

WHITE PAPER

**FEMA Floodplain Maps – The Status of Updated Mapping
and its Impacts on Homeowners in Washington**

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June 18, 2008

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INTRODUCTION/EXECUTIVE SUMMARY

For the past several years, the Federal Emergency Management Agency (FEMA) has been working to update the floodplain maps for most of the counties within Washington State. While progress has been fairly slow, and FEMA has only completed the remapping in a few counties at this point, already the impacts have been dramatic. Significant areas that were previously considered safe from flooding are now being mapped as within the 100 year flood plain, and the mapping for other areas already in the floodplain are being revised to show higher flood waters in a major flood event. These map changes have begun and will continue to have dramatic implications for the development capacity of the affected properties. Most notably, properties newly mapped as within the floodplain will be subject to significant development restrictions aimed at reducing the risk of damage in a flood event, and many property owners will be required to purchase new or additional flood hazard insurance to mitigate the risk of flood damage.

The Washington Realtors® (Realtors®) requested that the law firm of GordonDerr prepare this memorandum explaining the FEMA remapping process, and providing a general overview of the impacts of the remapping on homeowners in Washington, and its interaction with Washington State development laws, such as the Growth Management Act and the Shoreline Management Act. In preparing this memorandum, we followed the outline of topics provided by the Realtors®, focusing on the key issues implicated by the FEMA remapping. It is worth noting, however, that any one of these topics could have been its own memorandum. Consequently, this memorandum is intended to provide only a basic primer on FEMA flood mapping and does not address in detail many of the issues that are likely important to many Washington Realtors® (e.g., specific information regarding flood hazard insurance rates for residences in different flood hazard zones).

DISCUSSION

I. The National Flood Insurance Program

The genesis for the FEMA floodplain maps is the National Flood Insurance Program (NFIP). The U.S. Congress established the NFIP on August 1, 1968, following several years of severe natural disasters.¹ The intent of the NFIP was to reduce future flood damage through community floodplain management and to provide protection for property owners against potential flood related losses through insurance (rather than relying exclusively on emergency disaster relief programs).²

¹ The National Flood Insurance Act, 42 USC §4001 *et seq.*

² The NFIP was broadened and modified with the passage of the Flood Disaster Protection Act of 1973 and other legislative measures. It was further modified by the national Flood Insurance Reform Act of 1994 and the Flood Insurance Reform Act of 2004. *See* Federal Emergency Management Agency, “Answers to Questions About the National Flood Insurance Program” (May 2006) at 1.

To qualify to participate in the NFIP, a community must adopt and maintain a local floodplain management ordinance that meets the minimum requirements set forth in the NFIP. Absent such an ordinance, the citizens within the jurisdiction cannot obtain flood insurance through the program. The NFIP makes flood insurance a mandatory condition of receiving any federal or federally-related assistance in a flood event.

The NFIP is administered by FEMA, which is now a component of the U.S. Department of Homeland Security. The Washington State Department of Ecology (“Ecology”) is the designated State Coordinating Agency with FEMA, which means they are responsible for coordinating with FEMA regarding local floodplain management regulations necessary for participation in the NFIP. Close to three hundred towns, cities, counties, and tribes within Washington State participate in the NFIP.

II. Overview of FEMA Floodplain Maps

To support the NFIP, FEMA identifies flood hazard areas throughout the United States by producing Flood Insurance Rate Maps (FIRMs). FEMA is mandated by federal law to assess at least every five years whether it is necessary to revise or update the boundaries and classifications of all floodplain areas and flood risk zones in the United States shown on the FIRMs.³ In practice, few flood hazard maps for Washington jurisdictions have been significantly updated or altered in more than 20 years.

In the late 1990s, however, FEMA began a national initiative to update and convert all paper-based flood maps into digital format, called the Map Modernization Program.⁴ Flood hazard conditions are constantly changing and many existing FIRMs do not reflect recent development and/or natural changes in the environment (e.g., siltation in rivers, or changes in a river’s flow path). The Map Modernization Program is based on the belief that updated maps are needed to ensure that the NFIP and local flood hazard regulations are more closely aligned with actual risk, to encourage wise community-based floodplain management, and to improve citizens’ flood hazard awareness.

A. FIRM Terminology

FIRMs commonly identify several areas of flood hazards. The primary area delineated in the FIRMS is known as the Special Flood Hazard Area (“SFHA”), which is the total area that would be inundated by flood water in a 100-year flood event. A 100-year flood event is defined as that flood having a 1-percent chance of occurring in any given year. The SFHA is commonly known as the 100-year floodplain (the “floodplain”).

³ 42 USC § 4101(e).

⁴ Most of these maps will not be derived from new hydrologic and hydraulic engineering studies due to budget limitations, but all will be provided in digital format including new base mapping, new topography where possible, elevations based on the North American Vertical Datum, and will be produced as a single map for counties including all of their cities and towns. Washington State Department of Ecology, “New Flood Maps and Insurance Grandfathering” (March 2006) at 1.

FEMA uses the water levels from the 100-year flood to determine both the scope of the SFHA/floodplain – i.e., the area measured horizontally over the land which will be inundated with water in the 100-year flood – and also to establish the “base flood elevation” (BFE) for the floodplain area – i.e., the maximum vertical elevation of the water anticipated during a 100-year flood event. This 1% (100-year) flood is the standard used by the NFIP as the basis for floodplain management. NFIP mandates the local jurisdictions adopted flood hazard regulations limiting development in these areas, and also uses the floodplain as the boundary for determining which properties must obtain flood hazard insurance.⁵ Within the floodplain, the FIRMs commonly map different areas of land as having differing degrees of flood risk. These area classifications within the floodplain are known as flood hazard zones.

The FIRMs may also delineate the regulatory floodway. The floodway is defined as the stream channel plus that portion of the overbanks that must be kept free from encroachment in order to discharge the 100-year flood without increasing flood levels within the floodplain by more than 1.0 foot above the BFE. Participating NFIP communities are responsible for prohibiting encroachments, including fill, new construction, and substantial improvements, within the floodway unless a project applicant is able to show through the submission of hydrologic and hydraulic analyses that the proposed improvements will not increase BFE for the rest of the community.⁶

B. Map Adoption Process

The Map Modernization Program is ongoing nationwide. In Washington, FEMA is updating the FIRMs as part of the Map Modernization Program on a county-by-county basis. The process of updating a county’s FIRM is a multi-step process that usually takes two-to-three years from start to finish. The first step is a scoping meeting between FEMA, the Washington State Department of Ecology, and representatives from the affected local governments, i.e., the county and each of the cities within the county. The purpose is to provide local governments with an opportunity to identify and prioritize areas in need of new floodplain studies. Following this scoping meeting, FEMA contracts with a hydraulic engineer to prepare a preliminary draft flood study, from which draft or “preliminary” FIRMs are derived.

Once the preliminary flood study is complete, FEMA contacts the chief executive officer of the community (“CEO”, usually the County Executive)⁷ and publishes notice at least twice in local newspapers of the proposed FIRM.⁸ FEMA also hosts one or more community meetings to provide members of the public and local government an opportunity to comment on the draft maps.

⁵ See 44 CFR 59.1; *see also* Federal Emergency Management Agency, “Unit 3: NFIP Flood Studies and Maps,” [A Study Guide and Desk Reference for Local Officials](http://www.fema.gov/pdf/floodplain/nfip_sg_unit_3.pdf), available at http://www.fema.gov/pdf/floodplain/nfip_sg_unit_3.pdf.

⁶ Federal Emergency Management Agency, “Answers to Questions About the National Flood Insurance Program” (May 2006) at 30.

⁷ Chief Executive Officer of the community (CEO) means the official of the community who is charged with the authority to implement and administer laws, ordinances and regulations for that community. 44 CFR 59.1.

⁸ 44 CFR 67.4.

An official 90-day public comment period begins on the date of the second publication notice.⁹ During this 90-day period – and only during this 90-day period – citizens and/or the local jurisdiction can submit scientific or technical appeals and protests of the preliminary FIRMs. At the end of the 90-day appeal period, assuming no appeals have been filed, FEMA issues a Letter of Final Determination, which declares the preliminary FIRMs the final floodplain maps for the area. Local jurisdictions participating in NFIP have six months thereafter in which to adopt the updated maps and corresponding flood hazard regulations to remain part of the NFIP.¹⁰

C. Technical Basis for Determining Maps

FEMA utilizes flood insurance studies (“FIS”) to identify and categorize the flood hazard areas within each jurisdiction. The FISs are detailed studies created using a combination of statistical analyses of records of river flows, storm tides, and rainfall; information obtained through consultation with the community; topographic surveys; and hydrologic and hydraulic analyses.¹¹ Collectively, this information is input into the mathematical “flood model” which determines those areas subject to flood risk and to what degree.

The following subsections address specific questions/issues raised by the Realtors®, and how the subject features affect (or do not affect) FEMA’s flood mapping.

i. Consideration of Storage Areas

In general, areas of land that operate as storage for floodwaters during flood events are *not* considered in flood study modeling or resulting floodplain maps. Typically, no offset is given in recognition of storage areas. In those limited cases where an area may have a significant amount of available storage (i.e., several square miles of storage capacity), FEMA may use an alternative flood modeling method that takes into account storage. But even in those instances where storage areas are taken into consideration, FEMA representatives have indicated that storage areas do not significantly impact the resulting flood maps.

By comparison, storage areas can become relevant in development permitting. For example, one FEMA-approved method to offset impacts from fill generated by a development project in the floodplain is to remove an amount of material from the site equivalent to the area filled. Although FEMA has sanctioned this method, a developer would need to review the local jurisdiction's flood hazard ordinance to determine whether their local jurisdiction has similarly adopted this method.

⁹ 44 CFR 67.5.

¹⁰ 44 CFR 67.9.

¹¹ Note, hydrologic analysis refers to the study of the effect of water on the earth's surface, in the soil and underlying rocks, and in the atmosphere. By comparison, hydraulic analysis refers to the study of water in motion.

ii. Levee/Dike Certification

The devastation caused by Hurricane Katrina and New Orleans' failed levees brought to the forefront of public consciousness the effectiveness of levees, flood hazard management, and flood insurance. As a result, concurrent with its map modernization efforts, FEMA has been revisiting its levee-related policies, regulations, and procedures. FEMA has publicly acknowledged that it has not assessed the conditions of most levees since the floodplains were originally mapped 20-30 years ago.

In its floodplain re-mapping, FEMA "will only recognize those levee systems that meet, and continue to meet, minimum design, operation, and maintenance standards" sufficient to withstand waters from a 100-year flood.¹² Levee owners and communities are responsible for providing documentation demonstrating that its levee(s) meet the federal levee certification requirements as part of the FIS/re-mapping process. To be certified as compliant, levees must meet certain design criteria (including freeboard of at least 3 feet¹³), operation plan criteria, and maintenance criteria. In those limited instances where FEMA determines that it appears the levee does meet the federal design standards, but the levee owner has not provided the necessary documentation to support that determination, FEMA may provide the levee owner an extension of up to 24 months to provide the necessary documentation confirming compliance with applicable requirements.¹⁴

Absent the required documentation, FEMA will instruct the hydraulic engineers preparing the FIS to assume the worst case scenario. In other words, they will adopt the highest BFE and widest floodway that would result from the following scenarios: simultaneous levee failure, single levee failure, or assuming the levees do not exist.¹⁵ In that case, areas behind the levees will be mapped as within the SFHA.

This is what occurred in the Kent industrial valley in King County. FEMA's consultants assumed that the levees protecting the Kent industrial valley from flood waters from the Green River failed in the 100-year flood. The end result has been that large areas never before mapped as part of the floodplain will likely be mapped as within the floodplain. While King County has appealed FEMA's preliminary FIRMs for this area, reports from King County indicate that even their own technical data shows that these areas will be within the floodplain under the final FIRMs. Their dispute is over the BFE levels within the floodplain.

¹² 44 CFR 65.10.

¹³ "Freeboard" is defined as the distance between the level of the water during a 100 year flood event and the upper surface of the levee.

¹⁴ See FEMA, "Fact Sheet: The NFIP and Levees, An Overview" (April 2007) at 1.

¹⁵ See FEMA, Guidelines and Specifications for Flood Hazard Mapping Partners, Appendix H: Guidance for Mapping of Areas Protected by Levee Systems (April 2003), available at www.fema.gov/fhm/dl_cgs.shtml.

D. Appeal Process for Maps

Any owner or lessee of real property within a community where FEMA has published a preliminary FIRM and who believes their property rights may be adversely affected by the preliminary FIRMs may file a written appeal of that preliminary FIRM with the community's CEO (e.g., the county executive or city mayor) within the 90-day appeal period.¹⁶ Pursuant to federal regulations, the sole basis of appeal is:

[T]he possession of knowledge or information indicating that the elevations proposed by FEMA are scientifically or technically incorrect . . . [A]ppellants are required to demonstrate that alternative methods or applications result in more correct estimates of base flood elevations, thus demonstrating that FEMA's estimates are incorrect.¹⁷

The CEO must forward all appeals to the Federal Insurance Administration (the "Administrator"), a department within FEMA.¹⁸

In addition, the CEO must review all appeals by private persons and issue a written opinion stating whether the evidence presented is sufficient to justify an appeal by the community itself (i.e., does the scientific and technical data submitted negate or contradict the

¹⁶ 44 CFR 67.5.

¹⁷ 44 CFR 67.6. The following constitute the "data requirements" for such an appeal (44 CFR 67.6(b)):

- (1) If an appellant believes the proposed base flood elevations are technically incorrect due to a mathematical or measurement error or changed physical conditions, then the specific source of the error must be identified. Supporting data must be furnished to FEMA including certifications by a registered professional engineer or licensed land surveyor, of the new data necessary for FEMA to conduct a reanalysis.
- (2) If an appellant believes that the proposed base flood elevations are technically incorrect due to error in application of hydrologic, hydraulic or other methods or use of inferior data in applying such methods, the appeal must demonstrate technical incorrectness by:
 - (i) Identifying the purported error in the application or the inferior data.
 - (ii) Supporting why the application is incorrect or data is inferior.
 - (iii) Providing an application of the same basic methods utilized by FEMA but with the changes itemized.
 - (iv) Providing background technical support for the changes indicating why the appellant's application should be accepted as more correct.
 - (v) Providing certification of correctness of any alternate data utilized or measurements made (such as topographic information) by a registered professional engineer or licensed land surveyor, and
 - (vi) Providing documentation of all locations where the appellant's base flood elevations are different from FEMA's.
- (3) If any appellant believes the proposed base flood elevations are scientifically incorrect, the appeal must demonstrate scientific incorrectness by:
 - (i) Identifying the methods, or assumptions purported to be scientifically incorrect.
 - (ii) Supporting why the methods, or assumptions are scientifically incorrect.
 - (iii) Providing an alternative analysis utilizing methods, or assumptions purported to be correct.
 - (iv) Providing technical support indicating why the appellant's methods should be accepted as more correct and
 - (v) Providing documentation of all locations where the appellant's base flood elevations are different from FEMA's.

¹⁸ 44 CFR 67.7.

preliminary FIRMs).¹⁹ If the CEO concludes an appeal is justified, the CEO may file an appeal of the draft FIRMs on behalf of the community.

If a community or individual appeals the preliminary FIRM, the Administrator must review and take fully into account any technical or scientific data submitted by the community or individual that tends to negate or contradict the information upon which the preliminary FIRM is based.²⁰ The Administrator may resolve such an appeal in one of three ways: by administrative hearing; consultation with officials from the local government; or by submission of the conflicting data to an independent scientific body.²¹

Any person who filed an appeal to the Administrator (i.e., either the community or individual appellant) who is unsatisfied by the Administrator's final decision may appeal the adoption of the FIRM to a U.S. District Court within 60 days after receipt of notice of the Administrator's decision.²²

Overall, the appeal process is very difficult. Few individuals, or even local governments, have the financial resources to provide the necessary technical data to rebut FEMA's FIS and draft maps. Even if they have the financial resources, the 90-day time period is typically not enough to review FEMA's analysis and prepare the corollary technical information.

E. Status of FEMA Map Adoption in Washington State (i.e., where is FEMA adopting new maps in WA, when will new maps be final?)

Completed digital flood maps, known as "dFIRMS", have already been adopted and are available now in Island, Ferry, Kitsap, and Whatcom counties. Preliminary dFIRMs are currently available in Adams, Clark, Grant, King, Snohomish and Pierce counties.²³ New flood hazard maps for jurisdictions in Clallam, Cowlitz, Grays Harbor, Lewis, Skagit, Spokane, and Yakima counties are scheduled to be revised within the next two years. Revised flood maps in Washington's remaining jurisdictions are expected to be adopted in the next three to five years.²⁴ As noted above, each jurisdiction's flood maps, including both current and any proposed new mapping, should be available at the local jurisdiction. King County, for example, has created a web page devoted to tracking flood mapping updates, as well as numerous other flood-related topics, <http://dnr.metrokc.gov/topics/flooding/FLDtopic.htm>.

¹⁹ *Id.*

²⁰ 44 CFR 67.8.

²¹ *Id.*

²² 44 CFR 67.12.

²³ The appeal deadlines for Adams County and Grant County are May 14, 2008. All other 90-day appeal periods have passed. Also, it is anticipated by both FEMA and Snohomish County that the final FIRMs for Snohomish County will differ from the preliminary FIRMs due to changes in base data (e.g., more accurate topographic information).

²⁴ The Washington Department of Ecology website, www.ecy.wa.gov, periodically provides updates to FEMA's map revision progress throughout Washington State. Alternatively, status information can be found at FEMA's web page, www.floodmaps.fema.gov.

III. Impacts of FEMA Floodplain Maps

A. Impacts to Homeowners

The new floodplain maps may have significant impacts on homeowners living near a watercourse. Most notably, discussed further below, changes in the floodplain maps are likely to subject additional properties to floodplain development restrictions and to require new property owners to obtain flood hazard insurance where none was previously required.

i. Is Your Property in the Floodplain?

The first step for any property/homeowner concerned about the potential impact of FEMA's new floodplain maps is to determine whether their property is located within a SFHA/floodplain under existing or, potentially, new maps. Homeowners have a few options to figure this out. First, a homeowner can contact their local city or county government. Each county and city should maintain a copy of the existing FIRM for their jurisdiction, as well as any preliminary FIRM issued by FEMA. These are typically available at the planning department. Alternatively, a homeowner may go online to the FEMA Map Service Center at www.msc.fema.gov and enter their property's address. The web page will identify the FIRM panel that includes their property. These maps should show the homeowner whether their property is inside or outside of the floodplain; if inside, the applicable flood hazard zone, and the BFE in the event of a 100 year flood; and, in those jurisdictions where FEMA has designated the floodway, whether the property is in the floodway.

As part of contacting either the local government or FEMA, homeowners should also be sure to inquire regarding the status of any potential or pending floodplain map updates/revisions. For example, Snohomish County adopted updated FIRMs for a portion of the County in 2005, but is currently in the process of preparing additional revised maps for submittal to FEMA later this year or in early 2009. Similarly, the flood maps in King County are currently in flux because following FEMA's issuance of the preliminary FIRMs in 2007, the County appealed those maps within the 90-day appeal period. According to King County representatives, it will likely be a year or more before the revised maps are finalized. Skagit County has also announced its intention to appeal FEMA's issuance of its revised flood maps; however, preliminary maps have yet to be issued. It is unknown at this point what the results of those appeals will be. In any case, homeowners should ask to review any preliminary or draft FIRMs to see how their properties may be mapped in the future.

ii. Additional Restrictions on Developing in the Floodplain

In general, homeowners are not required to modify existing structures on their properties to comply with local flood hazard standards if their properties are newly included in the floodplain by a revised FIRM. FEMA considers pre-existing buildings to be "grandfathered." If, however, a property owner wants to construct a new structure or to "substantially improve" an existing structure, they will be required to comply with combined federal and state flood hazard construction standards.

The following is a basic outline of the minimum requirements that must be contained in every local government's floodplain hazard ordinance to qualify for participation in the NFIP and to meet State requirements. These standards apply to all new residential construction and all "substantial improvements" to existing residential structures in the floodplain.

- All new construction and substantial improvements shall be anchored to prevent flotation, collapse, or lateral movement of the structure;²⁵
- New construction and substantial improvement of any structure shall have the lowest floor, including basement, elevated to or above the BFE;
- 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 (e.g., the foundation stem walls must have openings to relieve pressure on the foundation during a flood);²⁶
- All new construction and substantial improvements shall be constructed using methods and practices that minimize flood damage;²⁷
- All new construction and substantial improvements shall be constructed with materials and utility equipment resistant to flood damage;²⁸
- Electrical, heating, ventilation, plumbing, and air-conditioning equipment and other service facilities must be designed and/or otherwise elevated or located so as to prevent water from entering or accumulating within the components during flooding; and²⁹
- If a community has no mapped floodway, all development within the floodplain must be evaluated to ensure that it will not increase flood levels by more than one foot during a 100 year flood.³⁰

²⁵ 44 CFR 60.3(a)(3)(i).

²⁶ Designs for meeting this requirement must either be certified by a registered engineer or architect or must meet or exceed the following minimum criteria:

- i) A minimum of two opening 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.

²⁷ 44 CFR 60.3(c)(2)(5).

²⁸ 44 CFR 60.3(c)(2)(5).

²⁹ 44 CFR 60.3(a)(ii-iv).

³⁰ 44 CFR 60.3(c)(10).

The NFIP defines “substantial improvements” as “[a]ny repair, reconstruction, or improvement of a structure the cost of which equals or exceeds 50 percent of the market value of the structure either (a) before the improvement or repair started, or (b) if the structure has been damaged and is being restored, before the damage occurred.” Also, unfortunately, buildings that are significantly damaged by a flood or other event are evaluated under the substantial improvement standard. In other words, if the cost of restoring the structure to its pre-damaged condition equals or exceeds 50 percent of the market value of the structure before the damage occurred, then the structure must be brought into compliance with the NFIP standards for new construction.³¹

More restrictive standards apply to property in the floodway. Specifically, the NFIP provides that communities with designated floodways must prohibit *all* development (including substantial improvements and fill) in the floodway unless a registered professional engineer certifies, using hydrologic and hydraulic analyses performed in accordance with standard engineering practice, that the proposed encroachment would not result in any increase in flood levels during a 100 year period.³²

In addition, Washington State has adopted more restrictive standards for residential development in the floodway:

Construction or reconstruction of residential structures is prohibited within designated floodways, except for:

- (i) repairs, reconstruction, or improvements to a structure which do not increase the ground floor area; and
- (ii) repairs, reconstruction or improvements to a structure, the cost of which does not exceed 50 percent of the market value of the structure either, (A) before the repair, or reconstruction is started, or (B) if the structure has been damaged, and is being restored, before the damage occurred.³³

Of note, however, this prohibition does not apply to many existing farmhouses in designated floodways,³⁴ or to certain residential dwellings other than farmhouses that meet specific criteria,³⁵ or to structures identified as historical places. Also, any improvement project to correct an existing violation of state or local health, sanitary, or safety code specifications, which has been identified by the local code enforcement official and which is the minimum necessary to assure safe living conditions, may be excluded in calculating the 50 percent.³⁶

Additional restrictions also apply to all proposed residential subdivisions of land within the floodplain. These restrictions include:

³¹ Federal Emergency Management Agency, “Answers to Questions About the National Flood Insurance Program” (May 2006) at 26.

³² 44 CFR 60.3(d)(3).

³³ WAC 173-158-070.

³⁴ See WAC 173-158-075.

³⁵ See WAC 173-158-076.

³⁶ WAC 173-158-070.

- All subdivisions must be designed to minimize flood damage and to not increase flood levels;³⁷
- All subdivision proposals must have public utilities and facilities, such as sewer, electrical, gas, and water systems located and constructed to minimize or eliminate flood damage;³⁸
- All subdivision proposals shall have adequate drainage to reduce exposure to flood damage;³⁹
- Where BFE data has not been provided by FEMA or the local jurisdiction, it must be generated by the subdivision applicant for subdivisions which contain at least 50 lots or 5 acres (which ever is less).⁴⁰

Additional criteria and restrictions apply to non-residential structures, utilities, manufactured homes and recreational vehicles.⁴¹ We have attached FEMA Region X's model flood control ordinance for Washington cities and towns for your reference.

It is also worth noting that these are the *minimum standards* that a jurisdiction must apply to maintain participation in the NFIP and comply with State law. Many jurisdictions have chosen, or may in the future choose, to adopt more stringent standards for at least two reasons. First, local jurisdictions can use more stringent standards to further reduce flood risks faced by their citizens. Second, by adopting more stringent standards, they can also secure lower flood insurance premiums for their citizens (discussed further below). Some examples of more stringent regulatory standards include: (1) establishing setbacks from the rivers, streams or other floodways; (2) requiring property owners to provide compensatory storage - i.e., removing an amount of material equal to the amount of any fill from the floodplain; (3) requiring structures to be elevated one, two or three feet above BFE (rather than simply to BFE); (4) limiting the percentage of lot coverage and/or fill permitted on a particular property within the floodplain (effectively limiting or possibly entirely prohibiting development); and (5) establishing higher regulatory floodways, i.e., some communities use a 0.1 foot or 0.5 foot surcharge as the basis for computing the regulatory floodway on their FIRMs instead of the FEMA standard of a 1 foot surcharge), which usually results in a wider floodway.⁴²

³⁷ 44 CFR 60.3(a)(4), (b)(3).

³⁸ *Id.*

³⁹ *Id.*

⁴⁰ *Id.*

⁴¹ See FEMA Region 10, "Floodplain Management: A Local Floodplain Administrator's Guide to the National Flood Insurance Program," (3d ed.) at 27.

⁴² *Id.* at 28.

Overall, these regulatory restrictions significantly limit the ability of property owners to develop their properties within the floodplain. Even if the property owner can meet these requirements, the practical and financial limitations of complying with these requirements can be insurmountable (e.g., connecting to public water when the water line is 10 feet below BFE and you are required to build your home above BFE).

iii. Flood Insurance Requirements

As explained above, one of the primary purposes of the NFIP is to provide an insurance mechanism to offset the costs of damage caused by floods. NFIP insurance coverage is available to all owners of insurable property in a community participating in the NFIP, and can be purchased both for properties within and outside of the floodplain. (In fact, approximately 1/3rd of the property in Washington currently insured under the NFIP is located outside the floodplain.) “Insurable property” includes almost every type of walled and roofed building that is principally above ground and not entirely over water.⁴³

Not everyone who owns property located within the floodplain must purchase flood hazard insurance – but it is advisable to do so. Flood hazard insurance is, however, a prerequisite to obtaining a federally backed loan for the acquisition or construction of a home in the floodplain. Also, lenders can require homeowners whose homes were not in the floodplain prior to re-mapping, but are now within the SFHA based on the new FIRMs, to purchase flood insurance – even in the middle of the term of an existing loan. Perhaps most importantly, the purchase of flood insurance is a requirement of receiving federal flood disaster relief following a flood event. Specifically, if a homeowner has not purchased insurance and her property is damaged during a flood event, FEMA will require that homeowner to purchase flood insurance prospectively as a condition of receiving assistance with regard to the current flood event.

A number of factors are considered in determining the premium for flood insurance coverage. They include:

- The amount of coverage purchased;
- The location of the property/structure, i.e., inside versus outside the floodplain and which flood hazard zone within the floodplain;
- The age of the building;
- The building’s occupancy;
- The design of the building; and,
- For buildings in SFHAs, elevation of the building in relation to the BFE.⁴⁴

⁴³ Federal Emergency Management Agency, “Answers to Questions About the National Flood Insurance Program” (May 2006) at 10.

⁴⁴ *Id.* at 11.

Also, the NFIP's Community Rating System ("CRS") recognizes local government efforts to further reduce flood hazards by adopting flood hazard ordinances with restrictions that exceed NFIP standards. In those jurisdictions that adopt more stringent development restrictions, property owners within the jurisdiction may receive insurance discounts ranging from 5 to 45 percent.⁴⁵ For example, in communities that require at least one foot of "freeboard," a safety factor requiring new construction to be built above the BFE, insurance premiums go down by about 1/3rd. In communities where the freeboard requirement is two feet (e.g., Everett), insurance premiums are less than half of the premium for a similar structure built at the BFE. Thus, although property owners must endure the additional development restrictions and costs of complying with more stringent standards, they can recoup some of those additional expenses through reduce flood insurance rates.

B. Effects on Other Washington Laws

When FEMA began its recent remapping effort neither FEMA nor the State Department of Ecology had considered the potential impacts of the new floodplain maps on other regulatory statutes in Washington such as the Growth Management Act ("GMA") or the Shoreline Management Act ("SMA"). Instead, they have viewed the new floodplain maps as purely a matter of science, the regulatory impact of which will be considered only after the maps are completed. (One Ecology employee explained that the regulatory impacts could not be permitted to affect the scientific determination of the floodplain boundaries.)

Consequently, very little has been done at the State level in anticipation of the new floodplain maps to mitigate their potential impact on the use and development of land in the State. According to representatives at Washington's Department of Community Trade and Economic Development ("CTED"), there have been only two statutory/regulatory initiatives related to the new floodplain maps in the last few years. These include an amendment to the SMA last year that enables local governments to rely on FEMA's mapping to establish the boundaries of regulatory floodways within their jurisdictions. Presumably, the intent was to ease the financial burden on local jurisdictions of independently determining their floodways, and also to encourage regulatory consistency. Also, CTED has recently begun the process of revising WAC 365-190-080, which contains the definition of critical areas under the GMA. CTED representatives anticipate that the new rule will be adopted by the spring of 2009.

Aside from these two statewide changes, the state regulators anticipate that most of the regulatory changes will be initiated at the local level, as cities and counties contemplate how to balance concerns about protecting property from flood hazards, with the jurisdiction's own economic development plans and property owner's reasonable expectations regarding the use and development of their properties. Skagit County's "pre-emptive strike" against FEMA's anticipated preliminary FIRMS last year, and King County's appeal of FEMA's preliminary FIRMS earlier this year can be viewed as the first step in these local efforts to manage and mitigate the impacts of the new floodplain maps on development opportunities within these jurisdictions.

⁴⁵ *Id.* at 8.

i. Interaction with GMA Critical Areas Regulations

The FEMA remapping process has no direct impact on the critical areas provisions of the GMA. However, under the GMA, areas mapped as part of the floodplain fall within the category of critical areas known as “frequently flooded areas.” To the extent FEMA’s remapping efforts alter the floodplain boundaries, they correspondingly alter or expand the areas subject to regulation as frequently flooded areas.

In most instances, the local development regulations applicable to frequently flooded areas are modeled on the requirements for participation in the NFIP program. *See* Section III(A)(ii) *above*. In addition, applicable critical areas regulations may require additional or particularized drainage review, as well as documentation that the proposed project will not cause an increase in the base flood elevation during a flood event. Each jurisdiction has adopted its own regulations for frequently flooded areas. Consequently, we recommend that you review the relevant jurisdiction's current critical areas ordinance for additional information.

Also, as noted above, these definitions, and corresponding regulations, may change when CTED adopts revised critical areas definitions next year. Even assuming CTED does substantially revise WAC 365-190-080, it seems unlikely that those revisions will provide much if any relief from the additional burdens on properties mapped as within the floodplain.

ii. Interaction with Shoreline Management Act

As with the GMA, the FEMA remapping effort has no direct impact on the provisions of the SMA. Under the SMA, the areas mapped as “floodway,” plus all or a portion of the adjoining 100 year floodplain are included within the shoreline jurisdiction. Thus, the new floodplain maps will change, and in some cases expand, the areas subject to shoreline regulation.

The SMA provides each local government with discretion to determine what portion of the floodplain adjoining the floodway will be considered part of its shoreline jurisdiction; provided that all jurisdictions must include at least the floodway plus the contiguous floodplain areas landward 200 feet of the floodway.⁴⁶ The collective effect of these regulations is that many areas that have been recently or are expected to be designated as within the floodplain under the new floodplain maps are now or will also be subject to regulation as part of the shoreline under the local jurisdiction's SMP.

To determine whether a particular area within the floodplain is subject to regulation as part of the shoreline, it is necessary to review the local jurisdiction’s Shoreline Master Program. Snohomish County, for example, currently includes the entire floodplain within its shoreline jurisdiction. Pierce County, by comparison, includes only the floodway plus the contiguous floodplain areas landward 200 feet of the floodway in its shoreline jurisdiction.

⁴⁶ RCW 90.58.030(f).

If a homeowner proposes development on a portion of the floodplain that falls within the local government's shoreline jurisdiction, additional shoreline permits will be required for work that qualifies as "substantial development" – i.e., work exceeding \$5,000.00 in value and not subject to one of the several exceptions set forth in the SMA.⁴⁷ Even if a permit is not required, the SMA provides that the property owner must meet the substantial provisions of the local Shoreline Master Program (i.e., the fact that a permit is not required does not relieve the property owner from the obligation to comply with the substantive provisions of the local SMP).

C. Permitting Issues

Permitting related to development in floodplain areas is delegated under the NFIP and State law to the local governments. FEMA and the Washington State Department of Ecology both review each local jurisdiction's flood hazard ordinance for consistency with, at a minimum, the NFIP and Washington State standards. Thereafter, it is then left up to the local government to apply and enforce those regulations through local permitting.

In general, local governments require homeowners proposing to develop or substantially improve their properties in the floodplain to obtain a "flood hazard permit" - in addition to the critical areas and shoreline permitting requirements mentioned above. Under the flood hazard permit process, homeowners proposing to develop their properties must demonstrate that their development project complies with the NFIP standards. In addition, each local jurisdiction is authorized to adopt development restrictions that exceed the standards set forth in the NFIP regulations. As referenced above, many jurisdictions have adopted more stringent standards both to achieve greater flood safety and also to secure lower flood insurance rates for their residents.

FEMA periodically audits local governments to ensure that they are properly enforcing their flood hazard regulations and requiring flood hazard permits. If FEMA determines that the local jurisdiction is failing to enforce those regulations, FEMA may place the local jurisdiction on probation, threatening their qualification for coverage under the NFIP. The intent is to create incentives for local governments to fully implement their flood hazard regulations.

D. Impacts to Major Public Infrastructure

FEMAs new floodplain maps are likely to affect major public infrastructure projects in several ways. First, the NFIP does not exempt public infrastructure from its flood hazard development regulations. Consequently, even public infrastructure projects located within the floodplain must comply with local flood hazard ordinance development regulations applicable to non-residential construction. In general, this means that public infrastructure will need to be constructed at or above the BFE or otherwise flood-proofed to withstand flood damage. The specific requirements are set forth in each jurisdiction's flood hazard ordinance.

⁴⁷ Of note, this dollar value is revised to reflect inflation every five years. RCW 90.58.030(3)(e). The next revision is scheduled to occur in 2012.

This is not likely to significantly impact roadways, which can most likely be engineered at grade to withstand flood forces. It will likely, however, have significant impacts on other public facilities, such as sewage treatment facilities, that will need to be constructed above the BFE or otherwise flood-proofed to ensure their safe and continuing operation during any flood event.

Second, the new flood mapping is likely to cause local jurisdictions to review and revise their capital facilities planning. For example, a jurisdiction may decide to scrap plans for a sewage lift station at a location newly mapped as within the flood plain and move it to higher ground (assuming a higher elevation can accomplish the same function). Also, a local jurisdiction may have to allocate additional funding for a proposed water conveyance line crossing through a newly mapped floodplain area to ensure that it meets flood proofing standards (i.e., will not be infiltrated with floodwaters during a flood event). Alternatively, a jurisdiction may decide to forego a sewage conveyance line to an area newly mapped as within the floodplain where the jurisdiction determines that it is appropriate to reduce density and discourage additional development in that area. It is also worth noting that FEMA's model flood hazard ordinance for Washington recommends that local governments not locate "critical facilities," defined as "a facility for which even a slight chance of flooding might be too great" (e.g., fire station, jail, facilities that store or use hazardous waste), in the floodplain.⁴⁸

Finally, local governments will need to consider whether to include flood protection infrastructure (e.g., dikes and levies) in their capital facilities planning. In many instances, significant mapping changes have resulted due to FEMA's non-certification and/or decertification of local levies that had previously been considered adequate to protect an area from a 100 year flood. Local jurisdictions will need to decide whether to allocate funds to repair and/or upgrade those levies to (re)gain certification status and thereby restore the development potential of the protected areas. In most instances, however, preliminary reports are that the cost of such efforts will be prohibitively expensive.

E. Impact on Local Tax Revenue

The FEMA remapping is likely to have noteworthy and long term impacts on local tax revenues. Those impacts are likely to come in at least two forms: (1) reduced property tax revenue, as land recently mapped as part of the floodplain is likely worth less than when it was outside the floodplain; and (2) reduced tax revenue due to reduced development and redevelopment opportunities on properties designated as within the floodplain.

⁴⁸ FEMA's model ordinance provides in relevant part: Construction of new critical facilities shall be, to the extent possible, located outside the limits of the SFHA. Construction of new critical facilities shall be permissible in the SFHA if no feasible alternative site is available. Critical facilities constructed within the SFHA shall have the lowest floor elevated three feet above BFE 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.

With regard to property tax revenue, we contacted the tax assessors for King, Pierce, Snohomish and Skagit counties (all of whose flood maps have recently been or are in the process of being updated) to determine whether and how they are addressing the new mapping. We discovered that they have opted for two approaches to incorporating revised FEMA floodplain maps into their tax rolls: proactive and case-by-case. The Pierce County Assessor-Treasurer's Office has chosen to proactively amend the assessed land value of parcels affected by the revised FEMA flood maps. In Pierce County, each affected parcel is being adjusted downward based on percentages of land within the floodplain, floodplain delineation (i.e., floodway, flood fringe, flood hazard zone), and the developed status of the property (i.e. vacant land versus developed parcels).

By comparison, the tax assessors in King County and Snohomish County report that they have not and do not intend to take any pro-active measures in response to the revised FEMA flood maps. Instead, property owners may (at their discretion) notify the assessor's office that their property has been remapped as within the floodplain and that their land's assessed value needs to be adjusted accordingly. Upon landowner notification, King and Snohomish counties report they will adjust value downward based on factors similar to Pierce County, i.e., percentage of land within the floodplain, floodplain classification, and the developed status of the property.

With regard to the second factor, it is too early to predict how great an effect the new FEMA floodplain maps will have on revenue from development and redevelopment. For example, in Snohomish County, the new flood maps have effectively frozen all development and redevelopment in the South Snohomish Urban Growth Area. Similarly, under FEMA's new maps, large portions of the Kent industrial area will become part of the floodplain (even if King County prevails in its appeal of the new FEMA maps for the Green River). King County prohibits importation of fill into the floodplain, leaving property owners with fewer options to develop their properties consistent with the NFIP and State flood standards. As a result, properties newly mapped within the floodplain, and properties where the BFE is expected to increase over prior mapping, are likely to generate less sales and property tax revenue than would have been expected prior to the remapping.

Still, it is possible that local governments could see a short term surge in sales tax revenue as property owners aware of the pending map revisions rush to develop their properties before the FEMA maps are finalized and adopted by the local governments. (Notably, this may not be effective in some jurisdictions, such as King County, which have begun to apply their latest flood map data in advance of the finalization of the FIRMs.) Also, local jurisdictions might recover some of the lost revenue through sales tax as property owners face additional construction costs related to complying with flood hazard regulations when constructing new buildings or completing substantial improvements (including repairs) to existing buildings within the floodplain. It seems unlikely, however that these additional revenues will make up for the revenue lost from reduced development opportunities.

IV. Local Government Guidance: Responding to New FEMA Floodplain Maps

A. Impacts to Buildable Lands and Land Capacity Analysis

The new FEMA floodplain maps will likely have significant impacts on the land capacity and buildable lands analyses conducted by local governments planning under the GMA. Counties and cities planning under GMA must ensure that, taken collectively, adoption of and amendments to their comprehensive plans and/or development regulations provide a sufficient capacity of land suitable for development within their jurisdictions to accommodate their allocated housing and employment growth during the succeeding 20 year period. RCW 36.70A.115. There may be a delay between the FEMA remapping and the impacts on land capacity and buildable land analyses, however, because it may be several years before a jurisdiction is required to update its comprehensive plan and to produce a corollary updated land capacity and/or buildable lands analyses. By statute, jurisdictions planning under the GMA are only required to evaluate their UGAs every 10 years, and any changes to those UGA boundaries must be supported by a land capacity analysis. RCW 36.70A.130(3). Also, for those jurisdictions subject to buildable lands analysis requirements (King, Snohomish, Pierce, Kitsap, Clark and Thurston), they are required to conduct a buildable lands analysis every 5 years. RCW 36.70A.215. (Notably, RCW 36.70A.130(1) and RCW 36.70A.130(4) also provide for a seven year Comprehensive Plan update cycle, which may or may not include a land capacity component depending on the scope of the jurisdiction's proposed revisions.) At those points, those local governments planning under the GMA will need to take into account the degree to which the new floodplain maps and corresponding development restrictions affect the development capacity of the lands newly mapped as within the floodplain.

To the extent the new floodplain maps reduce the development capacity of properties previously slated for significant commercial, industrial or residential development, it is foreseeable that affected jurisdictions will encounter pressure to expand, or at a minimum redraw, their urban growth boundaries to ensure adequate developable land within their UGAs to accommodate the population and employment projections for the 20 year planning horizon. For example, if due to changes in floodplain mapping, King County can no longer realistically consider areas within the Kent valley as available for industrial development or redevelopment, the County will need to consider "reasonable measures" to accommodate the demand for industrial land within the existing UGA. If those reasonable measures are not successful, the County will need to consider expanding or modifying its UGAs to meet its industrial land capacity demands. Similarly, in Snohomish County, FEMA's 2005 remapping resulted in the redesignation of the entire 300 acre South Snohomish UGA. Historically, this area had been considered available for further commercial and industrial development. Under the new mapping, however, the only new uses permitted in the area are agriculture and limited public infrastructure projects. Consequently, Snohomish County will need to consider at its next Comprehensive Plan update in 2011 whether it is appropriate for this area to remain within the UGA, or whether due to its restricted development potential, it should be removed (and land capacity necessary to accommodate growth provided elsewhere).

Skagit County faces similar issues. For the past year, Skagit County has been working diligently to influence FEMA's new flood mapping in an attempt to mitigate its impact on the County's development capacity. Prior to FEMA initiating the current mapping effort, no

floodplain boundaries had been established in Skagit County. The BFEs initially contemplated by FEMA last year for the County would have put large portions of the County's commercial areas underwater in the 100-year flood (e.g., Burlington). Following significant efforts by the County and the cities within the County, FEMA revisited its flood model and decided to re-run its flood mapping for the County. This will likely mitigate some of the worst impacts of the new flood maps, but the new maps will still likely put large portions of the existing UGAs within the floodplain. Consequently, when the County next considers the proper UGA boundaries within the County, it will need to consider the impact of new floodplain designations on the land capacity of effected areas.

B. Capital Facilities Planning and Infrastructure

Please refer to Section III(D) for a discussion of impacts to public facilities/infrastructure planning.

C. Working with Impacted Property Owners

Local jurisdictions face a formidable task in working with impacted property owners. In many ways, what is ahead is comparable to the situation faced by local jurisdictions when they first drew urban growth boundaries or adopted critical areas regulations under the GMA. Those boundaries and regulations substantially increased the value of some land (within the UGA and unencumbered by critical areas), while plummeting the value of other land (outside the UGA boundary or within a critical area).

Unlike most GMA enactments, however, much of the flood mapping has gone “under the radar” (with relatively few public hearings compared to, for example, local critical areas regulations), with citizens either unaware of the change or unaware of the impact of the changes. Consequently, in many instances, local jurisdictions will have the unpleasant job of telling property owners for the first time that their properties, which previously had significant development potential, are now more limited due to the application of flood hazard standards.

Perhaps more importantly, unlike drawing UGA boundaries, local jurisdictions have had relatively little control over FEMA's floodplain remapping efforts. Both King County and Skagit County have made significant efforts to influence the process and resulting maps with yet indeterminate results. Consequently, like the property owners themselves, many of the jurisdictions are also likely to find the new floodplain maps difficult to accept.

As FEMA processes map revisions in each of the remaining counties in Washington, each jurisdiction will need to consider how they would like to balance the competing interests – i.e., how to continue to comply with the NFIP and Washington standards and to adequately protect their citizens from flood hazards while maintaining and maximizing the development options within their jurisdictions. We can expect to see jurisdictions attempting to develop creative solutions within the coming decade. In the meantime, we will see dramatic limitations on the development options for those properties newly added to the floodplain or for which the BFE is substantially modified by the new mapping.

V. Conclusion

Significant portions of Washington State are now or may soon be mapped as “under water” in a 100 year flood event. This new mapping will have significant impacts on those property owners whose land is newly mapped as within the flood plain or where flood waters are recalculated as deeper than previously anticipated. These land owners will face new restrictions on developing their properties. In addition to being regulated under local flood hazard ordinances, these areas will also need to meet critical areas and, in some instances, shoreline management requirements. In most instances these restrictions should be manageable, albeit costly.

To date, there has been little statewide response to the new flood mapping. In fact, it is anticipated that local governments will be the first responders to changes in the flood maps. We have already seen this in Skagit County and King County, as the local jurisdictions attempt to affect the mapping before it is finalized. Overall local jurisdictions will face the challenge of balancing property owner’s expectations and their own plans for economic growth and development, with the concurrent desire to protect people and property from flood damage and the necessity of complying with minimum federal and state requirements. Based on the political wrangling that has begun in just the past few years, we can anticipate that this will be a difficult line for jurisdictions to identify and successfully navigate with strong competing interests on each side.