

D_R_A_F_T

Chapter 46 - FLOODS

FOOTNOTE(S):

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State Law reference— Local governments must adopt ordinances necessary to qualify for National Flood Insurance Program, V.T.C.A., Water Code § 16.3145; political subdivisions to comply with federal requirements, V.T.C.A., Water Code § 16.315. [\(Back\)](#)

ARTICLE I. - IN GENERAL

~~Sec. 46-1. - Real estate signs to designate floodplain zones and community rating system.~~

~~All real estate signs in the city shall designate floodplain zone C, B, V, A, and community rating system (CRS hereinafter) rating 8.~~

~~(1) This requirement shall include all signs established by sellers of property.~~

~~(2) All billboards or placards and posters to sell property must have zone designation and CRS class.~~

~~(3) Disclosure forms from seller to potential buyers must be included in all new construction applications advising buyers of zone and CRS class.~~

~~(4) Sellers are encouraged to include such disclosures in deeds to all properties sold in the city after the effective date of the ordinance from which this section is derived.~~

~~(5) The city directs the building official and/or the chief of police to direct the placement of zone and class designation on all real estate for sale signs in the city.~~

~~(6) Property zone determinations are to be made by any licensed surveyor, engineer or the building department of the city.~~

~~(7) Written zone determinations by the city shall require a fee as established from time to time by the city. There shall be no charge for verbal inquiries.~~

~~(8) Written disclosure forms by the city building official shall have a fee as established from time to time by the city. There shall be no fee for verbal inquiries regarding floodplain information.~~

~~(Ord. No. 7-93, 11-11-1993)~~

Sec. 46-~~2~~1. - Critical facilities.

(a) *Definitions.* The following words, terms and phrases, when used in this section, shall have the meanings ascribed to them in this subsection, except where the context clearly indicates a different meaning:

City hall, police department, and street and road department mean all of the enclosed area that is used by the city and its employees and general public, including but not limited to all or part of the building used for any of the operations of the city, such as city hall, police department, municipal court, council chambers, voting chambers, and for social functions.

Critical facilities means:

- (1) Those structures or facilities which produce, use or store highly volatile, flammable, explosive, toxic and/or water-reactive materials;
- (2) Hospitals, nursing homes and housing which are likely to contain occupants who may or may not be sufficiently mobile to avoid death or injury during a flood event;
- (3) Police stations, fire stations, vehicle and equipment storage facilities and emergency operations centers which are needed for flood response activities before, during and after a flood event; and
- (4) Public and private utility facilities which are vital to maintaining or restoring normal services to flooded areas before, during and after a flood event.

(b) *Requirements for critical facilities.*

- (1) New critical facilities are prohibited from the 500-year floodplain; or
- (2) New and substantially improved critical facilities are required to be protected from damage and loss of access as a result of the 500-year flood or the flood record, whichever is higher.

(Ord. No. 15-94, § 1, 9-8-1994)

Secs. 46-~~32~~—46-22. - Reserved.

ARTICLE II. - FLOOD DAMAGE PREVENTION

DIVISION 1. - GENERALLY

Sec. 46-23. - Findings.

- (a) The members of the city council find that various areas of the city, flood hazard areas, are subject to periodic events of inundation which result in the loss of life, the destruction of private and public property, the disruption of commerce and governmental services, and adverse effects on the health and safety of the public.
- (b) The flooding events are caused and created by the cumulative effects of obstructions in the floodplains and of subsidence 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.

(Ord. No. 11-99, § 1.1, 8-2-1999)

Sec. 46-24. - Statement of purpose.

It is the purpose of the article 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:

- (1) Regulate 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) Require that uses vulnerable to floods, including facilities which serve such uses, be protected against flood damage at the time of initial construction;
- (3) Control alteration of natural floodplains, stream channels, and natural protective barriers which are involved in the accommodation of floodwaters;
- (4) Control filling, grading, dredging and other development which may increase erosion or flood damage;

- (5) Regulate the construction of flood barriers which will unnaturally divert floodwaters or which may increase flood hazards to other lands; and
- (6) Qualify and maintain for participation in the National Flood Insurance Program.

(Ord. No. 11-99, § 1.2, 8-2-1999)

Sec. 46-25. - Objectives.

The objectives of this article are:

- (1) To protect human life and health;
- (2) To minimize expenditure of public money for costly flood control projects;
- (3) To minimize the need for rescue 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, sewer lines, streets and bridges located in 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 provide that developers are notified that property is in an area of special flood hazard; and
- (8) To ensure that those who occupy the area of special flood hazard assume responsibility for their actions.

(Ord. No. 11-99, § 1.3, 8-2-1999)

Sec. 46-26. - Definitions.

The following words, terms and phrases, when used in this article, shall have the meanings ascribed to them in this section, except where the context clearly indicates a different meaning:

A-flood zones. A-flood zones are found on all flood hazard boundary maps (FHBM), flood insurance rate maps (FIRMs), and flood boundary and floodway maps (FBFMs). An A-flood zone is an area that would be flooded by the base flood, and is the same as a special flood hazard area (SFHA) or a 100-year floodplain. These areas may be unnumbered as AE, AH, or AO zones. Numbered A-flood zones indicate an area's risk to flooding.

Alluvial fan flooding means flooding occurring on the surface of an alluvial fan or similar landform, which originates at the apex and is characterized by high-velocity flows; active processes of erosion, sediment transport, and deposition; and unpredictable flow paths.

Amortization period means the length of time used to repay a debt or mortgage or to depreciate an initial cost.

Amortization rate means the price or rate of premium per unit of time that is paid by a borrower for repayment of a debt or mortgage or by a purchaser to depreciate an initial cost.

Anchor means a series of methods used to secure a structure to its footings or foundation wall so that it will not be displaced by flood or wind forces.

Area of shallow flooding means a designated AO, AH, or VO flood zone on a community's flood insurance rate map (FIRM) with a one percent or greater annual chance of flooding to an average depth of three feet 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.

Area of special flood hazard means the land in the floodplain within a community subject to a one percent or greater chance of flooding in any given year. The area may be designated as flood zone A on the flood hazard boundary map (FHBM). After detailed rate making has been completed in preparation for

publication of the flood insurance rate map (FIRM), flood zone A usually is refined into flood zones A, AE, AH, AO, A1 - A99, VO, V1-V30, VE or V.

Backwater effect means the rise in water surface elevation caused by some obstruction such as a narrow bridge opening, buildings, or fill material that limits the area through which the water must flow. The term "backwater effect" may also be referred to as "heading up."

Base flood means the term required by the National Flood Insurance Program to be used by a community to indicate the minimum size flood as a basis for its floodplain management regulations; currently required by regulation to be that flood which has a one percent or greater chance of being equaled or exceeded in any given year. The term "base flood" may also be known as a 100-year flood elevation.

Base flood elevation (BFE) means the elevation for which there is a one percent chance in any given year that flood levels will equal or exceed it. The BFE is determined by statistical analysis for each local area and designated on the flood insurance rate maps. It is known as the 100-year flood elevation.

Base floodplain means the floodplain that would be inundated by a one percent chance, or 100-year, flood.

Basement means any area of the building having its floor subgrade (below ground level) on all sides.

Basin means the total area from which surface runoff is carried away by a drainage system. Other comparable terms are "drainage area," "catchment area," and "watershed."

Berm means a bank or mound of earth, usually placed against a foundation wall.

Breakaway wall means a wall that is not part of the structural support of the building and is intended through its design and construction to collapse under specific lateral loading forces without causing damage to the elevated portion of the building or supporting foundation system. Breakaway walls are required by National Flood Insurance Program (NFIP) regulations in coastal high-hazard areas (V-flood zones) and are recommended in areas where floodwaters could flow at significant velocities (usually greater than four feet per second) or could contain debris.

Building code means the regulations adopted by the city council setting forth standards for the construction, addition, modification, and repair of buildings and other structures for the purpose of protecting the health, safety, and general welfare of the public. Those regulations are contained in chapter 18, article IV, together with other ordinances adopting similar standard codes for plumbing, electrical, and fire safety purposes.

Channel means a natural or artificial watercourse with a definite bed and banks to confine and conduct flowing water.

Channel capacity means the maximum flow that can pass through a channel without overflowing the banks.

Check valve means a type of valve that allows water to flow one way, but automatically closes when water attempts to flow in the opposite direction.

Closure means a shield made of strong material such as steel, aluminum, or plywood, used to temporarily fill in gaps in floodwalls, levees, or sealed structures that have been left open for a day-to-day convenience at entrances such as doors and driveways.

Coastal high-hazard areas 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.

Column means upright support units for a building, set in pre-dug holes and backfilled with compacted material. Columns will often require bracing in order to provide adequate support. They are also known as posts, although they are usually of concrete or masonry construction.

Community means any state or area or political subdivision thereof which has the authority to adopt and enforce floodplain management regulations for the areas within its jurisdiction.

Critical feature means an integral and readily identifiable part of a flood protection system, without which the flood protection provided by the entire system would be compromised.

Cross section means a graph or plot of ground elevation across a stream valley or a portion of it, usually along a line perpendicular to the stream or direction of flow.

Debris impact loads means sudden loads induced on a structure by debris carried by floodwater. Though difficult to predict, allowances for impact loads must be made when floodproofing a structure.

Design flood means the magnitude of flood used for design and operation of flood control structures or other protective measures. It is sometimes used to denote the magnitude of flood used in floodplain regulations.

Designated floodway means the channel of a stream and that portion of the adjoining floodplain designated by a regulatory agency to be kept free of any further development to provide unobstructed passage of flood flows.

Development means any manmade 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 of equipment or materials.

Dry floodproofing means a floodproofing method used to design and construct buildings so as to prevent the entrance of floodwaters.

Elevated building means a nonbasement building:

- (1) Built, in the case of a building in flood zones A1-30, AE, A, A99, AO, AH, B, C, and X, to have the top of the elevated floor (finished floor), or, in the case of a building in flood zones V1-30, VE, or V, to have the bottom of the lowest horizontal structural member of the elevated floor elevated above the ground level by means of pilings, columns (posts and piers), or shear walls parallel to the flow of the water; and
- (2) Adequately anchored so as not to impair the structural integrity of the building during a flood of up to the magnitude of the base flood.

In the case of flood zones A1-30, AE, A, A99, AO, AH, B, C, or X, the term "elevated buildings" also includes a building elevated by means of fill or solid foundation perimeter walls with openings sufficient to facilitate the unimpeded movement of floodwaters. In the case of flood zones V1-30, VE, or V, the term "elevated building" also includes buildings otherwise meeting the definition of "elevated building," though the lower area is enclosed by means of breakaway walls if the breakaway walls met the standards of section 60.3(e)(5) of the National Flood Insurance Program regulations.

Elevation means the placement of a structure above flood level to minimize or prevent flood damage.

Emergency Flood Insurance Program or *emergency program* means the program as implemented on an emergency basis in accordance with section 1336 of the Act. It is intended as a program to provide a first layer amount of insurance on all insurable structures before the effective date of the initial FIRM.

Enabling status means a state law that transfers some of the police powers residing on the state to localities within it for purposes of zoning or subdivision regulations, building codes, and the like.

Encroachment means any physical object placed in a floodplain that hinders the passage of water or otherwise affects flood flows, such as landfills or buildings.

Erosion means the process of the gradual wearing away of landmasses. This peril is not per se covered under this program.

Existing construction means, for the purpose of determining rates, structures for which the start of construction commenced before the effective date of the FIRM or before January 1, 1975, for FIRMs effective before that date. The term "existing construction" may also be referred to as "existing structures."

Extended foundation means the construction of additional walls above existing foundation walls in order to elevate a structure above flood levels.

Federal Emergency Management Agency (FEMA) means the federal agency created in 1979 to provide a single point of accountability for federal activities related to disaster mitigation, emergency preparedness, response, and recovery.

Federal Insurance Administration (FIA) means the government unit, a part of FEMA, that administers the National Flood Insurance Program.

Fill means material such as earth, clay, or crushed stone that is dumped in an area and compacted to increase ground elevation.

Flash flood means a flood that crests in a short length of time and is often characterized by high velocity flow. It is often the result of heavy rainfall in a localized area.

Flood or flooding means:

- (1) A general and temporary condition of partial or complete inundation of normally dry land areas from:
 - a. The overflow of inland or tidal waters.
 - b. The unusual and rapid accumulation or runoff of surface waters from any source.
 - c. Mudslides (i.e., mudflows) which are proximately caused by flooding as defined in subsection (1)a of this definition and are akin to a river of liquid and flowing mud on the surfaces of normally dry land areas, as when earth is carried by a current of water and deposited along the path of the current.
- (2) The collapse or subsidence of land along the shore of a lake or other body of water exceeding anticipated cyclical levels or suddenly caused by an unusually high water level in a natural body of water, accompanied by a severe storm, or by an unanticipated force of nature, such as flood or an abnormal tidal surge, or by some similarly unusual and unforeseeable event which results in flooding as defined in subsection (1)a of this definition.

Flood boundary floodway map (FBFM) means a map that may be included with a flood insurance study printed prior to 1986. It identifies the floodway and, along with the study, provides the technical basis for floodplain management regulations.

Flood control means keeping floodwaters away from specific developments or populated areas by the construction of flood storage reservoirs, channel alternatives, dikes and levees, bypass channels, or other engineering works.

Flood crest means the maximum stage or elevation reached or expected to be reached by water of a specific flood at a given location.

Flood disaster assistance includes development of comprehensive preparedness and recovery plans, program capabilities, and organization of federal agencies and of state and local governments to mitigate the adverse effects of disastrous floods. It may include maximum hazard reduction, avoidance, and mitigation measures, as well as policies, procedures, and eligibility criteria for federal grant or loan assistance to state and local governments, private organizations, or individuals as the result of the major disaster.

Flood duration means the length of time a stream is above flood stage or overflowing its banks.

Flood fighting means actions taken immediately before or during a flood to protect human life and to reduce flood damage such as evacuation, emergency sandbagging and diking, and provision of assistance to flood victims.

Flood forecasting means the process of predicting the occurrence, magnitude, and duration of an imminent flood through meteorological and hydrological observations and analysis.

Flood frequency means a statistical expression of the average time period between floods equaling or exceeding a given magnitude. For example a, 100-year flood has a magnitude expected to be equaled or exceeded on the average of once every 100 years; such a flood has a one percent chance of being equaled or exceeded any given year. The term is often used interchangeably with recurrence interval.

Flood fringe means that portion of the floodplain that lies beyond the floodway and serves as a temporary storage area for floodwaters during a flood. This section receives waters that are shallower and of lower velocities than those of the floodway.

Flood hazard means the potential for inundation and involves the risk of life, health, property, and nature value. Two reference bases are commonly used:

- (1) For most situations, the base flood is that flood which has one percent chance of being exceeded in any given year (also known as the 100-year flood);
- (2) For critical actions, an activity for which a one percent of flooding would be too great, at a minimum the base flood is that flood which has a 0.2 percent chance of being exceeded of any given year (also known as the 500-year flood).

Flood hazard boundary map (FHBM) means an official map of a community, issued by the administrator, where the boundaries of the flood, mudslide (i.e., mudflow) or flood-related erosion areas having special flood hazards have been designated as flood zones A, M, and/or E.

Flood insurance rate map (FIRM) means an official map of the community, on which the administrator has delineated both the hazard areas and the risk premium flood zones applicable to the community.

Flood insurance rate zone means a flood zone identified on a flood insurance rate map (FIRM) as subject to a specified degree of flood, mudslides (mudflow), or flood erosion hazards, to which a particular set of actuarial rates and floodplain management requirements applies.

Flood insurance study (FIS) or flood elevation study means an examination, evaluation and determination of flood hazards and, if appropriate, corresponding water surface elevation and determination of mudslides (i.e., mudflow) and/or flood-related erosion hazards.

Flood profile means a graph showing the relationship of water surface elevation to a specific location, the latter generally expressed as distance above the mouth of a stream of water flowing in an open channel. It is generally drawn to show surface elevation for the crest-specific magnitude of flooding, but may be prepared for conditions at any given time or stage.

Flood warning means the issuance and dissemination about an imminent or current flood.

Flood zone symbols.

A	Area of special flood hazard without water surface elevations determined.
A1-30, AE	Area of special flood hazard with water surface elevations determined.
AO	Area of special flood having shallow water depths and/or unpredictable flow paths between one and three feet.
A-99	Area of special flood hazard where enough progress has been made on a protective systems, such as dikes, dams, and levees, to consider it complete for insurance rating purposes.

AH	Area of special flood hazard having shallow depths and/or unpredictable flow paths between one and three feet and with water surface elevations determined.
B, X	Area of moderate flood hazard.
C, X	Area of minimal hazard.
D	Area of undetermined but possible flood hazard.

Flood zones means flood zones on the flood insurance rate map (FIRM) in which the premium insurance rates have been established by a flood insurance study.

Floodplain or floodprone area means any land area susceptible to being inundated by the water from any source (see *Flooding*).

Floodplain management means the operations of an overall program of corrective and preventive measures for reducing flood damage, including but not limited to emergency preparedness plans, flood control works and floodplain management regulations.

Floodplain management regulations means zoning ordinances, subdivision regulations, building codes, health regulations, special purpose ordinances (such as a floodplain ordinance, grading ordinance and erosion control ordinance) and other applications of police power. The term "floodplain management regulations" describes such state or local regulations, in any combination thereof, which provide standards for the purpose of flood damage prevention and reduction.

Floodplain preservation means the prevention or modification of the natural floodplain environment in a condition as close as possible to its natural state using all practicable means.

Floodplain restoration means the reestablishment of a setting or environment in which the natural functions of the floodplain can again operate.

Floodplain values means those natural and beneficial attributes associated with the relatively undisturbed state of the floodplain and include values primarily associated with water, living and cultural resources.

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

Floodwall means a constructed barrier of resistant material, such as concrete or masonry block, designed to keep water away from a structure.

Floodway means the channel of a 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.

Footing means the enlarged base of a foundation wall, pier, or column designed to spread the load of the structure so that it does not exceed the soil-bearing capacity.

Foundation means the underlying structure of a building, usually constructed of concrete, that supports the foundation walls, piers, or columns.

Foundation walls means a support structure that connects the foundation to the main portion of the building or superstructure.

Freeboard means a factor of safety usually expressed in feet above a flood level for the purpose of floodplain management. Freeboard tends to compensate for the many unknown factors that could contribute to flood heights greater than the height calculated for a selected size flood and floodway conditions, such as wave action, bridge opening, and the hydrological effect of urbanization of the watershed. For purposes of this article, the city requires an additional height of 18 inches to the base flood elevation numbers shown on the FIRM provided by FEMA.

Groundwater recharge means the infiltration of water into the earth. It may increase the total amount of water stored underground or only replenish supplies depleted through pumping or natural discharge.

Human intervention means the required presence and active involvement of people to enact floodproofing or retrofitting measures prior to flooding.

Hydrodynamic loads means forces imposed on structures by floodwaters due to the impact of moving water.

Hydrograph means a graph that charts the passage of water as a function of time. It shows flood stage, depicted in feet above mean sea level or gage height, plotted against stated time intervals.

Hydrology means the science of the behavior of water in the atmosphere, on the earth's surface, and underground.

Hydrostatic load means forces imposed on an object, such as a structure, by standing water.

Impacts loads means loads induced by the collision of solid objects on a structure carried by floodwater. Debris can include trees, lumber, displaced sections of the structure, tanks, runaway boats, and chunks of ice. Debris impacts loads are difficult to predict accurately, yet reasonable allowance must be made for them in the design of potentially affected structures.

Infiltration means the flow of fluid into a substance through pores or small openings. The term "infiltration" is commonly used to denote the flow of water into soil.

Interior grade beam means a section of a floor slab that has a thicker section of concrete to act as footing to provide stability under loadbearing or critical structural walls.

Levee means a manmade structure, usually an earthen embankment, designed and constructed in accordance with sound engineering practices to contain, control, or divert the flow of water so as to provide protection from temporary flooding.

Level of protection means the greatest flood level against which a protective measure is designed to be fully effective.

Lift means a layer of soil that is compacted before the next layer is added in the construction of a fill pad.

Manufactured home (mobile home) means a structure, transportable in one or more sections, that is built on a permanent chassis and is designed for use with or without a permanent foundation when connected to the required utilities. The term does not include a recreational vehicle.

Mean sea level means, for purposes of the National Flood Insurance Program, the 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.

National Flood Insurance Program (NFIP) means the federal program, created by an act of Congress in 1968, that makes flood insurance available in communities that enact satisfactory floodplain management regulations.

New construction means structures for which the start of construction commenced on or after the effective date of the ordinance from which this article is derived and includes any subsequent improvement to such structures.

Nonstructural floodplain management measures means those measures, such as floodproofing, employed to modify the exposure of the building to floods, use planning, warning schemes, and insurance, as opposed to structural measures (such as dams, levees, and channel modifications).

Nonvelocity coastal flood area means any area that is subject to inundation by tidal waters that has lower velocity or wave components than a coastal high-hazard area.

100-year flood means the flood elevation that has a one percent chance of being equaled or exceeded in any given year. It is also known as the base flood.

Permeability means the property of soil or rock that allows water to pass through it.

Pier means an upright support member of a building, with a height limited to a maximum of three times its least lateral dimension. It is designed and constructed to function as an independent structural element in supporting and transmitting building and environment loads to the ground.

Pile means an upright support member of a building, usually long and slender in shape, driven into the ground by mechanical means and primarily supported by friction between the pile and the surrounding earth. Piles often cannot act as columns, although they are usually made of wood.

Post means long upright support units for a building that are set in predug holes and backfilled with compacted material. Each post usually requires bracing to other units. They are also known as columns, although they are usually made of wood.

Primary cost means the cost of providing the basic floodproofing feature: elevation, flood shield, floodwall, or levee.

Probable maximum flood means the most severe flood that may be expected from a combination of the most critical meteorological and hydrological conditions that are reasonably possible in the drainage basin. It is used in designing high-risk flood protection works and siting of structures and facilities that must be subject to almost no risk of flooding. The probable maximum flood is usually much larger than the 100-year flood.

Profile means a graph or plot of the water surface elevation against distance along a channel. Profile is also termed flood profile if drawn for a specific flood or level of flooding.

Recurrence interval means a statistical expression of the average time between floods equaling or exceeding a given magnitude (see *Flood frequency*).

Regulatory flood datum means the established plane of reference from which elevation and depth of flooding may be determined for specific locations of the floodplain. It is the base flood plus a freeboard factor of safety established for each particular area that tends to compensate for the many unknown and incalculable factors that could contribute to greater flood heights than that computed for base flood.

Regulatory floodplain means that portion of the floodplain subject to floodplain regulations, usually the floodplain inundated by the one-percent-chance flood.

Regulatory floodway means the program authorized by the Act under which risk premium rates are required for the first half of available coverage (also known as "first layer" coverage) for all new construction and substantial improvements started on or after the effective date of the FIRM, or other December 31, 1974, for FIRMs effective on or before that date.

Relocation means the moving of a structure from a flood area to a new location, normally to one where there is no threat of flooding.

Reservoir means a natural or artificially created pond, or lake, or other space used for storage, regulation, or control of water. Reservoirs may be either permanent or temporary.

Retrofitting means a floodproofing measure taken on an existing structure.

Riprap means broken stone, cut stone blocks, or rubble that is placed on slopes to protect them from erosion or scouring caused by floodwaters or wave action.

Riverine means relating to, formed by, or resembling a river (including tributaries), stream, brook, etc.

Runoff means that portion of precipitation that is not intercepted by vegetation, absorbed by the land surface, or evaporated, and thus flows overland into a depression, stream, lake, or ocean. Runoff, called immediate subsurface runoff, also takes places in the upper layers of the soil.

Scouring means the erosion, or washing away, of slopes or soil by velocity waters.

Seepage means the passage of water or other fluid through a porous medium, such as the passage of water through an earth embankment or masonry wall.

Slab on grade means a structural design where the first floor sits directly on a poured concrete slab that sits directly on the ground.

Special hazard area means an area having special flood, mudslide (i.e., mudflow) and/or flood-related erosion hazards, as shown on a FHBM or FIRM as flood zone A, AOA, A1-30, AE, A99, AH, VO, V1-30, VE, V, M, or E.

Standard project flood means the term used by the U.S. Army Corps of Engineers to designate a flood that may be expected from the most severe combination of meteorological and hydrological conditions that is considered reasonably characteristic of the geographical area in which the drainage basin is located, excluding extremely rare combinations. The peak flow for a standard project flood is generally 40 to 60 percent of the probable maximum flood for the same location.

State coordinating agency means the agency of the state government, or other office designated by the governor of the state or by state statute to assist at the request of the administrator in the implementation of the National Flood Insurance Program in the state.

Stile means a set of stairs to allow access over an obstruction, such as a floodwall.

Stream means a body of water flowing in a natural surface channel. Flow may be continuous or only during wet periods. Streams that flow only during wet periods are termed intermittent streams.

Structural floodplain management measures means those physical or engineering measures employed to modify the way floods behave; examples include dams, dikes, levees, channel enlargements, and diversions.

Structural mat slab means the concrete slab of a building that includes structural reinforcement to help support the building's structure.

Structure means a walled and roofed building, including a gas or liquid storage tank, that is principally above ground and affixed to a permanent site, as well as a manufactured home.

Subdivision regulations means ordinances or regulations governing the subdivision of land with respect to things such as adequacy and suitability of building sites and utilities and public facilities.

Subsidence means the sinking of the land surface, usually due to withdrawals of underground water, oil, and minerals.

Subsidized rates means the rules established by the administrator involving in the aggregate a subsidization by the federal government.

Substantial improvement.

- (1) The term "substantial improvement" means any reconstruction, rehabilitation, addition, or other improvement to a structure, the cost of which equals or exceeds 50 percent of the improvement. The term "substantial improvement" includes structures which have incurred substantial damage regardless of the actual repair work performed.
- (2) The term "substantial improvement" does not, however, include either:
 - a. 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 ensure safe living conditions; or

- b. Any alteration of a historic structure, provided that the alterations will not preclude the structure's continued designation as a historic structure.

The term "substantial damage," for the purposes of this article, shall be cumulative in nature.

Underseepage means seepage along the bottom of a structure, floodwall, or levee, or through the layer of earth beneath it.

Variance means a grant of relief by a community from the terms of a floodplain management regulation.

Venting means a system designed to allow floodwater to enter an enclosure, usually the interior of foundation walls, so that the rising water does not create a dangerous differential in hydrostatic pressure. This is usually achieved through small openings in the wall, such as a missing or rotated brick or concrete block or small pipe.

Water surface elevation means the height, in relation to the National Geodetic Vertical Datum (NGVD) of 1929 or other datum, where specified, of floods of various magnitude and frequencies in the floodplain of coastal riverine areas.

Water table means the uppermost flood zone of water saturation in the ground.

Watercourse means a natural or artificial channel in which a flow of water occurs either continually or intermittently.

Watershed means an area that drains to a single point. In a natural basin, this is the area contributing flow to a given place or stream.

Wetlands means areas that are inundated or saturated at a frequency and for a duration sufficient to support a prevalence of vegetative or aquatic life requiring saturated or seasonally saturated soil conditions for growth and reproduction.

Zoning ordinance means an ordinance under the state or local government's police power that divides an area into districts and within each district, regulates the use of land and building or other structures, and the density of population.

(Ord. No. 11-99, § 2.0, 8-2-1999)

Sec. 46-27. - Land to which this local law applies.

This local law shall apply to all areas of land within the jurisdiction of the city, with special attention to the areas located within designated special flood hazard areas.

(Ord. No. 11-99, § 3.1, 8-2-1999)

Sec. 46-28. - Basis for establishing the areas of special flood hazard.

The areas of special flood hazard are identified and defined on the following documents prepared by the Federal Emergency Management Agency:

- (1) Flood Insurance Rate Map No. 485481, the effective date of which is April 4, 1983.
- (2) Flood Insurance Study, dated October 4, 1982.

(Ord. No. 11-99, § 3.2, 8-2-1999)

Sec. 46-29. - Interpretation and conflict with other laws.

This article includes all revisions to the National Flood Insurance Program through November 1, 1989, and shall supersede all previous laws adopted for the purposes of flood damage prevention. All ordinances in conflict with this article are hereby repealed to the extent of the conflict; ~~in addition city Ordinance No. 5-92 is hereby repealed.~~ In their interpretation and application, the provisions of this law shall be held to be minimum requirements, adopted for the promotion of the public health, safety, and

welfare. Whenever the requirements of this local law are at variance with the requirements of any other lawfully adopted rules, regulations, or ordinances, the most restrictive, or that imposing the higher standard, shall govern.

(Ord. No. 11-99, § 3.3, 8-2-1999)

Sec. 46-30. - Penalties for noncompliance.

No structure in an area of special flood hazard shall hereafter be constructed, located, extended, converted, or altered, and no land shall be excavated or filled without full compliance with the terms of this local law and any other applicable regulations. Any infraction of the provisions of this local law by failure to comply with any of its requirements, including infraction of conditions and safeguards established in connection with conditions of the permit, shall constitute a violation. Any person who violates this local law or fails to comply with any of its requirements shall, upon conviction thereof, be fined no more than \$500.00. Each day of noncompliance shall be considered a separate offense. Nothing herein contained shall prevent the city from taking such other lawful action as necessary to prevent or remedy an infraction. Any structure found not compliant with the requirements of this local law for which the developer and/or owner has not complied with the requirements of this local law for which the developer and/or owner has not applied for and received an approved variance under division 4 of this article will be declared noncompliant and notification will be sent to the Federal Emergency Management Agency.

(Ord. No. 11-99, § 3.5, 8-2-1999)

Sec. 46-31. - Warning and disclaimer of liability.

The degree of flood protection required by this local law is considered reasonable for regulatory purposes and is based on scientific and engineering considerations. Larger floods can and will occur on rare occasions. Flood heights may be increased by manmade or natural causes. This local law does not imply that land outside the area of flood hazards or uses permitted within such areas will be free from flooding or flood damages. This local law shall not create liability on the part of the city, any officer or employee thereof, or the Federal Emergency Management Agency, for any flood damages that result from reliance on this local law or any administrative decision lawfully made thereunder.

(Ord. No. 11-99, § 3.6, 8-2-1999)

Secs. 46-32—46-50. - Reserved.

DIVISION 2. - ADMINISTRATION

Sec. 46-51. - Designation of the local administrator.

The ~~director of public works is hereby appointed the~~ City Administrator shall appoint the City's local floodplain administrator to administer and implement this local law by granting or denying floodplain development permits in accordance with its provisions.

(Ord. No. 11-99, § 4.1, 8-2-1999)

Sec. 46-52. - Floodplain development permit.

- (a) *Purpose.* A floodplain development permit is hereby established for all construction and other development to be undertaken in areas of special flood hazard in the community for the purpose of protecting its citizens from increased flood hazard and ensuring that new development is constructed in a manner that minimizes its exposure to flooding. It shall be unlawful to undertake any development in any area of special flood hazard, as shown on the flood insurance rate map enumerated in section 46-28, without a valid floodplain development permit. Application for a permit

shall be made on forms furnished by the local administrator and may include, but not be limited to: plans, in duplicate, drawn to scale and showing: the nature, location, dimensions, and elevations of the area in question; and existing or proposed structures, fill, storage of materials, drainage facilities, and the location of the foregoing.

- (b) *Fees.* All applications for a floodplain development permit shall be accomplished by an application fee as established from time to time by the city.

(Ord. No. 11-99, § 4.2, 8-2-1999)

Sec. 46-53. - Application for permit.

The applicant shall provide at least the following information, where applicable. Additional information may be required on the permit application form.

- (1) The proposed elevation, in relation to mean sea level, of the lowest floor (including basement or cellar) of any new or substantially improved structure to be located in flood zones A1-A30, AE or AH, or flood zone A if base flood elevation data are available. Upon completion of the lowest floor, the permittee shall submit to the local administrator the as-built elevation, certified by a licensed professional engineer or surveyor.
- (2) The proposed elevation, in relation to mean sea level, of the bottom of the lowest structural member of the lowest floor (excluding pilings and columns) of any new or substantially improved structure to be located in flood zones V1-V30 or VE, or flood zone V if base flood elevation data are available. Upon completion of the lowest floor, the permittee shall submit to the local administrator the as-built elevation, certified by licensed professional engineer or surveyor.
- (3) The proposed elevation, in relation to mean sea level, to which any new or substantially improved nonresidential structure will be floodproofed. Upon completion of the floodproofed portion of the structure, the permittee shall submit to the local administrator the as-built floodproofed elevation, certified by a professional engineer or surveyor.
- (4) A certificate from a licensed professional engineer or architect that any utility floodproofing will meet the criteria in section 46-136.
- (5) A certificate from a licensed professional engineer or architect that any nonresidential floodproofed structure will meet the floodproofing criteria in section 46-212.
- (6) A description of the extent to which any watercourse will be altered or relocated as a result of proposed development. Computations by a licensed professional engineer must be submitted that demonstrate that the altered or relocated segment will provide equal or greater conveyance than the original stream agent. The applicant must submit any maps, computations or other material required by the Federal Emergency Management Agency (FEMA) to revise the documents enumerated in section 46-28, when notified by the local administrator, and must pay any fees or other costs assessed by FEMA for this purpose. The applicant must also provide assurance that the conveyance capacity of the altered or relocated stream segment will be maintained.
- (7) A technical analysis, by a licensed professional engineer, if required by the local administrator, which shows whether proposed development to be located in an area of special flood hazard may result in physical damage to any other property.
- (8) In flood zone A, when no base flood elevation data are available from other sources, base flood elevation data shall be provided by the permit applicant for subdivision proposals and other proposed developments (including proposals for manufactured home and recreational vehicle parks and subdivisions that are greater than either 50 lots or 5 acres).
- (9) In flood zones V1-V30 and VE, and also flood zone V if base flood elevation are available, designs and specifications, certified by a licensed professional engineer or architect, for any breakaway walls in a proposed structure with design strengths in excess of 20 pounds per square foot.

- (10) In flood zones V1-V30 and VE, and also flood zone V if base flood elevations are available, for all new and substantial improvements to structures, floodplain development permit applications shall be accompanied by design plans and specifications, prepared in sufficient detail to enable independent review of the foundation support and connection components. Said plans and specifications shall be developed or reviewed by a licensed professional engineer or architect, and shall be accompanied by a statement, bearing the signature of the architect or engineer, certifying that the design and methods of construction to be used are in accordance with accepted standards of practice and with all applicable provisions of this local law.

(Ord. No. 11-99, § 4.3, 8-2-1999)

Sec. 46-54. - Duties and responsibilities of the local administrator.

Duties of the local administrator shall include, but not be limited to, the following.

- (1) *Permit application review.* The local administrator shall conduct the following permit application review before issuing a floodplain development permit:
 - a. Review all applications for completeness, particularly for the requirements of section 46-53, and for compliance with the provisions and standards of this law.
 - b. Review subdivision and other proposed new development, including manufactured home parks, to determine whether proposed building sites will be reasonably safe from flooding. If a proposed building site is located in an area of special flood hazard, all new construction and substantial improvements shall meet the applicable standards of division 3 of this article and, in particular, section 46-109.
 - c. Determine whether any proposed development in an area of special flood hazard may result in physical damage to any other property (e.g., stream bank erosion and increased flood velocities). The local administrator may require the applicant to submit additional technical analyses and data necessary to complete the determination. If the proposed development may result in physical damage to any other property or fails to meet the requirements of division 3 of this article, no permit shall be issued. The applicant may revise the application to include measures that mitigate or eliminate the adverse effects and resubmit the application.
 - d. Determine that all necessary permits have been received from those governmental agencies from which approval is required by state or federal law.
- (2) *Use of other flood data.*
 - a. When the Federal Emergency Management Agency (FEMA) has designated areas of special flood hazard on the community's flood insurance rate map (FIRM) but has neither produced water surface elevation data (those areas designated flood zone A or V on the FIRM) nor identified a floodway, the local administrator shall obtain, review and reasonably utilize any base flood elevation and floodway data available from a federal, state or other source, including data developed pursuant to section 46-53(8), as criteria for requiring that new construction, substantial improvements or other proposed development meet the requirements of this law.
 - b. When base flood elevation data are not available, the local administrator may use flood information from any other authoritative source, such as historical data, to establish flood elevation within the areas of special flood hazard, for the purposes of this law.
- (3) *Notification about alteration of watercourses.*
 - a. Notify adjacent communities and the state department of environmental conservation prior to permitting any alteration or relocation of a watercourse, and submittal of evidence of such notification to the regional director of the Federal Emergency Management Agency.

- b. Determine that the permit holder has provided for maintenance within the altered or relocated portion of said watercourse so that the flood-carrying capacity is not diminished.

(4) *Obtaining construction stage certificates.*

- a. In flood zones A1-A30, AE and AH, and also flood zone A if base flood elevation data are available, upon placement of the lowest floor or completion of floodproofing of a new or substantially improved structure, obtain from the permit holder a certification of the as-built elevation of the lowest floor or floodproofed elevation in relation to mean sea level. The certificate shall be prepared by or under the direct supervision of a licensed land surveyor or professional engineer and certified by same. For manufactured homes, the permit holder shall submit the certificate of elevation upon placement of the structure on the site. A certificate of elevation must also be submitted for a recreational vehicle if it remains on a site for 180 consecutive days or longer, unless it is fully licensed and ready for highway use.
- b. In flood zones V1-V30, VE and VH, and also flood zone V if base flood elevation data are available, upon placement of the lowest floor or completion of floodproofing of a new or substantially improved structure, the permit holder shall submit to the local administrator a certificate of elevation in relation to mean sea level, of the bottom of the lowest structural member of the lowest floor (excluding piling and columns). For manufactured homes, the permit holder shall submit the certificate of elevation upon placement of the structure on the site. An elevation certificate must also be submitted for a recreational vehicle if it remains on a site 180 consecutive days or longer, unless it is fully licensed and ready for highway use.
- c. Any further work undertaken prior to submission and approval of the certification shall be at the permit holder's risk.

The local administrator shall review all data submitted. Deficiencies detected shall be cause to issue a stop work order for the project unless immediately corrected.

(5) *Inspections.* The local administrator, the city building official and/or the developer's engineer or architect shall make periodic inspections at appropriate times throughout the period of construction in order to monitor compliance with permit conditions and enable said inspector to certify, if requested, that the development is in compliance with the requirements of the floodplain development permit and/or any variance provisions.

(6) *Issuance of stop work orders.*

- a. The local administrator shall issue, or cause to be issued, a stop work order for any floodplain development found ongoing without a development permit. Disregard of a stop work order shall subject the violator to the penalties described in section 46-30.
- b. The local administrator shall issue, or cause to be issued, a stop work order for any floodplain development found noncompliant with the provisions of this law and/or the conditions of the development permit. Disregard of a stop work order shall subject the violator to the penalties described in section 46-30.

(7) *Issuance of certificate of compliance.*

- a. In areas of special flood hazard, as determined by documents enumerated in section 46-28, it shall be unlawful to occupy or to permit the use or occupancy of any building or premises, or both, or part thereof hereafter created, erected, changed, converted or wholly or partly altered or enlarged in its use or structure until a certificate of compliance has been issued by the local administrator stating that the building or land conforms to the requirements of this local law.
- b. A certificate of compliance shall be issued by the local administrator upon satisfactory completion of all development in areas of special hazard.

- c. Issuance of the certificate shall be based upon the inspections conducted as prescribed in subsection (5) of this section, and/or any certified elevations, hydraulic data, floodproofing, anchoring requirements or encroachment analyses which may have been required as a condition of the approved permit.
- (8) *Retention of information.* The local administrator shall retain and make available for inspection copies of the following:
- a. Floodplain development permits and certificates of compliance;
 - b. Certificate of as-built lowest floor elevations of structure, required pursuant to subsection (4)a and (b) of this section, and indication as to whether or not the structure contains a basement;
 - c. Floodproofing certificates, required pursuant to subsection (4)a of this section, and indication as to whether or not the structure contains a basement;
 - d. Certifications required pursuant to sections 46-194 and 46-53(10);
 - e. Variance issued pursuant to division 4 of this article; and
 - f. Notices required under subsection (3) of this section.

(Ord. No. 11-99, § 4.4, 8-2-1999)

Secs. 46-55—46-81. - Reserved.

DIVISION 3. - CONSTRUCTION STANDARDS

Subdivision I. - In General

Secs. 46-82—46-105. - Reserved.

Subdivision II. - Standards for All New Development

Sec. 46-106. - Applicability of subdivision provisions.

The requirements of this subdivision apply to all new development, including new and substantially improved structures throughout the city, with special attention to the areas of special flood hazard shown on the flood insurance rate map designated in section 46-28.

(Ord. No. 11-99, § 5.1, 8-2-1999)

Sec. 46-107. - Elevation and improvement requirements.

- (a) All structures located outside the designated special flood hazard areas shall have the lowest finished floor level elevated to a minimum of 18 inches above the crest of the facing street.
- (b) All structures located within the designated areas of special flood hazard shall elevate an additional 18 inches of freeboard in addition to minimum base flood elevations as delineated on the FIRM.
- (c) All improvements, buildings, structures, developments and facilities shall be adequately designed and or engineered as to address watershed, runoff or drainage from the site in such a manner as not to negatively affect the adjoining properties adjacent to such development. Such drainage shall be directed to those public avenues of drainage and/or rights-of-way to carry such runoff.

(Ord. No. 11-99, § 5.1-0, 8-2-1999)

Sec. 46-108. - Coastal high hazard areas.

The following requirements apply within flood zones V1-V30, VE, and V:

- (1) All new construction, including manufactured homes and recreational vehicles on site 180 days or longer and not fully licensed for highway use, shall be located landward of the reach of high tide.
- (2) The use of fill for structural support of buildings, manufactured homes or recreational vehicles on site 180 days or longer is prohibited.
- (3) Manmade alteration of sand dunes, which would increase potential flood damage, is prohibited.

(Ord. No. 11-99, § 5.1-1, 8-2-1999)

Sec. 46-109. - Subdivision proposals.

The following standards apply to all new subdivision proposals and other proposed development in areas of special flood hazard:

- (1) Proposals shall be consistent with the need to minimize flood damage;
- (2) Public utilities and facilities such as sewer, gas, electrical and water systems shall be located and constructed so as to minimize flood damage; and
- (3) Adequate drainage shall be provided to reduce exposure to flood damage.

(Ord. No. 11-99, § 5.1-2, 8-2-1999)

Sec. 46-110. - Encroachments.

- (a) Within flood zones A1-A30 and AE, on streams without a regulatory floodway, no new construction, substantial improvements to other development, including fill in excess of 60 cubic yards, shall be permitted unless:
 - (1) The applicant demonstrates that the cumulative effect of the proposed development including fill in excess of 60 cubic yards, when combined with all other existing and anticipated development, will not increase the water surface elevation of the base more than one foot at any location; or
 - (2) The floodplain administrator agrees to apply to the Federal Emergency Management Agency (FEMA) for a conditional FIRM revision; FEMA approval is received and the applicant provides all necessary data, analyses and mapping; and reimburses the city for all fees and other costs in relation to the application. The applicant must also provide all data, analyses and mapping and reimburse the city for all costs related to the final map revision.
- (b) On streams with regulatory floodway, as shown in the flood boundary and floodway map or the flood insurance rate map adopted in section 46-28, no new construction, substantial improvements or other developments, including fill, shall be permitted unless:
 - (1) A technical evaluation by a licensed professional engineer shows that such an encroachment shall not result in any increase in flood levels during occurrence of the base flood; or
 - (2) The floodplain administrator agrees to apply to the Federal Emergency Management Agency (FEMA) for a conditional FIRM and floodway revision; FEMA approval is received and the applicant provides all necessary data, analyses and mapping; and reimburses the city for all costs related to the final map revisions.

(Ord. No. 11-99, § 5.1-3, 8-2-1999)

Sec. 46-111 Fill Material

- (a) For land not within the floodplain, no permit is required if the fill material to be placed is no more than 5 loads (60 cubic yards) of soil per platted lot and the land is not within the floodplain. Each platted lot may not contain more than 5 loads of fill. For lots larger than one acre in size, no permit is required if the fill material to be placed is no more than 5 loads per acre. Property owner is required to equally disburse and spread the fill material to ensure no more than 5 loads of fill are being place on each platted lot.
- (b) For land not within the floodplain, if more than 5 loads of fill material is to be placed per platted lot (or per acre), a permit must be obtained from the floodplain administrator and the property owner will be required to provide a site drainage plan prepared by registered professional engineer.
- (c) For land in flood zones A1-A30 and AE within the floodplain, a permit is required for fill material to be placed is no more than 5 loads (60 cubic yards) of soil per platted lot (or per acre) and the land is not within the floodplain. Each platted lot (or acre) may not contain more than 5 loads of fill. Property owner is required to equally disburse and spread the fill material to ensure no more than 5 loads of fill are being place on each platted lot (or acre).
- (d) For land in flood zones A1-A30 and AE within the floodplain, if more than 60 cubic yards of fill material is be placed per platted lot (or per acre), a permit must be obtained from the floodplain administrator and the property owner will be required to provide a fill mitigation plan prepared by a registered professional engineer.
- (e) Fill in the regulatory floodway is prohibited.
- (f) Fill material shall be placed no closer than five feet from the edge of the property line.
- (g) If the fill is placed on a piece of property in which the natural flow of water is conveyed on the proposed fill site, then the property owner is required to mitigate for the altered flow. Natural flow could be by sheet flow, swale, ditch, slough, or other natural or manmade means of conveyance of water. Mitigation could include ditches, swales, detention ponds and any other means of conveyance/detention.
- (h) All fill material must be spread evenly and as per permit represents within 180 days of the permit issuance date. If the fill material is not spread within this time period, the property owner may be requested to remove the material from the property.

Secs. 46-~~111~~112—46-133. - Reserved.

Sec. 46-134. - Anchoring.

New structures and substantial improvement to structures in areas of special flood hazard shall be anchored to prevent flotation, collapse, or lateral movement during the base flood. This requirement is in addition to applicable state and local anchoring requirements for resisting wind forces.

(Ord. No. 11-99, § 5.2-1, 8-2-1999)

Sec. 46-135. - Construction materials and methods.

- (a) New construction and substantial improvements to structures shall be constructed with materials and utility equipment resistant to flood damage.
- (b) New construction and substantial improvements to structures shall be constructed using methods and practices that minimize flood damage.
- (c) For enclosed areas below the lowest floor of a structure within flood zones A1-A30, AE or AH and also flood zone A if base flood elevation data are available, new and substantially improved structures shall have fully enclosed areas below the lowest floor that are useable solely for parking of vehicles, building access or storage in an area other than a basement and which are subject to flooding, which are 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 licensed professional engineer or architect or meet or exceed the following minimum criteria:
 - (1) 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; and
 - (2) The bottom of all such openings no higher than one foot above the lowest adjacent finished grade.

Openings may be required with louvers, valves, screens or other coverings or devices provided they permit the automatic entry and exit of floodwaters.

(Ord. No. 11-99, § 5.2-2, 8-2-1999)

Sec. 46-136. - Utilities.

- (a) Machinery and equipment servicing a building must either be elevated to or above the base flood level or designed to prevent water from entering or accumulating within the components during a flood. This includes heating, ventilating, and air conditioning equipment, hot water heaters, appliances, elevator lift machinery and electrical junction and circuit breaker boxes. Any electrical outlets located below the base flood elevation shall be installed on a GFI circuit. When located below the base flood elevation, a professional engineer's or architect's certification of the design is required.
- (b) New and replacement water supply systems shall be designed to minimize or eliminate infiltration of floodwaters into the systems.
- (c) New and replacement sanitary sewage systems shall be designed to minimize or eliminate infiltration of floodwaters. Sanitary sewer and storm drainage systems for buildings that have openings below the base flood elevation shall be provided with automatic backflow valves or other automatic backflow devices that are installed in each discharge line passing through a building's exterior wall.
- (d) On-site waste disposal systems shall be located to avoid impairment to them or contamination from them during flooding.

(Ord. No. 11-99, § 5.2-3, 8-2-1999)

Secs. 46-137—46-155. - Reserved.

Subdivision IV. - Residential Structures (Except Coastal High Hazard Areas)

Sec. 46-156. - Elevation.

The following standards, in addition to the standards in sections 46-109 and 46-110, and subdivision III of this division apply to all structures located in areas of special flood hazard as indicated:

- (1) Within flood zones A1-A30, AE and also flood zone A if base flood elevation data are available, new construction and substantial improvements shall have the lowest floor (including basement) elevated to or above the base flood level plus a minimum an 18-inch freeboard or additional height.
- (2) Within flood zone A, when no base flood elevation data are available, new and substantially improved structures shall have the lowest floor (including basement) elevated at least three feet above the highest adjacent grade.
- (3) Within flood zone AO, new and substantially improved structures shall 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 community's flood insurance rate map enumerated in section 46-28, at least two feet if no depth number is specified.
- (4) Within flood zones AH and AO, adequate drainage paths are required to guide floodwaters around and away from proposed structures on slopes.

(Ord. No. 11-99, § 5.3-1, 8-2-1999)

Secs. 46-157—46-179. - Reserved.

Subdivision V. - Residential Structures (Coastal High Hazard Areas)

Sec. 46-180. - Applicability of subdivision provisions.

The standards of this subdivision, in addition to the standards in section 46-108, and subdivision III of this division apply to structures located in areas of special flood hazard shown as flood zones V1-V30, VE or V on the community's flood insurance rate map designated in section 46-28.

(Ord. No. 11-99, § 5.4, 8-2-1999)

Sec. 46-181. - Elevation.

New construction and substantial improvements shall be elevated on pilings, columns or shear walls such that the bottom of the lowest horizontal structural member supporting the lowest elevated floor (excluding columns, piles, diagonal bracing attached to the piles or columns, grade beams, pile caps and other members designed to either withstand storm action or break away without imparting damaging loads to the structure) is elevated to or above the level of the base flood plus an additional 18 inches of freeboard or additional height minimum so as not to impede the flow of water.

(Ord. No. 11-99, § 5.4-1, 8-2-1999)

Sec. 46-182. - Determination of loading forces.

Structural design shall consider the effects of wind and water loads acting simultaneously during the base flood on all building components.

- (1) The structural design shall be adequate to resist water forces that would occur during the base flood. Horizontal water loads are considered if bulkheads, walls, or other natural or manmade flow obstructions could cause wave runup beyond the elevation of the base flood.
- (2) The building shall be designed and constructed to resist the forces due to wind pressure. Wind forces on the superstructure include windward and leeward forces on vertical walls, uplift on the roof, internal forces when openings allow wind to enter the house, and upward force on the underside of the house when it is exposed. In the design, the wind should be assumed to blow potentially from any lateral direction relative to the house.
- (3) Wind loading values used shall be those required by the building code.

(Ord. No. 11-99, § 5.4-2, 8-2-1999)

Sec. 46-183. - Foundation standards.

- (a) The piling or column foundation and structure attached thereto shall be adequately anchored to resist flotation, collapse or lateral movement due to the effects of wind and water pressure acting simultaneously on all building components. The foundation must be designed to transfer safely to the underlying soil all loads due to wind, water, dead load, live load and other loads (including uplift due to wind and water).
- (b) Spread footings and fill material shall not be used for structural support of new buildings or substantial improvements of an existing structure.

(Ord. No. 11-99, § 5.4-3, 8-2-1999)

Sec. 46-184. - Pile foundation design.

- (a) The design ratio of pile spacing to pile diameter shall not be less than eight to one for individual piles. This shall not apply to pile clusters located below the design grade. The maximum center-to-center spacing of wood piles shall not be more than 12 feet on center under loadbearing sills, beams, or girders.
- (b) Pilings shall have adequate soil penetration (bearing capacity) to resist the combined wave and wind loads (lateral and uplift) associated with the base flood acting simultaneously with typical structure (live and dead) loads, and shall include consideration of decreased resistance capacity caused by erosion of soil strata surrounding the piles. The minimum penetration for foundation piles is to an elevation of five feet below mean sea level (msl) datum if the BFE is plus ten msl or less, or to be least ten feet below msl if the BFE is greater than plus ten msl.
- (c) The pile foundation analysis shall also include consideration of piles in column action from the bottom of the structure to the stable soil elevation of the site. Piling may be horizontally or diagonally braced to withstand wind and water forces.
- (d) The minimum acceptable sizes for timber piles are a tip diameter of eight inches for round timber piles and eight inches by eight inches for square timber piles. All woodpiles must be treated in accordance with requirements of EPEE-C3 to minimize decay and damage from fungus.
- (e) Reinforced concrete piles shall be cast concrete having a 28-day ultimate compression strength of not less than 5,000 pounds per square inch, and shall be reinforced with a minimum of four longitudinal steel bars having a combined area of not less than one percent nor more than four percent of the gross concrete area. Reinforcing for precast piles shall have a concrete cover of not less than 1¼ inches for No. 5 bars and smaller and not less than 1½ inches for No. 6 through No. 11 bars. Reinforcement for piles cast in the field shall have a concrete cover of not less than two inches.
- (f) Piles shall be driven by means of a piledriver or drop hammer, jetted, or augered into place.

- (g) Additional support for piles in the form of bracing may include lateral or diagonal bracing between piles.
- (h) When necessary, piles should be braced at the ground line in both directions by a wood timber grade beam. These at-grade supports should be securely attached to the piles to provide support even if scoured from beneath.
- (i) Diagonal bracing between piles, consisting of two-inch by eight-inch (minimum) members bolted to the piles, shall be limited in location to below the lowest supporting structural member and above the stable soil elevation, and aligned in the vertical plane along pile rows perpendicular to the shoreline. Galvanized steel rods (minimum diameter one-half inch) or cable-type bracing is permitted in any plane.
- (j) Knee braces, which stiffen both the upper portion of a pile and the beam-to-pile connection, may be used along pile rows perpendicular and parallel to the shoreline. Knee braces shall be two- by-eight-inch lumber bolted to the sides of the pile/beam, or four- by-four-inch or larger braces framed into the pile/beam. Bolting shall consist of two five-eighths-inch lag bolts at each end for square members. Knee braces shall not extend more than three feet below the elevation of the base flood.

(Ord. No. 11-99, § 5.4-4, 8-2-1999)

Sec. 46-185. - Column foundation design.

Masonry piers or poured-in-place concrete piers shall be internally reinforced to resist vertical and lateral loads and be connected with a movement-resisting connection to a pile cap or pile shaft.

(Ord. No. 11-99, § 5.4-5, 8-2-1999)

Sec. 46-186. - Connections and fasteners.

Galvanized metal connectors, wood connectors, or a bolt of size and number adequate for the calculated loads must be used to connect adjoining components of a structure. Toe nailing as a principal method of connection is not permitted. All metal connectors and fasteners used in exposed locations shall be steel, hot-dipped galvanized after fabrication. Connectors in protected interior locations shall be fabricated from galvanized sheets.

(Ord. No. 11-99, § 5.4-6, 8-2-1999)

Sec. 46-187. - Beam-to-pile connections.

The primary floor beams or girders shall span the supports in the direction parallel to the flow of potential floodwaters and wave action and shall be fastened to the columns or piling by bolting, with or without cover plates. Concrete members shall be connected by reinforcement, if cast in place or, if precast, shall be securely connected by bolting and welding. If sills, beams or girders are attached to wood piling at a notch, a minimum of two five-eighths-inch galvanized steel bolts or two hot-dipped galvanized straps 3/16-inch by four inches by 18 inches each bolted with two one-half-inch lag bolts per beam member shall be used. Notching of pile tops shall be the minimum sufficient to provide ledge support for beam members without unduly weakening pile connections. Piling shall not be notched so that the cross section is reduced below 50 percent.

(Ord. No. 11-99, § 5.4-7, 8-2-1999)

Sec. 46-188. - Floor and deck connections.

- (a) Wood two-inch by four-inch (minimum) connectors or metal joist anchors shall be used to tie floor beams/girders. These should be installed on alternate floor joists, at a minimum. Cross bridging of all floor joists shall be provided. Such cross bridging may be one-inch by three-inch members, placed eight feet on-center maximum, or solid bridging of same depth as joist at same spacing.

- (b) Plywood should be used for subflooring and attic flooring to provide good torsional resistance in the horizontal plane of the structure. The plywood should not be less than three-fourths-inch total thickness, and should be exterior grade and fastened to beams or joist with 8d annular or spiral thread galvanized nails. Such fastening shall be supplemented by the application of waterproof industrial adhesive applied to all bearing surfaces.

(Ord. No. 11-99, § 5.4-8, 8-2-1999)

Sec. 46-189. - Exterior walls connections.

All bottoms of walls shall have any required breaks under a wall stud or an anchor bolt. Approved anchors would be used to secure rafters or joists and top and bottom plates to studs in exterior and bearing walls to form a continuous tie. Continuous 15/32-inch or thicker plywood sheathing—overlapping the top wall plate and continuing down to the sill, beam or girder—may be used to provide the continuous tie. If the sheets of plywood are not vertically continuous, then two-by-four nailer blocking shall be provided at all horizontal joints. In lieu of the plywood, galvanized steel rods of one-half-inch diameter or galvanized steel straps not less than one inch wide by 1/16-inch thick may be used to connect from the top wall plate to the sill, beam or girder. Washers with a minimum of three inches shall be used at each end of the one-half-inch round rods. These anchors shall be installed no more than two feet from each corner rod, no more than four feet on center.

(Ord. No. 11-99, § 5.4-9, 8-2-1999)

Sec. 46-190. - Ceiling joist/rafter connections.

- (a) All ceiling joists or rafters shall be installed in such a manner that the joists provide a continuous tie across the rafters. Ceiling joists and rafters shall be used at alternate ceiling joists/rafters connections to the wall top plate.
- (b) Gable roofs shall be additionally stabilized by installing two-by-four blocking on two-foot centers between the rafters at each gable end. Blocking shall be installed a minimum of eight feet toward the house interior from each gable end.

(Ord. No. 11-99, § 5.4-10, 8-2-1999)

Sec. 46-191. - Projecting members.

All cantilevers and other projecting members must be adequately supported and braced to withstand wind and water uplift forces. Roof eave overhangs shall be limited to a maximum of two feet and joist overhangs to a maximum of one foot. Larger overhangs and porches will be permitted if designed or reviewed by a registered professional engineer or architect and certified in accordance with section 46-212.

(Ord. No. 11-99, § 5.4-11, 8-2-1999)

Sec. 46-192. - Roof sheathing.

- (a) Plywood, or other wood material, when used as roof sheathing, shall not be less than 15/32-inch in thickness, and shall be of exterior sheathing grade or equivalent. All attaching devices for sheathing and roof coverings shall be galvanized or be of other suitable corrosion resistant material.
- (b) All corners, gable ends, and roof overhangs exceeding six inches shall be reinforced by the application of waterproof industrial adhesive applied to all bearing surfaces of any plywood sheet used in the sheathing of such corner, gable end, or roof overhang.
- (c) In addition, roofs should be sloped as steeply as practicable to reduce uplift pressures, and special care should be used in securing ridges, hips, valleys, eaves, vents, chimneys, and other points of discontinuity in the roofing surface.

(Ord. No. 11-99, § 5.4-12, 8-2-1999)

Sec. 46-193. - Protection of openings against wind load.

All exterior glass panels, window, and doors shall be designed, detailed, and constructed to withstand loads due to the design wind speed of 75 miles per hour. Connections for these elements must be designed to transfer safely the design loads to the supporting structure. Panel widths of multiple panel sliding glass doors shall not exceed three feet.

(Ord. No. 11-99, § 5.4-13, 8-2-1999)

Sec. 46-194. - Breakaway wall design standards.

- (a) The breakaway wall shall have a design safe loading resistance of not less than ten and not more than 20 pounds per foot, with the criterion that the square overall structure at the point of wall failure be confirmed using established procedures. Grade beams shall be installed in both directions for all piles considered to carry the breakaway wall load. Knee braces are required for front row piles that support breakaway walls.
- (b) Use of breakaway wall strengths in excess of 20 pounds per square foot shall not be permitted unless a registered professional engineer or architect has developed or reviewed the structural design and specifications for the building foundation and breakaway wall components, and certifies that:
 - (1) The breakaway wall will fail under water loads less than those that would occur during the base flood; and
 - (2) The elevated portion of the building and supporting foundation system will not be subject to collapse, displacement, or other structural damage due to the effects of wind and water loads acting simultaneously on all building components (structural and nonstructural).

Water loading values used shall be those associated with the base flood. Wind loading values shall be those required by the building code.

(Ord. No. 11-99, § 5.4-14, 8-2-1999)

Secs. 46-195—46-211. - Reserved.

Subdivision VI. - Nonresidential Structures (Except Coastal High Hazard Areas)

Sec. 46-212. - Standards for new and substantially improved nonresidential structures.

The following standards apply to new and substantially improved commercial, industrial and other nonresidential structures, in addition to the requirements in sections 46-109 and 46-110, and subdivision III of this division:

- (1) Within flood zones A1-A30, AE and AH, and also flood zone A if base flood elevation data are available, new construction and substantial improvements of any nonresidential structure, together with attendant utility and sanitary facilities, shall either:
 - a. Have the lowest floor, including basement or cellar, elevated to or above the base flood elevation plus an additional 18 inches of freeboard; or
 - b. Be floodproofed so that the structure is watertight below the base flood level with walls substantially impermeable to the passage of water. All structural components located below the base flood level must be capable of resisting hydrostatic and hydrodynamic loads and the effects of buoyancy.
- (2) Within flood zone AO, new construction and substantial improvements of nonresidential structures shall:

- a. 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 community's FIRM or at least two feet if no depth number is specified; or
 - b. Together with attendant utility and sanitary facilities, be completely floodproofed to that level to meet the floodproofing standard specified in subsection (1)b of this section
- (3) If the structure is to be floodproofed, a licensed professional engineer or architect shall develop and/or review structural design, specifications, and plans for construction. A floodproofing certificate or other certification shall be provided to the local administrator that certifies the design and methods of construction are in accordance with accepted standards of practice for meeting the provisions of subsection (1)b of this section, including the specific elevation in relation to mean sea level to which the structure is to be floodproofed.
- (4) Within flood zones AH, and AO, adequate drainage paths are required to guide floodwaters around and away from proposed structure on slopes.
- (5) Within flood zone A, when no base flood elevation data are available, the lowest floor, including basement, shall be elevated at least three feet above the highest adjacent grade.

(Ord. No. 11-99, § 5.5, 8-2-1999)

Secs. 46-213—46-232. - Reserved.

Subdivision VII. - Nonresidential Structure (Coastal High Hazard Areas)

Sec. 46-233. - Standards for new construction and substantial improvements.

In flood zones V1-V30, VE and also flood zone V if base flood elevations are available, new construction and substantial improvements of any nonresidential structure, together with attendant utility and sanitary facilities, shall have the bottom of the lowest member of the lowest floor elevated to above the base flood elevation plus an additional 18 inches of freeboard. Floodproofing of structures is not an allowable alternative to elevating the lowest floor to the flood elevation plus 18 inches in flood zones V1-V30, VE and V.

(Ord. No. 11-99, § 5.6, 8-2-1999)

Secs. 46-234—46-259. - Reserved.

Subdivision VIII. - Manufactured Homes and Recreational Vehicles

Sec. 46-260. - Applicability of subdivision standards.

The standards of this subdivision, in addition to the standards in subdivisions II and III of this division, apply in areas of special flood hazard to manufactured homes and to recreational vehicles which are located in areas of special flood hazard.

(Ord. No. 11-99, § 5.7(1), 8-2-1999)

Sec. 46-261. - Recreational vehicles.

Recreational vehicles placed on sites within flood zones A1-A30, AE, AH, V1-V30, V and VE shall either:

- (1) Be on site fewer than 180 consecutive days;

- (2) Be fully licensed and ready for highway use; or
- (3) Meet the requirements for manufactured homes in section 46-262(a), (c) and (d).

A recreational vehicle is ready for highway use if it is on its wheels or jacking system, is attached to the site's disconnect-type utilities and security devices and has no permanently attached additions.

(Ord. No. 11-99, § 5.7(1), 8-2-1999)

Sec. 46-262. - Manufactured homes.

- (a) A manufactured home that is placed or substantially improved in flood zones A1-A30, AE, AH, V1-V30 or VE that is on site either: outside of an existing manufactured home park or subdivision; in a new manufactured home park or subdivision; in an expansion to an existing manufactured home park subdivision; or in an existing manufactured home park or subdivision on which a manufactured home has incurred substantial damage as the result of a flood; shall:
 - (1) Within flood zones A1-A30, AE, and AH, be elevated on permanent foundation such that the lowest floor is elevated to or above the base elevation plus an additional 18 inches of freeboard and is securely anchored to an adequately anchored foundation system to resist flotation, collapse, and lateral movement; or
 - (2) within flood zones V1-V30 and VE, be elevated on a pile foundation such that the bottom of the lowest structural member of the lowest floor (excluding piling and columns) is elevated to or above the base flood elevation plus an additional 18 inches of freeboard and securely anchored to an adequately anchored foundation system to resist flotation, collapse and lateral movement.

Methods of anchoring may include, but are not limited to, use of over-the-top or frame ties to ground anchors.

- (b) A manufactured home to be placed or substantially improved in flood zone A1-A30, AE, AH, V1-V30, or VE, in an existing manufactured home park or subdivision that is not to be placed on a site on which a manufactured home has incurred substantial damage, shall be:
 - (1) Elevated in a manner such as required in subsection (a) of this section; or
 - (2) Elevated such that 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 grade and are securely anchored to an adequately anchored foundation system to resist flotation, collapse or lateral movement.
- (c) Within flood zone A or V, when no base flood elevation data are available, new and substantially improved manufactured homes shall have the floor elevated at least three feet above the highest adjacent grade.
- (d) Within flood zone AO, the floor shall be elevated above the highest adjacent grade at least as high as the depth number specified on the flood insurance rate map enumerated in section 46-28 or at least two feet if no depth number is specified.

(Ord. No. 11-99, § 5.7(2)—(5), 8-2-1999)

Secs. 46-263—46-287. - Reserved.

DIVISION 4. - APPEALS AND VARIANCES

Sec. 46-288. - Appeals to city council.

- (a) The city council shall hear and decide appeals and requests for variances from the requirements of this article.
- (b) The city council shall hear and decide appeals when it is alleged there is an error in any requirement, decision, or determination made by the local administrator in the enforcement or administration of this article.
- (c) In passing upon such applications, the city council, shall consider all technical evaluations, all relevant factors and standards specified in other sections of this article and:
 - (1) The danger that material may be swept onto other land to the injury of others;
 - (2) The danger to life and property due to flooding or erosion damage;
 - (3) The susceptibility of the proposed facility and its contents to flood damage and effect on individual owner;
 - (4) The importance of the service provided by the proposed facility to the community;
 - (5) The necessity to the facility of a waterfront location, where applicable;
 - (6) The availability of the alternative locations for the proposed use which are not subject to flooding or erosion damage;
 - (7) The compatibility of the proposed use with existing and anticipated development;
 - (8) The relationship of the proposed use to the comprehensive plan and floodplain management program of that area;
 - (9) The safety of access to the property in times of flood for ordinary and emergency vehicles;
 - (10) The costs to local governments and the dangers associated with conducting search and rescue operations during periods of flooding;
 - (11) The expected height, velocity, duration, rate of rise and sediment transport of the floodwaters and the effects of wave action, if applicable, expected at the site; and
 - (12) The costs of providing governmental services during and after flood conditions, including search and rescue operations and maintenance and repair of public utilities and facilities such as sewer, gas, electrical, and water systems and streets and bridges.
- (d) Upon consideration of the factors of subsection (c) of this section and the purpose of this article, the city council may attach such conditions to the granting of variances as it deems necessary to further the purpose of this article.
- (e) The local administrator shall maintain the records of all appeal actions including technical information and report any variance to the Federal Emergency Management Agency upon request.

(Ord. No. 11-99, § 6.1, 8-2-1999)

Sec. 46-289. - Condition for issuance of variances.

- (a) Generally, variances may be issued 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 structure constructed below the base flood level, providing that items in section 46-288(c)(1)—(12) have been fully considered. As the lot size increases beyond one-half acre, the technical justification required for issuing the variance increases.
- (b) Variances may be issued for the repair or rehabilitation of historic structures upon determination that:
 - (1) The proposed repair or rehabilitation will not preclude the structure's continued designation as a historic structure;
 - (2) The variance is the minimum necessary to preserve the historic character and design of the structure.

- (c) Variances may be issued by a community for new construction and substantial improvements and for other developments necessary for the conduct of a functionally dependent use provided that:
 - (1) The criteria of subsections (a), (c), (e) and (f) of this section are met;
 - (2) The structure or other development is protected by methods that minimize flood damages during the base flood and create no additional threat to public safety.
- (d) Variances shall not be issued within any designated floodway if any increase in flood levels during the base flood discharge would result.
- (e) Variances shall only be issued upon a determination that the variance is the minimum necessary, considering the flood hazard, to afford relief.
- (f) Variances shall only be issued upon receiving written justification of:
 - (1) A showing of good and sufficient cause;
 - (2) A determination that failure to grant the variance would result in exceptional hardship to the applicant; and
 - (3) A determination that the granting of a variance will not result in increased flood heights, additional threats to public safety, or extraordinary public expense, or will not create nuisances, cause fraud on or victimization of the public or conflict with existing local laws or ordinances.
- (g) The applicant to whom a variance is granted for a building with the lowest floor below the base flood elevation shall be given written notice over the signature of a community official that the cost of flood insurance will be commensurate with the increased risk resulting from lowest floor elevation.

(Ord. No. 11-99, § 6.2, 8-2-1999)

Secs. 46-290—46-311. - Reserved.

ARTICLE III. - DRAINAGE MAINTENANCE

Sec. 46-312. - Stream maintenance; standard operating procedure.

This standard operating procedure (SOP) specifies responsibilities and procedures for inspecting and cleaning the creeks and ditches in the city.

(Ord. No. 5-93, § 1, 11-11-1993)

Sec. 46-313. - Allocation of responsibilities.

- (a) The ~~director of public works~~ local floodplain administrator is responsible for the administration of this standard operating procedure (SOP). He shall inspect the creeks, ditches and retention basins and ensure that they are cleaned in accordance with the SOP.
- (b) The ~~director of public works~~ local floodplain administrator is responsible for maintenance of all ditches and creeks on park property.
- (c) The ~~director of public works~~ local floodplain administrator is responsible for enforcing this article which prohibits dumping materials in the creeks of the city.
- (d) Property owners are responsible for maintaining the ditches on their properties. City personnel shall not enter onto private property unless an easement has been obtained or unless the problem is deemed an emergency and guidance has been provided by the city attorney.

(Ord. No. 5-93, § 2, 11-11-1993)

Sec. 46-314. - Jurisdiction.

(a) This standard operating procedure (SOP) covers all creeks, retention basins and ditches in the city.

~~(b) This SOP covers the following retention basins:~~

~~(1) Kemah Oaks.~~

~~(2) Third Street pump station.~~

(Ord. No. 5-93, § 3, 11-11-1993)

Sec. 46-315. - Authority.

(a) The city has the legal authority to inspect and maintain all creeks, ditches and retention basins on city property.

(b) Where the owner has dedicated a drainage maintenance easement to the city, the city has the legal authority to enter onto the property for the purposes of inspecting and maintaining creeks and ditches.

(c) Where the owner has not dedicated a drainage maintenance easement to the city, the city may request permission to enter onto the property for the purpose of inspecting and maintaining creeks and ditches. If such permission is denied and the city determines that the problem affects the general health and welfare of the city, appropriate legal action may be pursued.

(Ord. No. 5-93, § 4, 11-11-1993)

Sec. 46-316. - Identification of problems.

(a) The ~~director of public works~~local floodplain administrator or his designee shall inspect all the watercourses and basins. One inspection will run in February, one in April before the spring flood season, and one in July.

(b) After each major storm, the ~~director of public works~~local floodplain administrator, or his designee, shall inspect ~~the following~~ choke points where debris has been known to accumulate:-

~~(1) 3rd Street pump station.~~

~~(2) 518 drainage system.~~

~~(3) 8th Street alley lift station.~~

~~(4) Arlla drainage system.~~

(c) The ~~director of public works~~local floodplain administrator, or his designee, shall inspect all complaints submitted by residents, the health inspector, the floodplain administrator or other offices.

(d) If an inspection identifies a problem, the inspector shall describe it on the city drainage problem report form, a copy of which is found in section 46-318.

(1) The top portion of the form shall be completed by whoever identifies the problem.

(2) The ~~director of public works~~local floodplain administrator shall complete the middle portion of the form and assign a work priority to the project. A copy shall be kept by the department secretary to assist in tracking the city's response to the problem.

(3) The maintenance crew chief assigned to the project shall complete the bottom portion of the form.

(4) When the form is completed it shall be filed in the public works department work order files. If the problem was identified by someone outside the department, a copy of the form shall be sent to the person or office who reported the problem.

(Ord. No. 5-93, § 5, 11-11-1993)

Sec. 46-317. - Maintenance.

- (a) *Problems.* Maintenance problems are defined as:
- (1) Trash: manmade objects, such as garbage, shopping carts, fires, lumber, furniture and appliances. Animal carcasses are also included as trash.
 - (2) Minor problems: vegetable growth, tree limbs and other naturally occurring debris. Sedimentation in a retention basin is also included.
 - (3) Obstruction: fallen trees, culvert damage, logjam, large appliance or car body, etc., that by itself obstructs the flow of the ditch or stream.
 - (4) Major problem: culvert damage, sedimentation, failure of concrete lining, etc.
- (b) *Duties.*
- (1) On public property: The ~~director of public works~~ City of Kemah shall schedule a maintenance crew to remove all obstructions expeditiously.
 - (2) On private property with drainage maintenance easements: removal of trash, minor problems, and obstructions shall be the responsibility of the owner. Resolution of major problems shall be the responsibility of the City of Kemah.
 - (3) On private property without drainage easements: removal of trash, minor problems, and obstructions shall be the responsibility of the owner. With the owner's permission and at the City's of Kemah's option, the City shall resolve major problems.
- (c) *Completion of project.* Upon completion of a maintenance project, the responsible crew chief shall complete the drainage problem report form and provide it to the ~~department of public works secretary~~ City of Kemah for filing. The city floodplain administrator may periodically inspect projects and note their findings on the form.

(Ord. No. 5-93, § 6, 11-11-1993)

Sec. 46-318. - Drainage problem report form.

The form to be used to investigate and address drainage problems is as follows:

DRAINAGE PROBLEM REPORT FORM

Date: _____ Inspector: _____

Location: (Identify stream or basin name, downstream and upstream streets or reference points, and location of problem. Provide sketch as needed).

Type of Problem:

_____ Trash _____ Minor _____ Obstruction _____ Structural

Recommended maintenance: _____

Is equipment needed? _____ If so, list equipment needed: _____

Date: _____ Right of entry needed? _____ / _____ / _____

Work order description: _____

State permit needed: _____ Work order number _____

Date: _____ Crew Chief: _____

Maintenance performed: _____
_____/_____/_____

Inspected by: _____

(Ord. No. 5-93, 11-11-1993)