

**JEFFERSON COUNTY
FLOOD DAMAGE PREVENTION ORDER**

**SECTION 1.0
STATUTORY AUTHORIZATION, FINDINGS OF FACT, PURPOSE AND OBJECTIVES**

1.1 STATUTORY AUTHORIZATION

The Legislature of the State of Texas has in (statutes) Texas Water Code § 16.315, delegated the responsibility to local governmental units to adopt regulations designed to minimize flood losses. Texas Water Code also delegates the authority to establish fees and penalties necessary to implement the requirements of any adopted regulations. Therefore, the Commissioners Court of Jefferson County, Texas, does order as follows:

1.2 FINDINGS OF FACT

- (1) The flood hazard areas of Jefferson County are subject to periodic inundation which results in loss of life and property, health, and safety hazards, disruption of commerce and governmental services, extraordinary public expenditures for flood protection and relief, and impairment of the tax base, all of which adversely affect the public health, safety, and general welfare.
- (2) These flood losses are caused by the cumulative effect of obstructions in areas of special flood hazards which increase flood heights and velocities, and when inadequately anchored, damage uses in other areas. Uses that are inadequately flood proofed, elevated, or otherwise protected from flood damage also contribute to the flood loss.

1.3 STATEMENT OF PURPOSE

It is the purpose of this order to promote the public health, safety, and general welfare, and to minimize public and private losses due to flood conditions in specific areas by provisions designed:

- (1) To protect human life and health;
- (2) To minimize expenditure of public money and costly flood control projects;
- (3) To minimize the need for rescues and relief efforts associated with flooding and generally undertaken at the expense of the general public;
- (4) To minimize prolonged business interruptions;
- (5) To minimize damage to public facilities and utilities such as water and gas mains, electric, telephone and sewer lines, streets, and bridges located in the areas of special flood hazard;
- (6) To help maintain a stable tax base by providing for the sound use and development of areas of special flood hazard so as to minimize future flood blight areas;

- (7) To ensure that potential buyers are notified that property is in an area of special flood hazard; and,
- (8) To ensure that those who occupy the areas of special flood hazard assume responsibility for their actions.
- (9) To restrict circumstances under which construction may take place in flood hazard areas.

1.4 METHODS OF REDUCING FLOOD LOSSES

In order to accomplish its purposes, this Order includes methods and provisions for:

- (1) Restricting or prohibiting uses which are dangerous to health, safety, and property due to water or erosion hazards, or which result in damaging increases in erosion or in flood heights or velocities;
- (2) Requiring that uses vulnerable to floods, including facilities which serve such uses, be protected against flood damage at the time of initial construction;
- (3) Controlling the alteration of natural flood plains, stream channels, and natural protective barriers, which help accommodate or channel flood waters;
- (4) Controlling filling, grading, dredging, and other development which may increase flood damage; and
- (5) Preventing or regulating the construction of flood barriers which will unnaturally divert flood waters or may increase flood hazards in other areas.

SECTION 2.0 DEFINITIONS

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

“ACCESSORY STRUCTURES” means the low cost buildings such as detached garages, boathouses, small pole barns, storage sheds and duck camps which are not used for permanent human habitation.

“APPEAL” means a request for a review of the interpretation of any provision of this order or a request for a variance.

“AREA OF SHALLOW FLOODING” means a designated AO, or AH Zone on the Flood Insurance Rate Map (FIRM). The base flood depths range from one to three feet; a clearly defined channel does not exist; the path of flooding is unpredictable and indeterminate; and, velocity flow may be evident. AO is characterized as sheet flow and AH indicates ponding.

“AREA OF SPECIAL FLOOD HAZARD” means the land in the flood plain within a community subject to a one percent or greater chance of flooding in any given year. Designation on maps

always includes the letters A or V. **“BASE FLOOD”** means the flood having a one percent chance of being equaled or exceeded in any given year. Also referred to as the “100-year flood”. Designation on maps always includes the letters A or V.

“BASEMENT” means any area of the building having its floor sub grade (below ground level) on all sides. **“CRAWLSPACE”** is an enclosed area below the base flood elevation and, as such, must have openings that equalize hydrostatic pressures by allowing for the automatic entry and exit of flood waters.

“COASTAL HIGH HAZARD AREA” means an area of special flood hazard extending from offshore to the inland limit of a primary frontal dune along an open coast and any other area subject to high velocity wave action from storms or seismic sources

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

“DEVELOPMENT” means any man-made change to improved or unimproved real estate, including but not limited to, buildings or other structures, mining, dredging, filling, grading, paving, excavation or drilling operations or storage of equipment or materials located within the area of special flood hazard.

“DEVELOPMENT PERMIT” means the permit that is issued by the Jefferson Environmental Control Department for construction or substantial improvement of structures.

“ELEVATED BUILDING” means for insurance purposes, a non-basement building which has its lowest elevated floor raised above ground level by foundation walls, shear walls, posts, piers, pilings, or columns.

“EXISTING MANUFACTURED HOME PARK OR SUBDIVISION” means a manufactured home park subdivision for which the construction of facilities for servicing the lots on which the manufactured homes are to be affixed (including, at a minimum, the installation of utilities, the construction of streets, and either final site grading or the pouring of concrete pads) is completed before the effective date of the adopted floodplain management regulations.

“EXPANSION TO AN EXISTING MANUFACTURED HOME PARK OR SUBDIVISION” means the preparation of additional sites by the construction of facilities for servicing the lots on which the manufactured homes are to be affixed (including the installation of utilities, the construction of streets, and either final site grading or the pouring of concrete pads).

“FLOOD” OR “FLOODING” means a general and temporary condition of partial or complete inundation of normally dry land areas from:

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

“FLOOD INSURANCE RATE MAP (FIRM)” means the official map on which the Federal Insurance Administration has delineated both the areas of special flood hazards and the risk premium zones applicable to the community.

“FLOOD INSURANCE STUDY” means the official report provided by the Federal Insurance Administration that includes flood profiles, the Flood Boundary-Floodway Map, and the water surface elevation more than one foot.

“LOWEST FLOOR” means the lowest floor of the lowest enclosed area (including basement) of a structure. An unfinished or flood resistant enclosure, usable solely for parking of vehicles, building access or storage, in an area other than a basement area, is not considered a building’s lowest floor, provided that such enclosure is not built so as to render the structure in violation of the applicable non-elevation design requirements of this Order found at § 5.2-1(2).

“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 attached to the required utilities. The term “manufactured home” does not include a “recreational vehicle.”

“MANUFACTURED HOME PARK OR SUBDIVISION” means a parcel (or contiguous parcels) of land divided into two or more manufactured home lots for rent or sale.

“NEW CONSTRUCTION” means structures for which the “start of construction” commenced on or after the effective date of this Order.

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

“RECREATIONAL VEHICLE” means a vehicle, which is:

- (a) Built on a single chassis;
- (b) 400 square feet or less when measured at the largest horizontal projection;
- (c) Designed to be self-propelled or permanently towable by a light duty truck;
and
- (d) Designed primarily not for use as a permanent dwelling, but as temporary living quarters for recreational, camping, travel, or seasonal use.

“REPETITIVE LOSS” means flood-related damages sustained by a structure on two separate occasions during any consecutive 10-year period for which the cost of repairs at the time of each such flood event, on the average, equals or exceeds 25 percent of the market value of the structure before damage occurred.

“START OF CONSTRUCTION” includes substantial improvement, and means the date the development permit was issued, provided the actual start of construction, repair, reconstruction, placement or other improvement was within 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 state 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. 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.

“STRUCTURE” means a walled and roofed building including a gas or liquid storage tank that is principally above ground.

“SUBSTANTIAL DAMAGE” means damage of any origin sustained by a structure whereby the cost of restoring the structure to its before damaged condition would equal or exceed 50 percent of the market value of the structure before the damage occurred.

“SUBSTANTIAL IMPROVEMENT” means any repair, reconstruction, or improvement of a structure, the cost of which equals or exceeds 50 percent of the market value of the structure, either:

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

This term includes structures which have incurred “repetitive loss” or “substantial damage”, regardless of the actual repair work performed. This term does not, however, include either:

- (1) Any project for improvement of a structure to correct existing violations of state or local health, sanitary, or safety code specifications which have been identified by the local code enforcement official and which are the minimum necessary to assure safe living conditions, or
- (2) Any alteration of a structure listed on the National Register of Historic Places or a State Inventory of Historic Places.

“VARIANCE” means a grant of relief from the requirements of this Order which permits construction in a manner that would otherwise be prohibited by this Order.

“WATER DEPENDENT” means a structure for commerce or industry which cannot exist in any other location and is dependent on the water by reason of the intrinsic nature of its operations.

SECTION 3.0 GENERAL PROVISIONS

3.1 LANDS TO WHICH THIS ORDER APPLIES

This Order shall apply to all areas of special flood hazards within the jurisdiction of Jefferson County.

3.2 BASIS FOR ESTABLISHING THE AREAS OF SPECIAL FLOOD HAZARD

The areas of special flood hazard identified by the Federal Insurance Administration in a scientific and engineering report entitled "The Flood Insurance Study for Jefferson County," dated December 1, 1982, and any revisions thereto, with accompanying Flood Insurance Maps, and any revisions thereto, are hereby adopted by reference and declared to be a part of this Order. The Flood Insurance Rate Maps are on file at The County Engineering Department, Jefferson County, Texas. The best available information for flood hazard area identification as outlined in § 4.3-2 shall be the basis for regulation until a new FIRM is issued which incorporates the data utilized under § 4.3-2.

3.3 PENALTIES FOR NON-COMPLIANCE

No structure or land shall hereafter be constructed, located, extended, converted, or altered without full compliance with the terms of this Order and other applicable regulations. Violations of the provisions of this Order by failure to comply with any of its requirements (including violations of conditions and safeguards established in connection with conditions) shall constitute a misdemeanor. Any person who violates this Order or fails to comply with any of its requirements shall upon conviction thereof, be fined not more than \$100.00 for each act of violation and for each day of violation, and in addition, shall pay all costs and expenses involved in the case. Nothing herein contained shall prevent Jefferson County from taking such other lawful action as is necessary to prevent or remedy any violation.

3.4 ABROGATION AND GREATER RESTRICTIONS

This Order is not intended to repeal, abrogate, or impair any existing easements, covenants, or deed restrictions. However, where this Order and another Order, easement, covenant, or deed restriction conflict or overlap, whichever imposes the more stringent restrictions shall prevail.

3.5 INTERPRETATIONS

In the interpretation and application of this Order, all provisions shall be:

- (1) Considered as minimum requirements;
- (2) Liberally construed in favor of the governing body; and,
- (3) Deemed neither to limit or repeal any other powers granted under State Statutes.

3.6. WARNING AND DISCLAIMER OF LIABILITY

The degree of flood protection required by this Order is considered reasonable for regulatory purposes and is based on scientific and engineering considerations. Larger floods can and will occur. Flood heights may be increased by man-made or natural causes. This Order does not imply that land outside the areas of special flood hazards or uses permitted within such areas will be free from flooding or flood damages. This Order shall not create liability on the part of Jefferson County, any officer or employee thereof, of the Federal Insurance Administration, for any flood damages that result from reliance on this Order or any administrative decision lawfully made hereunder.

3.7 SEVERABILITY

If any provision or provisions of this Agreement are held to be invalid, illegal, unenforceable or in conflict with the law of any jurisdiction, the validity, legality and enforceability of the remaining provisions shall not in any way be affected or impaired thereby.

SECTION 4.0 ADMINISTRATION

4.1 ESTABLISHMENT OF DEVELOPMENT PERMIT

4.1-1 Development Permit Required

A development permit shall be obtained before any construction or substantial improvement or development begins within any area of special flood hazard established in § 3.2. The permit shall be for all structures, including manufactured homes, as set forth in the "DEFINITIONS," and for all development, including fill and other activities, also set forth in the "DEFINITIONS." The Permit Application is in **Appendix (1)**. Also required is an Elevation Certificate as shown in **Appendix (2)**.

4.1-2 Application for Development Permit

Application for a development permit shall be made on forms furnished by the Environmental Control Department and may require items that include, but not be limited to, plans in duplicate drawn to scale showing the nature, location, dimensions, and elevations of the area in question, existing or proposed structures, fill, storage of materials, drainage facilities, and the location of the foregoing. Specifically, the following information is required:

- (1) Certified elevation, in relation to mean sea level, of the lowest floor (including basement) of all structures;
- (2) Certified elevation in relation to mean sea level to which any structure has been flood proofed;

- (3) Certification by a registered professional engineer or architect that the flood proofing methods for any non-residential structure meet the flood proofing criteria in § 5.2-2; and
- (4) Description of the extent to which a watercourse will be altered or relocated as a result of proposed development.

4.2 DESIGNATION OF THE COUNTY ENGINEER AS THE JEFFERSON COUNTY FLOODPLAIN MANAGER

The Jefferson County Engineer is hereby appointed to administer and implement this Order by granting or denying development permit applications in accordance with its provisions.

4.3 DUTIES AND RESPONSIBILITIES OF THE FLOODPLAIN ADMINISTRATOR

Duties of the Floodplain Administrator shall include, but not be limited to:

4.3-1 Permit Review

- (1) Review all development permits to determine that the permit requirements of this Order have been satisfied.
- (2) Review all development permits to determine that all necessary permits have been obtained from those Federal, State, or Local governmental agencies from which prior approval is required.
- (3) Review all development permits to determine if the proposed development is located in the floodway. If located in the floodway, assure that the encroachment provisions of § 5.3(1) are met.
- (4) Deny applications for development permits which do not comply with the provisions of the Order or sound flood plain management or other state or federal regulations or laws.

4.3-2 Use of Other Base Flood Data (In A Zones)

When base flood elevation data has not been provided (A Zones) in accordance with § 3.2, BASIS FOR ESTABLISHING THE AREAS OF SPECIAL FLOOD HAZARD, the Floodplain Administrator shall obtain, review, and reasonably utilize any base flood elevation and floodway data available from a Federal, State or other source, in order to administer §§ 5.2, SPECIFIC STANDARDS, and 5.3 FLOODWAYS.

4.3-3 Information to be Obtained and Maintained by Flood Plain Manager

- (1) Base flood elevation data as provided through the Flood Insurance Study, FIRM, or as required as in Sec. 4.3-2; record the actual elevation (in relation to mean sea level) of the lowest floor (including basement) of all new or substantially improved structures; and information regarding whether or not the structure contains a basement.

- (2) For all new or substantially improved flood proofed structures where base flood elevation data is provided through the Flood Insurance Study, FIRM, or as required in §4.3-2.
 - (i) Obtain and record the actual elevation (in relation to mean sea level), and
 - (ii) Maintain the flood proofing certifications required in § 4.1-2(3).
- (3) Maintain for public inspection all records pertaining to the provisions of this Order.

4.3-4 Alteration of Watercourses

- (1) Notify adjacent communities and the Department of Land Conservation and Development prior to any alteration or relocation of a watercourse, and submit evidence of such notification to the Federal Insurance Administration.
- (2) Require that maintenance is provided within the altered or relocated portion of said watercourse so that the flood carrying capacity is not diminished.

4.3-5 Interpretation of FIRM Boundaries

Make interpretations where needed, as to exact location of the boundaries of the areas of special flood hazards (for example, where there appears to be a conflict between a mapped boundary and actual field conditions). The person contesting the location of the boundary shall be given a reasonable opportunity to appeal the interpretation as provided in § 4.4.

4.4 VARIANCE PROCEDURE

4.4-1 Appeal Board

- (1) The Jefferson County Commissioners' Court shall hear and decide all timely filed appeals and requests for variances from the requirements of this Order. To be timely, an appeal of the Flood Plain Manager's denial must be in writing within 30 days of such denial.
- (2) The Jefferson County Commissioners' Court shall hear and decide appeals only when it is alleged there is an error in any requirement, decision, or determination made by the Floodplain Administrator in the enforcement or administration of this Order.
- (3) Those aggrieved by the decision of the Jefferson County Commissioners' Court, may appeal that decision to the Court of Competent Jurisdiction as provided by law.
- (4) In ruling on appeals, the Jefferson County Commissioners' Court shall consider all technical evaluations, all relevant factors, standards specified in other sections of this Order, including by not limited to:
 - (i) The risk that materials may be swept onto other lands to the injury of others;
 - (ii) The risk to life and property due to flooding or erosion damage;
 - (iii) The susceptibility of the proposed facility and its contents to flood damage and the effect of such damage on the individual owner;

- (iv) The importance of the services provided by the proposed facility to the community;
 - (v) The necessity to the facility of a waterfront location, where applicable;
 - (vi) The availability of viable alternative locations for the proposed use which are not subject to flooding or erosion damage;
 - (vii) The compatibility of the proposed use with existing and anticipated development;
 - (viii) The relationship of the proposed use to the comprehensive plan and flood plain management program for that area;
 - (ix) The safety of access to the property by ordinary and emergency vehicles during times of flooding;
 - (x) The expected heights, velocity, duration, rate of rise, and sediment transport of the flood waters and the effects of wave action, if applicable, expected at the site; and,
 - (xi) The costs of providing governmental services during and after flood conditions, including maintenance and repair of public utilities and facilities such as sewer, gas, electrical, and water systems, and streets and bridges.
- (5) Upon consideration of the factors of § 4.4-1(4) and the purposes of this Order, the Jefferson County Commissioners' Court may attach such conditions to the granting of variances as it deems necessary to further the purposes of this Order.
- (6) The County Clerk and County Engineer shall maintain the records of all appeal actions. The County Engineer must report any granted variances to the Federal Insurance Administration upon request.

4.4-2 Conditions for Variances

- (1) Generally, the only condition under which a variance from the elevation standard may be issued is for new construction and substantial improvements to be erected on a lot of one-half acre or less in size contiguous to and surrounded by lots with existing structures constructed below the base flood level, providing items (i-xi) in § 4.4-1(4) have been fully considered. As the lot size increases, the technical justification required for issuing the variance increases.
- (2) Variances may be issued for the reconstruction, rehabilitation, or restoration of structures listed on the National Register of Historic Places or the State Inventory of Historic Places, without regard to the procedures set forth in this section.
- (3) Variances shall not be issued within a designated floodway if any increase in flood levels during the base flood discharge would result.
- (4) Variances shall only be issued upon a determination that the variance is the minimum necessary, considering the flood hazard, to afford relief.
- (5) Variances shall only be issued upon:
- (i) A showing of good and sufficient cause;
 - (ii) A determination that failure to grant the variance would result in exceptional hardship to the applicant;

- (iii) A determination that the granting of a variance will not result in increased flood heights, additional threats to public safety, extraordinary public expense, create nuisances, cause fraud on or victimization of the public as identified in § 4.1-4(4), or conflict with existing local laws or orders.
- (6) Variances as interpreted in the National Flood Insurance Program are based on the general zoning law principle that they pertain to a physical piece of property; they are not personal in nature and do not pertain to the structure, its inhabitants, economic or financial circumstances. They primarily address small lots in densely populated residential neighborhoods. As such, variances from the flood elevations should be quite rare.
- (7) Variances may be issued for non-residential buildings in vary limited circumstances to allow a lesser degree of flood proofing than watertight or dry-flood proofing, where it can be determined that such action will have low damage potential, complies with all other variance criteria, except § 4.4-2(1), and otherwise complies with §§ 5.1-1 and 5.1-2 of the GENERAL STANDARDS.
- (8) Any applicant to whom a variance is granted for a structure to be built with a lowest floor elevation below base flood elevation is presumed to know that the cost of flood insurance will be commensurate with the increased risk from the reduced lowest floor elevation.

SECTION 5.0 PROVISIONS FOR FLOOD HAZARD REDUCTION

5.1 GENERAL STANDARDS

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

5.1-1 Anchoring

- (1) All new construction and substantial improvements shall be anchored to prevent flotation, collapse, or lateral movement of the structure.
- (2) All manufactured homes must likewise be anchored to prevent flotation, collapse, or lateral movement, and shall be installed using methods and practices that minimize flood damage. Anchoring methods may include, but are not limited to, use of over-the-top or frame ties to ground anchors (*Reference* FEMA's "Manufactured Home Installation in Flood Hazard Areas" guidebook for additional techniques).

5.1-2 AH Zone Drainage

Adequate drainage paths are required around structures on slopes to guide floodwaters around and away from proposed structures.

5.1-3 Construction Materials and Methods

- (1) All new construction and substantial improvements shall be constructed with materials and utility equipment resistant to flood damage.
- (2) All new construction and substantial improvements shall be constructed using methods and practices that minimize flood damage.
- (3) Electrical, heating, ventilation, plumbing, and air-conditioning equipment and other service facilities shall be designed and/or otherwise elevated or located so as to prevent water from entering or accumulating within the components during conditions of flooding and be elevated at least one (1) foot above the BFE.

5.1-4 Utilities

- (1) All new and replacement water supply systems shall be designed to minimize or eliminate infiltration of flood waters into the system;
- (2) New and replacement sanitary sewage systems shall be designed to minimize or eliminate infiltration of flood waters into the systems and discharge from the systems into flood waters; and,
- (3) On-site waste disposal systems shall be located to avoid impairment to them or contamination from them during flooding.

5.1-5 Subdivision Proposals

- (1) All subdivision proposals shall be consistent with the need to minimize flood damage;
- (2) All subdivision proposals shall have public utilities and facilities such as sewer, gas, electrical, and water systems located and constructed to minimize or eliminate flood damage;
- (3) All subdivision proposals shall have adequate drainage provided to reduce exposure to flood damage; and,
- (4) Where base flood elevation data has not been provided or is not available from another authoritative source, it shall be generated for subdivision proposals and other proposed developments which contain at least 50 lots or 5 acres (whichever is less).

5.1-6 Review of Building Permits

Where elevation data is not available either through the Flood Insurance Study, FIRM, or from another authoritative source (§ 4.3-2), applications for building permits shall be reviewed to assure that proposed construction will be reasonably safe from flooding. The test of reasonableness is a local judgment and includes use of historical data, high water marks, photographs of past

flooding, etc., where available. Failure to elevate at least two feet above grade in these zones may result in higher insurance rates.

5.2 SPECIFIC STANDARDS

In all areas of special flood hazards where base flood elevation data has been provided (Zones A1-30, AH and AE) as set forth in § 3.2, BASIS FOR ESTABLISHING THE AREAS OF SPECIAL FLOOD HAZARD, or § 4.3-2, use of other base flood data (In A Zones), the following provisions are required:

5.2-1 Residential Construction

- (1) New construction and substantial improvement of any residential structure shall have the lowest floor, including basement, elevated to above the base flood elevation, plus one (1) foot.
- (2) Fully enclosed areas below the lowest floor that are subject to flooding are prohibited, or shall be designed to automatically equalize hydrostatic flood forces on exterior walls by allowing for the entry and exit of floodwaters. Designs for meeting this requirement must either be certified by a registered professional engineer or architect or must meet or exceed the following minimum criteria:
 - (i) A minimum of two openings having a total net area of not less than one square inch for every square foot of enclosed area subject to flooding shall be provided.
 - (ii) The bottom of all openings shall be no higher than one foot above grade.
 - (iii) Openings may be equipped with screens, louvers, or other coverings or devices provided that they permit the automatic entry and exit of floodwaters.
 - (iv) Below grade, crawlspaces are prohibited at sites where the velocity of floodwaters exceeds five (5) feet per second.
 - (v) All building utility systems within the crawlspace shall be elevated above base flood elevation or be designed so that floodwaters cannot enter or accumulate within the system component during flood conditions.
 - (vi) The interior of a crawlspace below the base flood elevation must not be more than 2 feet below the lowest adjacent exterior grade (LAG). The height of the below grade crawlspace, measured from the interior grade of the crawlspace to the top of the crawlspace foundation, must not exceed 4 feet at any point.
 - (vii) Below grade crawlspaces constructed in accordance with the requirements listed in this Sub-Section, shall not be considered basements. However, applicants who construct buildings that have below grade crawlspaces are hereby advised that such buildings will have higher flood insurance premiums than buildings that have crawlspaces with interior elevations at or above the lowest adjacent grade.

5.2-2 Non-Residential Construction

New construction and substantial improvement of any commercial, industrial or other non-residential structure shall either have the lowest floor, including basement, elevated one (1) foot above the BFE; or, together with attendant utility and sanitary facilities, shall:

- (1) Be flood proofed so that the structure is watertight with walls substantially impermeable to the passage of water to an elevation one (1) foot above the BFE;
- (2) Have structural components capable of resisting hydrostatic and hydrodynamic loads and effects of buoyancy;
- (3) Be certified by a registered professional engineer or architect that the design and methods of construction are in accordance with accepted standards of practice for meeting provisions of this Sub-Section, based on their development and/or review of the structural design, specifications and plans. Such certifications shall be provided to the official as set forth in § 4.3-3(2). The Floodproofing Certificate shown in **Appendix (3)** shall be submitted for all floodproofed structures.
- (4) Non-residential structures that are elevated, not flood proofed, must meet the same standards for space below the lowest floor as described in § 5.2-1(2).
- (5) Applicants flood proofing non-residential buildings are advised by the terms of this Order that flood insurance premiums will be based on rates that are one (1) foot below the flood proofed level (e.g., a building flood proofed to the base flood level will be rated as one foot below)

5.2-3 Manufactured Homes

- (1) All manufactured homes to be placed or substantially improved on sites:
 - (i) Outside of a manufactured home park or subdivision,
 - (ii) In a new manufactured home park or subdivision,
 - (iii) In an expansion to an existing manufactured home park or subdivision, or
 - (iv) In an existing manufactured home park or subdivision on which a manufactured home has incurred “substantial damage” as the result of a flood,shall be elevated on a permanent foundation such that the lowest floor of the manufactured home is elevated at or above the base flood elevation, plus one (1) foot, and be securely anchored to an adequately designed foundation system to resist flotation, collapse and lateral movement.
- (2) Manufactured homes to be placed or substantially improved on sites in an existing manufactured home park or subdivision within Zones A, A1-30, AH, AO and AE on the community’s FIRM that are not subject to the above manufactured home provisions must be elevated to the higher of the requirements below:
 - (i) The lowest structural member of the manufactured home is elevated at or above the base flood elevation, plus one (1) foot, or
 - (ii) The manufactured home chassis is supported by reinforced piers or other foundation elements of at least equivalent strength that are no less than 36 inches in height above the highest adjacent grade and be securely anchored to an adequately designed foundation system to resist flotation, collapse, and lateral movement.

5.2-4 Recreational Vehicles

Recreational vehicles placed on sites are required to either:

- (i) Be on the site for fewer than 180 consecutive days,
- (ii) Be fully licensed and ready for highway use, on its wheels or jacking system, is attached to the site only by quick disconnect type utilities and security devices, and has no permanently attached additions, or
- (iii) Meet the requirements of § 5.2-3, above, and the elevation and anchoring requirements for manufactured homes.

5.2-5 Jefferson County Hazard Mitigation Assistance (HMA) Grant Projects

All residential structures that are part of Jefferson County HMA Grant Projects, shall be elevated either, three (3) feet above the best available BFE as determined by the County Floodplain Administrator or one (1) foot above the highwater flood elevation for the structure, whichever is higher. The elevations set for elevating a structure shall be rounded up to the nearest 0.5 foot. All structures shall be elevated using a pier system. The minimum elevation from ground level under the structure shall be no less than 3 feet. All residential structures elevated under this section shall follow all other requirements provided for in the Jefferson County Flood Damage Prevention Order, regardless of the assigned flood zone including those located in "C" or "X" zones.

To determine the best available BFE, The Floodplain Administrator may obtain, review, and reasonably utilize any base flood elevation, advisory base elevation, highwater mark data and / or floodway data available from a Federal, State or other authoritative source.

5.3 BEFORE REGULATORY FLOODWAY

In areas where a regulatory floodway has not been designated, no new construction, substantial improvements, or other development (including fill) shall be permitted within zones A1-30 and AE on the community's FIRM, unless it is demonstrated that the cumulative effect of the proposed development, when combined with all other existing and anticipated development, will not increase the water surface elevation of the base flood more than one foot at any point within the community.

5.4 FLOODWAYS

Located within areas of special flood hazard established in § 3.2 are areas designed as floodways. Since the floodway is an extremely hazardous area due to the velocity of floodwaters which carry debris, potential projectiles, and erosion potential, the following provisions apply. The Flood Plain Manager shall:

- (1) Prohibit encroachments, including fill, new construction, substantial improvements, and other development unless certification by a registered professional civil engineer is provided demonstrating through hydrologic and hydraulic analyses performed in accordance with standard engineering practice that encroachments shall not result in any increase in flood levels during occurrence of the base flood discharge.

- (2) If § 5.4(1) is satisfied, all new construction and substantial improvements shall comply with all applicable flood hazard reduction provisions of § 5.0, PROVISIONS FOR FLOOD HAZARD REDUCTION.

5.5 COASTAL HIGH HAZARD AREA

Coastal high hazard areas (V or VE Zones) are located within the areas of special flood hazard established in Section 3.2. These areas have special flood hazards associated with high velocity waters from tidal surges and hurricane wave wash; therefore, the following provisions shall apply:

5.5.1 LOCATION OF STRUCTURES

[1] All buildings or structures shall be located landward of the reach of the mean high tide.

[2] The placement of manufactured homes shall be prohibited, except in an existing manufactured home park or manufactured home subdivision.

5.5.2 CONSTRUCTION METHODS

[1] ELEVATION

With the exception of Accessory Structures, all new construction and substantial improvements shall be elevated on piling or columns so that the bottom of the lowest horizontal structural member of the lowest floor (excluding the piling or columns) is elevated to or above the base flood level PLUS ONE FOOT, with all space below the lowest floor's supporting member open so as not to impede the flow of water, except for breakaway walls as provided or in SECTION 5.4.1-2(4).

[2] STRUCTURAL SUPPORT

(i) All new construction and substantial improvements shall be securely anchored on piling or columns.

(ii) The pile or column foundation and structure attached thereto shall be anchored to resist flotation, collapse or lateral movement due to the effects of wind and water loading values each of which shall have a one percent chance of being equaled or exceeded in any given year (100-year mean recurrence interval).

(iii) There shall be no fill used for structural support.

[3] CERTIFICATION

A registered professional engineer or architect shall develop or review the structural design specifications and plans for the construction and shall certify that the design and methods of construction to be used are in accordance with accepted standards of practice for compliance with the provisions of SECTION 5.4.1-2(1) and 5.4.1-2(2) (i) and (ii).

[4] SPACE BELOW THE LOWEST FLOOR

(i) Any alteration, repair, reconstruction or improvement to a structure started after the enactment of this ordinance shall not enclose the space below the lowest floor unless breakaway walls, open wood lattice-work or insect screening are used as provided for in this section.

(ii) Breakaway walls, open wood lattice-work or insect screening shall be allowed below the base flood elevation provided that they are intended to collapse under wind and water loads without causing collapse, displacement or other structural damage to the elevated portion of the building or supporting foundation system. Breakaway walls shall be designed for a safe loading resistance of not less than 10 and no more than 20 pounds per square foot. Use of breakaway walls which exceed a design safe loading of 20 pounds per square foot (either by design or when so required by local or State codes) may be permitted only if a registered professional engineer or architect certifies that the designs proposed meet the following conditions.

(a) Breakaway wall collapse shall result from a water load less than that which would occur during the base flood and,

(b) The elevated portion of the building and supporting foundation system shall not be subject to collapse, displacement or other structural damage due to the effects of wind and water load acting simultaneously on all building components (structural and non-structural). Water loading values used shall be those associated with the base flood. Wind loading values used shall be those required by applicable State or local building standards.

(iii) If breakaway walls are utilized, such enclosed space shall be used solely for parking of vehicles, building access, or storage and not for human habitation.

(iv) Prior to construction, plans for any breakaway wall must be submitted to the (local administrator) for approval.

5.5.3 SAND DUNES

There shall be no alteration of sand dunes, which would increase potential for flood damage.

5.6 STANDARDS FOR SHALLOW FLOODING AREAS (AO ZONES)

Shallow flooding areas appear on FIRMs as AO Zones with depth designations. The base flood depths in these Zones range from 1 to 3 feet above ground where a clearly defined channel does not exist, or where the path of flooding is unpredictable and where velocity flow may be evident. Such flooding is usually characterized as sheet flow. In these areas, the following provisions apply:

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

- (2) New construction and substantial improvements of non-residential structures within AO Zones shall either:
 - (i) Have the lowest floor (including basement) elevated above the highest adjacent grade of the building site, one foot or more above the depth number specified in the FIRM (at least two feet if no depth number is specified); or
 - (ii) Together with attendant utility and sanitary facilities, be completely flood proofed to or above that level so that any space below that level is watertight with walls substantially impermeable to the passage of water and with structural components having the capability of resisting hydrostatic and hydrodynamic loads and effects of buoyancy. If this method is used, compliance shall be certified by a registered professional engineer or architect as in § 2-2(3).
- (3) Require adequate drainage paths around structures on slopes to guide floodwaters around and away from proposed structures.
- (4) Recreational vehicles placed on sites within AO Zones on the community's FIRM either:
 - (i) Be on the site for fewer than 180 consecutive days,
 - (ii) Be fully licensed and ready for highway use, on its wheels or jacking system, is attached to the site only by quick disconnect type utilities and security devices, and has no permanently attached additions; or
 - (iii) Meet the requirements of § 5.5 above, and the elevation and anchoring requirements for manufactured homes.

5.7 CRITICAL FACILITIES

- (1) Construction of any new critical facility shall be, to the extent possible, located outside the boundaries of the Special Flood Hazard Area (S.F.H.A. – 100–Year Floodplain.)
- (2) The Jefferson County Floodplain Administrator may approve the construction of a new critical facility or the substantial improvement of an existing critical facility within the (S.F.H.A.) if it meets the elevation and/or flood proofing requirements of this section and the Administrator determines that it is not practical to locate or relocate the facility outside of the S.F.H.A.
- (3) If the development permit is denied, the decision may be appealed to the Commissioners as allowed § 4.4-1 herein.
- (4) Critical facilities constructed or substantially improved within the S.F.H.A. shall have the lowest floor elevated five (5) feet above the 100-year base flood elevation or to an elevation of one foot above the 500-year flood plain, if such elevation has been determined.
- (5) Critical facilities located within the S.F.H.A. that manufacture, process, transport, or store toxic substances should be designed to insure that toxic substances will not be displaced by or released into floodwaters.