opinion*.

The best time to make amendments to the CAO under Option 2 is when the City conducts the comprehensive update of its CAO. Incorporation of the new FEMA requirements has been added to

the City's CAO amendment work program however is not anticipated to be completed until 2015. Until that time, Option 3 will be adopted and requires that a property owner prepare a biological assessment if any development or change is proposed in the floodplain area.

Under Option 3, the City must still make minor changes to the Kirkland Municipal Code in order to address and implement the new regulations. Staff estimates that these changes will be presented to the Kirkland City Council in the first quarter of 2012, and a second notification regarding these requirements will be sent to you to inform you of the date and time of this meeting. In the event that you anticipate future development or permit action on your property affected by these requirements, you are encouraged to participate in the discussions or to provide feedback to the City Council regarding the issue.

Please consider that if you undertake actions to the portion of your property that lies within a FEMA mapped floodplain prior to the City's implementation of Option 2, approximately 2015, you will be required to prepare a biological assessment to determine if your project will harm or threaten the endangered species located within your floodplain. Detailed guidelines for what must be included in the biological assessment can be found at the FEMA website:

http://www.fema.gov/pdf/about/regions/regionx/draft_%20habitat_assessment_guide_april2011.pdf

In many cases, existing City code requirements for limiting development within the critical areas of wetland and streams may already restrict development in the floodplain, and the new FEMA regulations would be met with no biological assessment being needed. Kirkland's Zoning Code Chapters 83 and 90 contain the regulations for wetlands and streams.

If you have questions or concerns regarding the information in this letter, please contact Teresa Swan at (425) 587-3258 or tswan@kirklandwa.gov.

Sincerely,

DEPARTMENT OF PUBLIC WORKS



Ray Steiger, P.E.
Public Works Director

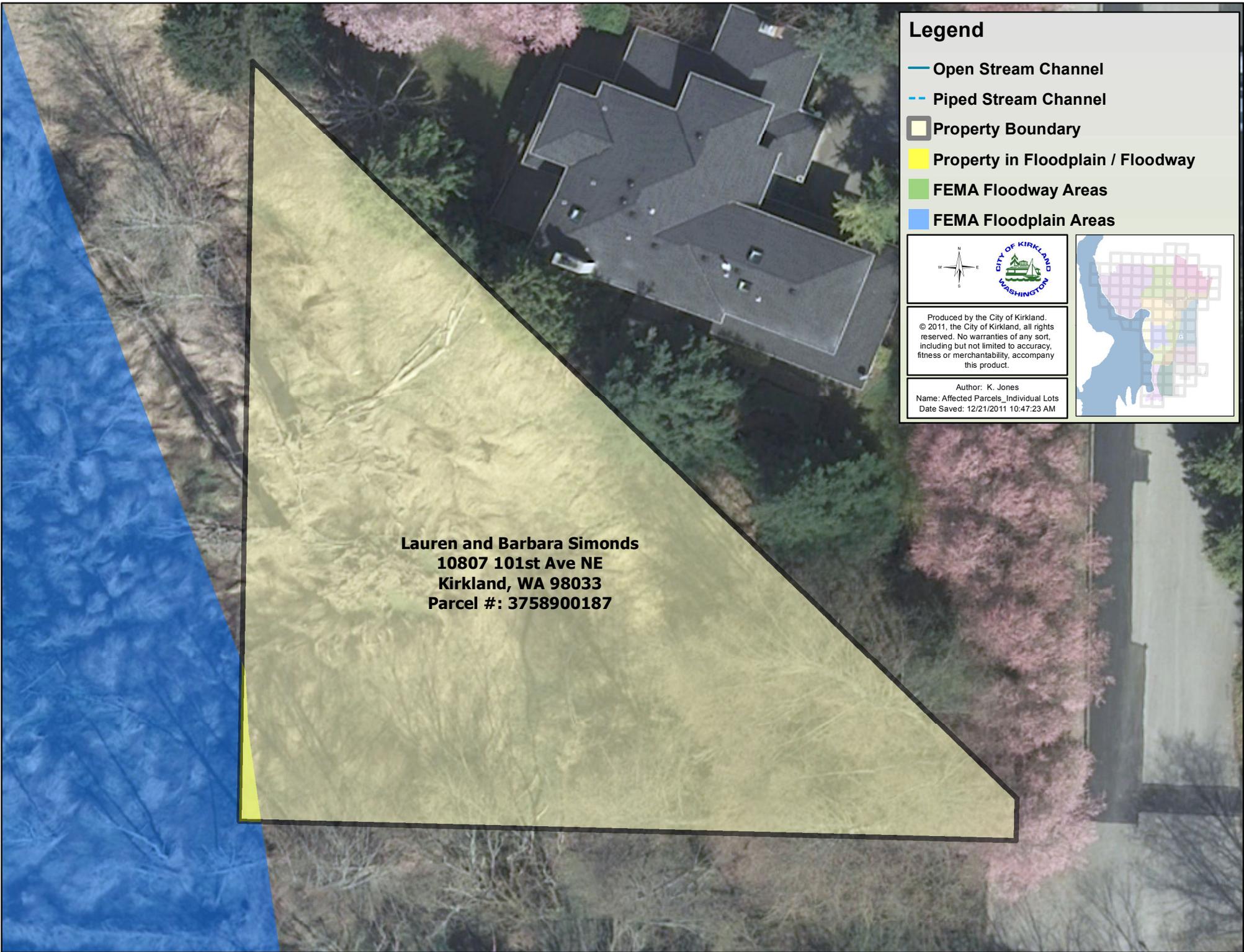
DEPARTMENT OF PLANNING AND COMMUNITY DEVELOPMENT



Eric Shields
Planning Director

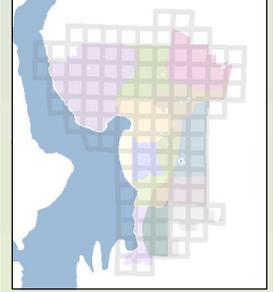
Attachments:

- Aerial of properties within floodplain (blue hatch is public property)
- Fact Sheet: *The Importance of Healthy Floodplains to Puget Sound Salmon*
- Fact Sheet: *The Biological Opinion*



Legend

- Open Stream Channel
- - - Piped Stream Channel
- Property Boundary
- Property in Floodplain / Floodway
- FEMA Floodway Areas
- FEMA Floodplain Areas



Produced by the City of Kirkland.
© 2011, the City of Kirkland, all rights reserved. No warranties of any sort, including but not limited to accuracy, fitness or merchantability, accompany this product.

Author: K. Jones
Name: Affected Parcels_Individual Lots
Date Saved: 12/21/2011 10:47:23 AM

**Lauren and Barbara Simonds
10807 101st Ave NE
Kirkland, WA 98033
Parcel #: 3758900187**



NOAA FISHERIES SERVICE

For information on Puget Sound fish recovery efforts:

www.psp.wa.gov/

For information on floodplain management and the Endangered Species Act, visit FEMA's website at:

www.fema.gov/about/regions/regionx/nfipesa.shtm

The Importance of Healthy Floodplains to Puget Sound Salmon

How do floodplains contribute to healthy salmon runs?

Floodplains are vital to the health and viability of Pacific salmon runs because they provide important habitat during the freshwater phase of the salmon life cycle.

In particular, healthy floodplains contribute to the biological processes necessary for salmon survival by:

- Inundating and creating access to spawning and rearing habitat during high flow seasons;
- Allowing large woody debris to accumulate for ecologically sound, complex habitat;
- Providing off-channel areas with high abundance of food;
- Allowing younger, smaller salmon into areas where there are fewer predators;
- Providing refuge for juvenile salmon to avoid high flow volume and velocities, allowing them to rear as long as necessary and conserve energy for their entry to the ocean;
- Providing coarse beds of sediment through which flow passes, which filters nutrients and other chemicals to maintain high water quality; and
- Providing an expanded area for depositing and storing excess sediment, particularly fine sediment. This reduces the effects of turbidity on fish.

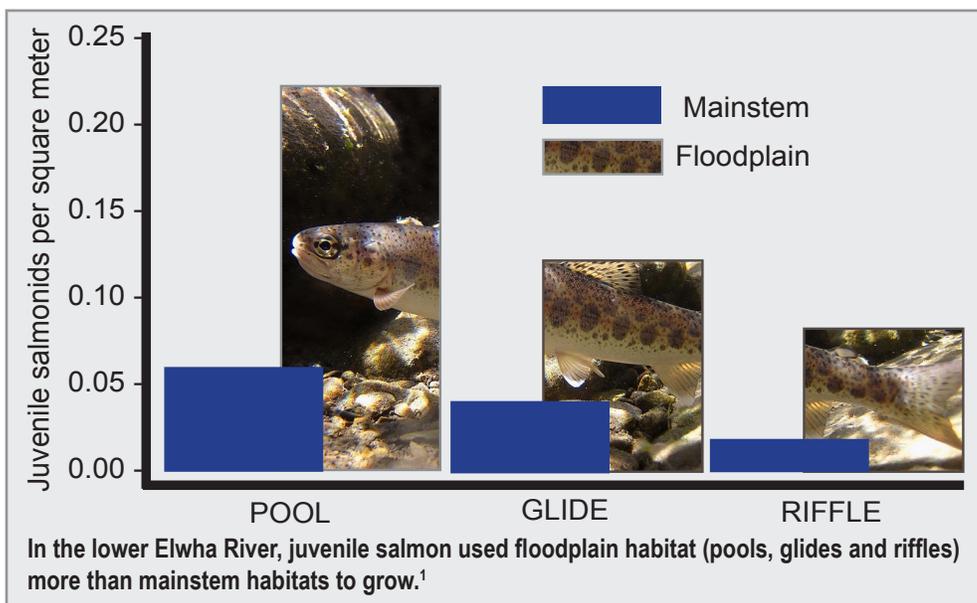
Additionally, the water storage and recharge function of floodplains ensures a source of cold water in summer months. Water seeps into the groundwater table during floods, recharging wetlands, off-channel areas, and shallow aquifers. In turn, these areas release water to the stream during the summer months. Without this recharge, flows are typically lower and water is warmer. Finally, the groundwater storage/recharge process reduces the likelihood of high-energy flood events that can scour away salmon nests during the winter months.

What does the best available science tell us about floodplains and their relationship to salmon?

Connectivity

Floodplain connectivity, forage, and natural cover in the form of undercut banks and backwaters are important for the long-term productivity of salmon populations. When rivers are connected to floodplains, floodwaters and channel migration are able to disperse and develop channels away from the mainstem. This off-channel habitat provides important refuge for young salmon.





tionship between floodplains and salmon production is pronounced. For instance, roughly 73 percent of the wetland vegetation in major deltas of Puget Sound rivers have been lost in the last 100 years. This loss of functioning habitat directly correlates to the declining status of salmon runs. However, it is one factor among many. Loss of functioning habitat in conjunction with disconnected mainstem and tributary habitat due to dam operations, unsustainable harvest practices, and hatchery operations have all contributed to the listing of Pacific salmon under the Endangered Species Act (ESA).

Rearing Habitat

Coho salmon in particular rely heavily on floodplain habitat for rearing. Juvenile coho show strong preference for pools and woody debris cover in the summer months and for side-channel and pond habitats in the winter months. But other salmon species also depend on functioning floodplain habitat. Chum salmon, for example, rely primarily on floodplain areas for spawning. Chinook juveniles use the floodplain for rearing when it is inundated.

How does development impact floodplains?

Large portions of floodplains no longer function in their natural form because they have been restructured to meet urban and agricultural needs. Development affects floodplain by disconnecting river channels from their floodplain and by destroying natural riparian upland and wetland vegetation.

There is a direct relationship between this loss of floodplain function and trends in declining salmon runs. In particular, altering the natural processes that allow habitat to form and recover from disturbances such as floods, landslides, and droughts has the following effects on salmon:

- Elimination of off-channel habitats and refuge areas;
- Increased flow velocity during flood events;
- Increased severity and frequency of peak and low flows;
- Reduced subsurface flows and groundwater contributions to the river;
- Simplified habitat complexity, due to loss of large woody debris, meanders, and side channels; and
- Reduced shade that helps to regulate water temperatures.

When viewing these effects on a regional scale, the rela-

How do functioning floodplains contribute to ecosystem health?

Currently, salmon listed under the Endangered Species Act in Puget Sound include Puget Sound Chinook salmon, Puget Sound steelhead and Hood Canal chum salmon. Functioning floodplains allow for effective habitat formation—providing refuge to salmon, increasing their energy reserves, and protecting the reproductive processes necessary for salmon recovery. To achieve recovery objectives, like adequate population distribution and genetic diversity, it is important to both preserve and restore those floodplains used by salmon.

Floodplains not only serve an important role in the freshwater phase of the salmon life cycle, but they contribute to the health of the larger ecosystem as well. Salmon, for instance, is the primary food source for numerous other species.

¹Pess, G. R., M. L. McHenry, T. J. Beechie, and J. Davies. 2008. Biological impacts of the Elwha River dams and potential salmonid responses to dam removal. *Northwest Science* 82 (Special Issue):72-90.

Photo: John McMillan

Functioning floodplains are part of healthy ecosystems

During high water episodes, floodplains provide a vast low-water-velocity area where suspended particles fall out of the water column and are deposited. These materials are a result of higher water velocity upstream which scours the channels, cleaning the gravels and cobbles and reducing their width:depth ratio. The resulting clean gravel and cobbles are a better environment to aerate salmon eggs, to provide cover for juveniles and invertebrate forage species. The deeper, narrower stream is an ideal habitat for growing salmon and reduces solar heating. Not coincidentally, this process also contributes to excellent soil quality on the floodplains. Those superb soils support complex vegetation development.

The Biological Opinion

A background on how floodplain development can affect habitat is included in Appendix C of the NFIP ESA Model Ordinance. On September 22, 2008, the National Marine Fisheries Service (NMFS) issued a Biological Opinion that required changes to the implementation of the National Flood Insurance Program in order to meet the requirements of the Endangered Species Act (ESA) in the Puget Sound watershed.

FEMA offers two ways to meet this ESA requirement:

1. Prohibit all development in the floodway and other areas as specified by the RPA.
2. Enact regulations that allow development that meet the criteria specified in the Biological Opinion by either:
 - a. Adopting the Model Ordinance, or
 - b. Enforcing the same requirements in other ordinances, such as the growth management, zoning, or critical areas regulations.

If a community chooses not to enact regulations under the two options described above, then a third option of showing compliance with ESA on a permit by permit basis will be required. This will typically involve requiring applicants for floodplain development permits to develop in the Special Flood Hazard Area to submit permit applications to the National Marine Fisheries Service. If option 3 is chosen, NFIP communities must ensure that permit applicants have demonstrated compliance with ESA before issuing a floodplain development permit.

Option 2 is generally preferred by most communities. Option 2.b. may be an easier route for those cities and counties that have critical area and shoreline management regulations. For those communities, this checklist can be used to identify if they need to amend their existing regulations to meet the Biological Opinion's criteria. If the checklist shows that additional regulations need to be adopted, language from the noted section in the Model Ordinance can be used.

It should be noted that the NFIP regulations (44 CFR 60.3(a) (2)) require participating communities "to assure that all necessary permits have been received from those governmental agencies from which approval is required by Federal or State law." Under options 2.a. and b, NFIP communities must ensure that permit applicants meet the criteria established in the Biological Opinion. If option 3 is chosen, NFIP communities must ensure that permit applicants have consulted with NMFS and received approval before issuing a floodplain development permit when necessary.

June 7th, 2012

Pathfinder Chelsea Courte Condominiums LLC
Attn: Manager
12411 NE Totem Lake Way
Kirkland, WA 98034
Parcel #: 8663270025



123 Fifth Avenue
Kirkland, Washington
98033-6189

RE: Property within a Special Flood Hazard Area

Dear Property Owner:

You are receiving this letter because our records show that property you own contains a floodplain that is affected by new requirements of the Federal Emergency Management Agency (FEMA).

A letter was sent to you on December 28th, 2011 informing you that the City will be modifying the Kirkland Municipal Code (KMC) in order to address and implement FEMA's new requirements that apply to properties that have FEMA floodplain areas located on them. Along the same lines, the Department of Ecology (DOE) has also submitted to the City a checklist to update the Flood Damage Prevention section located within the KMC. To comply with both FEMA and the DOE, here is a summary of the proposed changes:

- 1) Addition of language to require the property owner or proponent of any development or activity within the FEMA mapped floodplain or floodway to provide a Biological Assessment to ensure that their project is in compliance with the National Flood Insurance Program's Biological Opinion.
- 2) Addition of new definitions
- 3) Revisions to existing text to clarify the new regulations

The following link contains the draft ordinance that will be presented to the Kirkland City Council on August 7th, 2012 (http://www.kirklandwa.gov/depart/Planning/Code_Updates/FEMA.htm). If you wish to have a copy sent to you, contact Teresa Swan at the contact number below. City Council meetings are open to the public and begin at 7:30pm in the Council Chambers at Kirkland City Hall located at 123 5th Ave. The City Council may adopt the ordinance at that meeting or at a subsequent meeting.

Amendments to the KMC do not require a public hearing. However, if you have any questions, comments or concerns on the draft ordinance, please contact Teresa Swan at (425) 587-3258 or tswan@kirklandwa.gov by June 29th, 2012. We will respond to any concerns you may have and forward them to the City Council along with staff's response as part of the staff memo for the amendments.

You may also comment in person on the draft ordinance by attending the City Council meeting and signing up to speak at the beginning of the meeting under the agenda item of "Comments from the Audience." Each speaker is limited to three minutes.

Sincerely,

DEPARTMENT OF PUBLIC WORKS



Ray Steiger, P.E.
Public Works Director

DEPARTMENT OF PLANNING AND COMMUNITY DEVELOPMENT



Eric Shields
Planning Director

ORDINANCE O-4367

AN ORDINANCE OF THE CITY OF KIRKLAND RELATING TO FLOOD DAMAGE PREVENTION AND AMENDING CHAPTER 21.56 OF THE KIRKLAND MUNICIPAL CODE, FILE CAM12-00694.

The City Council of the City of Kirkland do ordain as follows:

Section 1. Kirkland Municipal Code ("KMC") 21.56.020 is hereby amended to read as follows:

21.56.020 Definitions.

Unless specifically defined below, words or phrases used in this chapter shall be interpreted so as to give them the meaning they have in common usage and to give this chapter its most reasonable application.

(1) "Appeal" means a request for a review of the building official's interpretation of any provision of this chapter or a request for a variance.

(2) "Area of shallow flooding" means a designated AO or AH zone on the flood insurance rate map (FIRM). ~~The AO Zones have base flood depths that range from one to three feet above the natural ground;~~ a clearly defined channel does not exist; the path of flooding is unpredictable and indeterminate; and, velocity flow may be evident. AO is characterized as sheet flow, ~~and AH indicates zones have ponding, as shown with standard base flood elevations.~~

(3) "Area of special flood hazard" means the land in the floodplain within a community subject to a one percent or greater chance of flooding in any given year. Designation on maps always includes the letters A or V.

(4) "Base flood" means the flood having a one percent chance of being ~~equaled~~ ~~exceeded~~ or exceeded in any given year. Also referred to as the "one-hundred-year flood." ~~Designation Designated on maps FIRMs by always includes~~ the letters A or V.

(5) "Basement" means any area of the building having its floor subgrade (below ground level) on all sides.

(6) ~~"Breakaway wall" means a wall that is not part of the structural support of the building and is intended through its design and construction to collapse under specific lateral loading forces, without causing damage to the elevated portion of the building or supporting foundation systems.~~

(~~6~~7) "Critical facility" means a facility for which even a slight chance of flooding might be too great. Critical facilities include but are not limited to schools, nursing homes, hospitals, police, fire and emergency response installations and installations which produce, use or store hazardous materials or hazardous waste.

(~~7~~8) "Development" means any manmade change to improved or unimproved real estate, including but not limited to buildings or other structures, mining, dredging, filling, grading, paving, excavation or drilling operations or storage of equipment or material located within the area of special flood hazard.

(9) "Elevated building" means for insurance purposes, a non-basement building that has its lowest elevated floor raised above

ground level by foundation walls, shear walls, post, piers pilings, or columns.

(~~8~~10) "Flood" or "flooding" means a general and temporary condition of partial or complete inundation of normally dry land areas from:

- (A) The overflow of inland or tidal waters; and/or
- (B) The unusual and rapid accumulation of runoff of surface waters from any source.

(~~9~~11) "Flood insurance rate map (FIRM)" means the official map on which the Federal Insurance Administration has delineated both the areas of special flood hazards and the risk premium zones applicable to the community.

(~~10~~12) "Flood insurance study" means the official report provided by the Federal Insurance Administration that includes flood profiles, the FIRM~~the flood boundary floodway map~~, and the water surface elevation of the base flood.

(~~11~~13) "Floodway" means the channel of a river or other watercourse and the adjacent land areas that must be reserved in order to discharge the base flood without cumulatively increasing the water surface elevation more than one foot.

(~~12~~14) "Lowest floor" means the lowest floor of the lowest enclosed area (including basement). An unfinished or flood-resistant enclosure, usable solely for parking of vehicles, building access, or storage, in an area other than a basement area, is not considered a building's lowest floor; provided, that such enclosure is not built so as to render the structure in violation of the applicable nonelevation design requirements of this chapter found at Section 21.56.090(1)(B).

(~~13~~15) "Manufactured home" means a structure, transportable in one or more sections, which is built on a permanent chassis and is designed for use with or without a permanent foundation when connected to the required utilities. For floodplain management purposes, the term "manufactured home" also includes park trailers, travel trailers, and other similar vehicles placed on a site for greater than one hundred eighty consecutive days. For insurance purposes, the term "manufactured home" does not include park trailers, travel trailers, and other similar vehicles.

(~~14~~16) "Manufactured home park or subdivision" means a parcel (or contiguous parcels) of land divided into two or more manufactured home lots for rent or sale.

(~~15~~17) "New construction" means structures for which the "start of construction" commenced on or after the effective date of the ordinance codified in this chapter.

(18) "New manufactured home park or subdivision" means a manufactured home park or subdivision for which the construction of facilities for servicing the lots on which the manufactured homes are to be affixed (including at a minimum, the installation of utilities, the construction of streets, and either final site grading or the pouring of concrete pads) is completed on or after the effective date of adopted floodplain management regulations.

(~~16~~19) "Recreational vehicle" means a vehicle:

- (A) Built on a single chassis;
- (B) Four hundred square feet or less when measured at the largest horizontal projection;
- (C) Designed to be self-propelled or permanently towable by a light duty truck; and

(D) Designed primarily not for use as a permanent dwelling but as temporary living quarters for recreational camping, travel or seasonal use.

~~(1720)~~ "Start of construction" includes substantial improvement, and means the date the building permit was issued; provided, the actual start of construction, repair, reconstruction, placement or other improvement was within one hundred eighty days of the permit date. The "actual start" means either the first placement of permanent construction of a structure on a site, such as the pouring of slab or footings, the installation of piles, the construction of columns, or any work beyond the stage of excavation; or the placement of a manufactured home on a foundation. Permanent construction does not include land preparation, such as clearing, grading and filling; nor does it include the installation of streets and/or walkways; nor does it include excavation for a basement, footings, piers, or foundation or the erection of temporary forms; nor does it include the installation on the property of accessory buildings, such as garages or sheds not occupied as dwelling units or not part of the main structure. For a substantial improvement, the "actual start" of construction means the first alteration of any wall, ceiling, floor, or other structural part of a building, whether or not that alteration affects the external dimensions of the building.

~~(1821)~~ "Structure" means a walled and roofed building including a gas or liquid storage tank that is primarily above ground.

(22) "Substantial damage" means damage of any origin sustained by a structure whereby the cost of restoring the structure to its before-damaged condition would equal or exceed fifty percent of the market value of the structure before the damage occurred.

~~(1923)~~ "Substantial improvement" means any repair, reconstruction, or improvement of a structure, the cost of which equals or exceeds fifty percent of the market value of the structure either:

(A) Before the improvement or repair is started; or

(B) If the structure has been damaged and is being restored, before the damage occurred. For the purposes of this definition, "substantial improvement" is considered to occur when the first alteration of any wall, ceiling, floor, or other structural part of the building commences, whether or not that alteration affects the external dimensions of the structure.

The term ~~does not, however, include either~~ excludes:

(i) Any project for improvement of a structure to ~~comply with correct~~ existing state or local health, sanitary, or safety code specifications which ~~are solely~~ have been previously identified by the local code enforcement official and which are the minimum necessary to assure safe living conditions; or

(ii) Any alteration of a structure listed on the National Register of Historic Places or a State Inventory of Historic Places.

~~(20) "Water dependent" means a structure for commerce or industry which cannot exist in any other location and is dependent on the water by reason of the intrinsic nature of its operations.~~

~~(2124)~~ "Variance" means a grant of relief from the requirements of this chapter which permits construction in a manner that would otherwise be prohibited by this chapter.

(25) "Water dependent" means a structure for commerce or industry which cannot exist in any other location and is dependent on the water by reason of the intrinsic nature of its operations.

Section 2. KMC 21.56.030 is hereby amended to read as follows:

21.56.030 Basis for establishing the areas of special flood hazard.

The areas of special flood hazard identified by the Federal Insurance Administration in a scientific and engineering report entitled "The Flood Insurance Study for ~~the City of Kirkland~~ King County, Washington and Incorporated Areas" dated September 30, 1993, having an effective date of May 16, 1995, and any revisions thereto with accompanying flood insurance maps is adopted by reference and declared to be a part of this chapter. The flood insurance study and the FIRM are ~~is~~ on file at City Hall, 123 Fifth Avenue, Kirkland, WA 98033.

Section 3. KMC 21.56.035 is hereby amended to read as follows:

21.56.035 Penalties for noncompliance.

No structure or land shall hereafter be constructed, located, extended, converted, or altered without full compliance with the terms of this chapter and other applicable regulations. Violation of the provisions of this chapter by failure to comply with any of its requirements (including violations of conditions and safeguards established in connection with conditions) shall constitute a misdemeanor. ~~Any person who violates this chapter or fails to comply with any of its requirements shall be guilty of a simple crime and subject to the penalties provided therefor in Section 1.04.010(C) of this code.~~ Each day of violation shall constitute a separate offense. Nothing herein contained shall prevent the city from taking such other lawful action as is necessary to prevent or remedy any violation.

Section 4. KMC 21.56.055 is hereby amended to read as follows:

21.56.055 Development permit required.

A development permit shall be obtained before construction or development begins within any area of special flood hazard established in Section 21.56.030. The permit shall be for all structures including manufactured homes, as set forth in the definitions, Section 21.56.020, and for all development including fill and other activities, also as set forth in the definitions. The applicant shall also submit a habitat assessment in compliance with "FEMA's Floodplain Habitat Assessment and Mitigation: Regional Guidance Manual" when developing within the special flood hazard area. The applicant shall either: (a) fund a habitat assessment prepared by the City's consultant; or (b) submit a habitat assessment prepared by a qualified professional approved by the City and fund a review of this assessment by the City's consultant.

Section 5. KMC 21.56.070 is hereby amended to read as follows:

21.56.070 Duties and responsibilities of the building official.

Duties of the building official shall include, but not be limited to:

- (1) Permit Review.

- (A) Review all development permits to determine that the permit requirements of this chapter have been satisfied;
 - (B) Review all development permits to determine that all necessary permits have been obtained from those federal, state, or local governmental agencies from which prior approval is required;
 - (C) Review all development permits to determine if the proposed development is located in the floodway. If located in the floodway, assure that the encroachment provisions of Section 21.56.095(1) are met.
- (2) Use of Other Base Flood Data. When base flood elevation data has not been provided in accordance with Section 21.56.030, the building official shall obtain, review, and reasonably utilize any base flood elevation and floodway data available from a federal, state or other source, in order to administer Sections 21.56.090 and 21.56.095.
- (3) Information to Be Obtained and Maintained.
- (A) Where base flood elevation data is provided through the flood insurance study, FIRM, or required as in subsection (2) of this section, obtain and record the actual elevation (in relation to mean sea level) of the lowest floor (including basement) of all new or substantially improved structures, and whether or not the structure contains a basement;
 - (B) For all new or substantially improved floodproofed nonresidential structures where base flood elevation data is provided through the flood insurance study, FIRM, or as required as in subsection (2) of this section:
 - (i) ~~Verify and record the actual elevation (in relation to mean sea level),~~Obtain and record the elevation (in relation to mean sea level) to which the structure was floodproofed; and
 - (ii) Maintain the floodproofing certifications required in Section 21.56.060(3);
 - (C) Maintain for public inspection all records pertaining to the provisions of this chapter.
- (4) Alteration of Watercourses.
- (A) Notify adjacent communities and the Washington State Department of Ecology prior to any alteration or relocation of a watercourse, and submit evidence of such notification to the Federal Insurance Administration;
 - (B) Require that maintenance is provided within the altered or relocated portion of said watercourse so that the flood-carrying capacity is not diminished.
- (5) Interpretation of FIRM Boundaries. Make interpretations where needed, as to exact location of the boundaries of the areas of special flood hazards (for example, where there appears to be a conflict between a mapped boundary and actual field conditions). The person contesting the location of the boundary shall be given a reasonable opportunity to appeal the interpretation as provided in Section 21.56.075.

Section 6. KMC 21.56.085 is hereby amended to read as follows:

21.56.085 Provisions for flood hazard reduction—General standards.

In all areas of special flood hazards, the following standards are required:

- (1) Anchoring.
 - (A) All new construction and substantial improvements shall be anchored to prevent flotation, collapse, or lateral movement of the structure.
 - (B) All manufactured homes must likewise be anchored to prevent flotation, collapse or lateral movement, and shall be installed using methods and practices that minimize flood damage. Anchoring methods may include, but are not limited to, use of over-the-top or frame ties to ground anchors. (For more detailed information, refer to guidebook FEMA-85 "Manufactured Home Installation in Flood Hazard Areas.")
- (2) Construction Materials and Methods.
 - (A) All new construction and substantial improvements shall be constructed with materials and utility equipment resistant to flood damage.
 - (B) All new construction and substantial improvements shall be constructed using methods and practices that minimize flood damage.
 - (C) Electrical, heating, ventilation, plumbing, and air-conditioning equipment and other service facilities shall be designed and/or otherwise elevated or located so as to prevent water from entering or accumulating within the components during conditions of flooding.
- (3) Utilities.
 - (A) All new and replacement water supply systems shall be designed to minimize or eliminate infiltration of floodwaters into the system.
 - (B) Water wells shall be located on high ground that is not in the floodway (FEMA endorses the more restrictive WAC floodway standard identified in WAC 173-160-171).
 - (~~B~~C) New and replacement sanitary sewage systems shall be designed to minimize or eliminate infiltration of floodwaters into the systems and discharge from the systems into floodwaters.
 - (~~E~~D) On-site waste disposal systems shall be located to avoid impairment to them or contamination from them during flooding.
- (4) Subdivision Proposals.
 - (A) All subdivision proposals shall be consistent with the need to minimize flood damage.
 - (B) All subdivision proposals shall have public utilities and facilities such as sewer, gas, electrical, and water systems located and constructed to minimize flood damage.
 - (C) All subdivision proposals shall have adequate drainage provided to reduce exposure to flood damage.
 - (D) Where base flood elevation data has not been provided or is not available from another authoritative source, it shall be generated for subdivision proposals and other proposed developments which contain at least fifty lots or five acres (whichever is less).
- (5) Review of Building Permits. Where elevation data is not available either through the flood insurance study or from another authoritative source (Section 21.56.070(2)), applications for building permits shall be reviewed to assure that proposed construction will be reasonably safe from flooding. The test of reasonableness is a local judgment and includes use of historical data, high water marks, photographs of past flooding, etc., where available. Failure to elevate at least two feet above grade in these zones may result in higher insurance rates.

Section 7. KMC 21.56.090 is hereby amended to read as follows:

21.56.090 Provisions for flood hazard reduction—Specific standards.

In all areas of special flood hazards where base flood elevation data has been provided as set forth in Sections 21.56.030 or 21.56.070(2), the following provisions are required:

(1) Residential Construction.

(A) New construction and substantial improvement of any residential structure shall have the lowest floor, including basement, elevated one foot or more above base flood elevation.

(B) Fully enclosed areas below the lowest floor that are subject to flooding are prohibited, or shall be designed to automatically equalize hydrostatic flood forces on exterior walls by allowing for the entry and exit of floodwaters. Designs for meeting this requirement must either be certified by a registered professional engineer or architect or must meet or exceed the following minimum criteria:

(i) A minimum of two openings having a total net area of not less than one square inch for every square foot of enclosed area subject to flooding shall be provided.

(ii) The bottom of all openings shall be no higher than one foot above grade.

(iii) Openings may be equipped with screens, louvers, or other coverings or devices; provided, that they permit the automatic entry and exit of floodwaters.

(2) Nonresidential Construction. New construction and substantial improvement of any commercial, industrial or other nonresidential structure shall either have the lowest floor, including basement, elevated one foot or more above the level of the base flood elevation; or, together with attendant utility and sanitary facilities, shall:

(A) Be floodproofed so that below one foot above the base flood level the structure is watertight with walls substantially impermeable to the passage of water;

(B) Have structural components capable of resisting hydrostatic and hydrodynamic loads and effects of buoyancy;

(C) Be certified by a registered professional engineer or architect that the design and methods of construction are in accordance with accepted standards of practice for meeting provisions of this subsection based on their development and/or review of the structural designs, specifications and plans. Such certification shall be provided to the official as set forth in Section 21.56.070(3)(B);

(D) Nonresidential structures that are elevated, and not floodproofed, must meet the same standards for space below the lowest floor as described in subsection (1)(B) of this section;

(E) Applicants floodproofing nonresidential buildings shall be notified that flood insurance premiums will be based on rates that are one foot below the floodproofed level (e.g., a building constructed to ~~one foot above~~ the base flood level will be rated as one foot below ~~that level~~).

(3) Critical Facility. Construction of new critical facilities shall be, to the extent possible, located outside the limits of the ~~base floodplain~~ Special Flood Hazard Area (SFHA)(100-year floodplain). Construction of new critical facilities shall be permissible within the ~~base floodplain~~ SFHA if no feasible alternative site is available. Critical facilities constructed within the ~~base floodplain~~ SFHA shall have the lowest floor elevated ~~to three feet or more~~ above the level of the base flood elevation at the site or to the height of the 500-year flood,

whichever is higher. Access to and from the critical facility should also be protected to the height utilized above. Floodproofing and sealing measures must be taken to ensure that toxic substances will not be displaced by or released into floodwaters. Access routes elevated to or above the level of the base floodplain flood elevation shall be provided to all critical facilities to the extent possible.

(4) Manufactured Homes.

(A) All manufactured homes to be placed or substantially improved within zones A1—30, AH, and AE shall be elevated on a permanent foundation such that the lowest floor of the manufactured home is one foot or more above the base flood elevation; and be securely anchored to an adequately anchored foundation system to resist flotation, collapse and lateral movement in accordance with the provisions of Section 21.56.085 (1)(B). This applies to manufactured homes:

(i) Outside of a manufactured home park or subdivision;

(ii) In a new manufactured home park or subdivision;

(iii) In an expansion to an existing manufactured home park or subdivision; or

(iv) In an existing manufactured home park or subdivision on a site which a manufactured home has incurred "substantial damage" as a result of a flood.

(B) Manufactured homes to be placed or substantially improved on sites in an existing manufactured home park or subdivision that are not subject to the above manufactured home provisions shall be elevated so that either:

(i) The lowest flood of the manufactured home is elevated one foot or more above the base flood elevation; or

(ii) The manufactured home chassis is supported by reinforced piers or other foundation elements of at least equivalent strength that are no less than 36 inches in height above grade and are securely anchored to an adequately anchored foundation system to resist flotation, collapse and lateral movement.

(5) Recreational vehicles placed on sites are required to either:

(A) Be on the site for fewer than one hundred eighty consecutive days; or

(B) Be fully licensed and ready for highway use, on wheels or jacking system, attached to the site only by quick disconnect type utilities and security devices, and have no permanently attached additions; or

(C) Meet the requirements of subsection (4) of this section.

Section 8. KMC 21.56.095 is hereby amended to read as follows:

21.56.095 Floodways.

Located within areas of special flood hazard established in Section 21.56.030 are areas designated as floodways. Since the floodway is an extremely hazardous area due to the velocity of floodwaters which carry debris, potential projectiles, and erosion potential, the following provisions apply:

(1) Prohibit encroachments, including fill, new construction, substantial improvements, and other development unless certification by a registered professional engineer or architect is provided demonstrating through hydrologic and hydraulic analyses performed in accordance with standard engineering practice that encroachments

shall not result in any increase in flood levels during the occurrence of the base flood discharge.

(2) If subsection (1) of this section is satisfied, all new construction and substantial improvements shall comply with all applicable flood hazard reduction provisions of Sections 21.56.085 through 21.56.105.

(3) Construction or reconstruction of residential structures is prohibited within designated floodways, except for (A_i) repairs, reconstruction or improvements to a structure which do not increase the ground floor area; and (B_{ii}) repairs, reconstruction or improvements to a structure, the cost of which does not exceed fifty percent of the market value of the structure, either (i_A) before the repair, reconstruction or improvement is started or (ii_B) if the structure has been damaged and is being restored before the damage occurred. ~~Work done on structures to comply with existing health, sanitary or safety codes; Any project for improvement of a structure to correct existing violations of state or local health, sanitary, or safety code specifications which have been identified by the local code enforcement official and which are the minimum necessary to assure safe living conditions or to structures identified as historic places, may not be included be excluded~~ in the fifty percent of market value limitation.

Section 9. KMC 21.56.105 is hereby amended to read as follows:

21.56.105 Standards for shallow flooding areas (AO zones).

Shallow flooding areas appear on FIRMs as AO zones with depth designations. The base flood depths in these zones range from one to three feet where a clearly defined channel does not exist, or where the path of flooding is unpredictable and where velocity flow may be evident. Such flooding is usually characterized as sheet flow. In these areas, the following provisions apply:

(1) New construction and substantial improvements of residential structures and manufactured homes within AO zones shall have the lowest floor (including basement) elevated above the highest adjacent grade of the building site ~~structure, one foot or more, to or~~ above the depth number specified on the FIRM (at least two feet above the highest adjacent grade if no depth number is specified).

(2) New construction and substantial improvements of nonresidential structures within AO zones shall either:

(A) Have the lowest floor (including basement) elevated above the highest adjacent grade of the building site, ~~to or above the depth number specified on the FIRM~~ one foot or more above the depth number specified on the FIRM (at least two feet if no depth number is specified); or

(B) Together with existing attendant utility and sanitary facilities, be completely floodproofed to or above that level ~~one foot above the depth number specified on the FIRM~~ so that any space below that level is watertight with walls substantially impermeable to the passage of water and with structural components having the capability of resisting hydrostatic and hydrodynamic loads and effects of buoyancy. If this method is used, compliance shall be certified by a registered professional engineer or architect as in Section 21.56.090(2)(C).

(3) Require adequate drainage paths around structure on slopes to guide floodwaters around and away from proposed structures.

- (4) Recreational vehicles placed on sites within AO zones on the community's FIRM are required to either:
 - (A) Be on the site for fewer than one hundred eighty consecutive days; or
 - (B) Be fully licensed and ready for highway use, on its wheels or jacking system, attached to the site only by quick disconnect type utilities and security devices, and have no permanently attached additions; or
 - (C) Meet the requirements of subsections (1) and (3) of this section and the anchoring requirements for manufactured homes in Section 21.56.085(1)(B).

Section 10. If any provision of this ordinance or its application to any person or circumstance is held invalid, the remainder of the ordinance, or the application of the provision to other persons or circumstances is not affected.

Section 11. This ordinance shall be in force and effect five days from and after its passage by the Kirkland City Council and publication pursuant to Section 1.08.017, Kirkland Municipal Code in the summary form attached to the original of this ordinance and by this reference approved by the City Council.

Passed by majority vote of the Kirkland City Council in open meeting this ____ day of _____, 2012.

Signed in authentication thereof this ____ day of _____, 2012.

MAYOR

Attest:

City Clerk

Approved as to Form:

City Attorney

PUBLICATION SUMMARY
OF ORDINANCE O-4367

AN ORDINANCE OF THE CITY OF KIRKLAND RELATING TO FLOOD DAMAGE PREVENTION AND AMENDING CHAPTER 21.56 OF THE KIRKLAND MUNICIPAL CODE, FILE CAM12-00694.

SECTION 1. Amends Kirkland Municipal Code (KMC) Section 21.56.020 relating to flood damage prevention definitions.

SECTION 2. Amends KMC Section 21.56.030 relating to the basis for establishing areas of special flood hazard.

SECTION 3. Amends KMC Section 21.56.035 relating to the penalties for noncompliance.

SECTION 4. Amends KMC Section 21.56.055 relating to development permit requirements.

SECTION 5. Amends KMC Section 21.56.070 relating to duties and responsibilities of the building official.

SECTION 6. Amends KMC Section 21.56.085 relating to general standards for flood hazard reduction.

SECTION 7. Amends KMC Section 21.56.090 relating to specific standards for flood hazard reduction.

SECTION 8. Amends KMC Section 21.56.095 relating to floodways.

SECTION 9. Amends KMC Section 21.56.105 relating to standards for shallow flooding areas.

SECTION 10. Provides a severability clause for the ordinance.

SECTION 11. Authorizes publication of the ordinance by summary pursuant to KMC Section 1.08.017 and establishes the effective date as five days after publication of summary.

The full text of this Ordinance will be mailed without charge to any person upon request made to the City Clerk for the City of Kirkland. The Ordinance was passed by the Kirkland City Council at its meeting on the _____ day of _____, 2012.

I certify that the foregoing is a summary of Ordinance _____ approved by the Kirkland City Council for summary publication.

City Clerk