

**ARTICLE 22.**  
**FLOOD PLAIN OVERLAY ZONING DISTRICTS**

**Section 1. INTENT:**

This Article establishes overlay zoning districts for flood plain areas pursuant to K.S.A. 19-101 *et seq.* and K.S.A. 19-2956 *et seq.*, and any amendments thereto, if any, through which the State of Kansas has granted and delegated the responsibility to local governmental units to adopt regulations designed to promote the public health, safety, and general welfare of its citizenry.

**Section 2. STATUTORY AUTHORIZATION, FINDINGS OF FACT, PURPOSE AND OBJECTIVES:**

A. Statutory Authorization:

1. Chief Engineer Approval Prior to Adoption: The Floodplain Overlay Zoning District Regulations set forth herein in Article 22, were approved in draft form by the Chief Engineer of the Division of Water Resources of the Kansas Department of Agriculture on June 16, 2009.
2. Kansas Statutory Authorization: The Legislature of the State of Kansas has in K.S.A. 19-101 *et seq.*, and 19-2956 *et seq.*, granted and delegated the responsibility to local governmental units to adopt Flood Plain Management Regulations designed to protect the health, safety, and general welfare. Pursuant to that authority, the Board of County Commissioners of Johnson County, Kansas, adopted Article 22 of these regulations as part of the Flood Plain Management Regulations for Johnson County, Kansas.

B. Findings of Fact:

1. Flood Losses Resulting from Periodic Inundation: The Area of Special Flood Hazard and the Area of Future Conditions Flood Hazard of Johnson County are subject to periodic inundation which may result in loss of life, property, health, and safety hazards, disruption of commerce and governmental services, extraordinary public expenditures for flood damage reduction and relief, and impairment of the tax base, all of which adversely affect the public health, safety and general welfare.
2. General Causes of these Flood Losses: These flood losses are caused by the cumulative effect of obstructions or development in any delineated flood plain causing increases in flood heights and velocities, and by the occupancy of Flood Hazard Areas by uses vulnerable to the flood hazards on such land or hazardous to others because the uses are inadequately elevated, flood-proofed, or otherwise protected from flood damages.

C. Methods Used to Analyze Flood Hazards:

This Article uses a reasonable, standard engineering method of analyzing flood hazards which consists of a series of interrelated steps:

1. Selection of a regulatory flood based upon engineering calculations, which permit a consideration of such flood factors as the potential frequency of occurrence, the potential area inundated, and the potential depth of inundation. The regulatory flood selected for this Article is representative of large floods which are reasonably characteristic of what can be expected to

occur along the particular streams subject to this Article. The regulatory flood is the general order of a flood which has a one percent (1%) or greater chance of occurrence in any given year, as delineated in the "Flood Insurance Study, Johnson County, Kansas and Incorporated Areas, revised August 3, 2009, Volumes 1, 2, 3, 4, 5, 6, and 7" published by the Federal Emergency Management Agency (FEMA), including both Exhibit 1 and Exhibit 2 which is the Johnson County Flood Insurance Rate Map, as amended.

2. Calculation of water surface profiles based on standard and accepted hydrologic and hydraulic engineering analyses of the storm water runoff and the capacity of the stream channel and overbank areas to convey the regulatory flood.
  3. Computation of a Floodway and delineation of its Floodway Encroachment Lines that will convey the Base Flood and within which no obstruction shall be permitted which would cause any increase in the Base Flood Elevation.
  4. Delineation of a Floodway Fringe, (i.e., that area outside the Floodway Encroachment Lines but which still is subject to inundation by the Base Flood) within which no obstruction shall be permitted which would cause more than a one (1) foot rise in the flood height.
  5. Delineation of Future Base Flood areas (i.e., those areas outside the Floodway Encroachment Lines and outside the Floodway Fringe but which are expected to be subject to inundation by the base flood in the future assuming full build out of the watershed.)
- D. Statement of Purpose: It is the purpose of this Article to promote the public health, safety and general welfare and to minimize public and private losses due to flood conditions in specific areas (described in Section 2(B)(1) herein), by applying the provisions of this Article; to maintain the County's eligibility for participation in the National Flood Insurance Program (NFIP) as defined in 44 Code of Federal Regulations (CFR) 59.22(a)(3); and to meet or exceed the minimum requirements of 44 CFR 60.3(d) and K.A.R. 5-44-4 by applying the provisions of this Article to:
1. Restrict or prohibit uses which are dangerous to health, safety and property in times of flooding or cause undue increases in flood flows, heights or velocities;
  2. Require that land uses and facilities vulnerable to floods be protected against flood damage at the time of initial construction;
  3. Provide information for evaluating land purchases of flood prone ground within unincorporated Johnson County;
  4. Control the alteration of natural flood plains, stream channels, and natural protective barriers, which are involved in the conveyance of floodwaters;
  5. Control filling, grading, dredging and other development which may increase erosion or flood damage;
  6. Prevent or regulate the construction of flood barriers which will unnaturally divert flood waters or which may increase flood hazards to other lands; and
  7. Administer Flood Plain Management Regulations so that eligibility is maintained for property owners in the community to purchase flood insurance in the National Flood Insurance Program.



field conditions, the Zoning Administrator shall make the necessary interpretation. In such cases where the interpretation is contested, the Board of Zoning Appeals may hear the matter on application pursuant to Article 3 herein that establishes the County's procedures for zoning appeals. The regulatory flood elevation for the point in question shall be the governing factor in the location of the flood plain overlay zoning district boundary on the land.

- D. Compliance: No development shall hereafter be located, extended, converted or structurally altered within or in contact with the designated Area of Special Flood Hazard or Area of Future Conditions Flood Hazard in Johnson County without full compliance with the terms of this Article and any other applicable governmental regulations, if any.
- E. Abrogation and Greater Restrictions: This Article is not intended to repeal, abrogate, or impair any existing easements, covenants, or deed restrictions. Furthermore, if this Article imposes greater restrictions than another Article in these regulations, then the provisions of this Article shall control.
- F. Interpretation: In the interpretation and application of this Article, all provisions shall be: (1) considered as minimum requirements; (2) liberally construed in favor of providing the greatest flood damage reduction to the public health, safety and general welfare; and (3) deemed neither to limit nor repeal any other powers granted under state statutes.
- G. Warning and Disclaimer of Liability: The degree of flood damage reduction required by this Article is considered reasonable for regulatory purposes and is based on scientific and engineering methods of study. Larger floods may occur on rare occasions. Flood heights may be increased by man-made or natural causes such as ice jams and bridge openings restricted by debris. Furthermore, this Article does not imply that land:
  - 1. Outside the Area of Special Flood Hazard, including the Floodway Fringe Overlay District, (FF), and the Floodway Overlay District (FW);
  - 2. Outside the Area of Future Conditions Flood Hazard, including the Future Base Flood Overlay District, (FBF); or
  - 3. Land uses permitted within such areas;will be free from flooding or flood damages. This Article shall not create liability on the part of Johnson County, Kansas or any officer or employee thereof for any flood damage that results from reliance on this Article or any administrative decision made hereunder.
- H. Appeal: Any person aggrieved, or any officer, department head or bureau of the county or any government agency or body affected, by a final decision of the Zoning Administrator regarding an application for a Flood Plain Development Permit may, pursuant to the procedures set forth in Article 3 of these regulations, (i) appeal the decision of the Zoning Administrator to the Board of Zoning Appeals; or (ii) request that the Board of Zoning Appeals grant a variance from the requirements of this Article. Flood insurance requirements shall remain in place and cannot be varied by the County, even if a structure is otherwise granted a variance.
- I. Public Improvement Projects
  - 1. For purposes of obtaining a Floodplain Development Permit, Public Improvement Projects performed by or for the Board of County Commissioners of Johnson County, Kansas, and its departments and agencies, or those performed by or for federal, state or local governmental entities shall only be required to satisfy the current FEMA minimum requirements.



County, and submit evidence of such notification to the Federal Emergency Management Agency.

6. Determine that the flood carrying capacity is not diminished and is maintained within the altered or relocated portion of any watercourse.
  7. Verify and record the actual elevation (in relation to mean sea level) of the lowest floor (including basement) of all new or substantially improved structures.
  8. Verify and record the actual elevation (in relation to mean sea level) to which the new or substantially improved non-residential structures have been flood-proofed.
  9. When flood-proofing is utilized for a particular non-residential structure, the Zoning Administrator shall require verification of compliance with the flood standards and requirements of this Article from a registered professional engineer or architect licensed in the State of Kansas that such has been accomplished.
  10. Where interpretation of the district boundaries is needed, the Zoning Administrator shall make the district boundary interpretations in accordance with Section 3 (C) of this Article.
  11. When neither Base Flood Elevation data nor floodway boundaries have been provided in accordance with Section 3 (B) herein, then the Zoning Administrator shall obtain, review, and reasonably utilize any Base Flood Elevation and Floodway data available from federal, state, or other sources, as criteria for reviewing New Construction, Substantial Improvements, or other Development in the A Zone floodplain of the Area of Special Flood Hazard or in the Zone X (Future Base Flood) Zone in the Area of Future Conditions Flood Hazard as delineated on the Johnson County Flood Insurance Rate Map (FIRM), in order to administer the provisions of Sections 5 through 8 of this Article.
  12. Utilize stipulations based on the Federal Emergency Management Agency's Technical Bulletin 10-01, "Ensuring That Structures Built on Fill In or Near Flood Hazard Areas Are Reasonably Safe From Flooding in accordance with the National Flood Insurance Program" to determine that structures built on property filled to elevate and remove it from the Special Flood Hazard Area or from the Area of Future Conditions Flood Hazard will be reasonably safe from flooding.
  13. Keep all records pertaining to the provisions of this Article in the office of the Zoning Administrator and have the records be open for public inspection.
- D. Flood Plain Development Permit Procedure: To obtain a permit, the applicant shall first file a written application for a Flood Plain Development Permit with the Zoning Administrator on forms furnished by the Zoning Administrator for that purpose. Every application shall:
1. Identify and describe the Development to be covered by the Flood Plain Development Permit for which application is being made.
  2. Describe by legal description and street address the land on which the proposed Development is to be located.
  3. Indicate the use or occupancy for which the proposed Development is intended.
  4. Be accompanied by plans and specifications for the proposed Development.



secured, and substantial justice done, shall give consideration which shall include, but not be limited to, all technical evaluations, all relevant factors and standards specified in other provisions of these regulations, and the following additional criteria:

- a. The danger that materials may be swept onto other lands to the potential injury of others;
- b. The potential danger to life and property due to flooding or erosion damage;
- c. The susceptibility of the proposed facility and its contents to flood damage and the effect of such damage on the individual owner;
- d. The importance of the services provided by the proposed facility to the community;
- e. Where applicable, the necessity of a waterfront location for the facility;
- f. The availability of alternative locations for the proposed use that are not in the Area of Special Flood Hazard (and thereby not within the Floodway Fringe Overlay District (FF) or the Floodway Overlay District (FW)), or not in the Area of Future Conditions Flood Hazard (and thereby not within the Future Base Flood Overlay District (FBF)) and therefore not subject to flooding or erosion damage;
- g. The compatibility of the proposed use with existing and anticipated other Development;
- h. The relationship of the proposed use to the County's adopted comprehensive plan and Flood Plain Management program for that area;
- i. The safety of access to the property in times of a Base Flood for ordinary and emergency vehicles;
- j. The expected heights, velocity, duration, rate of rise and sediment transport of the flood waters and the effects of wave action, if applicable, expected at the site; and
- k. The costs of providing governmental services during and after flood conditions including maintenance and repair of public utilities and facilities such as sewer, gas, electrical, and water systems, and streets and bridges.

F. Restrictions on Variances: Upon consideration of the purpose of this Article, and factors listed above in subparagraph 4 (E)(3) of this Article, the Board of Zoning Appeals, and the Board, may attach such reasonable conditions to the granting of variances as it deems necessary to further the purposes of this Article. Furthermore, a request for a variance shall be subject to the following restrictions:

1. Variances may be issued for New Construction and Substantial Improvements to be erected on a lot of one-half acre or less in size which is contiguous to, and surrounded by, lots with existing structures constructed below the Base Flood Elevation, provided subsections F(2) through F(6) below have been fully satisfied. As the lot size increases beyond the one-half-acre size, the burden shall be on the applicant requesting the variance to justify why the variance request should be approved.
2. Variances may be issued for the reconstruction, rehabilitation or restoration of structures listed on the National Register of Historic Places, the State Inventory of Historic Places, or a local inventory of historic places upon determination that the proposed activity will not preclude the

structure's continued historic designation and that the variance is limited to the minimum relief necessary to preserve the historic character and design of the structure.

3. Variances shall not be issued within any designated Floodway if any increase in flood levels during the Base Flood discharge would result.
4. Variances may only be issued upon a determination that the variance approved provides the minimum relief necessary, considering the flood hazard.
5. Variances may only be issued upon:
  - a. Showing of good and sufficient cause,
  - b. Determination that failure to grant the variance would result in unnecessary or exceptional hardship to the applicant, and
  - c. Determination that the granting of a variance will not result in increased flood heights, additional threats to public safety, extraordinary public expense, create nuisances, cause fraud or victimization of the public, or conflict with existing local laws.
6. Any applicant granted a variance with regard to the provisions of this Article shall be given a written notice from the Zoning Administrator that: (a) the issuance of a variance to construct a structure below the Regulatory Flood Elevation will result in increased premium rates for flood insurance up to amounts as high as \$25.00 for \$100.00 of insurance coverage and (b) such construction below the Regulatory Flood Elevation increases risks to life and property. Such notification shall be kept with the records of all variances approved with respect to this Article.
7. The Zoning Administrator, or such person(s) designee, shall maintain the records of all variance and appeal applications resulting from enforcement of this Article, and shall report any approved variances to the Federal Emergency Management Agency upon request.

## **Section 5. ESTABLISHMENT OF REGULATORY FLOOD PLAIN OVERLAY ZONING DISTRICTS:**

The applicable mapped flood plain areas for this Article are hereby divided into the following three regulatory flood plain overlay zoning districts: A). The Floodway Fringe Overlay District (FF), B). The Floodway Overlay District (FW), and C). The Future Base Flood Overlay District (FBF).

The boundaries of the Floodway Fringe Overlay District (FF) and the Floodway Overlay District (FW) shall collectively be consistent with the boundaries of the A Zone, AE Zone, AH Zone, AO Zone, A99 Zone, Floodway Areas in AE Zone, and any other Area of Special Flood Hazard as identified in the Flood Insurance Study, Johnson County, Kansas and Incorporated Areas, Volumes 1, 2, 3, 4, 5, 6, and 7 with a revised date of August 3, 2009, and the accompanying Johnson County Flood Insurance Rate Map (FIRM). Within these districts all uses not meeting the standards of these regulations shall be prohibited unless they are existing uses that are legally nonconforming.

The boundaries of the Future Base Flood Overlay District (FBF) shall be consistent with the Zone X (Future Base Flood) Zone as identified in the Flood Insurance Study, Johnson County, Kansas and Incorporated Areas, Volume 1 with a revised date of August 3, 2009, and the accompanying Johnson County Flood Insurance Rate Maps (FIRM). Within this district all uses not meeting the standards of these regulations shall be prohibited unless they are uses that are legally nonconforming.

**Section 6. GENERAL STANDARDS FOR THE FLOODWAY FRINGE OVERLAY DISTRICT (FF), THE FLOODWAY OVERLAY DISTRICT (FW), AND THE FUTURE BASE FLOOD OVERLAY DISTRICT (FBF):**

- A. No Flood Plain Development Permit shall be granted for New Construction, Substantial Improvements, or other Development, including the placement of manufactured homes, within:
1. The A Zone, AE Zone, AH Zone, AO Zone, A99 Zone, Floodway Areas in AE Zone, and any other Area of Special Flood Hazard; or
  2. In the Zone X (Future Base Flood) Zone and any other Area of Future Conditions Flood Hazard,

unless:

- (i). The conditions of this Section, and the conditions of Section 7 are satisfied for properties in the Floodway Fringe Overlay District (FF), or in the Future Base Flood Overlay District (FBF), and
- (ii). The conditions of this Section, and the conditions of Section 8 are satisfied for properties in the Floodway Overlay District (FW).

B. Unnumbered A Zones:

1. All areas identified as unnumbered A Zone on the Johnson County Flood Insurance Rate Map (FIRM) are subject to inundation by the 1-percent annual chance flood event; however, the Base Flood Elevation is not provided. Development in the unnumbered A Zone shall be subject to all development provisions and requirements of this Article. Since a Flood Insurance Study data with Base Flood Elevations and Floodplain boundaries has not been provided in accordance with Section 3(A) and Section 3(B) herein, then the Zoning Administrator shall obtain, review and reasonably utilize any Base Flood Elevation and Floodway data available from federal, state, or other sources.
2. Until a floodway has been designated by the Federal Emergency Management Agency (FEMA) for adoption by the County on the Johnson County Flood Insurance Rate Map (FIRM), no New Construction, Substantial Improvements, or other Development (including fill) may be permitted within the A Zone on the Johnson County Flood Insurance Rate Map (FIRM) unless the applicant for the land use has demonstrated that the cumulative effect of the proposed Development, when combined with all other existing and reasonably anticipated uses of the property, as allowed within the underlying zoning district, will not increase the water surface elevation of the 1-percent-annual-chance flood more than one (1) foot at any point in the identified Flood Plain and across the cross-section of the reach in which the development or fill is located as shown on the Flood Insurance Study incorporated by reference in Section 3 (B) herein.
3. All unnumbered A Zone encroachments from New Construction, Substantial Improvement, or other Development, including fill, are prohibited in the unnumbered A Zone areas of the Floodway Fringe Overlay District unless hydrologic and hydraulic engineering analyses, performed in accordance with standard civil engineering practices and standards of care, verify that the encroachments shall not increase the 1-percent-annual-chance flood by more than one (1) foot at any point in the identified Flood Plain and across the cross-section of the reach in which the development or fill is located as shown on the Flood Insurance Study nor result in undue restriction of the Base Flood discharge. Verification that this “no more than one (1) foot rise” requirement would be met shall be provided by a registered professional

engineer who is licensed in the State of Kansas. But, in any event, no use shall be allowed that will increase the flood levels of the 1-percent-annual-chance flood by more than one (1) foot.

C. All New Construction, Substantial Improvements, or other Development (including but not limited to prefabricated buildings or placement of manufactured homes) shall require:

1. Construction with materials resistant to flood damage, utilizing methods and practices that minimize flood damage, and with electrical wiring, heating, ventilation, plumbing, and air conditioning equipment and other service facilities that are designed and located so as to prevent water from entering or accumulating within the components during flooding. All outdoor electrical meters shall be installed above the Regulatory Flood Protection Elevation (two (2) feet higher than the Base Flood Elevation).
2. New or replacement water supply systems and sanitary sewage systems that are designed, constructed, and located to minimize or eliminate infiltration of flood waters into the system, and on-site waste disposal systems that are designed to minimize or eliminate discharges from the systems into flood waters, and that are located to avoid impairment to them, or contamination from them, during flooding.
3. All utility facilities, mechanical equipment, all on-site sanitary facilities for residential uses, and all sanitary facilities for non-residential uses, that are elevated or flood-proofed up to at least the Regulatory Flood Protection Elevation (two (2) feet higher than the Base Flood Elevation).
4. A design (or modification) and adequate anchoring to prevent flotation, collapse, or lateral movement of structures resulting from hydrodynamic and hydrostatic loads, including the effects of buoyancy.
5. Construction on a foundation that meets one or more of the following requirements:
  - a. The lowest floor, including basement of the building or building addition shall be no lower than the Regulatory Flood Protection Elevation (two (2) feet higher than the Base Flood Elevation);
  - b. When fill is used for the building pad, it shall be placed in layers no greater than one (1) foot deep before compacting and should extend beyond the foundation walls at a slope no greater than 3:1. When fill is used, the top layer shall be above the Base Flood Elevation;
  - c. No fill shall be placed within ten (10) feet of the property line. The prohibition of fill within ten (10) feet of a property line may be waived upon approval by the Zoning Administrator of a structural or civil engineer's verification that an alternative method will protect the building from damage due to erosion, scour, and other hydrological forces; and
  - d. Fill shall not adversely affect the flow or surface drainage from or onto neighboring properties.

D. Compensatory Storage Required for Earthwork Involving Fill.

Fill within the Area of Special Flood Hazard or the Area of Future Conditions Flood Hazard shall result in no net loss of the existing floodplain storage and shall comply with, among other things, Section 7 (B)(3) of these Regulations. Therefore, the volume of the loss of floodwater storage

due to filling in the Area of Special Flood Hazard or in the Future Conditions Flood Hazard Area shall be off-set by providing an equal volume of flood storage by excavation or other compensatory measures at or adjacent to the development site.

This compensatory storage requirement does not apply to temporary structures (such as above ground swimming pools) with a ground footprint no larger than five hundred (500) square feet where such projects are located on 2-acre or smaller lots with existing buildings and where the site does not have sufficient space to provide compensatory storage.

- E. All new subdivision proposals and other proposed new Development, including manufactured home parks or subdivisions, shall:
  - 1. Be reviewed to determine whether such proposals will be reasonably safe from flooding;
  - 2. Be consistent with the need to minimize flood damage within the flood prone area;
  - 3. Have public utilities and facilities such as sewer, gas, electrical and water systems designed, constructed, and located to minimize or eliminate flood damage;
  - 4. Have adequate drainage provided to reduce exposure to flood hazards; and
  - 5. Include Base Flood Elevation data and delineate the boundary of the flood plain if more than 50 lots would be created or if greater than 5 acres would be involved in the subdivision or Development.
- F. Storage of Materials or Equipment: The storage or processing of materials or equipment that are in time of flooding buoyant, flammable, explosive, or could be injurious to human, animal or plant life, is prohibited.

The storage of other materials or equipment shall be allowed if not subject to major damage by floods, and if firmly anchored to prevent flotation, or if the stored items would be readily removable from the area within the time available after a flood warning.

**Section 7. FLOODWAY FRINGE OVERLAY DISTRICT (FF), INCLUDING THE A ZONE, AE ZONE, AH ZONE, AO ZONE, A99 ZONE, AND IN THE AREA OF SPECIAL FLOOD HAZARD, AND FOR THE FUTURE BASE FLOOD OVERLAY DISTRICT (FBF), INCLUDING THE ZONE X (FUTURE BASE FLOOD ZONE) IN THE AREA OF FUTURE CONDITIONS FLOOD HAZARD:**

- A. Permitted Uses: Any use permitted in Section 8 of this Article may also be permitted in the Floodway Fringe Overlay District or the Future Base Flood Overlay District. No use shall be permitted in the Floodway Fringe Overlay District or the Future Base Flood Overlay District unless the standards of Section 6 of this Article are met, in addition to the standards of Subsection 7 (B) of this Article.
- B. Standards for the Floodway Fringe Overlay District and the Future Base Flood Overlay District:
  - 1. Residential Construction: New Construction, Substantial Improvement, or other Development of any residential structure shall have the lowest floor, including basement, and attendant utility facilities and mechanical equipment elevated to at least the Regulatory Flood Protection Elevation (two (2) feet higher than the Base Flood Elevation). A land surveyor licensed in the State of Kansas or a registered professional engineer licensed in the State of Kansas shall verify that the standards of this Subsection are satisfied.

2. Non-residential: New Construction, Substantial Improvement, or other Development of any commercial, industrial or other non-residential structure shall: a.) have the lowest floor, including basement, elevated to at least the Regulatory Flood Protection Elevation (two (2) feet higher than the Base Flood Elevation), or b.) together with attendant utility facilities, and mechanical equipment, be completely flood-proofed so that from the Regulatory Flood Protection Elevation (two (2) feet higher than the Base Flood Elevation) on down, the structure is watertight with walls substantially impermeable to the passage of water and with structural components having the capability of resisting hydrostatic and hydrodynamic loads and effects of buoyancy. Where a non-residential structure is intended to be made watertight below the Base Flood Elevation, a registered professional engineer or architect licensed in the State of Kansas shall develop the structural design, specifications, and plans for the construction, and verify that the design and methods of construction are in accordance with accepted standards of practice for complying with the watertight requirements and complying with the hydrostatic, hydrodynamic and buoyancy resistance capability requirements of this Subsection. Such verification shall be provided to the Zoning Administrator as set forth in Subsection 4 (D)(8) of this Article, and a record of such verifications, which include the specific elevation (in relation to mean sea level) to which such structures are flood-proofed, shall be kept by the Zoning Administrator. The elevation of the lowest floor shall be verified by a land surveyor licensed in the State of Kansas or a registered professional engineer licensed in the State of Kansas.
  
3. All encroachments from New Construction, Substantial Improvement, or other Development, including fill, are prohibited in the Floodway Fringe Overlay District and in the Future Base Flood Overlay District, unless hydrologic and hydraulic engineering analyses are performed in accordance with standard civil engineering practices and standards of care, and:
  - a. The analyses verify that the encroachments shall:
    - (i) not result in any increase in the Base Flood Elevation; and
    - (ii) not result in any restriction of the Base Flood discharge, off of the property where the New Construction, Substantial Improvement, or other Development, including fill, occurs; or
  - b. The analyses verify that:
    - (i) any encroachment that increases the Base Flood Elevation, or restricts the Base Flood discharge, would meet the current FEMA minimum requirements; and
    - (ii) the owners of all property affected by any:
      - (a) increase in the Base Flood Elevation; or
      - (b) restriction in the Base Flood discharge;

shall provide, in writing, their notarized consent to, and approval of, the above specific effects that will occur on their property.

The above requirements shall be provided by a registered professional engineer, who is licensed in the State of Kansas, and the verification shall be subject to approval by the Zoning Administrator. Where applicable, the notarized written consent and approval of the affected

owners shall be filed contemporaneously with the submittal of the engineer's analysis verification.

4. Hydrostatic Force Resistance Measures: All New Construction, Substantial Improvement, or other Development with 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 at or below elevations subject to flooding shall be limited to 400 square feet and shall be designed to automatically equalize hydrostatic flood forces on exterior walls by allowing for the entry and exit of floodwaters. Designs for meeting this requirement must either be verified by a registered professional engineer or architect licensed in the State of Kansas, or must meet or exceed the following minimum criteria:
  - a. A minimum of two (2) openings on different sides of the structure, with one being located on the upstream side of the structure, if possible, and having a total net area of not less than one (1) square inch for every square foot of enclosed area that is subject to flooding, shall be provided;
  - b. The bottom of all openings shall be no higher than one (1) foot above grade. Openings may be equipped with screens, louvers, valves, or other coverings or devices provided that they must open freely without human interventions and permit the automatic entry and exit of floodwaters;
  - c. The area below the Base Flood Elevation must be unfinished and constructed of flood-resistant materials as the same are defined by FEMA. Sheetrock or drywall used for fire protection is permitted in unfinished areas;
  - d. All ductwork, heating, ventilation, and air conditioning systems, electrical and hot water heaters included as part of the structure must be elevated a minimum of 2 feet above the Base Flood Elevation;
  - e. All of the above required features must be shown on the plans submitted for the Floodplain Development Permit and the Building Permit; and
  - f. An Elevation Certificate must document the venting features included in a structure and be filed with the Zoning Administrator before the structure is occupied.
5. Manufactured Homes:
  - a. All manufactured homes that are placed or substantially improved within all unnumbered and numbered A Zone, AE, and AH Zone areas of the Floodway Fringe Overlay District and in the Zone X (Future Base Flood) Zone of the Future Base Flood Overlay District shall be required to be installed using methods and practices that minimize flood damage. For the purposes of this requirement, manufactured homes must be elevated and anchored to resist flotation, collapse, or lateral movement. Methods of anchoring may include, but are not limited to, the use of over-the-top or frame ties to ground anchors. This requirement is in addition to all applicable state and local anchoring requirements for resisting wind forces. In the event that over-the-top or frame ties to ground anchors are used, the following specific requirements, or their equivalent as determined by the Johnson County Building Codes Official, must be met:
    - 1). Over-the-top ties shall be provided at each of the four corners of the manufactured home, with two additional ties per side at intermediate locations on manufactured

homes fifty (50) feet long or longer, and manufactured homes less than fifty (50) feet long shall require one additional tie per side;

- 2). Frame ties shall be provided at each corner of the manufactured home with five additional ties per side at intermediate locations on manufactured homes fifty (50) feet long or longer, and manufactured homes less than 50 feet long shall require four additional ties per side;
  - 3). All components of the anchoring system shall be capable of carrying a force of 4,800 pounds as determined in writing by a professional engineer licensed in the State of Kansas; and
  - 4). Any additions to the manufactured home shall be similarly anchored.
- b. All manufactured homes that are placed or substantially improved within unnumbered and numbered A Zones, AE Zone or AH Zone in the Floodway Fringe Overlay District or within the Zone X (Future Base Flood) Zone of the Future Base Flood Overlay District on sites:
- 1). Outside of a manufactured home park or subdivision;
  - 2). In a new manufactured home park or subdivision;
  - 3). In an expansion to an existing manufactured home park or subdivision; or
  - 4). In an existing manufactured home park or subdivision on which a manufactured home has incurred "Substantial Damage" as a result of a flood;

shall be elevated on a permanent foundation such that the lowest floor of the manufactured home is at or above a level which is two (2) feet higher than the Base Flood Elevation; and such manufactured homes shall be securely anchored to an adequately anchored foundation system to resist floatation, collapse, and lateral movement in accordance with the Building Code and in accordance with the provisions of Section 7 (B)(5)(a) above. The elevation of the lowest floor shall be verified by a land surveyor licensed in the State of Kansas or a registered professional engineer licensed in the State of Kansas.

- c. All manufactured homes that are placed or substantially improved on sites in an existing manufactured home park or subdivision within all unnumbered and numbered A Zones, AE, and AH Zones and within the Zone X (Future Base Flood) Zone on the Johnson County Flood Insurance Rate Map (FIRM) that are not subject to the provisions of Section 7 (B)(5)(b) above, shall be elevated so that either:
- 1). The lowest floor of the manufactured home is at or above a level which is two (2) feet higher than the Base Flood Elevation, or
  - 2). The manufactured home chassis is supported by reinforced piers or other foundation elements of at least equal strength that are no less than thirty-six (36) inches in height above the grade and is securely anchored to an adequately anchored foundation system to resist floatation, collapse, and lateral movement in accordance with the provisions of Section 7 (B)(5)(a) above. The elevation of the lowest floor shall be certified by a land surveyor licensed in the State of Kansas or a registered professional engineer licensed in the State of Kansas.

6. Recreational Vehicles: Recreational vehicles placed on sites within numbered and unnumbered A Zone, AE Zone, AH Zone, AO Zone, and Zone X (Future Base Flood) Zone on the Johnson County Flood Insurance Rate Map (FIRM) shall either (i) be on the site for fewer than 180 consecutive days, (ii) be fully licensed and ready for highway use\*, or (iii) meet the requirements for a Flood Plain Development Permit and the elevation and anchoring requirements for “manufactured homes” in Section 7 (B)(5) of this Article.

[\*For purposes of this provision, a recreational vehicle is ready for highway use if it is on its wheels or temporary jacking system, is attached to the site only by quick-disconnect type utilities and security devices, and has no permanently attached additions.]

7. Special Standards for Areas of Shallow Flooding (AH Zone and AO Zone): Located within the Area of Special Flood Hazard and Area of Future Conditions Flood Hazard established in Section 3 (B) of this Article, are areas designated as Areas of Shallow Flooding. These areas have special flood hazards associated with Base Flood depths of one (1) to three (3) feet where a clearly defined channel does not exist and where the path of flooding is unpredictable and indeterminate; therefore, the following provisions (a through d) shall apply to Areas of Shallow Flooding in lieu of Sections 7 (B)(1) and (2) above, however, all other provisions of Section 7 of this Article shall remain applicable to Areas of Shallow Flooding.
  - a. In AO Zones, all New Construction, Substantial Improvement, or other Development of any residential structure, including manufactured homes, shall have the lowest floor, including basement and attendant utility facilities and mechanical equipment, elevated above the highest adjacent grade, to at least two (2) feet higher than the depth number specified in feet on the Johnson County Flood Insurance Rate Map (FIRM) or at least two (2) feet higher than the highest adjacent grade if no depth number is specified on the Johnson County Flood Insurance Rate Map (FIRM).
  - b. In AO Zones, all New Construction, Substantial Improvement, or other Development of any non-residential structure shall:
    - 1). Have the lowest floor, including basement and attendant utility facilities and mechanical equipment, elevated above the highest adjacent grade to at least two (2) feet higher than the depth number specified in feet on the Johnson County Flood Insurance Rate Map (FIRM), or at least two (2) feet higher than the highest adjacent grade if no depth number is specified on the Johnson County Flood Insurance Rate Map (FIRM); or
    - 2). Together with attendant utility facilities, mechanical equipment, and sanitary facilities, be completely flood-proofed to at least two (2) feet higher than the depth number specified in feet on the Johnson County Flood Insurance Rate Map (FIRM) so that any space below that level is watertight with walls substantially impermeable to the passage of water and with structural components having the capability of resisting hydrostatic and hydrodynamic loads and the effects of buoyancy. Where a non-residential structure is intended to be made watertight to at least two (2) feet higher than the depth number specified in feet on the Johnson County Flood Insurance Rate Map (FIRM), a registered professional engineer or architect licensed in the State of Kansas shall develop the structural design, specifications, and plans for the construction, and verify that the design and methods of construction are in accordance with accepted standards of practice for complying with the watertight requirements and complying with the hydrostatic, hydrodynamic and buoyancy resistance capability requirements of this Subsection. Such verification shall be

provided to the Zoning Administrator as set forth in Subsection 4 (D)(8) of this Article, and a record of such verifications, which includes the specific elevation (in relation to mean sea level) to which such structures are flood-proofed, shall be kept by the Zoning Administrator. The elevation of the lowest floor shall be verified by a land surveyor licensed in the State of Kansas or a registered professional engineer licensed in the State of Kansas.

- c. In AH Zones, the specific standards for the Area of Special Flood Hazard where Base Flood Elevations have been provided are required to be met as set forth in Section 7 (B)(1 through 6) of this Article.
- d. Drainage Around Structures: Within AH and AO zones, adequate drainage paths shall be provided around both residential and non-residential structures on slopes in order to guide floodwaters around and away from structures.

**Section 8. FLOODWAY OVERLAY DISTRICT (FW) INCLUDING FLOODWAY AREAS IN THE AE ZONE:**

A. Requirements and Restrictions:

- 1. Located within the Area of Special Flood Hazard are areas designated as Floodways. The Floodways are extremely hazardous areas due to the velocity of floodwaters that carry debris and potential projectiles and that cause a high potential for erosion. This Section establishes certain requirements and restrictions for Floodway areas. Only uses that have a low-potential for flood damage, that do not result in any increase in the Base Flood Elevation, and that do not obstruct the Base Flood discharge may be permitted within the Floodway Overlay District, provided, however, that they are not prohibited by any other governmental regulation.
- 2. All Floodway encroachments from New Construction, Substantial Improvement, or other Development, including fill, are prohibited in the Floodway Overlay District unless hydrologic and hydraulic engineering analyses, performed in accordance with standard civil engineering practices and standards of care, verify that the encroachments shall not result in any increase in flood levels nor result in any restriction of the Base Flood discharge and said verification is approved by the Zoning Administrator. Verification that this “no rise” requirement would be met shall be provided by a registered professional engineer who is licensed in the State of Kansas. But, in any event, no use shall be allowed that will increase the flood levels of the Base Flood Elevation.
- 3. New Construction, Substantial Improvement, or other Development in the Floodway Overlay District shall also be subject to the standards of Sections 6 and 7 of this Article. The County has selected and adopted, by the adoption of the Johnson County Flood Insurance Rate Map (FIRM) and the Flood Insurance Study (FIS), a Regulatory Floodway based on the principle that the area chosen for the Regulatory Floodway must be designed to carry the waters of the Base Flood without increasing the water surface elevation of that flood more than one (1) foot at any point.

B. Permitted Uses: The following uses, therefore, may be appropriate for the Floodway Overlay District provided that the uses are also allowed by the underlying zoning district:

- 1. Agricultural uses such as general farming, pasture, outdoor plant nurseries, forestry, wildlife sanctuary, nature preserve, game farm, and other similar agricultural, wildlife and related uses which do not involve new structures which would cause any rise in the Base Flood Elevation and which would not comply fully with these regulations.



