Floodplain Management in the City of Alameda:

Frequently Asked Questions and Information on Residential Construction in Special Flood Hazard Areas

June, 2018

Introduction

Ninety percent of all natural disasters in California are flood related. The primary flood hazard to Alameda residents comes from coastal influence, mainly in the areas of Main Street, the Webster/Posey Tube, and the Fernside Boulevard neighborhood on the main island. On Bay Farm Island, Doolittle Drive, Island Drive, and the Maitland Drive / Mecartney Road neighborhoods, as well as locations along the northern shoreline are all at risk. Localized flooding, however, can occur in any location - and over 30% of flood losses nationally occur outside of mapped flood areas.

The **Federal Emergency Management Agency (FEMA)** has recently finalized revised **Flood Insurance Rate Maps (FIRMs)** which will become effective **December 21, 2018**. The FIRMs show areas with a one percent chance of flooding each year, commonly referred to as 100-year floodplains, and shown as **Special Flood Hazard Areas (SFHAs)**. FEMA re-mapped Alameda using more sophisticated models than where available the last time the floodplain was mapped in 2009. They now have determined what areas of Alameda may be subject to coastal flooding in the event of a major storm plus extreme high tide. Flood insurance is mandatory for residential, commercial and industrial developments within SFHAs. In compliance with the **National Flood Insurance Program (NFIP)**, the City of Alameda adopted a Floodplain Management Ordinance. This Ordinance requires that the lowest floor, including basement, for all new structures or substantial improvements to existing structures within a SFHA shall be elevated above the 100-year **Base Flood Elevation (BFE)** for that area. Lower insurance rates are available when the lowest floor is above the BFE.

An initial view of the new flood maps can be found on the City's CommunityView website at https://alamedaca.gov/permits/communityview. Click on the legend icon, then click on "100 Year Floodplain" (areas shown in blue are in the 100 year floodplain). CommunityView provides property information including zoning, General Plan designation, flood zone data, and general property data provided by the County Assessor's office in GIS format.

To view the official flood maps, go to https://msc.fema.gov/portal. In the search bar, type "Alameda." You will now see a map which you can dynamically zoom in to view your property. Determine which map your property is on, and view the map. To print a paper copy of the floodplain maps you can print using the "Map Image' button on the screen. FIRMs are also available at the Permit Center on the ground floor level in City Hall (2263 Santa Clara Ave), Public Works (950 West Mall Square Room 110), and the main library (1550 Oak St). Inquiries regarding flood insurance may be made by calling your local insurance agent or the NFIP at (800) 379-9531. You can also visit www.floodsmart.gov.

City staff is available either in-person at the Permit Center or by calling the Public Works Department at (510) 747-7930 to assist interested individuals in determining whether a particular parcel of land and/or structure is within a SFHA. This service is based on a review of currently available FEMA maps, City GIS maps, Assessor's Parcel Maps, and other documents or maps. Staff interprets this data to determine if any portion of a parcel (or structure) is in a SFHA. **The City has no authority to change the flood zones as shown on the FIRM panels.** This service does not determine whether or not flood insurance will be required by your lender.

Visit the City's floodplain update webpage at https://alamedaca.gov/public-works/floodmaps for updates as they happen, answers to commonly asked questions, links to forms, and informational flyers.

Frequently Asked Questions

1. What is the National Flood Insurance Program?

The **National Flood Insurance Program (NFIP)** provides insurance and federal disaster assistance in the event of floods within the City of Alameda. The program is administered by the **Federal Emergency Management Agency (FEMA)**. Until recently, such coverage was generally unavailable from private sector insurance companies. In the absence of this program, the City's vulnerability to uninsured flood loss could be substantial and a threat to the public health, safety and welfare.

Federal flood insurance is made available to residents when their local government agrees to implement and enforce measures to reduce flood risks to new construction in SFHAs. When the City of Alameda joined the program, the City agreed to require permits for all new development and substantial improvements to existing structures within SFHAs and ensure that construction materials and methods will minimize flood damage. As a result, building permits must contain documentation to substantiate how buildings are actually constructed.

2. How does the City participate in the National Flood Insurance Program?

When the City joined the NFIP, it adopted and began to enforce minimum floodplain management standards. FEMA worked closely with the State, County, and the City to identify flood hazard areas, flooding risks and to establish minimum floodplain management standards. The floodplain management standards are designed to prevent new development from increasing the flood threat and to protect new and existing buildings from anticipated flood events.

3. How does the National Flood Insurance Program benefit the community?

Through the NFIP, property owners in the City of Alameda are able to insure against flood losses. Careful management of development in the floodplains results in construction practices that can reduce public and private flood losses. A major purpose of the program is to alert property owners to the danger of flooding and to assist them in reducing potential property losses.

4. How is flood risk determined?

Flood risk is determined by the use of all available information for each community. Historical flood data, rainfall and river-flow data, topography, wind, velocity, tidal surge, flood control measures, development (existing and planned), community maps, and other data are all elements used in determining flood risk.

5. What is a Flood Insurance Rate Map (FIRM)?

A FIRM is a map on which FEMA has delineated both the areas of special flood hazards and the risk premium zones applicable within the City.

6. **Why were the FIRMs for Alameda changed in 2018?**

FEMA re-mapped Alameda using more sophisticated models than where available the last time the floodplain was mapped in 2009. They now have determined what areas of Alameda may be subject to coastal flooding in the event of a major storm plus extreme high tide.

7. **What was the City's response to the FIRM change?**

Alameda property owners may recall receiving notice in 2015 regarding FEMA's proposed flood hazard determination for Alameda. In response, the City conducted public outreach by sending letters to homeowners whose parcels were mapped within the new 100-year floodplain, holding public information meetings, and publishing information on the city website. The City, along with several other surrounding jurisdictions, appealed the proposed maps. FEMA reviewed the appeals, the appeals were denied, and FEMA has published a Letter of Final Determination (LFD) stating that the 2015 proposed FIRMs for Alameda remain substantially unchanged, becoming the final FIRMs effective December 21, 2018.

8. **How can a property owner determine if a property is in a Special Flood Hazard Area?**

FEMA publishes FIRMs to indentify the City's flood hazard areas and indicate the degree of risk in those areas. They may be viewed and printed online at the FEMA Map Service Center, https://msc.fema.gov/portal. They are also available for viewing at the Permit Center at City Hall (2263 Santa Clara Ave, ground floor); Public Works Department (950 West Mall Square, Room 110); or the Main Library (1550 Oak St).

Property owners may consult these maps to determine if their properties are located in a SFHA. If a property owner wants the City to determine if a property is located in a SFHA, the owner may either seek assistance from staff at the Permit Counter or contact the Public Works Department at (510) 747-7930 to have a staff person assist you by phone. The most important information is whether or not an insured structure is located in the SFHA -- not just the parcel of land.

9. **How do I get a building permit for a project within the SFHA?**

   a. Determine whether you are in a SFHA. This is done by seeking assistance from staff at the Permit Counter, or by contacting the Public Works Department at (510) 747-7930.

   b. Staff will determine whether your project constitutes new or "substantial improvement" (any reconstructions, rehabilitation, addition, remodeling or improvement of a structure, the cost of which equals or exceeds 50 percent of the market value of the structure before the new work is started - or before structure was damaged). This is tracked over a 3-year time period.

   c. If the project is new or a substantial improvement and located within the SFHA, an Elevation Certificate based on construction drawings will be required prior to issuance of a building permit.

d. Any improvements below the BFE shall be elevated and floodproofed in accordance with the Alameda Municipal Code and certiifed by a registered professional engineer or architect. City staff will evaluate floodproofing or design elevation design elements for compliance to FEMA regulations. The City's Floodplain Administrator will have to approve any project proposing fill within the SFHA on a Community Acknowledgement Form.

e. A second Elevation Certificate based on finished construction shall be submitted to the City to verify that the proposed improvements were constructed in accordance with the approved plans. The second Elevation Certificate is required prior to final Building Permit sign off and issuance of a Certificate of Occupancy. The Elevation Certificate may also be used to support a LOMA or LOMR-F for as-built condition. However it should be noted that although a proposed project may satisfy the provisions in the City's Floodplain Management Ordinance it may not meet the critieria for removing the lot or structure from the SFHA.

10. What constitutes "substantial improvement" or "substantial damage"?

The Floodplain Management Ordinance requires that the lowest floor, including basement, for all new structures or **substantial improvements** to existing structures within a SFHA shall be elevated above the 100-year Base Flood Elevation (BFE) for that area.

A "Substantial improvement" means any reconstruction or improvement of a structure, the cost of which equals or exceeds 50 percent of the market value of the structure before the "start of construction" of the improvement. This term includes structures which have incurred "substantial damage" (see definition below) regardless of the actual repair work performed.

Substantial improvement does not, however, include either:

1. Any project for improvement of a structure to correct existing violations or 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
2. Any alteration of a "historic structure" provided that the alteration will not preclude the structure's continued designation as a "historic 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.

"Substantial damage" means the cost of repairs equals or exceeds 50 percent of the market value of the structure before the disaster occurred, regardless of the cause of damage.

Staff will determine if an improvement is substantial. If staff and the permit applicant differ in opinion of the market value, the applicant may provide more detailed information including an appraisal by a licensed real estate appraiser. The value of improvements are tracked

and accumulated over a 3-year period to determine if the substantial improvement level has been reached.

11. How is a Flood Insurance Rate Map changed (How can I get out of the flood zone)?

FEMA established three administrative procedures, which are available to individuals who own, rent, or lease property, to revise flood hazard information on an NFIP map via letter without physically revising and reprinting the entire map panel. The FEMA website (www.fema.gov) provides guidance and documents to assist citizens with their LOMA and LOMR-F applications and submittals.

A. LETTER OF MAP AMENDMENT (LOMA): This is used to amend the effective flood map by letter and establishes a property's location in relation to the SFHA based on detailed elevation surveying and/or topographic mapping of existing ***natural conditions***. If the entire property or the building site, including the lowest floor of the building is above the BFE, FEMA can amend the FIRM by letter to remove the lot or building from the SFHA.

Although FEMA may issue a LOMA, it is a lending institution's prerogative to require flood insurance as a condition of its own, before granting a loan or mortgage. Those seeking a LOMA should first talk with their lending institution to determine whether the institution will waive the requirement for flood insurance based on a LOMA. LOMA's do not revise the FIRM, and may not be shown on updated FIRMs.

B. LETTER OF MAP REVISION BASED ON FILL (LOMR-F): When fill has been placed on the property to raise the lot or building site to an elevation that is above the BFE, FEMA can revise the FIRM by letter to remove the raised area from the SFHA. This is a man-made change to the floodplain. Unlike map amendments, map revisions are the result of some physical improvement affecting the floodplain (i.e. grading, flood control facilities, etc.) and will be shown on any new or updated FIRMs. All requests for LOMR-F's must be made to FEMA through the Floodplain Administrator in the City's Public Works Department.

C. LETTER OF MAP REVISION (LOMR): It is used to change flood zones, floodplain and floodway delineation, flood elevations, and planimetric features. LOMRs are generally based on the implementation of physical measures such as a detention basin, channel modifications, or bypass channel that affect the hydrologic or hydraulic characteristics of a flooding source and thus result in the modification of the existing regulatory floodway, the effective Base Flood Elevations (BFEs), or the Special Flood Hazard Area (SFHA). The LOMR officially revises the Flood Insurance Rate Map (FIRM) or Flood Boundary and Floodway Map (FBFM), and sometimes the Flood Insurance Study (FIS) report, and when appropriate, includes a description of the modifications. The LOMR is generally accompanied by an annotated copy of the affected portions of the FIRM, FBFM, or FIS report. All requests for LOMR's must be made to FEMA through the Floodplain Administrator in the Public Works Department.

12. How long does it take to obtain a LOMA, LOMR-F, or LOMR?

For single building or single lot determinations that do not involve changes to BFEs or floodways, a LOMA or LOMR-F can usually be issued by FEMA within 60 days. LOMRs take approximately 90 days for FEMA processing.

13. What is a Conditional Letter of Map Amendment, Conditional Letter of Map Revision Based on Fill (CLOMR-F), and Conditional Letter of Map Revision?

A Conditional Letter of Map Amendment **(**CLOMA) is FEMA's comment on whether a proposed project would be excluded from the Special Flood Hazard Area (SFHA) shown on the effective National Flood Insurance Program (NFIP) map. The letter becomes effective on the date sent. This letter does not revise an effective NFIP map, but indicates whether the project, if built as proposed, would or would not be removed from the SFHA by FEMA if later submitted as a request for a Letter of Map Amendment (LOMA).

A Conditional Letter of Map Revision Based on Fill (CLOMR-F) is FEMA's comment on whether a proposed project involving the placement of fill would exclude an area from the SFHA shown on the NFIP map. The letter becomes effective on the date sent. This letter does not revise an effective NFIP map, but indicates whether the project, if built as proposed, would or would not be removed from the SFHA by FEMA if later submitted as a request for a Letter of Map Revision Based on Fill (LOMR-F).

A Conditional Letter of Map Revision (CLOMR) is FEMA's comment on a proposed project that would affect the hydrologic and/or hydraulic characteristics of a flooding source and thus result in the modification of the existing regulatory floodway or effective Base Flood Elevations (BFE). There is no appeal period. The letter becomes effective on the date sent. This letter does not revise an effective NFIP map, it indicates whether the project, if built as proposed, would or would not be removed from the Special Flood Hazard Area (SFHA) by FEMA if later submitted as a request for a Letter of Map Revision (LOMR).

14. Why is the burden of proof on the person requesting the map change?

Government agencies and private engineering firms are contracted to perform analysis of flood risks and prepare flood maps for the City. The analysis and flood insurance study findings are then reviewed by FEMA and City staff. FEMA will not change a study determination without sufficient evidence that such a change is appropriate.

15. How is elevation measured?

All elevations refer to Mean Sea Level (MSL), based on the North American Vertical Datum, 1988 (NAVD88). Elevations shown on the drawings and on Elevation Certificates must be certified by a licensed surveyor or a registered Civil Engineer in California authorized to practice land surveying.

16. When is an Elevation Certificate Required?

Elevation Certificates (FEMA Form 81-31) prepared and signed by a licensed surveyor or an engineer licensed to perform surveying are required for all new structures, substantial improvements, or substantial damage. The first Elevation Certificate, based on construction drawings must be submitted to the Engineering Division prior to issuing a Building Permit. The building permit will not be accepted as **final** until a second Elevation Certificate based on finished construction is submitted to the Engineering Division. If a non-residential

building is being flood proofed, then a Flood Proofing Certificate must be completed in addition to the Elevation Certificate.

The purposes of an Elevation Certificate are:

(A) To verify that the elevation of the lowest floor has been properly constructed relative to the BFE;
(B) To insure compliance with the City's Floodplain Management Ordinance;
(C) To determine the proper flood insurance premium rate; and
(D) To support a request for a LOMA or LOMR.

17. What if I'm in a shaded "X" flood zone?

Shaded Zone X flood zones are areas that have a 0.2% probability of flooding every year (also known as the "500-year floodplain"). Properties in Shaded Zone X are considered to be at moderate risk of flooding under the National Flood Insurance Program. Flood insurance is not required for properties in Zone X, but the City of Alameda recommends it.

18. Where can I get more information and the forms mentioned in this document?

For more information on FEMA, the NFIP and to acquire the various forms (LOMA, CLOMR, LOMR, Elevation Certificate, etc.) log onto FEMAs web page at www.fema.gov/nfip.

Information on Residential Construction in Alameda's Special Flood Hazard Areas

(Excerpted from *Chapter 20-4 – Provisions for Flood Hazard Reduction*, City of Alameda Floodplain Management Ordinance)

20-4.1 - Standards of Construction. In all areas of special flood hazards the following standards are required:

A. *Anchoring.* All new construction and substantial improvements of structures, including manufactured homes, shall be adequately anchored to prevent flotation, collapse or lateral movement of the structure resulting from hydrodynamic and hydrostatic loads, including the effects of buoyancy.

B. *Construction Materials and Methods*. All new construction and substantial improvements of structures, including manufactured homes, shall be constructed:

1. With flood resistant materials, and utility equipment resistant to flood damage for areas below the base flood elevation;

2. Using methods and practices that minimize flood damage;

3. With electrical, heating, ventilation, plumbing and air conditioning equipment and other service facilities that are designed and/or located so as to prevent water from entering or accumulating within the components during conditions of flooding; and

4. Within zones AH or AO, so that there are adequate drainage paths around structures on slopes to guide flood waters around and away from proposed structures.

C. *Elevation and Floodproofing.*

1. *Residential construction*. All new construction or substantial improvements of residential structures shall have the lowest floor, including basement:

   a. In AE, AH, A1-30 zones, elevated to or above the base flood elevation.

   b. In an AO zone, elevated above the highest adjacent grade to a height equal to or exceeding the depth number specified in feet on the FIRM, or elevated at least two (2) feet above the highest adjacent grade if no depth number is specified.

c. In an A zone, without BFEs specified on the FIRM (unnumbered A zone), elevated to or above the base flood elevation; as determined under *Section 20-3.2.C.*

Upon the completion of the structure, the elevation of the lowest floor, including basement, shall be certified by a registered civil engineer or licensed land surveyor, and verified by the community building inspector to be properly elevated. Such certification and verification shall be provided to the floodplain administrator.

2. *Nonresidential construction.* All new construction or substantial improvements of nonresidential structures shall either be elevated to conform with *Section 20-4.1.C.1.* or:

a. Be floodproofed, together with attendant utility and sanitary facilities, below the elevation recommended under *Section 20-4.1.C.1* , so that 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; and

c. Be certified by a registered civil engineer or architect that the standards of *Section 20-4.1.C.2.a. and b*. are satisfied. Such certification shall be provided to the Floodplain Administrator.

3. Flood openings. All new construction and substantial improvements of structures with fully enclosed areas below the lowest floor (excluding basements) that are usable solely for parking of vehicles, building access or storage, and which are subject to flooding, shall be designed to automatically equalize hydrostatic flood forces on exterior walls by allowing for the entry and exit of floodwater. Designs for meeting this requirement must meet the following minimum criteria:

a. For non-engineered openings:

1. Have a minimum of two openings on different sides having a total net area of not less than one square inch for every square foot of enclosed area subject to flooding:

2. The bottom of all openings shall be no higher than one foot above grade;

3. Openings may be equipped with screens, louvers, valves or other coverings or devices provided that they permit the automatic entry and exit of floodwater; and

4. Buildings with more than one enclosed area must have openings on exterior walls for each area to allow flood water to directly enter; or

5. Be certified by a registered civil engineer or architect.

4. *Manufactured homes.* See *Section 20-4.4*.

5. *Garages and low cost accessory structures.*

    a. *Attached garages.*

        1. A garage attached to a residential structure, constructed with the garage floor slab below the BFE, must be designed to allow for the automatic entry of flood waters. See *Section 20-4.1.C.3.* Areas of the garage below the BFE must be constructed with flood resistant materials. See *Section 20-4.1.B*.

        2. A garage attached to a nonresidential structure must meet the above requirements or be dry floodproofed. For guidance on below grade parking areas, see FEMA Technical Bulletin TB-6.

    b. *Detached garages and accessory structures.*

        1. "Accessory structures" used solely for parking (two-car detached garages or smaller) or limited storage (small, low-cost sheds), as defined in *Section 20-1* may be constructed such that its floor is below the base flood elevation (BFE), provided the structure is designed and constructed in accordance with the following requirements:

            a. Use of the accessory structure must be limited to parking or limited storage:

            b. The portions of the accessory structure located below the BFE must be built using flood-resistant materials;

            c. The accessory structure must be adequately anchored to prevent floatation, collapse and lateral movement;

            d. Any mechanical and utility equipment in the accessory structure must be elevated or floodproofed to or above the BFE;

            e. The accessory structure must comply with floodplain encroachment provisions in *Section 20-4.6* ; and

            f. The accessory structure must be designed to allow for the automatic entry of flood waters in accordance with *Section 20-4.1.C.3.*

        2. Detached garages and accessory structures not meeting the above standards must be constructed in accordance with all applicable standards in *Section 20-4.1.*

20-4.2 - Standards for Utilities.

A. All new and replacement water supply and sanitary sewage systems shall be designed to minimize or eliminate:

1. Infiltration of flood waters into the systems; and

2. Discharge from the systems into flood waters,

B. On-site waste disposal systems shall be located to avoid impairment to them, or contamination from them during flooding.

20-4.3 - Standards for Subdivisions and Other Proposed Development.

A. All new subdivisions proposals and other proposed development, including proposals for manufactured home parks and subdivisions, greater than fifty (50) lots or five (5) acres, whichever is the lesser, shall:

1. Identify the special flood hazard areas (SFHA) and base flood elevations (BFE).

2. Identify the elevations of lowest floors of all proposed structures and pads on the final plans.

3. If the site is filled above the base flood elevation, the following as-built information for each structure shall be certified by a registered civil engineer or licensed land surveyor and provided as part of an application for a Letter of map revision based on fill (LOMR-F) to the floodplain administrator:

B. All subdivisions proposals and other proposed development shall be consistent with the need to minimize flood damage.

C. All subdivision proposals and other proposed development shall be consistent with the need to minimize flood damage.

D. All subdivisions and other proposed development shall provide adequate drainage to reduce exposure to flood hazards.

20-4.4 – Standards for Manufactured Homes. (See Floodplain Management Ordinance)

20-4.5 –Standards for Recreational Vehicles. (See Floodplain Management Ordinance)

20-4.6 - Floodways.

Since floodways are an extremely hazardous area due to the velocity of flood waters which carry debris, potential projectiles, and erosion potential, the following provisions apply:

A. Until a regulatory floodway is adopted, no new construction, substantial development, or other development (including fill) shall be permitted within zones A1-30 and AE, unless it is demonstrated that the cumulative effect of the proposed development, which

combined with all other development, will not increase the water surface elevation of the base flood more than one (1) foot at any point within the County of Alameda, California, and Incorporated Area.

B. Within an adopted regulatory floodway, the County of Alameda, California, and Incorporated Area shall prohibit encroachments, including fill, new construction, substantial improvements, and other development, unless certification by a registered civil engineer is provided demonstrating that the proposed encroachment shall not result in any increase in flood levels during the occurrence of the base flood discharge.

C. If *Sections 20-4.6.A. and B.* are satisfied, all new construction, substantial improvement, and other proposed new development shall comply with all other applicable flood hazard reduction provisions of *Section 20-4.*