CHAPTER 2 - FLOOD PREVENTION AND PROTECTION

ARTICLE I. - IN GENERAL

Sec. 2-1. - Findings of fact.

A. The flood hazard areas of the City of Rosenberg, Texas, are subject to periodic inundation which results in loss of life and property, health and safety hazards, disruption of commerce and governmental services, and extraordinary public expenditures for flood protection and relief, all of which adversely affect the public health, safety and general welfare.

B. Flood losses are created by the cumulative effect of obstructions in floodplains which cause an increase in flood heights and velocities, and by the occupancy of flood hazard areas by uses vulnerable to floods and hazardous to other lands because they are inadequately elevated, floodproofed or otherwise protected from flood damage.

Sec. 2-2. - Statement of purpose.

It is the purpose of this chapter 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 to:

A. Protect human life and health;

B. Minimize expenditure of public money for costly flood control projects;

C. Minimize the need for rescue and relief efforts associated with flooding and generally undertaken at the expense of the general public;

D. Minimize prolonged business interruptions;

E. Minimize damage to public facilities and utilities such as water and gas mains, electric, telephone and sewer lines, streets and bridges located in floodplains;

F. Help maintain a stable tax base by providing for the sound use and development of flood-prone areas in such a manner as to minimize future flood blight areas; and

G. Ensure that potential buyers are notified that property is in a flood area.

Sec. 2-3. - Methods of reducing flood losses.

In order to accomplish its purposes, this chapter and its several sections use the following methods:

A. Restrict or prohibit uses that are dangerous to health, safety or property in times of flood, or cause excessive increases in flood heights or velocities;

B. Require that uses vulnerable to floods, including facilities which serve such uses, be protected against flood damage at the time of initial construction;

C. Control the alteration of natural floodplains, stream channels, and natural protective barriers, which are involved in the accommodation of flood waters;

D. Control filling, grading, dredging and other development which may increase flood damage; and

E. Prevent or regulate the construction of flood barriers which will unnaturally divert flood waters or which may increase flood hazards to other lands.

Sec. 2-4. - Lands to which this chapter applies.

This chapter shall apply to all areas of special flood hazard within the city.

Sec. 2-5. - Basis for establishing the areas of special flood hazard.

The areas of special flood hazard identified by the Federal Emergency Management Agency in the current scientific and engineering report entitled, "The Flood Insurance Study (FIS) for Fort Bend County, Texas and Incorporated Areas," dated December 21, 2017, with accompanying flood insurance rate maps and/or Flood Boundary-Floodway Maps (FIRM and/or FBFM) dated December 21, 2017, and any revisions thereto are hereby adopted by reference and declared to be a part of this chapter.

Sec. 2-6. - Development permit required.

A development permit shall be required to ensure conformance with the provisions of this chapter.

Sec. 2-7. - Compliance.

No structure or land shall hereafter be located, altered, or have its use changed without full compliance with the terms of this chapter and other applicable regulations.

Sec. 2-8. - Abrogation and greater restrictions.

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

Sec. 2-9. - Interpretation.

In the interpretation and application of this chapter, all provisions shall be: (1) considered as minimum requirements; (2) liberally construed in favor of the governing body; and (3) deemed neither to limit nor repeal any other powers granted under state law.

Sec. 2-10. - Warning and disclaimer of liability.

The degree of flood protection required by this chapter is considered reasonable for regulatory purposes and is based on scientific and engineering considerations. On rare occasions greater floods can and will occur and flood heights may be increased by manmade or natural causes. This chapter 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 chapter shall not create liability on the part of the city or any official or employee thereof for any flood damages that result from reliance on this chapter or any administrative decision lawfully made thereunder.

Secs. 2-11—2-30. - Reserved.

ARTICLE II. - ADMINISTRATION

Sec. 2-31. - Designation of the floodplain administrator.

The city engineer or his designee is hereby appointed as the floodplain administrator and is directed to implement the provisions of this chapter and other appropriate sections of Title 44 of the United States Code of Federal Regulations (The National Flood Insurance Program Regulations) pertaining to floodplain management.

Sec. 2-32. - Duties and responsibilities of the floodplain administrator.

The duties and responsibilities of the floodplain administrator shall include, but not be limited to, the following:

A. Maintain and hold for public inspection all records pertaining to the provisions of this chapter.

B. Review permit application to determine whether proposed building site, including the placement of manufactured homes, will be reasonably safe from flooding.

C. Review, approve or deny all applications for development permits required by adoption of this chapter.

D. Review permits for proposed development to assure that all necessary permits have been obtained from those federal, state or local governmental agencies (including Section 404 of the Federal Water Pollution Control Act Amendments of 1972, 33 U.S.C. 1334) from which prior approval is required.

E. Where interpretation is needed as to the 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 floodplain administrator shall make the necessary interpretation.

F. Notify, in riverine situations, adjacent communities and the state coordinating agency which is the Texas Water Development Board (TWDB) and also the Texas Commission on Environmental Quality (TCEQ), prior to any alteration or relocation of a watercourse, and submit evidence of such notification to the Federal Emergency Management Agency.

G. Assure that the flood carrying capacity within the altered or relocated portion of any watercourse is maintained.

H. When base flood elevation data has not been provided in accordance with Article I, Section 2-5, the floodplain administrator shall obtain, review and reasonably utilize any base flood elevation data and floodway data available from a federal, state or other source, in order to administer the provisions of Article III.

I. When a regulatory floodway has not been designated, the floodplain administrator must require that no new construction, substantial improvements, or other development (including fill) shall be permitted within Zones A1-30 and AE on the city's FIRM, unless it is demonstrated that the cumulative effect of the proposed development, when combined with other existing and anticipated development, will not increase the water surface elevation of the base flood more than one (1) foot at any point within the municipal limits of the city.

J. Under the provisions of 44 CFR Chapter 1, Section 65.12, of the National Flood Insurance Program Regulations, a community may approve certain development in Zones A1-30, AE, AH, on the community's FIRM which increases the water surface elevation of the base flood by more than one (1) foot, provided that the community first completes all of the provisions required by Section 65.12.

Sec. 2-33. - Permit procedures.

A. Application for a development permit shall be presented to the floodplain administrator on forms furnished by him/her and may include, but not be limited to, plans in duplicate drawn to scale showing the location, dimensions, and elevation of proposed landscape alterations, existing and proposed structures, including the placement of manufactured homes, and the location of the foregoing in relation to areas of special flood hazard. In addition, the following information is required:

1. Elevation (in relation to mean sea level), of the lowest floor (including basement) of all new and substantially improved structures;

2. Elevation in relation to mean sea level to which any nonresidential structure shall be floodproofed;

3. A certificate from a registered professional engineer or architect that the nonresidential floodproofed structure shall meet the floodproofing criteria of Article III, Section 2-52(B);

4. Description of the extent to which any watercourse or natural drainage will be altered or relocated as a result of proposed development; and

5. Maintain a record of all such information in accordance with Article II, Section 2-32(A).

B. Approval or denial of a development permit by the floodplain administrator shall be based on all of the provisions of this chapter and the following relevant factors:

1. The danger to life and property due to flooding or erosion damage;

2. The susceptibility of the proposed facility and its contents to flood damage and the effect of such damage on the individual owner;

3. The danger that materials may be swept onto other lands to the injury of others;

4. The compatibility of the proposed use with existing and anticipated development;

5. The safety of access to the property in times of flood for ordinary and emergency vehicles;

6. The costs of providing governmental services during and after flood conditions including maintenance and repair of streets and bridges, and public utilities and facilities such as sewer, gas, electrical and water systems;

7. 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;

8. The necessity to the facility of a waterfront location, where applicable;

9. The availability of alternative locations, not subject to flooding or erosion damage, for the proposed use;

10. The relationship of the proposed use to the comprehensive plan for that area.

Sec. 2-34. - Variance procedures.

A. The planning commission as established by the city shall hear and render judgment on requests for variances from the requirements of this Code.

B. The planning commission shall hear and render judgment on an appeal only when it is alleged there is an error in any requirement, decision, or interpretation made by the floodplain administrator in the enforcement or administration of this chapter.

C. Any person or persons aggrieved by the decision of the planning commission may appeal such decision in the courts of competent jurisdiction.

D. The floodplain administrator shall maintain a record of all actions involving an appeal and shall report variances to the Federal Emergency Management Agency upon request.

E. 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 the remainder of this chapter.

F. Variances may be issued for new construction and substantial improvements to be erected on a lot of one-half (½) acre or less in size contiguous to and surrounded by lots with existing structures constructed below the base flood level, providing the relevant factors in Section 2-33(B) of this article have been fully considered. As the lot size increases beyond the one-half (½) acre, the technical justification required for issuing the variance increases.

G. Upon consideration of the factors noted above and the intent of this chapter, the planning commission may attach such conditions to the granting of variances as it deems necessary to further the purpose and objectives of this chapter (Article I, Section 2-2).

H. Variances shall not be issued within any designated floodway if any increase in flood levels during the base flood discharge would result.

I. Variances may be issued for the repair or rehabilitation of historic structures upon a determination that the proposed repair or rehabilitation will not preclude the structure's continued designation as a historic structure and the variance is the minimum necessary to preserve the historic character and design of the structure.

J. Prerequisites for granting variances:

    1. Variances shall only be issued upon a determination that the variance is the minimum necessary, considering the flood hazard, to afford relief.

    2. Variances shall only be issued upon, (i) showing a good and sufficient cause; (ii) a determination that failure to grant the variance would result in exceptional hardship to the applicant, and (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, or conflict with existing local laws or ordinances.

3. Any application to whom a variance is granted shall be given written notice that the structure will be permitted to be built with the lowest floor elevation below the base flood elevation, and that the cost of flood insurance will be commensurate with the increased risk resulting from the reduced lowest floor elevation.

K. Variances may be issued by a community for new construction and substantial improvements and for other development necessary for the conduct of a functionally dependent use provided that (i) the criteria outlined in this Section are met, and (ii) the structure or other development is protected by methods that minimize flood damages during the base flood and create no additional threats to public safety.

Secs. 2-35—2-50. - Reserved.

ARTICLE III. - PROVISIONS FOR FLOOD HAZARD REDUCTION

Sec. 2-51. - General standards.

In all areas of special flood hazards, the following provisions are required for all new construction and substantial improvements.

A. All new construction or substantial improvements shall be designed (or modified) and adequately anchored to prevent flotation, collapse or lateral movement of the structure resulting from hydrodynamic and hydrostatic loads, including the effects of buoyancy;

B. All new construction or substantial improvements shall be constructed by methods and practices that minimize flood damage;

C. All new construction or substantial improvements shall be constructed with materials resistant to flood damage;

D. All new construction or substantial improvements shall be constructed with electrical, heating, ventilation, plumbing, and air conditioning equipment and other service facilities that are designed and/or located so as to prevent water from entering or accumulating within the components during conditions of flooding;

E. All new and replacement water supply systems shall be designed to minimize or eliminate infiltration of flood waters into the system;

F. New and replacement sanitary sewage systems shall be designed to minimize or eliminate infiltration of flood waters into the system and discharge from the systems into flood waters; and

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

Sec. 2-52. - Specific standards.

In all areas of special flood hazards where base flood elevation data has been provided as set forth in (i) Article I, Section 2-5, (ii) Article II, Section 2-32(H), or (iii) Article III, Section 2-53(C), the following provisions are required:

A. *Residential construction.* New construction and substantial improvement of any residential structure shall have the lowest floor (including basement), elevated to the higher of the elevations as defined in Section 2-57. A registered professional engineer, architect, or land surveyor shall submit a certification to the floodplain administrator that the standard of this subsection as proposed in Article II, Section 2-33(A)(1), is satisfied.

B. *Nonresidential construction.* New construction and substantial improvements of any commercial, industrial or other nonresidential structure shall either have the lowest floor (including basement) elevated to the higher of the elevations as defined in Section 2-57 or together with attendant utility and sanitary facilities, be designed so that below the base flood level the structure 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. A registered professional engineer or architect shall develop and/or review structural design, specifications, and plans for the construction, and shall certify that the design and methods of construction are in accordance with accepted standards of practice as outlined herein. A record of such certification which includes the specific elevation (in relation to mean sea level) to which such structures are floodproofed shall be maintained by the floodplain administrator.

C. *Enclosures.* New construction and substantial improvements, with fully enclosed areas below the lowest floor that are usable solely for parking of vehicles, building access or storage in an area other than a basement and which are subject to flooding shall be designed to automatically equalize hydrostatic flood forces on exterior walls by allowing for the entry and exit of flood waters. Designs for meeting this requirement must either be certified by a registered professional engineer or architect or meet or exceed the following minimum criteria:

    1. A minimum of two (2) openings having a total net area of not less than one (1) square inch for every square foot of enclosed area subject to flooding shall be provided.

    2. The bottom of all openings shall be no higher than one (1) foot above grade.

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

D. *Manufactured homes.*

1. Require that all manufactured homes to be placed within Zone A on the city's FHBM or FIRM shall be installed using methods and practices which minimize flood damage. For the purposes of this requirement, manufactured homes must be elevated and anchored to resist flotation, collapse, or lateral movement. Methods of anchoring may include, but are not limited to, use of over-the-top or frame ties to ground anchors. This requirement is in addition to applicable state and local anchoring requirements for resisting wind forces. The lowest floor of the manufactured home shall be elevated in accordance with Section 2-57 B.

2. Require that manufactured homes that are placed or substantially improved within Zones A1-30, AH, and AE on the city's FIRM 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 housing subdivision, or (iv) in an existing manufactured home park or subdivision on which a manufactured home has incurred "substantial damage" as a result of a flood, be elevated on a permanent foundation such that the lowest floor of the manufactured home is elevated to the higher of the elevations as defined in Section 2-57 and be securely anchored to an adequately anchored foundation system to resist flotation, collapse, and lateral movement.

3. Require that manufactured homes be placed or substantially improved on-sites in an existing manufactured home park or subdivision within Zones A1-30, AH and AE on the city's FIRM that are not subject to the provisions of subsection (D) of this section be elevated so that either:

    i. The lowest floor of the manufactured home is a minimum of the higher of the elevations as defined in Section 2-57; 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 thirty-six (36) inches in height above grade and be securely anchored to an adequately anchored foundation system to resist flotation, collapse, and lateral movement.

E. *Recreational vehicles*. Require that recreational vehicles placed on-sites within Zones A1-30, AH, and AE on the city's FIRM either (i) be on the site for fewer that one hundred eighty (180) consecutive days, (ii) be fully licensed and ready for highway use, or (iii) meet the permit requirements of Article II, Section 2-33(A), and the elevation and anchoring requirements for "manufactured homes" in subsection (D) of this section. A recreational vehicle is ready for highway use if it is 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.

Sec. 2-53. - Standards for subdivision proposals.

A. All subdivision proposals including the placement of manufactured home parks and subdivisions shall be consistent with Article I, Section 2-1, Section 2-2 and Section 2-3 of this chapter.

B. All proposals for the development of subdivisions including the placement of manufactured home parks and subdivisions shall meet development permit requirements of Article I, Section 2-6, Article II, Section 2-33, and Article III of this chapter.

C. Base flood elevation data shall be generated for subdivision proposals and other proposed development including the placement of manufactured home parks and subdivisions which is greater than fifty (50) lots or five (5) acres, whichever is lesser, if not otherwise provided pursuant to Article I, Section 2-5, or Article II, Section 2-32(H) of this chapter.

D. All subdivision proposals including the placement of manufactured home parks and subdivisions shall have adequate drainage provided to reduce exposure to flood hazards.

E. All subdivision proposals including the placement of manufactured home parks and subdivisions shall have public utilities and facilities such as sewer, gas, electrical and water systems located and constructed to minimize or eliminate flood damage.

Sec. 2-54. - Standards for areas of shallow flooding (AO/AH zones).

Located within the areas of special flood hazard established in Article I, Section 2-5, are areas designated as shallow flooding. These areas have special flood hazards associated with base flood depths of one (1) to three (3) feet where a clearly defined channel does not exist and where the path of flooding is unpredictable and where velocity flow may be evident. Such flooding is characterized by ponding or sheet flow; therefore, the following provisions apply:

A. All new construction and substantial improvements of residential structures have the lowest floor (including basement) elevated above the highest adjacent grade at least as high as the depth number specified in feet on the city's FIRM (at least two (2) feet if no depth number is specified).

B. All new construction and substantial improvements of nonresidential structures;

1. Have the lowest floor (including basement) elevated above the highest adjacent grade at least as high as the depth number specified in feet on the city's FIRM (at least two (2) feet if no depth number is specified); or

2. Together with attendant utility and sanitary facilities be designed so that below the base flood level the structure is watertight with walls substantially impermeable to the passage of water and with structural components having the capability or resisting hydrostatic and hydrodynamic loads or effects of buoyancy.

C. A registered professional engineer or architect shall submit a certification to the floodplain administrator that the standards of this section, as proposed in Article II, Section 2-33, are satisfied.

D. Require within Zones AH or AO adequate drainage paths around structures on slopes, to guide flood waters around and away from proposed structures.

Sec. 2-55. - Floodways.

Floodways located within areas of special flood hazard established in Article I, Section 2-5, are areas designated as floodways. Since the floodway is an extremely hazardous area due to the velocity of flood waters which carry debris, potential projectiles and erosion potential, the following provisions shall apply:

A. Encroachments are prohibited, including fill, new construction, substantial improvements and other development within the adopted regulatory floodway unless it has been demonstrated through hydrologic and hydraulic analyses performed in accordance with standard engineering practice that the proposed encroachment would not result in any increase in flood levels within the city during the occurrence of the base flood discharge.

B. If Article III, Section 2-55(A) above is satisfied, all new construction and substantial improvements shall comply with all applicable flood hazard reduction provisions of Article III.

C. Under the provisions of 44 CFR Chapter 1, Section 65.12, of the National Flood Insurance Regulations, a community may permit encroachments within the adopted regulatory floodway that would result in an increase in base flood elevations, provided that the community first applies for a conditional FIRM and floodway revision through FEMA.

Sec. 2-56. – Flood Prevention in No Wake Zones.

It shall be unlawful for any person to operate a motor vehicle, boat, or watercraft on a flooded street, highway, or alley, whether publicly of privately owned, in such manner as to increase the level of floodwaters to a level which causes, or could be reasonably expected to cause, damage to other vehicles, adjacent real property, or improvements located on adjacent real property.

1. No Wake Designated Streets at the following locations within the city:

No Wake Street	Intersecting Streets
Avenue N	Radio Lane to Graeber Road
Freeway Manor	Airport Avenue to Junker Street
Tobola Street	Avenue I to Avenue L
Tobola Street	Avenue N to Avenue R
Mons Avenue	Lory Street to 4th Street
Reading Road	Herndon Drive to Dead End
George Street	Avenue K to Walger Avenue
Klare Street	West Street to Bamore Road
Damon Street	Avenue I to Avenue N
Avenue R	Louise Street to Leonard Street
Carlisle Street	Avenue I to Dyer Avenue
Lane Drive	Mustang Avenue to Avenue H
6th Street	Avenue D to Avenue B

a) *Exemption.* Operation of vehicles utilized by government agencies and rescue craft while on official business shall be exempt from the provisions of this section.

Failure to Comply. Any person who shall fail to comply with the provisions of this section shall be guilty of a misdemeanor

Sec. 2-57. – Minimum Slab Elevations.

A. All structures shall have a minimum slab elevation no lower than the higher of the following conditions:

1. The existing (Pre-Atlas 14) 500-year water surface elevation plus a minimum of twenty-four (24) inches, or

2. In the absence of an existing 500-year water surface elevation, the existing (Pre-Atlas 14) base flood elevation plus a minimum of forty-eight (48) inches, unless the structure is identified as being in the flood zone of the Brazos River,

then the Brazos River existing (Pre-Atlas 14) base flood elevation plus twenty-four (24) inches; or

3. The existing (Pre-Atlas 14) 100-year water surface elevation or maximum ponding elevation based on an existing detention facility designed prior to the adoption of this ordinance plus a minimum of thirty (30) inches; or

4. Lowest top of curb elevation within, or adjacent to the property plus a minimum of twenty-four (24) inches; or in the absence of a curb, the highest natural ground along the perimeter of the building foundation plus a minimum of twenty-four (24) inches or twelve (12) inches above the down gradient roadway or any down gradient drainage restraint, whichever is higher.

5. In lieu of Section 2-57 A. 1.-4., the Atlas 14 100-year base flood elevation plus a minimum of twenty-four (24) inches, and no lower than the Atlas 14 500-year water surface elevation.

B. For structures located in a Zone A, the minimum slab elevation shall be the greater of the following:

1. The estimated existing (Pre-Atlas 14) base flood elevation plus forty-eight (48) inches; or

2. The Atlas 14 100-year base flood elevation plus twenty-four (24) inches, but no lower than the Atlas 14 500-year water surface elevation.

Sec. 2-58. – Accessory Structures.

Certain accessory structures located in areas of special flood hazards may be wet floodproofed in lieu of the elevation or dry floodproofing requirement, without a variance, under the following conditions:

A. The accessory structure must meet the definition of structure, for floodplain management purposes, provided in Title 44 of the United States Code of Federal Regulations, where walled and roofed shall be interpreted as having two outside rigid walls and a fully secured roof.

B. The accessory structure shall be small and represent a minimal investment. The term “small” is as defined below:

1. Located in an A Zone (A, AE, A1-A30, AR, A990), less than or equal to a one-story, two car garage.

2. Located in a V Zone (V, VE, V1-V30), less than or equal to 100 square feet.

C. The accessory structure must be anchored to resist flotation, collapse, and lateral movement.

D. The portions of the accessory building located below the base flood elevation must be constructed with flood-resistant materials.

E. Mechanical and utility equipment for the accessory structure must be elevated or dry floodproofed to or above the base flood elevation.

F. The accessory structure must comply with the floodway encroachment provisions of the National Flood Insurance Program.

G. The accessory structure must be wet floodproofed to protect the structure from hydrostatic pressure. The design must meet the National Flood Insurance Program design and performance standard for openings per Title 44 of the United States Code of Federal Regulations and must allow for the automatic entry and exit of floodwaters without manual operation or the presence of a person (or persons). Designs for meeting this requirement must either be certified by a registered professional engineer or architect or meet or exceed the following minimum criteria:

    1. A minimum of two (2) openings having a total net area of not less than one (1) square inch for every square foot of enclosed area subject to flooding shall be provided.

    2. The bottom of all openings shall be no higher than one (1) foot above grade.

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