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# SALT LAKE CITY COUNCIL STAFF REPORT

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**DATE:** September 8, 2009

**SUBJECT:** **Amendments relating to Floodplain Hazard Protection (18.68 of the Salt Lake City Code)**

**AFFECTED COUNCIL DISTRICTS:** Citywide

**STAFF REPORT BY:** Lehua Weaver

**ADMINISTRATIVE DEPT. AND CONTACT PERSON:** Department of Public Utilities  
Tom Ward

**CC:** David Everitt, Jeff Niermeyer, Tom Ward, Rusty Vetter, Randy Hillier, Jennifer Bruno

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## **SUMMARY:**

The Administration has received notice that the FEMA Flood Insurance Study (FIS) and Flood Insurance Rate Maps (FIRMs) have been updated. In order for the City to remain eligible in the National Flood Insurance Program, the City must adopt amendments to the section of City Code that refers to the Flood Insurance Maps. The deadline for adopting the amendments is September 25, 2009. To meet the deadline, the City Council will receive a briefing on September 8, 2009 and the ordinance will be placed on the September 22, 2009 agenda for a vote.

## **KEY ELEMENTS:**

The last time the map was updated was in 2001. There are no changes to the boundary of the identified flood zone. The changes are primarily an update from paper maps to a digital format.

Adopting and certifying the maps affects insurance and disaster relief. If the City does not adopt the updated reports and maps, residents would not be eligible for flood insurance coverage. Secondly, adoption of the updates keeps the City eligible for federal assistance in the event of a flooding event.

There are no areas of concern identified by the Administration. Copies of the map are available if the Council would like to see them.

The Council may notice that there is also a suggested language amendment in the ordinance to change the department liaison title from “Chief Engineer for Public Utilities” to a “City Floodplain Administrator”, but this is not an additional position. There are other staff members in addition to the Chief Engineer, who handle related tasks. The Administration reports that there are no additional responsibilities created and no need for additional staffing. This change simply reflects staffing assignments to handle the existing responsibilities.

JEFFRY T. NIERMEYER  
DIRECTOR

# SALT LAKE CITY CORPORATION

DEPARTMENT OF PUBLIC UTILITIES  
WATER SUPPLY AND WATERWORKS  
WATER RECLAMATION AND STORMWATER

RALPH BECKER  
MAYOR

## CITY COUNCIL TRANSMITTAL



David Everitt, Chief of Staff



Date Received:

Date sent to Council: 07/21/2009

**TO:** Salt Lake City Council  
Carlton Christensen, Chair

**DATE:** July 14, 2009

**FROM:** Jeff Niermeyer, Director; Department of Public Utilities



**SUBJECT:** Modifications to certain Sections of Chapter 18.68, Salt Lake City Code, relating to floodplain hazard protection.

**STAFF CONTACT:** Tom Ward, Deputy Director, 801-483-6768

**DOCUMENT TYPE:** Revision to Ordinance Chapter 18.68

**RECOMMENDATION:** We are requesting that the City Council approve a resolution to amend certain Sections of Chapter 18.68 of the City Code related to updates to the FEMA Flood Insurance Rate Maps (FIRMs).

**BUDGET IMPACT:** None

**BACKGROUND/DISCUSSION:** On January 31, 2005, FEMA provided the City with Preliminary copies of the updated Flood Insurance Study (FIS) report and FIRMs that identify flood hazards regulated under the National Flood Insurance Program (NFIP) within the City. FEMA has addressed all public comments received on the Preliminary FIS report and FIRM, which will become effective on September 25, 2009.

On March 25, 2009 Mayor Becker received, via certified mail, a notification from FEMA that they had issued an update to the Flood Insurance Rate Maps (FIRMs) that identify the Special Flood Hazard Areas (areas inundated by the 1% annual chance flood event, aka 100-year flood) in Salt Lake County, including Salt Lake City.

As a condition for continual eligibility in the NFIP, including flood insurance, the City is required to adopt the new FIRM and FIS within the City floodplain ordinance prior to the September 25, 2009 effective date of the new FIRM. City ordinance Chapter 18.68 contains floodplain management regulations that meet the standards of Paragraph 60.3(d)

of the NFIP regulations (44 CFR 59, etc.), with the exception that it references the old FIRM dated September 21, 2001.

In addition to updating the map reference to "...the currently effective flood insurance rate map...", three definitions were added and four others modified to address current terminology in the NFIP. This results in the renumbering of the definition section of the Code (18.68.020). The remaining changes found in Sections 18.68.030, .040, .050, .060, .070 & .090 all reflect minor changes to reflect use of current references and terminology.

Generally, the changes that occur between the September 21, 2001 FIRMs and the September 25, 2009 FIRMs are limited. The purpose of FEMA's revision in Salt Lake County is to modernize the mapping data from old paper maps to a digital format, which does not affect the current flood hazard boundaries.

**PUBLIC PROCESS:** As required under the NFIP, FEMA notified the public, conducted public hearings, and addressed all public comments between January 31, 2005 and March 25, 2009.

SALT LAKE CITY ORDINANCE

No. \_\_\_\_\_ of 2009

(Floodplain Hazard Protection)

An ordinance amending certain Sections of Chapter 18.68, *Salt Lake City Code*, relating to floodplain hazard protection.

Be it ordained by the City Council of Salt Lake City, Utah:

SECTION 1. That Sections of Chapter 16.68, *Salt Lake City Code*, pertaining to floodplain hazard protection be, and the same hereby are, amended to read as follows:

**18.68.020 Definitions:**

For purposes of this chapter the following terms mean:

1. "Area of shallow flooding" means a designated AO, AH or VO zone on the flood insurance rate map (FIRM) with a one percent (1%) or greater annual chance of flooding to an average depth of one to three feet (3') where a clearly defined channel does not exist, where the path of flooding is unpredictable and where velocity flow may be evident. Such flooding is characterized by ponding or sheet flow.
2. "Area of special flood hazard" means the land in the floodplain within a community subject to a one percent (1%) or greater chance of flooding in any given year. The area is shown on the flood insurance rate map (FIRM) as zone A, AE, AH, AO, A1-99, VO, V1-30, VE or V.
3. "Base flood" means a flood having a one percent (1%) chance of being equaled or exceeded in any given year.
4. "Base flood elevation" means the probable water surface elevation (in relation to mean sea level) of the base flood as determined by or approved by the ~~city engineer~~Chief Engineer for Salt Lake City Public UtilitiesCity Floodplain Administrator.
5. "Certify" or "certification" means the specific reports, inspections and tests that are required have been performed in an appropriate manner, and such reports, inspections, tests and results comply with the applicable requirements of this chapter.
6. "City Floodplain Administrator" means the person designated by the Director of the Department of Public Utilities to direct the decision-making process that aims to achieve the wise use of the city's floodplains. "Wise use" means both reduced flood losses and protection of the natural resources and function of floodplains.
76. "Construction" means any manmade change to improved real property including, but not limited to, buildings or other structures, mining, dredging, filling, grading, paving, excavation or drilling operations located within the floodplain hazard area,

whether or not the same requires building or other permits under this code.

87. "Development" means any manmade change to improved or unimproved real property including, but not limited to, buildings or other structures, mining, dredging, filling, grading, paving, excavation or drilling operations or storage of equipment or materials.

98. "Drainway" means a natural or artificial land depression, with or without perceptible bed and banks, to which surface runoff gravitates to form a continuous or intermittent flow of water in a definite direction.

109. "Flood Insurance Rate Map, 'FIRM'" means the official, currently effective flood insurance rate map for Salt Lake City, Utah, ~~dated September 21, 2001,~~ as issued by the ~~Federal Emergency Management Agency~~ "FEMA" and any officially approved amendments (LOMCs) thereto, on which the floodplain hazard areas and the risk premium zones have been delineated.

110. "Flood insurance study" means the official report provided by the federal emergency management agency that includes flood profiles, the flood boundary floodway map, and the water surface elevation of the base flood.

112. "Flood or flooding" means a general and temporary condition of partial or complete inundation of normally dry land area from the overflow of inland or tidal waters or the unusual and rapid accumulation or runoff of surface waters from any source.

113. "Floodplain". Generally, floodplain(s) is/are a relatively flat area or lowland(s) adjoining a river, stream, watercourse, ocean or lake which has been or may be covered by floodwater. Specifically, for purposes of this title, "floodplain(s)" shall be that area of the city designated within the boundaries of the official flood insurance rate map or amendments, which may be subject to periodic inundation in the event of the base flood.

114. "Floodplain hazard area" means the area containing the floodplain for a base flood in the city, as designated on the flood insurance rate map and approved amendments.

115. "Floodproofing" means any combination of structural or nonstructural additions, changes or adjustments to structures or property which reduce or eliminate flood damage to improved or unimproved real property, water and sanitary facilities, structures and their contents.

116. "Floodway" means the channel of the 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 a designated height.

117. "Highest adjacent grade" means the highest natural elevation of the ground surface prior to construction or development next to the proposed wall of a structure.

118. "Levee system" means a flood protection system which consists of a levee, or levees, and associated structures, such as closure and drainage devices, which are constructed and operated in accordance with sound engineering practices.

119. "Licensed architect" means an architect who is registered with the department of registration of the state of Utah.

20. "Letter of Map Change, 'LOMC'" means a letter which reflects an official revision to an effective National Flood Insurance Program map.

1921. "Lowest floor" means the lowest floor of the lowest enclosed area (including basement). An unfinished or flood restraint 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 section 60.3 of the national flood insurance program regulations.

2022. "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 (180) consecutive days. For insurance purposes the term "manufactured home" does not include park trailers, travel trailers, and other similar vehicles.

2123. "Manufactured home park" or "manufactured home subdivision" means a parcel (or contiguous parcels) of land divided into two (2) or more manufactured home lots for rent or sale.

2224. "Mean sea level" means, for purposes of the national flood insurance program, the North American Vertical Datum of 1988 (NAVD 88) ~~national geodetic vertical datum (NGVD) of 1929~~ or other datum to which base flood elevations shown on a community's flood insurance rate map are referenced.

2325. "New construction" means structures or substantial improvement thereto for which the "start of construction" as defined in this section is commenced on or after the effective date of the ordinance codified in this chapter.

2426. "New development" means any development proposal(s) and/or plan(s) submitted for approval, for which the development activities as defined in this section will commence on or after the effective date of the ordinance codified in this chapter.

2527. "Registered land surveyor" means a land surveyor who is registered with the department of registration of the state of Utah.

2628. "Registered professional engineer" means a civil engineer who is registered with the department of registration of the state of Utah.

2729. "Remedy a violation" means to bring the structure or other development into compliance with state or local floodplain management regulations, or, if this is not possible, to reduce the impacts of its noncompliance. Ways that impacts may be reduced include protecting the structure or other affected development from flood damages, implementing the enforcement provisions of this chapter or otherwise deterring future similar violations, or reducing federal financial exposure with regard to the structure or other development.

30. "Special Flood Hazard Area. "SFHA"" means the land in the flood plain within the community subject to a 1 percent or greater chance of flooding in any given year. which area may be designated as Zone A, AO, AH, A1-30, AE, A99 on the FIRM.

2831. "Start of construction" applies to both new construction and substantial improvements and means:

- a. Date Of Issuance: The date the building permit was issued, provided the actual start of construction, repair, reconstruction, placement or other improvement was within one hundred eighty (180) 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 foundations 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.

b. Relocatable Office Or Structure: Start of construction for a "relocatable office building" (defined in section 18.84.010 of this title, or its successor) or other temporary structure shall be the date on which the relocatable office building is placed upon an approved site.

2932. "Structure" means a walled and roofed building, temporary structure, or manufactured home that is in whole or in part aboveground.

3033. "Substantial improvements" means any development and/or construction of a structure, the cost of which equals or exceeds either fifty percent (50%) of the market value of the structure before the development is started, or, if the development or construction is undertaken for repair of damage caused by accident or acts of God, fifty percent (50%) of the same market value of the structure before the damage occurred.

3134. "Violation" means the failure of a structure or other development to fully comply with these floodplain management regulations. A structure or other development without the elevation certificate, other certifications, or other evidence of compliance required in CFR section 60.3(b)(5), (c)(4), (c)(10), (d)(3), (e)(2), (e)(4), or (e)(5) is presumed to be in violation until such time as that documentation is provided.

3235. "Water surface elevation" means the height, in relation to the NAVD 88 national geodetic vertical datum (NGVD) of 1929 (or other datum, where specified), of floods of various magnitudes and frequencies in the floodplains of coastal or riverine areas.

### **18.68.030 Establishment Of Floodplain Hazard Areas:**

The floodplain hazard areas SPHA within Salt Lake City have been established and identified by the Federal eEmergency mManagement aAgency (FEMA) in a scientific and engineering report entitled "The Flood Insurance Study for the City of Salt Lake City, Utah", dated February 1, 1983, including the current effective revisions. The boundaries of the floodplain hazard areas are delineated on a the effective flood insurance rate map (FIRM), including any and all LOMCs which accompanies the flood insurance study and became effective on September 21, 2001. Located within the floodplain hazard areas are areas designated as floodways. The locations of the floodways have been computed in the flood insurance study and are contained therein on flood boundary and floodway maps. The flood insurance study, accompanying FIRM and floodway maps are hereby adopted by reference and made part of this chapter. Said flood insurance study

together with the FIRM and floodway maps and any amendments approved by FEMA after acceptance by the mayor as provided in section 18.68.070 of this chapter or its successor constitute the boundaries of the floodplain hazard areas governed by the supplemental regulations of this chapter. ~~Two (2) copies~~ A copy of said flood insurance study together with the accompanying FIRM and floodway maps and accepted amendments shall be filed by the ~~Director of the Department of Public Utilities~~ and be available for public inspection. The original shall be kept for certification purposes by the city recorder.

### **18.68.050 Subdivision Development Approval Procedure:**

- A. Each application for subdivision approval shall be submitted to the city planner and applications for building and site development permits shall be submitted to the building official. Respectively, said officials shall be responsible to:
1. Verify if the location of the proposed development or construction site or any portion thereof is situated within the ~~floodplain hazard area~~ SFHA as defined on the flood insurance rate map(s) as it may be amended and except where such site is located in ~~zone~~ Zone A where base flow elevation data is not available or required by this chapter. (Applicants not otherwise aware of such placement should be notified of the potential application of this chapter);
  2. Determine that the reviews and approvals required by this chapter have been obtained to satisfy its requirements;
  3. Maintain for public inspection the following records pertaining to the provisions of this chapter:
    - a. The actual elevation (in relation to mean sea level elevation) of the lowest floor (including basement) of all new or substantially improved structures, and specifying whether or not the structure includes a basement,
    - b. For all new or substantially improved floodproofed structures, verification and record of the actual elevation of the lowest floor (in relation to mean sea level elevation) and the floodproofing certification required in provisions of this chapter.
- B. The city planner and/or building official in the administration of this chapter shall rely on the expertise of the ~~city engineer~~ Chief Engineer for Salt Lake City Public Utilities City Floodplain Administrator for technical evaluation for:
1. Identification of drainways, designated water passage areas or regulated floodways;
  2. Obtain, review and utilize reliable base flood elevation data which may be or become available for assistance in administering these regulations;
  3. At the request of the building official or city planner, review applications for permits within the floodplain hazard area;
  4. Review, as provided below, any requests by said officials or others for interpretation of the boundaries of the floodplain hazard area where conflicts appear between the mapped boundaries and actual field conditions;
  5. Review and process, as provided below, requests for amendments to the flood insurance rate map;
  6. Maintain one copy of the official flood insurance rate map (FIRM) as amended;
  7. Notify periodically the Utah ~~state~~ State ~~division~~ Division of ~~water~~ Water



~~resources~~Resources~~Rights~~, FEMA and any affected adjacent communities of alterations or relocation of any watercourse or drainway which results from permitted development when in the opinion of the ~~city engineer~~Chief Engineer for Salt Lake City Public Utilities~~City Floodplain Administrator~~ the alterations or relocations are substantial in nature or effect.

### **18.68.060 Applications And Permits:**

- A. Subdivision Proposals: Subdivision proposals must be submitted and approved and building and/or development permit(s) for development or construction within the floodplain hazard area must be obtained before such development or construction begins. Applications for subdivision or other development shall be made to the city planner upon forms provided. Applications for building or site development permits shall be made to the building official on forms to be provided. Application forms shall require applicant to specify if any or all of the property involved in the proposal is located within the floodplain, as it appears on the flood insurance rate map as officially amended.
- B. Information Required: Additionally, if the property is so situated within the floodplain, the forms shall require applicants to provide information including, but not limited to:
1. Plans in duplicate drawn to scale;
  2. The nature, location, dimensions and elevations of the land involved;
  3. A description and identification of existing or proposed structures, fill, storage of materials, drainways, drainage facilities and the location of the foregoing;
  4. Elevation in relation to mean sea level of the lowest floor (including basement) of all structures;
  5. Elevation in relation to mean sea level to which any structure has been floodproofed;
  6. Type of floodproofing, if any, to be employed;
  7. Certification by a registered professional engineer or licensed architect that the floodproofing methods for any structure meet the applicable floodproofing standards of section 18.68.090 of this chapter or its successor, and that the flood carrying capacity within any watercourse is maintained; and
  8. Where, in the opinion of the applicant, the floodplain boundary or the base flood elevation data determined by the flood insurance study map is in error, the applicant shall have his/her professional engineer supply supporting documentation to the ~~city engineer~~Chief Engineer for Salt Lake City Public Utilities~~City Floodplain Administrator~~ to verify correct boundaries and elevation data to request interpretation or amendment as provided in section 18.68.070 of this chapter or its successor.

### **18.68.070 Administrative FIRM Amendment:**

- A. Requests For Amendment Or Interpretation: Request for administrative site specific amendment(s) to the FIRM or requests for an interpretation of the FIRM boundaries based on conflicts between the mapped boundaries and actual field conditions shall be submitted to the ~~city engineer~~Chief Engineer for Salt Lake City Public Utilities~~City Floodplain Administrator~~ for review. This is not to preclude the ~~city~~

~~engineer~~Chief Engineer for Salt Lake City Public Utilities-City Floodplain Administrator or FEMA from initiating amendments to the FIRM.

- B. Supporting Documentation ~~And~~ and Certification: Such request shall be accompanied by the applicant's supporting documentation which shall include a certification by a registered professional engineer. Such certification shall specify that in his/her professional judgment the boundaries of the FIRM, as they relate to the specific site under consideration:
1. Are incorrect; or
  2. Have been or will be modified by existing or proposed improvements, etc.
- C. Engineer Review: After review, if the documentation and request are found to be in order, the ~~city engineer~~Chief Engineer for Salt Lake City Public Utilities-City Floodplain Administrator shall submit the request together with his/her recommendation to the federal emergency management agency to request consideration of amendment to the FIRM unless FEMA approval has already been obtained.
- D. Administrative Approval Of FEMA Amendment Of FIRM: In the event FEMA, based on the request and ~~recommendation of the city engineer's~~Chief Engineer for Salt Lake City Public Utilities's~~City Floodplain Administrator recommendation~~ and for good cause shown, approves the request and issues an amendment to the FIRM, the director of the department of public utilities shall submit two (2) copies of the FEMA amendment to the mayor for approval of administrative amendment to the official FIRM. Each amendment so approved shall be certified by the city recorder and numbered consecutively. One copy shall be retained on file with the recorder and attached to the FIRM and the second copy returned to the ~~city engineer~~Chief Engineer for Salt Lake City Public Utilities-City Floodplain Administrator for attachment to the FIRM and availability for public inspection.
- E. Effect Of Administrative FIRM Amendment: Any amendment to the FIRM so issued by the FEMA and approved by the official executive action of the mayor under this section or its successor shall become a part of the official FIRM and shall be incorporated herein by references and have the full force and effect of this chapter as of the date of the mayor's action.
- F. Issuance Of Conditional Permit Pending FIRM Amendment: After the ~~city engineer~~Chief Engineer for Salt Lake City Public Utilities~~City Floodplain Administrator~~ has reviewed the request for FIRM amendment and supporting documentation and arrived at a recommendation favoring amendment, the ~~city engineer~~Chief Engineer for Salt Lake City Public Utilities~~City Floodplain Administrator~~ may recommend to the city planner or building official that a conditional permit be issued pending final FEMA and executive action within the following limitations:
1. That the difference between the established base flood elevation for the site or structure and that elevation proposed as part of the FIRM amendment is less than five feet (5');
  2. That the conditional permit is null and void upon FEMA's denial of the request to amend;
  3. To obtain the conditional permit, an agreement must be signed by the property owners and permittee which:

- a. Acknowledges they are proceeding at their own risk,
  - b. Indemnifies and releases city of and against any and all claims arising out of the event the permit becomes void, including, but not limited to, stop of work, additional fees, injunctive relief or other actions which may result,
  - c. Agreement that in the event of denial of the request to amend, they will take necessary steps to floodproof the structure according to an approved alternative plan of corrective work. To secure the performance of such corrective work, a corporate surety cash bond or letter of credit in an amount equal to the ~~city engineer~~Chief Engineer for Salt Lake City Public Utilities~~City Floodplain Administrator's~~ estimate of the costs of the corrective work in the alternative plan shall be submitted in a form approved by the city attorney prior to issuance of the permit;
4. No certificate of occupancy may be issued for any structure and no subdivision plat may be signed by the mayor until the FIRM amendment is approved by the mayor or the corrective work is completed.

### **18.68.090 Development Standards And Criteria:**

No final subdivision plat shall be approved nor shall any site development or building permit be issued for property located within the floodplain hazard area until the proposed development, construction, substantial improvement, or work under permit complies with the following criteria:

- A. All proposals for new construction or substantial improvements to existing structures within the floodplain hazard area (including manufactured homes and temporary structures or relocatable office buildings) must be designed or modified and anchored to prevent flotation, collapse or lateral movement of the structure resulting from hydrodynamic and hydrostatic loads including the effects of buoyancy and shall be constructed with materials and utility equipment resistant to flood damage.
- B. All proposals for development, construction or substantial improvements (including replacements) must be provided with water supply systems or sanitary sewage systems which are designed to minimize or eliminate infiltration of floodwaters into the system and discharges from the system into floodwater. On site waste disposal systems must be located so as to avoid impairment of, or contamination from, them during flooding. All public utilities, including sewer, gas, electricity and water systems and other service facilities shall be designed, located and/or constructed to prevent water from entering or accumulating within the components during conditions of flooding. All public improvements (including, but not limited to, streets, sidewalks, curbs, and gutter), shall be designed and constructed with adequate drainage systems to minimize the containment of floodwaters on adjacent properties.
- C. Building or structures and development activities shall be designed and completed on the site so as to offer minimum obstruction to the flood or floodwaters. Whenever floodwaters could be four feet (4') or more in depth and have a velocity of two feet (2') per second or greater on a site, as determined by the ~~city engineer~~Chief Engineer for Salt Lake City Public Utilities~~City Floodplain Administrator~~, buildings or structures shall be constructed and development activities shall be designed with the longitudinal axis parallel to the direction of the flood flow. So far as is practicable,

buildings or structures shall be placed approximately on the same flood flow lines as those of adjoining structures.

- D. No buildings, structures or earth fill shall be constructed or developed that will:
  - 1. Cause an increase of more than one foot (1') in the probable water surface elevation in any floodplain hazard area; or
  - 2. Result in storage or processing of flammable, explosive or dangerous materials within the floodplain hazard area.
- E. No buildings, structures, substantial improvements, earth fill or other encroachments shall be constructed or developed within the regulatory floodway.
- F. If a structure has been floodproofed, the elevation of such floodproofing (in relation to mean sea level) must be certified by a registered professional engineer or registered land surveyor and must also be submitted to the building official.
- G. Adequate drainage paths shall be provided around structures located on slopes within any AO or AH zone to guide floodwater around and away from proposed structures.
- H. Fully enclosed areas in buildings, structures, and substantial improvements below the lowest floor that are subject to flooding shall be designated 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: A minimum of two (2) 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. The bottom of all openings shall be no higher than one foot (1') above grade. Openings may be equipped with screens, louvers, or other coverings or devices provided that they permit the automatic entry and exit of floodwaters.

\_\_\_\_\_ SECTION 2. This section shall take effect immediately upon the date of its first publication.

Passed by the City Council of Salt Lake City, Utah this \_\_\_\_\_ day of \_\_\_\_\_, 2009.

\_\_\_\_\_  
CHAIRPERSON

ATTEST:

\_\_\_\_\_  
CHIEF DEPUTY CITY RECORDER

Transmitted to Mayor on \_\_\_\_\_.

Mayor's Action: \_\_\_\_\_ Approved. \_\_\_\_\_ Vetoed.

\_\_\_\_\_  
MAYOR

APPROVED AS TO FORM  
Salt Lake City Attorney's Office  
Date July 10, 2009  
By ERV

\_\_\_\_\_  
CHIEF DEPUTY CITY RECORDER

(SEAL)

Bill No. \_\_\_\_\_ of 2009.

Published: \_\_\_\_\_.

HB\_ATTY-#9215-v1-Floodplain\_Ordinance\_2009

SALT LAKE CITY ORDINANCE

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2. "Area of special flood hazard" means the land in the floodplain within a community subject to a one percent (1%) or greater chance of flooding in any given year. The area is shown on the flood insurance rate map (FIRM) as zone A, AE, AH, AO, A1-99, VO, V1-30, VE or V.
3. "Base flood" means a flood having a one percent (1%) chance of being equaled or exceeded in any given year.
4. "Base flood elevation" means the probable water surface elevation (in relation to mean sea level) of the base flood as determined by or approved by the City Floodplain Administrator.
5. "Certify" or "certification" means the specific reports, inspections and tests that are required have been performed in an appropriate manner, and such reports, inspections, tests and results comply with the applicable requirements of this chapter.
6. "City Floodplain Administrator" means the person designated by the Director of the Department of Public Utilities to direct the decision-making process that aims to achieve the wise use of the city's floodplains. "Wise use" means both reduced flood losses and protection of the natural resources and function of floodplains.
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13. "Floodplain". Generally, floodplain(s) is/are a relatively flat area or lowland(s) adjoining a river, stream, watercourse, ocean or lake which has been or may be covered by floodwater. Specifically, for purposes of this title, "floodplain(s)" shall be that area of the city designated within the boundaries of the official flood insurance rate map or amendments, which may be subject to periodic inundation in the event of the base flood.
14. "Floodplain hazard area" means the area containing the floodplain for a base flood in the city, as designated on the flood insurance rate map and approved amendments.
15. "Floodproofing" means any combination of structural or nonstructural additions, changes or adjustments to structures or property which reduce or eliminate flood damage to improved or unimproved real property, water and sanitary facilities, structures and their contents.
16. "Floodway" means the channel of the 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 a designated height.
17. "Highest adjacent grade" means the highest natural elevation of the ground surface prior to construction or development next to the proposed wall of a structure.
18. "Levee system" means a flood protection system which consists of a levee, or levees, and associated structures, such as closure and drainage devices, which are constructed and operated in accordance with sound engineering practices.
19. "Licensed architect" means an architect who is registered with the department of registration of the state of Utah.
20. "Letter of Map Change, 'LOMC'" means a letter which reflects an official revision to an effective National Flood Insurance Program map.
21. "Lowest floor" means the lowest floor of the lowest enclosed area (including basement). An unfinished or flood restraint 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 section 60.3 of the national flood insurance program regulations.

22. "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 (180) consecutive days. For insurance purposes the term "manufactured home" does not include park trailers, travel trailers, and other similar vehicles.

23. "Manufactured home park" or "manufactured home subdivision" means a parcel (or contiguous parcels) of land divided into two (2) or more manufactured home lots for rent or sale.

24. "Mean sea level" means, for purposes of the national flood insurance program, the North American Vertical Datum of 1988 (NAVD 88) or other datum to which base flood elevations shown on a community's flood insurance rate map are referenced.

25. "New construction" means structures or substantial improvement thereto for which the "start of construction" as defined in this section is commenced on or after the effective date of the ordinance codified in this chapter.

26. "New development" means any development proposal(s) and/or plan(s) submitted for approval, for which the development activities as defined in this section will commence on or after the effective date of the ordinance codified in this chapter.

27. "Registered land surveyor" means a land surveyor who is registered with the department of registration of the state of Utah.

28. "Registered professional engineer" means a civil engineer who is registered with the department of registration of the state of Utah.

29. "Remedy a violation" means to bring the structure or other development into compliance with state or local floodplain management regulations, or, if this is not possible, to reduce the impacts of its noncompliance. Ways that impacts may be reduced include protecting the structure or other affected development from flood damages, implementing the enforcement provisions of this chapter or otherwise deterring future similar violations, or reducing federal financial exposure with regard to the structure or other development.

30. "Special Flood Hazard Area, 'SFHA'" means the land in the flood plain within the community subject to a 1 percent or greater chance of flooding in any given year, which area may be designated as Zone A, AO, AH, A1-30, AE, A99 on the FIRM..

31. "Start of construction" applies to both new construction and substantial improvements and means:

- a. Date Of Issuance: The date the building permit was issued, provided the actual start of construction, repair, reconstruction, placement or other improvement was within one hundred eighty (180) days of the permit date. The actual start means either the first placement of permanent construction of a structure or 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 foundations 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.

b. Relocatable Office Or Structure: Start of construction for a "relocatable office building" (defined in section 18.84.010 of this title, or its successor) or other temporary structure shall be the date on which the relocatable office building is placed upon an approved site.

32. "Structure" means a walled and roofed building, temporary structure, or manufactured home that is in whole or in part aboveground.

33. "Substantial improvements" means any development and/or construction of a structure, the cost of which equals or exceeds either fifty percent (50%) of the market value of the structure before the development is started, or, if the development or construction is undertaken for repair of damage caused by accident or acts of God, fifty percent (50%) of the same market value of the structure before the damage occurred.

34. "Violation" means the failure of a structure or other development to fully comply with these floodplain management regulations. A structure or other development without the elevation certificate, other certifications, or other evidence of compliance required in CFR section 60.3(b)(5), (c)(4), (c)(10), (d)(3), (e)(2), (e)(4), or (e)(5) is presumed to be in violation until such time as that documentation is provided.

35. "Water surface elevation" means the height, in relation to the NAVD 88 (or other datum, where specified), of floods of various magnitudes and frequencies in the floodplains of coastal or riverine areas.

### **18.68.030 Establishment Of Floodplain Hazard Areas:**

The SFHA within Salt Lake City have been established and identified by the Federal Emergency Management Agency (FEMA) in a scientific and engineering report entitled "The Flood Insurance Study for the City of Salt Lake City, Utah", dated February 1, 1983, including the current effective revisions. The boundaries of the floodplain hazard areas are delineated on the effective flood insurance rate map (FIRM), including any and all LOMCs which accompanies the flood insurance study. Located within the floodplain hazard areas are areas designated as floodways. The locations of the floodways have been computed in the flood insurance study and are contained therein on flood boundary and floodway maps. The flood insurance study, accompanying FIRM and floodway maps are hereby adopted by reference and made part of this chapter. Said flood insurance study together with the FIRM and floodway maps and any amendments approved by FEMA after acceptance by the mayor as provided in section 18.68.070 of this chapter or its successor constitute the boundaries of the floodplain hazard areas governed by the supplemental regulations of this chapter. A copy of said flood insurance study together with the accompanying FIRM and floodway maps and accepted amendments shall be filed by the Director of the Department of Public Utilities and be available for public inspection. The original shall be kept for certification purposes by the city recorder.

### **18.68.050 Subdivision Development Approval Procedure:**

- A. Each application for subdivision approval shall be submitted to the city planner and applications for building and site development permits shall be submitted to the building official. Respectively, said officials shall be responsible to:
  - 1. Verify if the location of the proposed development or construction site or any portion thereof is situated within a SFHA as defined on the flood insurance rate map(s) as it may be amended and except where such site is located in Zone A where base flow elevation data is not available or required by this chapter. (Applicants not otherwise aware of such placement should be notified of the potential application of this chapter);
  - 2. Determine that the reviews and approvals required by this chapter have been obtained to satisfy its requirements;
  - 3. Maintain for public inspection the following records pertaining to the provisions of this chapter:
    - a. The actual elevation (in relation to mean sea level elevation) of the lowest floor (including basement) of all new or substantially improved structures, and specifying whether or not the structure includes a basement,
    - b. For all new or substantially improved floodproofed structures, verification and record of the actual elevation of the lowest floor (in relation to mean sea level elevation) and the floodproofing certification required in provisions of this chapter.
- B. The city planner and/or building official in the administration of this chapter shall rely on the expertise of the City Floodplain Administrator for technical evaluation for:
  - 1. Identification of drainways, designated water passage areas or regulated floodways;
  - 2. Obtain, review and utilize reliable base flood elevation data which may be or become available for assistance in administering these regulations;
  - 3. At the request of the building official or city planner, review applications for permits within the floodplain hazard area;
  - 4. Review, as provided below, any requests by said officials or others for interpretation of the boundaries of the floodplain hazard area where conflicts appear between the mapped boundaries and actual field conditions;
  - 5. Review and process, as provided below, requests for amendments to the flood insurance rate map;
  - 6. Maintain one copy of the official flood insurance rate map (FIRM) as amended;
  - 7. Notify periodically the Utah State Division of Water Rights, FEMA and any affected adjacent communities of alterations or relocation of any watercourse or drainway which results from permitted development when in the opinion of the City Floodplain Administrator the alterations or relocations are substantial in nature or effect.

### **18.68.060 Applications And Permits:**

- A. Subdivision Proposals: Subdivision proposals must be submitted and approved and building and/or development permit(s) for development or construction within the

floodplain hazard area must be obtained before such development or construction begins. Applications for subdivision or other development shall be made to the city planner upon forms provided. Applications for building or site development permits shall be made to the building official on forms to be provided. Application forms shall require applicant to specify if any or all of the property involved in the proposal is located within the floodplain, as it appears on the flood insurance rate map as officially amended.

- B. Information Required: Additionally, if the property is so situated within the floodplain, the forms shall require applicants to provide information including, but not limited to:
1. Plans in duplicate drawn to scale;
  2. The nature, location, dimensions and elevations of the land involved;
  3. A description and identification of existing or proposed structures, fill, storage of materials, drainways, drainage facilities and the location of the foregoings;
  4. Elevation in relation to mean sea level of the lowest floor (including basement) of all structures;
  5. Elevation in relation to mean sea level to which any structure has been floodproofed;
  6. Type of floodproofing, if any, to be employed;
  7. Certification by a registered professional engineer or licensed architect that the floodproofing methods for any structure meet the applicable floodproofing standards of section 18.68.090 of this chapter or its successor, and that the flood carrying capacity within any watercourse is maintained; and
  8. Where, in the opinion of the applicant, the floodplain boundary or the base flood elevation data determined by the flood insurance study map is in error, the applicant shall have his/her professional engineer supply supporting documentation to the City Floodplain Administrator to verify correct boundaries and elevation data to request interpretation or amendment as provided in section 18.68.070 of this chapter or its successor.

**18.68.070 Administrative FIRM Amendment:**

- A. Requests For Amendment Or Interpretation: Request for administrative site specific amendment(s) to the FIRM or requests for an interpretation of the FIRM boundaries based on conflicts between the mapped boundaries and actual field conditions shall be submitted to the City Floodplain Administrator for review. This is not to preclude the City Floodplain Administrator or FEMA from initiating amendments to the FIRM.
- B. Supporting Documentation and Certification: Such request shall be accompanied by the applicant's supporting documentation which shall include a certification by a registered professional engineer. Such certification shall specify that in his/her professional judgment the boundaries of the FIRM, as they relate to the specific site under consideration:
1. Are incorrect; or
  2. Have been or will be modified by existing or proposed improvements, etc.
- C. Engineer Review: After review, if the documentation and request are found to be in order, the City Floodplain Administrator shall submit the request together with

his/her recommendation to the federal emergency management agency to request consideration of amendment to the FIRM unless FEMA approval has already been obtained.

- D. Administrative Approval Of FEMA Amendment Of FIRM: In the event FEMA, based on the request and recommendation of the City Floodplain Administrator and for good cause shown, approves the request and issues an amendment to the FIRM, the director of the department of public utilities shall submit two (2) copies of the FEMA amendment to the mayor for approval of administrative amendment to the official FIRM. Each amendment so approved shall be certified by the city recorder and numbered consecutively. One copy shall be retained on file with the recorder and attached to the FIRM and the second copy returned to the City Floodplain Administrator for attachment to the FIRM and availability for public inspection.
- E. Effect Of Administrative FIRM Amendment: Any amendment to the FIRM so issued by the FEMA and approved by the official executive action of the mayor under this section or its successor shall become a part of the official FIRM and shall be incorporated herein by references and have the full force and effect of this chapter as of the date of the mayor's action.
- F. Issuance Of Conditional Permit Pending FIRM Amendment: After the City Floodplain Administrator has reviewed the request for FIRM amendment and supporting documentation and arrived at a recommendation favoring amendment, the City Floodplain Administrator may recommend to the city planner or building official that a conditional permit be issued pending final FEMA and executive action within the following limitations:
  - 1. That the difference between the established base flood elevation for the site or structure and that elevation proposed as part of the FIRM amendment is less than five feet (5');
  - 2. That the conditional permit is null and void upon FEMA's denial of the request to amend;
  - 3. To obtain the conditional permit, an agreement must be signed by the property owners and permittee which:
    - a. Acknowledges they are proceeding at their own risk,
    - b. Indemnifies and releases city of and against any and all claims arising out of the event the permit becomes void, including, but not limited to, stop of work, additional fees, injunctive relief or other actions which may result,
    - c. Agreement that in the event of denial of the request to amend, they will take necessary steps to floodproof the structure according to an approved alternative plan of corrective work. To secure the performance of such corrective work, a corporate surety cash bond or letter of credit in an amount equal to the City Floodplain Administrator's estimate of the costs of the corrective work in the alternative plan shall be submitted in a form approved by the city attorney prior to issuance of the permit;
  - 4. No certificate of occupancy may be issued for any structure and no subdivision plat may be signed by the mayor until the FIRM amendment is approved by the mayor or the corrective work is completed.

### **18.68.090 Development Standards And Criteria:**

No final subdivision plat shall be approved nor shall any site development or building permit be issued for property located within the floodplain hazard area until the proposed development, construction, substantial improvement, or work under permit complies with the following criteria:

- A. All proposals for new construction or substantial improvements to existing structures within the floodplain hazard area (including manufactured homes and temporary structures or relocatable office buildings) must be designed or modified and anchored to prevent flotation, collapse or lateral movement of the structure resulting from hydrodynamic and hydrostatic loads including the effects of buoyancy and shall be constructed with materials and utility equipment resistant to flood damage.
- B. All proposals for development, construction or substantial improvements (including replacements) must be provided with water supply systems or sanitary sewage systems which are designed to minimize or eliminate infiltration of floodwaters into the system and discharges from the system into floodwater. On site waste disposal systems must be located so as to avoid impairment of, or contamination from, them during flooding. All public utilities, including sewer, gas, electricity and water systems and other service facilities shall be designed, located and/or constructed to prevent water from entering or accumulating within the components during conditions of flooding. All public improvements (including, but not limited to, streets, sidewalks, curbs, and gutter), shall be designed and constructed with adequate drainage systems to minimize the containment of floodwaters on adjacent properties.
- C. Building or structures and development activities shall be designed and completed on the site so as to offer minimum obstruction to the flood or floodwaters. Whenever floodwaters could be four feet (4') or more in depth and have a velocity of two feet (2') per second or greater on a site, as determined by the City Floodplain Administrator, buildings or structures shall be constructed and development activities shall be designed with the longitudinal axis parallel to the direction of the flood flow. So far as is practicable, buildings or structures shall be placed approximately on the same flood flow lines as those of adjoining structures.
- D. No buildings, structures or earth fill shall be constructed or developed that will:
  - 1. Cause an increase of more than one foot (1') in the probable water surface elevation in any floodplain hazard area; or
  - 2. Result in storage or processing of flammable, explosive or dangerous materials within the floodplain hazard area.
- E. No buildings, structures, substantial improvements, earth fill or other encroachments shall be constructed or developed within the regulatory floodway.
- F. If a structure has been floodproofed, the elevation of such floodproofing (in relation to mean sea level) must be certified by a registered professional engineer or registered land surveyor and must also be submitted to the building official.
- G. Adequate drainage paths shall be provided around structures located on slopes within any AO or AH zone to guide floodwater around and away from proposed structures.
- H. Fully enclosed areas in buildings, structures, and substantial improvements below the lowest floor that are subject to flooding shall be designated 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: A minimum of two (2) 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. The bottom of all openings shall be no higher than one foot (1') above grade. Openings may be equipped with screens, louvers, or other coverings or devices provided that they permit the automatic entry and exit of floodwaters.

SECTION 2. This section shall take effect immediately upon the date of its first publication.

Passed by the City Council of Salt Lake City, Utah this \_\_\_\_\_ day of \_\_\_\_\_, 2009.

\_\_\_\_\_  
CHAIRPERSON

ATTEST:

\_\_\_\_\_  
CHIEF DEPUTY CITY RECORDER

Transmitted to Mayor on \_\_\_\_\_.

Mayor's Action: \_\_\_\_\_ Approved. \_\_\_\_\_ Vetoed.

**APPROVED AS TO FORM**  
**Salt Lake City Attorney's Office**  
Date 10/10/2009  
By ERV

\_\_\_\_\_  
MAYOR

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CHIEF DEPUTY CITY RECORDER

(SEAL)

Bill No. \_\_\_\_\_ of 2009.

Published: \_\_\_\_\_.

HB\_ATTU-#9215-v1-Floodplain\_Ordinance\_2009