

PLANNING COMMISSION REPORT
Regular Agenda -- Public Hearing Item

PC Staff Report
07/22/15

ITEM NO. 8A TEXT AMENDMENT FOR FLOODPLAIN OVERLAY DISTRICT MAPS (AAM)

TA-15-00253: Consider a Text Amendment to the Land Development Code, Chapter 20, Article 12 of the Code of The City of Lawrence, KS to reference 2015 effective dates for new Floodplain Overlay District Maps and related regulation changes. *Initiated by Planning Commission on 6/22/15.*

RECOMMENDATION: Staff recommends approval of the revised text for Article 12 and forwarding of the proposed text amendments to Chapter 20, Article 12 to the City Commission for approval and adoption.

Reason for Request: The Planning Commission initiated this amendment on June 22, 2015 as a result of the Risk Mapping, Assessment and Planning (Risk MAP) program undertaken by the Federal Emergency Management Administration (FEMA) by which new floodplain maps will be produced for Douglas County. The effective date for those maps needs to be reflected in the Development Code in order to comply with the State of Kansas model floodplain ordinance. In undertaking a review of the floodplain ordinance, staff has identified other changes that are necessary to avoid the issuance of multiple variances, and to comply with the National Flood Insurance Program (NFIP) requirements.

RELEVANT GOLDEN FACTOR:

- Conformance with the Comprehensive Land Use Plan is the relevant factor that applies to this request. Adoption of new regulatory tools, one of which is zoning regulations, is an implementation step in Chapter 17 of *Horizon 2020*, the City/County Comprehensive Land Use Plan.

PUBLIC COMMENT RECEIVED PRIOR TO PRINTING

- No written comments received to date.
- Staff has conferred with State Division of Water Resources floodplain program administrators regarding the proposed changes and is awaiting final approval on the ordinance changes from NFIP.

OVERVIEW OF PROPOSED AMENDMENT

The Federal Emergency Management Agency (FEMA) recently completed a re-evaluation of flood hazards for certain streams in Douglas County through the Risk Mapping, Assessment and Planning (Risk MAP) program. Staff has received the preliminary maps and has reviewed them. As part of the issuance of new Flood Insurance Rate Maps (FIRMs), staff has placed the new maps on the website for the public to view (http://www.lawrenceks.org/city_maps), and will be conducting outreach activities within the community to raise awareness about the new flood hazard maps.

FEMA requires each community to amend their floodplain regulations to include the new effective date of the FIRM maps, which will be September 2, 2015. Sections 1201(a)(3)(i), 20-1201(b)(1),

and 20-1201(c)(1) need to be changed to reflect the new effective date.

In addition, staff has identified that regulations related to fill in the floodplain need to be amended. Sections 20-1204 (e)(1)(i) and 20-1204 (e)(2)(ii) currently state that no fill can be placed in the setback areas, and for residential lots, regulate maximum slope of the fill and regulate in further detail the placement of that fill. The fill standards were originally recommended by the Stormwater Engineer in 2001 to address placement of large amounts of fill over entire lots in already developed areas. Over the past few years, staff has identified that this regulation is not feasible for some development, primarily new developments, where filling of an entire site across lot lines before development begins is in the best interest of the community and creates a better overall grading plan. Staff has processed six (6) variances through the Board of Zoning Appeals (BZA) in the last five years related to these code sections and in all cases staff recommended approval of the variances and the BZA approved those variances. This regulation is part of our local ordinance and is not a requirement of the State of Kansas or the NFIP. Therefore, staff is recommending a change to these sections whereby the project can either comply with the existing standards related to fill, or have a grading plan approved by the Stormwater Engineer. In processing the variances in the last few years, staff has relied on the expertise of the Stormwater Engineer to approve grading plans that deviate from the regulations.

Staff has also identified a change related to the threshold for when a project is required to comply with the floodplain regulations. Currently, the code requires compliance with the floodplain regulations when a project involves new construction or is a substantial improvement. Substantial Improvement is defined as “means any reconstruction, rehabilitation, addition, or other improvement of a structure, the cost of which equals or exceeds fifty percent (50%) of the market value of the structure before start of construction of the improvement.” Staff is recommending that this section of the code be amending to also include Cumulative Improvement, defined as “any reconstruction, rehabilitation, addition, or other improvement of a structure, the cost of which exceeds fifty-percent (50%) of the of the market value of the structure over the course of the last five calendar years.” The idea behind substantial and cumulative improvement is if a property owner is improving a property, then a threshold should be established for when a portion of the financial commitment for those improvements should go towards decreasing the flood risk to the property, which will in turn reduce flood insurance costs and the potential payout should there be flood damage. Staff has identified that a loophole exists in the current code, whereby a property owner can apply for multiple permits over time, in order to improve a property without triggering substantial improvement, which currently only applies to each building permit. Cumulative improvement would track those improvements for five years. In addition to closing the loophole, the addition of cumulative improvement is considered a higher regulatory standard. Adoption of this standard improves the overall rating in the city’s participation in the Community Rating System (CRS) program, which allows property owners to receive a discount on their flood insurance premiums.

Staff has also made some very minor modifications that have been recommended by DWR in order to further comply with NFIP regulations. These changes are not substantive in nature, but are mostly alternate wording choices or duplication of regulations that existed elsewhere in the floodplain regulations. In summary, language was added to further clarify that HVAC and mechanical equipment needs to be elevated; language was added to the purpose statement to clarify that development should be reasonably safe from flooding; language was added to the purpose statement to clarify that the carrying capacity should not be altered for watercourse modifications; three definitions were added (floodplain variance, expansion to an existing mobile home park or subdivision, and new mobile home park or subdivision); added a standard related to un-numbered A zones stating that until a floodway is designated no encroachments may increase the base flood

more than one foot; and language was added to reference two Kansas Statutes as required by DWR and NFIP.

A full copy of Article 12, listing the proposed changes is attached to this staff report. Text to be deleted is shown with ~~strikeout~~ and proposed text is shown in underlined font.

The following is a summary listing of the proposed changes:

- 1) FIRM effective date changed to September 2, 2015.
- 2) Addition of an alternative to compliance with fill standards with a grading plan approved by the Stormwater Engineer.
- 3) Addition of Cumulative Improvement to threshold for compliance with elevation, floodproofing, and impervious surface coverage regulations.
- 4) Minor modifications to comply with NFIP and DWR regulations.

Prior to adoption, this proposed language will need to be officially reviewed by the Kansas Department of Agriculture, Division of Water Resources (DWR) to ensure compliance with the City's participation in the National Flood Insurance Program (NFIP), including alignment with the current State Model Floodplain Ordinance. Staff has sent the proposed ordinance to DWR and it is currently under review.

Staff has also identified a change for future consideration regarding the location of critical facilities in the floodplain. Critical facilities are facilities that store or use hazardous materials; housing units likely to have occupants that cannot readily evacuate; public safety facilities that are needed in the event of a flood disaster; and utility and public works operations. Examples include, but are not limited to police stations, fire stations, hospitals and public works operation sites. In recent years, a federal executive order was issued that does not allow the use of federal money to repair or develop critical facilities in the 100-year or 500-year floodplain. Staff is still researching this potential change and therefore is not including it in this text amendment.

CRITERIA FOR REVIEW & DECISION-MAKING

Section 20-1302(f) provides review and decision-making criteria on proposed text amendments. It states that review bodies shall consider at least the following factors:

- 1) Whether the proposed text amendment corrects an error or inconsistency in the Development Code or meets the challenge of a changing condition.**

Staff Response: The proposed amendment addresses a change to reflect the issuance of new Federal Insurance Rate Maps by FEMA for Douglas County; a change to add cumulative improvement to close a loophole that exists; a change to address fill standards that have not been practical; and minor changes to comply with DWR and NFIP standards. These changes correct inconsistencies and address changing conditions as outlined above.

- 2) Whether the proposed text amendment is consistent with the Comprehensive Plan and the stated purpose of this Development Code (Sec. 20-104).**

Staff Response: The comprehensive plan does not specifically address the amendment. The amendment helps to carry out the plan's goal of using zoning standards to create compatible neighborhoods and efficient development processes.

ARTICLE 12. FLOODPLAIN MANAGEMENT REGULATIONS

- 20-1201 General**
- 20-1202 Application**
- 20-1203 Administration**
- 20-1204 Provisions for Flood Hazard Reduction**
- 20-1205 Definitions**

20-1201 GENERAL**(a) Findings of Fact**

- (1)** The **Areas of Special Flood Hazard** of Lawrence, Kansas, are subject to inundation which results in loss of life and property, health and safety hazards, disruption of commerce and governmental services, extraordinary public expenditures for **Flood** protection and relief, and impairment of the tax base; all of which adversely affect the public health, safety, and general welfare.
- (2) These Flood losses are caused by:**
 - (i)** the cumulative effect of **Development** in any delineated **Floodplain** causing increases in **Flood** Heights and velocities;
 - (ii)** urbanization of upstream areas, resulting in increased Impervious Surface and increased stormwater runoff;
 - (iii)** the occupancy of **Flood** hazard areas by uses vulnerable to Floods, hazardous to others, inadequately elevated, or otherwise unprotected from **Flood** damages; and
 - (iv)** the modification of the **Floodplain** by grading or filling.
- (3)** The **Flood Insurance Study (FIS)** that is the basis of the National **Flood** Insurance Program uses a standard engineering method of analyzing **Flood** hazards, which consists of a series of interrelated steps:
 - (i)** Selection of a **Base Flood** that is based upon engineering calculations, which permit a consideration of such **Flood** factors at its expected frequency of occurrence, the area inundated, and the depth of inundation. The **Base Flood** selected for this Article is representative of large Floods, which are characteristic of what can be expected to occur on the particular streams subject to this Article. It is in the general order of a **Flood** which could be expected to have a one percent (1%) chance of occurrence in any one year as delineated in the Federal Insurance Administrator's **FIS**, and illustrative materials dated ~~August 5, 2010~~ September 2, 2015, as amended, and any future revisions thereto;
 - (ii)** Calculation of water surface profiles are based on a standard hydraulic engineering analysis of the capacity of the stream channel and overbank areas to convey the **Regulatory Flood**;

- (iii) Computation of a **Floodway** required to convey this **Flood** without increasing **Flood** Heights more than one (1) foot at any point;
- (iv) Delineation of **Floodway Encroachment Lines** within which no **Development** is permitted that would cause any increase in **Flood** Height; and
- (v) Delineation of **Floodway Fringe**, i.e., that area outside the **Floodway Encroachment Lines**, but still subject to inundation by the **Base Flood**.

(b) Floodplain Overlay District – Property within the City Limits on 03/01/03

- (1) The **Floodplain Overlay District** boundaries for properties within the city's corporate limits as of March 1, 2003 shall be consistent with the **Base Flood Elevations** and **Floodplain** widths identified by the **FIS** and **Flood Insurance Rate Map (FIRM)** for "Douglas County Kansas and Incorporated Areas dated ~~August 5, 2010~~ September 2, 2015".

(c) Floodplain Overlay District – Property Annexed into the City after 03/01/03

- (1) The **Base Flood Elevations** and **Floodplain** widths identified by the **FIS** and **Flood Insurance Rate Map (FIRM)** for "Douglas County, Kansas, and Incorporated Areas dated ~~August 5, 2010~~ September 2, 2015," may increase over time as a result of additional watershed **Development**; therefore the City has identified the **Floodplain (FP) Overlay District** for property annexed into the city's corporate limits after March 1, 2003, as the area that includes:
 - (i) All **Zones A** on the current **FIRM**;
 - (ii) All **Zones AE** and **AH** on the current **FIRM** and all adjacent areas inundated by a **Flood** having an elevation of the **FIS Base Flood Elevation** plus an additional two feet of **Freeboard**. If an approved **Hydrologic and Hydraulic Study** has been completed, the boundary information provided in that study will be utilized to amend the **Floodplain Overlay District** boundaries;
 - (iii) All **Zones AO** on the current **FIRM** and all adjacent areas inundated by a **Flood** having an elevation of the **FIS** average depth of **Flooding** plus an additional two feet of **Freeboard**. If an approved **Hydrologic and Hydraulic Study** has been completed, the boundary information provided in that study will be utilized to amend the **Floodplain Overlay District** boundaries; and
 - (iv) All stream tributaries having a drainage area of 240 acres or more regardless of the limits of the **FIS**. Upstream of the limits of the **FIS**, the width of the **Floodplain Overlay District** shall be determined by the City using recognized engineering practices.
- (2) The **Floodplain Overlay District** will be shown and identified on the Official Zoning Map of the City of Lawrence.

(d) Floodway

Floodways are located within the **Floodplain Overlay District** established in Section 20-1201 and Section 20-1201(e) as designated on the **FIRM**. Since the **Floodway** is an extremely hazardous area due to the velocity of floodwaters that carry debris and potential projectiles, the City hereby adopts a **Regulatory Floodway** based on the principle that the area identified 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.

(1) The **Regulatory Floodway includes:**

- (i) **Floodway** areas shown within **Zone AE** on the current **FIRM** or as modified by a Letter of Map Revision (LOMR); and**
- (ii) **Floodway** areas outside **Zone AE** as defined by an approved **Hydrologic and Hydraulic Study**.**

(e) Statement of Purpose

It is the purpose of this Article to promote the public health, safety, and general welfare; to minimize those losses described in Section 20-1201(a)(2); to establish or maintain the **Community's** eligibility for participation in the National **Flood** Insurance Program (NFIP) as defined in 44 Code of Federal Regulations (CFR) 512.22 (a) (3); and to meet the requirements of 44 CFR 60.3(d), K.S.A. 12-741, K.S.A. 12-766 and K.A.R. 5-44-4 by applying the provisions of this Article to:

(1) Restrict or prohibit uses that are dangerous to health, safety, or property in times of **Flooding** or cause undue increases in **Flood** Heights or velocities;

~~**(4)(2)**~~ Ensure that development is reasonably safe from flooding;

~~**(2)(3)**~~ Require uses vulnerable to Floods, including public facilities that serve such uses, to be provided with **Flood** protection at the time of initial construction;

~~**(3)(4)**~~ Protect individuals from unknowingly buying land that is unsuited for the intended **Development** purposes due to the potential **Flood** hazard;

~~**(4)(5)**~~ Protect individuals from unknowingly buying or leasing property that is prone to **Flooding**;

~~**(5)(6)**~~ With the exception of certain previously platted properties, allow **Development** in the **Floodplain** only when the **Development** will not increase the **Base Flood Elevation** or **Flood** velocities; and

(7) Promote conservation and restoration of natural vegetation in riparian areas;

~~**(6)(8)**~~ Maintain the carrying capacity of altered or relocated watercourses.

20-1202 APPLICATION**(a) Lands to Which the Ordinance Applies**

This Article shall apply to all lands within the [Floodplain Overlay District](#).

(b) Compliance

No [Development](#) shall be located, extended, converted, or structurally altered within the [Floodplain Overlay District](#) without full compliance with the terms of this Article and all other applicable regulations.

(c) Abrogation and Greater Restrictions

It is not intended by this Article to repeal, abrogate, or impair any existing Easements, covenants, or deed restrictions. However, where this Article imposes greater restrictions, the provisions of this Article shall prevail. All other Articles inconsistent with this Article are hereby repealed to the extent of the inconsistency only.

(d) Interpretation

In their interpretation and application, the provisions of this Article shall be held to be minimum requirements, shall be liberally construed in favor of the City Commission, and shall not be deemed a limitation or repeal of any other powers granted by Kansas Statutes.

(e) Warning and Disclaimer of Liability

The degree of [Flood](#) protection required by this Article is considered reasonable for regulatory purposes and is based on engineering and scientific methods of study. Larger Floods may occur on rare occasions or the [Flood](#) Heights may be increased by man-made or natural causes, such as ice jams and bridge openings restricted by debris. This Article does not imply that areas outside the [Floodplain Overlay District](#), [Floodway](#) and [Floodway Fringe](#) or land uses permitted within such areas will be free from [Flooding](#) or [Flood](#) damage. This ordinance shall not create a liability on the part of the City of Lawrence, Kansas, or any officer or employee thereof, for any [Flood](#) damages that may result from reliance on this Article or any administrative decision lawfully made thereunder.

(f) Severability

If any section, clause, provision, or portion of this Article is adjudged unconstitutional or invalid by a court of appropriate jurisdiction, the remainder of this Article shall not be affected thereby.

20-1203 ADMINISTRATION**(a) Floodplain Development Permit**

A Floodplain Development permit shall be required for all proposed construction or other Development, including the placement of Mobile Homes, in the Floodplain Overlay District. No Person, FIRM, corporation, or unit of government shall initiate any Development or Substantial Improvement ~~or Cumulative Improvement~~ or cause the same to be done without first obtaining a separate Floodplain Development permit for each Structure or other Development.

(b) Designation of Floodplain Administrator

The Director of Planning is hereby appointed as the Floodplain Administrator to administer and implement the provisions of this article.

(c) Duties and Responsibilities of Floodplain Administrator

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

- (1) Review of all applications for Floodplain Development permits to assure that the requirements of this Article have been satisfied;
- (2) When an application for a Floodplain Development permit requires the submittal of a Hydrologic and Hydraulic Study, coordinate the review and approval of the study by the City Stormwater Engineer to assure that the requirements of this Article have been satisfied;
- (3) Issue Floodplain Development permits for all approved applications;
- (4) Notify adjacent communities, impacted Drainage Districts, and the Division of Water Resources, Kansas Department of Agriculture, prior to any alteration or relocation of a watercourse, and submit evidence of such notification to the Federal Emergency Management Agency (FEMA);
- (5) Verify through an "Elevation Certificate" and maintain a record of the actual elevation (in relation to Mean Sea Level) of the Lowest Floor, of all new, ~~or~~ substantially improved ~~or cumulatively improved~~ residential Structures;
- (6) Verify through an "Elevation Certificate" the actual elevation (in relation to Mean Sea Level) that the new, ~~or~~ substantially improved ~~or cumulatively improved~~ non-residential Structures have been Floodproofed;
- (7) Maintain a record of the actual elevation (in relation to Mean Sea Level) that the new, ~~or~~ substantially improved ~~or cumulatively improved~~ non-residential Structures have been Flood-proofed; and

- (8) When Floodproofing techniques are utilized for a particular non-residential Structure, the Floodplain Administrator shall require certification from a registered professional engineer or architect.

(d) Floodplain Development Permit

- (1) To obtain a Floodplain Development permit, the applicant shall first file an application in writing, on a form furnished for that purpose, with the Floodplain Administrator. Every Floodplain Development permit application shall:
- (i) When required pursuant to Section 20-1204, provide two copies of the Hydrologic and Hydraulic Study for the proposed Development;
 - (ii) Identify the Base Flood Elevation;
 - a. When required pursuant to Section 20-1204 identify the Water Surface Elevation of the Base Flood as determined by both the Flood Insurance Study and the Hydrologic and Hydraulic Study. The higher of these elevations shall be the Base Flood Elevation for compliance with the provisions of this article; or,
 - b. When a Hydrologic and Hydraulic Study is not required, identify the Water Surface Elevation of the Base Flood as determined by the Flood Insurance Study.
 - c. When the Water Surface Elevation of the Base Flood is not provided by the Flood Insurance Study or an approved Hydrologic and Hydraulic Study, the applicant shall provide a signed study by a registered, professional engineer that states the Water Surface Elevation of the Base Flood for the property. Until a regulatory floodway is designated no encroachments may increase the base flood more than one foot.
 - (iii) Provide a legal description of the land on which the proposed work is to be done by Lot, Block and Tract, Street address, and description of Structures or provide a similar description that will readily identify and specifically locate the proposed Structure or work;
 - (iv) Identify and describe the work to be covered by the Floodplain Development permit;
 - (v) Provide verification that all necessary permits from Federal, State, and local government agencies have been obtained;
 - (vi) Indicate the use or occupancy for which the proposed work is intended;

- (vii) Indicate the county appraiser's assessed value of the existing [Structure\(s\)](#) and the [Market Value](#) of the improvement;
 - (viii) Specify whether [Development](#) is located in designated [Floodway Fringe](#), [Floodway](#), or an [Unmapped Floodplain Area](#);
 - (ix) Show existing contours lines and proposed contours;
 - (x) Give such other information as reasonably may be required by the [Floodplain](#) Administrator;
 - (xi) Be accompanied by scaled plans and engineering specifications for proposed construction; and
 - (xii) Be signed by the permittee or his authorized Agent who may be required to submit evidence to indicate such authority.
- (2) Before a final inspection, the [Floodplain](#) Administrator must be provided with a completed FEMA "Elevation Certificate" stating the finished construction elevation of the [Lowest Floor](#) in relation to [Mean Sea Level](#) signed by a land surveyor or professional engineer licensed by the State of Kansas.

(e) Expiration of [Floodplain Development](#) Permits

[Floodplain Development](#) permits expire 18 months from the date of issuance if a certificate of elevation has not been received. If requested, and for good cause shown, the [Floodplain](#) Administrator may grant a 6-month extension.

20-1204 PROVISIONS FOR FLOOD HAZARD REDUCTION**(a) Development of Property in the Floodplain Overlay District**

- (1) **Development** of land or subdivision of property (including Lot splits) into a **Buildable Lot(s)** within the **Floodplain Overlay District** shall be permitted only where an approved **Hydrologic and Hydraulic Study** demonstrates that there will be no rise in the **Base Flood Elevation** and no increase in **Flood** velocities at any point resulting from the proposed **Development**.
- (2) Property platted prior to December 31, 2003, may Develop and/or replat or subdivide (including Lot splits) for non-residential uses without conducting a **Hydrologic and Hydraulic Study**. Such **Development** is still subject to the remaining sections of this Article [Article 12].
- (3) **Development** of undeveloped residential property that was platted prior to December 31, 2003, may occur without conducting a **Hydrologic and Hydraulic Study** until December 31, 2008. Such **Development** is still subject to the remaining sections of this Article [Article 12]. After December 31, 2008, **Development** of the property is subject to all sections contained within this Article [Article 12].

(b) Floodway Restrictions

Any encroachment, including fill, **New Construction**, substantial improvements, or cumulative improvements or other **Development** is prohibited within the **Regulatory Floodway**, except for the following **Structures**:

- (1) **Flood** control and stormwater management **Structures**;
- (2) Road improvements and repair;
- (3) Utility Easements/Rights-of-Way; and
- (4) Public improvements or public **Structures** for bridging the **Floodway**.

(c) Hydrologic and Hydraulic Study

- (1) Hydrologic and Hydraulic Studies shall comply with the following standards:
 - (i) The study shall be signed and sealed by a professional engineer, licensed by the State of Kansas;

- (ii) The study shall be submitted for approval by the City Stormwater Engineer concurrent with the initial submittal of a [Floodplain Development](#) permit application, preliminary plat, [Development](#) plan or site plan;
 - (iii) Hydrologic and hydraulic methods of analysis shall be consistent with those used in the current [Flood Insurance Study](#) for Douglas County, and shall comply with the City "Stormwater Management Criteria";
 - (iv) The study shall extend an adequate distance upstream and downstream of the proposed [Development](#) to encompass the hydraulic effects of the proposed [Development](#);
 - (v) The study shall assume full [Development](#) of the watershed based on the current Comprehensive Land Use Plan or other reasonable assumptions of impervious cover. Full [Development](#) of the watershed shall be assumed in all calculations, for either existing conditions or proposed modifications;
 - (vi) The study shall determine the [Water Surface Elevations](#) of the [Base Flood](#) for the existing stream and for any proposed [Development](#). Based on the assumption of full watershed [Development](#) and other factors, the findings of the [Hydrologic and Hydraulic Study](#) may differ from the [Flood Insurance Study](#). At a given location, the higher [Water Surface Elevation](#) shall be the [Base Flood Elevation](#) for compliance with the provisions of this Article;
 - (vii) The study shall identify the velocities of the [Base Flood](#) for the existing stream and for any proposed [Development](#);
 - (viii) The study shall determine the areas of inundation of the [Base Flood](#) for the existing stream and for any proposed [Development](#). The area of inundation shall be dimensioned to the property corners for use in revising the [Floodplain Overlay District](#) on all property within the extent of the study; and
 - (ix) In areas outside [Zone AE](#), the study shall also identify the [Floodway](#) for the proposed [Development](#).
- (2) Once a study is approved, the City shall initiate the rezoning of any property in and around the [Floodplain Overlay District](#) to reflect the limits of [Flooding](#) determined by the study based on full [Development](#) of the watershed.
- (3) For a [Hydrologic and Hydraulic Study](#) that proposes an alteration of FEMA's designated [Floodplain](#) or [Floodway](#), a letter of map revision (LOMR) must be obtained from FEMA before a Building permit will be issued for any Lot containing a [Zone A](#), AE, AH or AO of the current [FIRM](#).

(d) Land Disturbance

Land disturbance or removal of vegetation within the [Floodplain Overlay District](#) shall be minimized to the extent possible. When excavation, grading, removal of vegetation or other modifications to the cross-sectional geometry of the [Floodplain](#)

are proposed in order to meet the requirements set forth in Section 20-1204 those modifications shall comply with the following:

- (1) Construction plans shall be prepared for the proposed modifications and shall be submitted for review and approval by the City Engineer. Design and plan preparation shall comply with the “City of Lawrence Design Guidelines and Standard Specifications” and the City “Stormwater Management Criteria”.
- (2) As approved by the City Engineer, pursuant to the “Stormwater Management Criteria”:
 - (i) Channel lining materials shall be limited to native vegetation, stabilized as necessary to prevent erosion. The use of concrete lining, pipe or other structural materials shall be minimized;
 - (ii) Within the area of inundation, all disturbed areas above the channel lining shall be restored with native vegetation, including trees, to promote wildlife habitat; and
 - (iii) Channel designs shall preserve existing low-flow channels to the extent possible.

(e) General Development Standards

The following standards apply to any and all **Development** that is proposed within the **Floodplain Overlay District**.

- (1) All **Development** shall comply with the following standards:
 - (i) Fill shall not be placed in the Setback areas except at approved Access points unless a grading plan has been approved by the Stormwater Engineer;
 - (ii) **Structures** must be designed and constructed with adequate anchorage to prevent flotation, collapse, or lateral movement of the **Structure** resulting from hydrodynamic and hydrostatic loads, including the effects of buoyancy;
 - (iii) **Structures** must be designed and constructed with materials resistant to **Flood** damage using methods and practices that minimize **Flood** damages;
 - (iv) All electrical, heating, ventilation, plumbing, air-conditioning equipment, and other service facilities must be designed and/or located to prevent water from entering or accumulating within the mechanical components during conditions of **Flooding**;
 - (v) New or replacement water supply systems and/or sanitary sewage systems must be designed to eliminate infiltration of **Flood** waters into the systems and discharges from the systems into **Flood** waters, and on-site waste disposal systems must be located so as to avoid impairment or contamination;
 - (vi) All public utilities and facilities, such as sewer, gas, electrical, and water systems must be located and constructed to eliminate **Flood** damage;

(vii) Fully enclosed areas below the **Lowest Floor** that are used solely for Parking of vehicles, Building Access, or storage in an area other than a **Basement** and that are subject to **Flooding** must be designed to automatically equalize hydrostatic **Flood** forces on exterior walls by allowing for the entry and exit of **Flood** waters. Designs for meeting this requirement must either be certified by a registered professional engineer or architect to meet or exceed the following minimum criteria:

- a. A minimum of two openings having a total net area of not less than one square inch for every square foot of enclosed area subject to **Flooding** shall be provided; and,
- b. The bottom of all openings shall be no higher than one foot above Grade. Openings may be equipped with Screens, louvers, valves, or other coverings or devices provided that they permit the automatic entry and exit of floodwaters.

(viii) Storage of Material and Equipment;

- a. The storage or processing of materials within the **Floodplain Overlay District** area that are in time of **Flooding** buoyant, flammable, explosive, or potentially injurious to human, animal, or plant life is prohibited; and
- b. Storage of other material or equipment may be allowed if not subject to major damage by Floods, if firmly anchored to prevent flotation, or if readily removable from the area within the time available after a **Flood** warning.

(2) Additional Standards for Residential Construction

(i) Proposed **New Construction, ~~—or—~~Substantial-Improvement or Cumulative Improvement** of any residential **Structures**, including **Mobile Homes** or Manufactured Homes, shall comply with the following:

- a. The **Lowest Floor, including all HVAC and mechanical equipment, ~~—~~**shall be elevated a minimum of two (2) feet above the **Base Flood Elevation**. A licensed land surveyor or licensed professional engineer shall provide written certification of the **Lowest Floor** elevation to the **Floodplain Administrator** as set out in Section 20-1203(c)(7).
- b. For the portion of a property within the **Floodplain Overlay District**, the maximum impervious surface coverage shall not exceed 30%.

(ii) Fill on individual Lots shall meet the following requirements, **unless a grading plan has been approved by the Stormwater Engineer:**

- a. No fill dirt shall be placed closer than five (5) feet to perimeter Lot Line(s) of the property;
- b. No fill dirt shall be placed greater than 20 feet from the **Structure**;

- c. Fill dirt shall be placed on a Lot so that it does not exceed a 3:1 slope; and
- d. Where additional elevation over the Height that can be achieved from a 3:1 slope is needed to meet the requirements of this Article, the additional elevation shall be met through the use of vertical walls and the construction of non-residential areas, such as garages, crawl spaces with gravel floors, or similar structurally sound designs, as part of the residential [Structure](#).

(3) Additional Standards for Non-Residential Construction

- (i) Any proposed [New Construction](#), ~~or Substantial-Improvement~~ [or Cumulative Improvement](#) of any non-residential [Structures](#) shall meet the following standards:

- a. Either of the following:

- 1. The [Lowest Floor](#), including [Basement](#), [HVAC](#), and [mechanical equipment](#), shall be elevated a minimum of one (1) foot above the [Base Flood Elevation](#). A licensed land surveyor or licensed professional engineer shall certify the elevation of the [Lowest Floor](#). Such certifications shall be provided to the [Floodplain Administrator](#) as set forth in Section 20-1203(c)(7); or
- 2. Together with attendant utility and sanitary facilities, the [Structure](#) shall be [Floodproofed](#) to at least one foot above the [Base Flood Elevation](#). The portion of the [Structure](#) below this level is to be watertight with walls substantially impermeable to the passage of water and with structural components having the capability of resisting hydrostatic and hydrodynamic loads and effects of buoyancy. A registered professional engineer or architect shall certify that the standards of this subsection are satisfied.

- b. For the portion of a property within the [Floodplain Overlay District](#), the maximum impervious surface coverage shall not exceed 60%.

(f) Duties of a Landlord

A landlord, or any [Person](#) authorized to enter a rental agreement on the landlord's behalf, of rental property that is located within the [Floodplain Overlay District](#) shall, before the signing of a lease agreement, provide the prospective tenant(s) the following information in writing:

- (1) The property is within the City's [Floodplain Overlay District](#);
- (2) There is the possibility that [Structures](#) within the [Floodplain Overlay District](#) may be inundated with water during a [Flood](#);

- (3) There is the possibility of the loss of life and/or the loss of **Personal** property as a result of a **Flood**;
- (4) Insurance against the loss of **Personal** property due to a **Flood** may be available and is typically the responsibility of the tenant to obtain; and
- (5) Such notice shall be in 12-point bold type, signed by all parties to the rental agreement, and retained by the landlord as long as the rental agreement is in full force and effect.

(g) Duties of a Seller

A seller, or any **Person** authorized to represent the seller in the sales transaction of property that is located within the **Floodplain Overlay District** shall, before the sale of the property, provide the prospective buyer(s) the following information in writing:

- (1) The property is within the City's **Floodplain Overlay District**;
- (2) There is the possibility that **Structures** within the **Floodplain Overlay District** may be inundated by water during a **Flood**;
- (3) There is the possibility of the loss of life and/or the loss of **Personal** property as a result of a **Flood**;
- (4) Insurance against the loss of **Personal** property or structural damage due to a **Flood** may be available and is typically the responsibility of the property **Owner** to obtain; and
- (5) Such notice shall be in 12-point bold type, signed by all buyers, and retained by the seller for five years following the closing of the sale.

(h) Mobile Homes or Manufactured Homes

- (1) All **Mobile Homes** or **Manufactured Homes** to be placed within the **Floodplain Overlay District** shall be required to be installed using methods and practices that minimize **Flood** damage. For the purposes of this requirement, **Mobile Homes** or **Manufactured Homes** must be elevated and anchored to resist flotation, collapse, or lateral movement. Methods of anchoring may include, but are not limited to, use of over-the-top or frame ties to ground anchors.
- (2) **Mobile Homes** or **Manufactured Homes** to be placed, ~~or~~ substantially improved or cumulatively improved on sites in an **Existing Mobile Home Park** or **Subdivision** within the **Floodplain Overlay District** must be elevated so that either:
 - (i) The **Lowest Floor** of the **Mobile Home** or **Manufactured Home** shall be a minimum of two (2) feet above the **Base Flood Elevation** and be securely attached to an adequately anchored foundation system to resist flotation, collapse, and lateral movement. A licensed land surveyor or licensed professional engineer shall certify the elevation of the **Lowest Floor**; or
 - (ii) The **Mobile Home** or **Manufactured Home** chassis is supported by reinforced piers or other foundation elements of at least equivalent strength that are no less than thirty-six (36) inches in **Height** above

Grade and be securely attached to an adequately anchored foundation system to resist flotation, collapse, and lateral movement. A licensed land surveyor or licensed professional engineer shall certify the elevation of the **Lowest Floor**.

(i) Areas of Shallow Flooding (Zones AO and AH)

The following provisions apply to areas designated as **Zone AO** and **Zone AH**:

(1) Zone AO

- (i)** All **Development** and **Substantial-Improvements or Cumulative Improvements** of residential **Structures**, including **Mobile Homes** and **Manufactured Homes**, 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 FIRM** (at least two feet if no depth number is specified);
- (ii)** All **Development** and **Substantial-Improvements or Cumulative Improvements** of any commercial, industrial, or other non-residential **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 FIRM** (at least two feet if no depth number is specified) or together with attendant utilities and sanitary facilities be completely Floodproofed so that 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; and
- (iii)** Drainage paths must be provided to adequately guide floodwaters around **Structures**.

(2) Zone AH

- (i)** The **Development** standards for all **Areas of Special Flood Hazard** where **Base Flood Elevation** has been provided shall be required as set forth in Section 20-1204; and
- (ii)** Drainage paths must be provided to adequately guide floodwaters around **Structures**.

(j) Recreational Vehicles

Recreational Vehicles placed on sites in the **Floodplain Overlay District** shall either:

- (1)** Be on the site for fewer than 180 consecutive days; or
- (2)** Be fully licensed and ready for highway use; or
- (3)** Meet the permitting, elevation, and anchoring requirements For **Mobile Homes** or **Manufactured Homes** of this Article [Article 12].

20-1205 DEFINITIONS

The following definitions are applicable to only the terms found in this article.

Term	Definition
100-year Flood	see "Base Flood"
Agency	means the Federal Emergency Management Agency (FEMA)
Appeal	means a request for review of the Floodplain Administrator's interpretation of any provision of this Article [Article 12] or a request for a variance
Areas of Special Flood Hazard	is the land in the Floodplain within a Community subject to a one percent (1%) or greater chance of Flooding in any given year
Base Flood	means the Flood having a one percent (1%) chance of being equaled or exceeded in any given year
Base Flood Elevation	means the Water Surface Elevation of the Base Flood as determined by the Flood Insurance Study or by an approved Hydrologic and Hydraulic Study, whichever is higher
Basement	means any area of the Structure having its floor sub-Grade (below ground level) on all sides
Buildable Lot	a Lot for which a Building permit can be obtained. Property that is designated as a "Tract" of land is not a Buildable Lot.
Community	means any State or area or political subdivision thereof, which has authority to adopt and enforce Floodplain Management Regulations for the areas within its jurisdiction
Cumulative Improvement	<u>Means any reconstruction, rehabilitation, addition, or other improvement of a structure, the cost of which exceeds fifty-percent (50%) of the of the Market Value of the Structure over the course of the last five calendar years. This includes Structures, which have incurred "Substantial-Damage," regardless of the actual repair work performed. The term does not, however, include either (1) any project for improvement of a Structure to correct existing violations of State or local health, sanitary, or safety code specifications that have been identified by the local code enforcement official and which are the minimum necessary to assure safe living conditions, or (2) any alteration of a "Historic Structure," provided that the alteration will not preclude the Structure's continued designation as a "Historic Structure"</u>
Development	means any human-made change to Premises, including but not limited to: (a) the erection, conversion, expansion, reconstruction, renovation, movement or Structural Alteration, or partial or total demolition of Buildings and Structures; (b) the subdivision of land; (c) changing the use of land, or Buildings or Structures on land; or (d) mining, dredging, filling, grading, paving, excavation, drilling, or Landscaping of land or bodies of water on land.
"Eligible Community" or "Participating Community"	means a Community for which the Administrator has authorized the sale of Flood insurance under the National Flood Insurance Program (NFIP)
Existing Construction	means for the purposes 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. "Existing Construction" may also be referred to as "existing Structures"
Existing Mobile Home	means a Mobile Home Park or subdivision for which the construction of facilities for servicing the

Term	Definition
Park or Subdivision	Lots on which the Mobile Homes are to be affixed (including, at a minimum, the installation of utilities, the construction of Streets, and either final site grading or the pouring of concrete pads) is completed before the Effective Date of the Floodplain Management Regulations adopted by a Community
<u>Expansion to an Existing Mobile Home Park or Subdivision</u>	<u>means the preparation of additional sites by the construction of facilities for servicing the lots on which the mobile or manufactured homes are to be affixed (including the installation of utilities, the construction of streets, and either final site grading or the pouring of concrete pads).</u>
"Flood" or "Flooding"	means a general and temporary condition of partial or complete inundation of normally dry land areas from: (1) the overflow of inland waters; (2) the unusual and rapid accumulation or runoff of surface waters from any source; and (3) the collapse or subsidence of land along the shore of a lake or other body of water as a result of erosion or undermining caused by waves or currents 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 flash Flood, or by some similarly unusual and unforeseeable event which results in Flooding as defined above in item (1)
Flood Insurance Rate Map (FIRM)	means an official map of a Community, on which the Administrator has delineated both the Special Flood Hazard Areas and the risk premium Zones Applicable to the Community
Flood Insurance Study (FIS)	means an examination, evaluation and determination of Flood hazards and, if appropriate, corresponding Water Surface Elevations
Floodplain or Regulatory Floodplain	means the land inundated by a Flood of a given magnitude as determined by the Flood Insurance Study or by an approved Hydrologic and Hydraulic Study
Floodplain Management	means the operation 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 Floodplain and grading ordinances) and other applications of police power. The term describes such State or local regulations, in any combination thereof, that provide standards for the purpose of Flood damage prevention and reduction
<u>Floodplain Variance</u>	<u>means a grant of relief by the community from the terms of a floodplain management regulation. Flood Insurance requirements remain in place for a ny varied use or structure and cannot be varied by the community.</u>
Floodproofing	means any combination of structural and nonstructural additions, changes, or adjustments to Structures that reduce or eliminate Flood damage to real estate or improved real property, water and sanitary facilities, or Structures and their contents
"Floodway" or "Regulatory Floodway"	means the channel of a river or other watercourse and the adjacent land areas that must be reserved in order to discharge the Base Flood without cumulatively increasing the Water Surface Elevation more than one foot
Floodway Encroachment Lines	means the lines marking the limits of floodways on Federal, State and local Floodplain maps
Floodway Fringe or Regulatory Floodway Fringe	means the area outside the Floodway Encroachment Lines, but still subject to inundation by the Regulatory Flood
Freeboard	means a factor of safety usually expressed in feet above a Flood level for purposes 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 bridge openings and the hydrological effect of urbanization of the watershed
Highest Adjacent Grade	means the highest natural elevation of the ground surface prior to construction next to the proposed walls of a Structure
Historic Structure	means any Structure that is: (a) listed individually in the National Register of Historic Places (a listing maintained by the Department of Interior) or preliminarily determined by the Secretary of the Interior as meeting the requirements for individual listing on the National Register; (b) certified or preliminarily determined by the Secretary of the Interior as contributing to the historical significance of a registered historic district or a district preliminarily determined by the Secretary to qualify as a registered historic district; (c) individually listed on a state inventory of historic places in states with historic preservation programs which have been approved by the Secretary of the Interior; or (d) individually listed on a local inventory of historic places / communities with historic preservation programs that have been certified with (1) by an approved state program as determined by the Secretary of the Interior or (2) directly by the Secretary of the Interior in states without approved programs.

Term	Definition
Hydrologic and Hydraulic Study	means an engineering study that is done in accordance with 20-1204(c).
Lowest Floor	means the Lowest Floor of the lowest enclosed area, including a Basement ; an unfinished or Flood-resistant enclosure, usable solely for Parking of vehicles, Building Access, or storage, in an area other than a Basement area, is not considered a Building's Lowest Floor , provided that such enclosure is not built so as to render the Structure in violation of the applicable Floodproofing design requirements of this Article.
Manufactured Home or 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 attached to the required utilities. The term " Mobile Home " or "Manufactured Home" does not include a " Recreational Vehicle ".
Manufactured Home Park or Mobile Home Park	means a Parcel (or contiguous Parcel) of land divided into two or more Manufactured Home or Mobile Home Lots for rent or sale.
Market Value	means an estimate of what is fair, economic, just and equitable value under normal local market conditions.
Mean Sea Level	means, for purposes of the National Flood Insurance Program (NFIP), 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 (FIRM) are referenced
New Construction	means, for the purposes of determining insurance rates, Structures for which the "start of construction" commenced on or after the Effective Date of an initial FIRM (March 2, 1981) or after December 31, 1974, whichever is later, and includes any subsequent improvements to such Structures . For Floodplain Management purposes, " New Construction " means Structures for which the " Start of Construction " commenced on or after the Effective Date of the Floodplain Management Regulations adopted by a Community and includes any subsequent improvements to such Structures
<u>New Mobile Home Park or Subdivision</u>	<u>means a mobile home park or subdivision for which the construction of facilities for servicing the lot on which the manufactured or mobile homes are to be affixed (including at a minimum, the installation of utilities, the construction of streets, and either final site grading or the pouring of concrete pads) is completed on or after the effective date of floodplain management regulations adopted by the community.</u>
Overlay District	means a special Zoning District that has been "overlaid" on a base zoning classification to alter some or all the Base District zoning regulations
Participating Community	also known as an " Eligible Community ," means a Community in which the Administrator has authorized the sale of Flood insurance
Person	includes any individual or group of individuals, corporation, partnership, association, or any other entity, including Federal, State, and local governments and agencies
Principally above Ground	means that at least 51% of the actual cash value of the Structure , less land value, is above ground
Recreational Vehicle	means a vehicle which is (a) built on a single chassis; (b) 400 square feet or less when measured at the largest horizontal projections; (c) designed to be self-propelled or permanently able to be towed by a light-duty truck; and (d) designed primarily not for use as a permanent Dwelling but as temporary living quarters for recreational, camping, travel, or seasonal use. A Recreational Vehicle is ready for highway use if it is on its wheels or jacking system, is attached to the site only by quick-disconnect type utilities and security devices, and has no permanently attached additions.
Regulatory Flood	see " Base Flood "
Special Flood Hazard Area (SPFA)	see "Area of Special Flood Hazard"
Start of Construction	Includes Substantial-Improvements <u>or Cumulative Improvements</u> , and means the date the Building permit was issued, provided the actual Start of Construction , repair, reconstruction, rehabilitation, addition placement, or other improvements were within 180 days of the permit date. The actual start means either the first placement of permanent construction of a Structure on a site, such as the pouring of slabs or footings, the installation of piles, the construction of columns, any work beyond the stage of excavation, or the placement of a Mobile Home on a foundation. Permanent construction does not include land preparation, such as clearing, grading and filling, the installation of Streets and/or walkways, excavation for a Basement , footings, piers, foundations, the erection of temporary forms, nor installation on the property of Accessory Structures , such as garages or sheds not occupied as Dwelling Units or not part of the main Structure . For a Substantial-Improvement <u>or Cumulative Improvement</u> , the actual Start of Construction means the first alteration of any wall, ceiling, floor, or other structural part of a Building, whether or not that alteration affects the external

Term	Definition
	dimensions of the Building
State Coordinating Agency	means the Division of Water Resources, Kansas Department of Agriculture, or other office designated by the governor of the State or by State statute at the request of the Administrator to assist in the implementation of the National Flood Insurance Program (NFIP) in that State
Structure	means, for Floodplain Management purposes, a walled and roofed Building, including a gas or liquid storage tank, that is Principally above Ground, as well as a Mobile Home. "Structure" for insurance purposes, means a walled and roofed Building, other than a gas or liquid storage tank that is Principally above Ground and affixed to a permanent site, as well as a Mobile Home on a permanent foundation. For the latter purpose, the term includes a Building while in the course of construction, alteration or repair, but does not include Building materials or supplies intended for use in such construction, alteration or repair, unless such materials or supplies are within an enclosed Building on the Premises
Substantial-Damage	means, for Floodplain Management purposes, damage of any origin sustained by a Structure whereby the cost of restoring the Structure to pre-damaged condition would equal or exceed fifty percent (50%) of the Market Value of the Structure before the damage occurred
Substantial-Improvement	means any reconstruction, rehabilitation, addition, or other improvement of a Structure, the cost of which equals or exceeds fifty percent (50%) of the Market Value of the Structure before "Start of Construction" of the improvement. This term includes Structures, which have incurred "Substantial-Damage," regardless of the actual repair work performed. The term does not, however, include either (1) any project for improvement of a Structure to correct existing violations of State or local health, sanitary, or safety code specifications that have been identified by the local code enforcement official and which are the minimum necessary to assure safe living conditions, or (2) any alteration of a "Historic Structure," provided that the alteration will not preclude the Structure's continued designation as a "Historic Structure"
Unmapped Floodplain Area	means all stream tributaries having a drainage area of 240 acres or more regardless of the limits of the FIS
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 magnitudes and frequencies in the Floodplain
Zone A	means Special Flood Hazard Areas inundated by 100-year Flood where no Base Flood Elevations have been determined
Zone AE	means Special Flood Hazard Areas inundated by 100-year Flood where Base Flood Elevations have been determined
Zone AH	means Special Flood Hazard Areas inundated by 100-year Flood with Flood depths of one (1) to three (3) feet (usually areas of ponding), where Base Flood Elevations have been determined
Zone AO	means Special Flood Hazard Areas inundated by 100-year Flood with Flood depths of one (1) to three (3) feet (usually sheet flow on sloping terrain), where average depths have been determined. For areas of alluvial fan Flooding velocities have also been determined

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