

ARTICLE 05

SITE CAPACITY AND ENVIRONMENTAL STANDARDS

DIVISION 05.000 PURPOSE

This Article establishes the basic performance standards to protect natural resources. Developments are required to conduct a carrying capacity analysis which regulates the maximum intensity based on actual site conditions. The site carrying capacity analysis ensures the public health, safety, and welfare are protected by preventing development from exceeding the site resources= capacity to sustain the development. Resource areas exist in which constructing a building is hazardous to life and property; these areas should be avoided. The City obtains its water supply from Lake Miola. Water supply lakes in Miami County have been adversely impacted by land uses in their watershed. Specific standards protecting Lake Miola are essential to the public health, safety, and welfare of the City and its residents. Destroying some resources and certain development practices lead to air, ground water, or surface water pollution to the detriment of the public health. Natural systems are self-balancing, provided enough of the system is left in a functioning condition. A system's health or function can be measured by its habitat quality and species diversity. Preserving habitats and resources is also important to the community's character. Therefore, preservation enhances property value and the quality of life for residents and businesses.

Flood losses resulting from periodic inundation of special flood hazard areas should be avoided. Flooding could have a number of negative impacts on the community including: 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.

These flood losses are caused by (1) the cumulative effect of development in any delineated floodplain causing increases in flood heights and velocities; and (2) the occupancy of flood hazard areas by uses vulnerable to floods, hazardous to others, inadequately elevated, or otherwise unprotected from flood damages.

One purpose of this Article is to minimize losses due to flooding and to establish or maintain the community's eligibility for participation in the National Flood Insurance Program (NFIP) 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;
2. require uses vulnerable to floods, including public facilities that serve such uses, be provided with flood protection at the time of initial construction; and
3. protect individuals from buying lands that are unsuited for the intended development purposes due to the flood hazard.

DIVISION 05.100 SITE CAPACITY

The site capacity analysis requires measuring the resources on each site; the site capacity calculation ensures the development does not exceed the site resources' ability to sustain the use.

SECTION 05.110 APPLICABILITY

Each property proposed for development shall, at the time of rezoning, site plan approval, or subdivision, submit a site capacity analysis based on the site's physical conditions, hazards, and natural resources except for the following:

- A. Any site not containing natural resources listed within Section 05.210.
- B. Single-family developments or farmsteads in the E District. While exempt from the calculation, these uses shall demonstrate they meet the Section 05.210 protection standards.
- C. Any lot of record as of this Ordinance's adoption date proposed for residential use which cannot be further subdivided, or which is buildable after floodplains or wetlands are taken into account but would not be buildable after other resource standards are applied. Such lots will be permitted one (1) dwelling unit.
- D. Any lot of record as of this Ordinance's adoption date proposed for a nonresidential use less than twenty thousand (20,000) square feet in area, and which is buildable after floodplains or wetlands are taken into account but would not be buildable after other resource standards are applied. Such lots shall conduct the site capacity calculation without the other resources.
- E. Individual lots in subdivisions or land developments approved subject to this Ordinance's provisions, since protection is achieved in the subdivision approval process.
- F. Where a parcel is to be subdivided into a series of no more than six (6) lots taking direct access to an existing street, and where the depth does not permit constructing streets to serve the development. All resources shall be mapped and protected under conservation easements as required by Table 05.210. All lots shall meet the minimum lot area requirements, excluding the area attributed to any protected resource.
- G. Planned Development Districts. Such districts shall be required to comply with this Article only if the developer seeks a major plan amendment.

SECTION 05.120 CALCULATION FOR TOTAL PROTECTED LAND

Table 05.120 provides the procedure for calculating a site's total protected land. Step 1 determines the base site area. Steps 2-6 determine the land to be protected in accordance with Section 05.210. All uses -- residential and nonresidential -- must begin by completing this calculation. Where the site is in more than one zoning class, or where the site is to be divided into residential and nonresidential uses, separate calculations are required.

Table 05.120 CALCULATION FOR TOTAL PROTECTED LAND

Step 1	Enter gross site area as determined by actual survey.			ac.	
	Subtract land within existing roads' ultimate rights-of-way; or land within major utilities' rights-of-way (minimum 50-foot width).			- ac.	
	Subtract land cut off from use by railroad, highway, or waterbody.			- ac.	
	Subtract all waterbodies.			- ac.	
	Subtract land previously dedicated as open space.			- ac.	
	Equals base site area.			= ac.	
Step 2	Measure all natural resources in the base site area. If resources overlap, measure only that resource with the highest resource protection ratio. These numbers provide each resource's area of land.				
Steps 3 & 4		Step 3 Enter acres measured in Step 2.	Step 4 Multiply Land in Resource by Resource Protection Ratio.	Equals Protected Land.	
	Natural Resource				
	Floodway		1.00		
	Floodplain		1.00		
	Wetland		1.00		
	Waterbody buffer		0.90		
	Drainageways		0.40		
	Steep slopes (> 30%)		0.85		
	Steep slopes (20-30%)		0.40		
	Forests, mature		0.60		
	Forests, young		0.30		
	Lake Miola Watershed (only)¹				
	Waterbody buffer		0.95		
	Steep slopes (>30%)		0.95		
	Steep slopes (20-30%)		0.50		
	Forests, mature		0.70		
	Forests, young		0.40		
	All other watershed land		0.30		
	Step 5	Sum of Step 3 column equals Total Resource Land.			
	Step 6	Total Protected Land equals sum of Protected Land column.			
¹ All other Natural Resource Protection Ratios apply.					

SECTION 05.121 RESIDENTIAL CAPACITY CALCULATION

Table 05.121 provides the procedure for calculating residential uses' capacity. Note that nonresidential uses should use Table 05.122.

Table 05.121 RESIDENTIAL CAPACITY CALCULATION		
Step 1	Enter Base Site Area (Table 05.120 Step 1).	ac.
	Multiply by Minimum Open Space Ratio (Table 04.110 A.).	x ac.
	Equals Minimum District Required Open Space .	= ac.
Step 2	Enter Base Site Area (Table 05.120 Step 1).	ac.
	Subtract Protected Land (Step 1 or Table 05.120 Step 6, whichever is greater).	- ac.
	Equals Net Buildable Site Area .	= ac.
	Multiply by Maximum Net Density (Table 04.110 A.).	x ac.
	Equals Site Specific Maximum Density Yield .	= du's
Step 3	Enter Base Site Area (Table 05.120 Step 1).	ac.
	Multiply by Maximum Gross Density (Table 04.110 A.).	x
	Equals District Maximum Density Yield .	= du's
Step 4	Maximum Yield for Site (Step 2 or 3, whichever is less).	= du's

SECTION 05.122 NONRESIDENTIAL CAPACITY CALCULATION

Table 05.122 provides the procedure for calculating nonresidential uses' capacity.

Table 05.122 NONRESIDENTIAL CAPACITY CALCULATION		
Step 1	Enter Base Site Area (Table 05.120 Step 1).	ac.
	Subtract Total Protected Land (Table 05.120, Step 6).	- ac.
	Equals Buildable Land, Site .	= ac.
Step 2	Enter Base Site Area (Table 05.120 Step 1).	
	Multiply by Minimum Landscape Surface Ratio (Table 04.110 A.).	
	Equals Minimum Landscaped Area .	
Step 3	Enter Base Site Area (Table 05.120 Step 1).	
	Subtract Minimum Landscaped Area (Step 2).	
	Equals Buildable Land, District .	
Step 4	Enter Step 1 or 3, whichever is less.	ac.
	Multiply by Maximum Net Floor Area Ratio (Table 04.110 A.).	X
	Equals Maximum Floor Area .	= ac.
Step 5	Minimum Landscaped Surface or Total Protection Land (Step 2), whichever is greater.	= ac.

DIVISION 05.200 NATURAL RESOURCE STANDARDS

Section 05.210 provides the protection levels for natural resources measured in the site capacity calculation. Section 05.220 indicates the uses for which open space may be used. This Division also contains additional performance standards and mitigation requirements.

SECTION 05.210 RESOURCE PROTECTION STANDARDS

Natural resources are protected by requiring preserving a minimum amount of the resource as open space. Such open space shall be part of the open space ratio in residential developments and part of the landscape surface ratio in nonresidential developments. Unless otherwise permitted in this Division or Table 05.220, the open space shall remain undisturbed. Resource protection levels are specified in Table 05.210 and must be met within any development. The development intensity may be modified by the site capacity calculations in Division 05.100.

Table 05.210 RESOURCE PROTECTION LEVELS	
Natural Resource	Resource Protection Level
Waterbodies	1.00
Floodway	1.00
Floodplains	1.00
Wetlands	1.00
Waterbody buffer	0.90
Drainageways	0.40
Steep slopes (>30%)	0.85
Steep slopes (20-30%)	0.40
Forest, mature	0.60
Forest, young	0.30
Lake Miola Watershed (only)	
Waterbody buffer	0.95
Steep slopes (>30%)	0.95
Steep slopes (20-30%)	0.50
Forest, mature	0.70
Forest, young	0.40
All other watershed land	0.30

SECTION 05.220 USES IN OPEN SPACE

Table 05.220 lists uses that may be permitted in open space when required elsewhere in this Ordinance. The uses listed are narrower subsets of the use categories used listed in Table 03.110 A. In so doing, a

SECTION 05.230 ADDITIONAL RESOURCE STANDARDS

The following Sections set forth additional standards that protect natural resources or permit mitigation.

SECTION 05.231 FLOODPLAIN MANAGEMENT REGULATIONS

A. STATUTORY AUTHORIZATION

1. *Approval of Draft **Regulations** by Kansas Chief Engineer Prior to Adoption*

The following floodplain management regulations, as written, were approved in draft form by the Chief Engineer of the Division of Water Resources of the Kansas Department of Agriculture on _____, 20__.

2. *Kansas Statutory Authorization*

The Legislature of the State of Kansas has in K.S.A. 12-741 *et seq.*, and specifically in K.S.A. 12-766, delegated the responsibility to local governmental units to adopt floodplain management regulations designed to protect the health, safety, and general welfare. Therefore, the Governing Body of the **City of Paola**, Kansas, ordains as follows:

B. FINDINGS OF FACT

1. *Flood Losses Resulting from Periodic Inundation*

The special flood hazard areas of **Paola, Kansas, and the Community Growth Area** 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. *General Causes of the Flood Losses*

These flood losses are caused by (1) the cumulative effect of development in any delineated floodplain causing increases in flood heights and velocities; and (2) the occupancy of flood hazard areas by uses vulnerable to floods, hazardous to others, inadequately elevated, or otherwise unprotected from flood damages.

3. *Methods Used To Analyze Flood Hazards*

The Flood Insurance Study (FIS) that is the basis of this ordinance uses a standard engineering method of analyzing flood hazards, which consist of a series of interrelated steps. a. Selection of a base flood that is based upon engineering calculations, which permit a consideration of such flood factors as its expected frequency of occurrence, the area inundated, and the depth of inundation. The base flood selected for this ordinance is representative of large floods, which are characteristic of what can be expected to occur on the particular streams subject to this ordinance. It is in the general order of a flood which could be expected to have a one percent chance of occurrence in any one year as delineated on the Federal Insurance Administrator's FIS, and illustrative materials dated **August 19, 2008** as amended, and any future revisions thereto.

- b. Calculation of water surface profiles that are based on a standard hydraulic engineering analysis of the capacity of the stream channel and overbank areas to convey the regulatory flood.
- c. Computation of a floodway required to convey this flood without increasing flood heights more than **0.001 feet** at any point.
- d. Delineation of floodway encroachment lines within which no development is permitted that would cause **any** increase in flood height.
- e. Delineation of floodway fringe, i.e., that area outside the floodway encroachment lines, but still subject to inundation by the base flood.

C. STATEMENT OF PURPOSE

It is the purpose of this ordinance to promote the public health, safety, and general welfare; to minimize those losses described in Section 05.231 B(1); 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) 59.22(a)(3); and to meet the requirements of 44 CFR 60.3(d) and K.A.R. 5-44-4 by applying the provisions of this ordinance 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;
2. Require uses vulnerable to floods, including public facilities that serve such uses, be provided with flood protection at the time of initial construction; and
3. Protect individuals from buying lands that are unsuited for the intended development purposes due to the flood hazard.

D. LANDS TO WHICH THESE REGULATIONS APPLIES

This section shall apply to all lands within the jurisdiction of the City of Paola, KS, identified as A zones, AE, AO and AH Zones, on the Flood Insurance Rate Map (FIRM) and Flood Boundary and Floodway Map (FBFM) **dated August 19, 2008**. In all defined flood areas no development shall be permitted except through the issuance of a floodplain development permit, granted by the Governing Body under such safeguards and restrictions may reasonably be imposed to provide for beneficial use of a property and promote and maintain the general welfare, safety, and health of the inhabitants of the community. The Legislature of the State of Kansas has in KSA 12-707, 12-734 and 12-735 delegated the responsibility to local government units to adopt floodplain management regulations designed to protect the health, safety, and general welfare. Therefore, the City Council of the City of Paola, has enacted the floodplain management regulations as part of this zoning ordinance.

E. COMPLIANCE

No development located within the special flood hazard areas of this community shall be located, extended, converted, or structurally altered without full compliance with the terms of this ordinance and other applicable regulations.

F. ABROGATION AND GREATER RESTRICTIONS

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

G. INTERPRETATION

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

H. WARNING AND DISCLAIMER OF LIABILITY

The degree of flood protection required by this ordinance 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 ordinance does not imply that areas outside the floodway and flood 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 Paola** any officer or employee thereof, for any flood damages that may result from reliance on this ordinance or any administrative decision lawfully made there under.

I. SEVERABILITY

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

J. MAPPING

1. All areas identified as unnumbered A zones on the FIRM are subject to inundation of the 100-year flood; however, the base flood elevation is not provided. Development within unnumbered A zones is subject to all provisions of this ordinance. If Flood Insurance Study data is not available, the City shall obtain, review, and reasonably utilize any base flood elevation or floodway data currently available from Federal, State, or other sources.
2. Until a floodway is designated, no new construction, substantial improvements, or other development, including fill, shall be permitted within any numbered A zone or AE zone on the FIRM. The developer may be required to conduct a flood study using a method approved by the Public Works director and conducted by a licensed engineer. That study shall then be used to determine the elevational requirements to be met.

K. GENERAL STANDARDS

1. The uses permitted are listed in Table 05.220. All other uses are expressly prohibited in both the floodway and all floodplains. A beneficial use provision that requires the land owner to prove that they have been prohibited from any beneficial use of the property has been provided. Other uses may be permitted only upon receiving approval of a beneficial use application. All uses are subject to the following requirements.
2. Except for piers needed to support bridges, erosion control structures, dams for flood control or water supply, and utility crossings, no structure shall intrude into the floodway.
3. Only structures essential to the permitted uses shall be permitted. Roads and other essential crossings shall be permitted only where the location is the best available from an environmental standpoint.
4. No structures designed for human habitation are permitted except where approved under the beneficial use provisions of Section 05.231 and Division 21.400. This prohibition also applies to manufactured homes, manufactured home parks, campgrounds and recreational vehicle parks.
5. Structures shall be constructed and placed on the building site so as to cause an increase of less than one one-hundredth (0.01) foot increase in flood height off-site and offer minimum obstruction to the flow of flood waters. All piers in the floodways should have sufficient clearance between flood elevation and any horizontal portions of the bridge to avoid debris jams. The City's Director of Public Works shall approve all such crossings.
6. Structures shall be firmly anchored to prevent them from floating away or collapsing. Structures shall be certified by an engineer to withstand velocities and likely debris loadings at that point in the floodplain.
7. Where approved development shall meet the following standards:
 - a. design or adequate anchorage to prevent flotation, collapse, or lateral movement of the structure resulting from hydrodynamic and hydrostatic loads, including the effects of buoyancy;
 - b. construction with materials resistant to flood damage;
 - c. utilization of methods and practices that minimize flood damages;
 - d. all electrical, heating, ventilation, plumbing, air-conditioning equipment, and other service facilities be designed and/or located so as to prevent water from entering or accumulating within the components during conditions of flooding;
 - e. new or replacement water supply systems and/or sanitary sewage systems be designed to minimize or eliminate infiltration of flood waters into the systems and discharges from the systems into flood waters, and on-site waste disposal systems be located so as to avoid impairment or contamination; and
 - f. subdivision proposals and other proposed new development located within special flood hazard areas are required to assure that:
 - (1) all such proposals are consistent with the need to minimize flood damage;
 - (2) all public utilities and facilities, such as sewer, gas, electrical, and water systems are located and constructed to minimize or eliminate flood damage;
 - (3) adequate drainage is provided so as to reduce exposure to flood hazards; and

- (4) all proposals for development, including proposals for manufactured home parks and subdivisions, of five (5) acres or fifty (50) lots, whichever is lesser, must include within such proposals base flood elevation data.

L. FILLS IN THE FLOODPLAIN.

The desired method of building in the floodplain is to elevate the structure on piers or columns. Fill material may be deposited provided all of the following are met:

1. It is approved as essential to the provision of a permitted or conditional property use (see Table 05.220). Such fills shall only be permitted in the floodplain and are prohibited in the floodway.
2. The fill shall be protected against erosion by riprap, vegetative cover, sheet piling, or bulk-heading sufficient to prevent erosion.
3. The fill shall be clean and compacted to minimize erosion potential.
4. There shall be sufficient culverts spaced along the length of fills for roads or other essential river crossings to allow flood waters to reach the other side of the fill. Longer bridge spans are preferred to fills. The intent is to maintain water flows through the structure in order to avoid increased floodway velocity.
5. Compensation shall be made for the volume of fill so that neither cross sectional area decreases nor flood level increases more than one one-hundredth (0.01) foot in off-site flood height.

M. GENERAL STANDARDS

1. No permit for floodplain development shall be granted for new construction, substantial-improvements, and other improvements, including the placement of manufactured homes, within any numbered or unnumbered A zones, AE, AO, and AH zones, unless the conditions of this section are satisfied.
2. All areas identified as unnumbered A zones on the FIRM are subject to inundation of the 100-year flood; however, the base flood elevation is not provided. Development within unnumbered A zones is subject to all provisions of this ordinance. If Flood Insurance Study data is not available, the community shall obtain, review, and reasonably utilize any base flood elevation or floodway data currently available from Federal, State, or other sources.
3. Until a floodway is designated, no new construction, substantial improvements, or other development, including fill, shall be permitted within any unnumbered or numbered A zones, or AE zones on the FIRM, unless it is demonstrated that the cumulative effect of the proposed development, when combined with all other existing and anticipated development, will not increase the water surface elevation of the base flood more than one foot at any point within the community.

4. All new construction, subdivision proposals, substantial-improvements, prefabricated structures, placement of manufactured homes, and other developments shall require:
 - a. Design or adequate anchorage to prevent flotation, collapse, or lateral movement of the structure resulting from hydrodynamic and hydrostatic loads, including the effects of buoyancy;
 - b. Construction with materials resistant to flood damage;
 - c. Utilization of methods and practices that minimize flood damages;
 - d. All electrical, heating, ventilation, plumbing, air-conditioning equipment, and other service facilities be designed and/or located so as to prevent water from entering or accumulating within the components during conditions of flooding;
 - e. New or replacement water supply systems and/or sanitary sewage systems be designed to minimize or eliminate infiltration of flood waters into the systems and discharges from the systems into flood waters, and on-site waste disposal systems be located so as to avoid impairment or contamination; and
 - f. Subdivision proposals and other proposed new development, including manufactured home parks or subdivisions, located within special flood hazard areas are required to assure that:
 - (1) All such proposals are consistent with the need to minimize flood damage;
 - (2) All public utilities and facilities, such as sewer, gas, electrical, and water systems are located and constructed to minimize or eliminate flood damage;
 - (3) Adequate drainage is provided so as to reduce exposure to flood hazards; and
 - (4) All proposals for development, including proposals for manufactured home parks and subdivisions, of five (5) acres or fifty (50) lots, whichever is lesser, include within such proposals base flood elevation data.

5. *Storage, Material, and Equipment*

- a. The storage or processing of materials within the special flood hazard area that are in time of flooding buoyant, flammable, explosive, or could be injurious to human, animal, or plant life is prohibited.

- 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.

6. *Nonconforming Use*

A structure, or the use of a structure or premises that was lawful before the passage or amendment of the ordinance, but which is not in conformity with the provisions of this ordinance, may be continued subject to the following conditions:

- a. If such structure, use, or utility service is discontinued for **six (6)** consecutive months, any future use of the building shall conform to this ordinance.
- b. If any nonconforming use or structure is destroyed by any means, including flood, it shall not be reconstructed if the cost is more than fifty (50) percent of the pre-damaged market value of the structure. This limitation does not include the cost of any alteration to comply with existing state or local health, sanitary, building, safety codes, regulations or the cost of any alteration of a structure listed on the National Register of Historic Places, the State Inventory of Historic Places, or local inventory of historic places upon determination.

N. SPECIFIC STANDARDS

- 1. In all areas identified as numbered and unnumbered A zones, AE, and AH Zones, where base flood elevation data have been provided, as set forth in Section 05.231 K(2), the following provisions are required:

- a. *Residential Construction*

New construction or substantial-improvement of any residential structures, including manufactured homes, shall have the lowest floor, including basement, elevated a minimum of **three (3) feet** above base flood elevation. **The elevation of the lowest floor shall be certified by a licensed land surveyor or professional engineer.**

- b. *Non-Residential Construction*

New construction or substantial-improvement of any commercial, industrial, or other non-residential structures, including manufactured homes, shall have the lowest floor, including basement, elevated a minimum of **three (3) feet** above the base flood elevation or, together with attendant utility and sanitary facilities, be floodproofed so that below the base flood elevation the structure is watertight with walls substantially impermeable to the passage of water and with structural

components having the capability of resisting hydrostatic and hydrodynamic loads and effects of buoyancy. A registered professional engineer or architect shall certify that the standards of this subsection are satisfied. **The elevation of the lowest floor shall be certified by a licensed land surveyor or professional engineer.** Such certification shall be provided to the floodplain administrator as set forth in Section 20.350(7)(8)(9).

- c. Require, for all new construction and substantial-improvements, that fully enclosed areas below lowest floor used solely for parking of vehicles, building access, or storage in an area other than a basement and that are subject to flooding shall be designed to automatically equalize hydrostatic flood forces on exterior walls by allowing for the entry and exit of flood waters. Designs for meeting this requirement must either be certified by a registered professional engineer or architect or meet or exceed the following minimum criteria:
 - (1) A minimum of two (2) openings having a total net area of not less than one (1) square inch for every square foot of enclosed area subject to flooding shall be provided; and
 - (2) The bottom of all opening 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 permit the automatic entry and exit of flood waters.

O. MANUFACTURED HOMES

1. All manufactured homes to be placed within all unnumbered and numbered A zones, AE, and AH zones, on the community's FIRM 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, use of over-the-top or frame ties to ground anchors.
2. Require manufactured homes that are placed or substantially improved within unnumbered or numbered A zones, AE, and AH zones, on the community's FIRM on sites:
 - a. Outside of a manufactured home park or subdivision;
 - b. In a new manufactured home park or subdivision;
 - c. In an expansion to and existing manufactured home park or subdivision; or

- d. In an existing manufactured home park or subdivision on which a manufactured home has incurred substantial-damage as the result of a flood, be elevated on a permanent foundation such that the lowest floor of the manufactured home is elevated a minimum of three (3) feet above the base flood elevation and be securely attached to an adequately anchored foundation system to resist flotation, collapse, and lateral movement. **The elevation of the lowest floor shall be certified by a licensed land surveyor or professional engineer.**
3. Require that manufactured homes to be 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, on the community's FIRM, that are not subject to the provisions of Section 05.231 O(2) of this ordinance, be elevated so that either:
 - a. The lowest floor of the manufactured home is a minimum of three (3) feet above the base flood level; or
 - b. The manufactured home chassis is supported by reinforced piers or other foundation elements of at least equivalent strength that are no less than thirty-six (36) inches in height above grade and be securely attached to an adequately anchored foundation system to resist flotation, collapse, and lateral movement. **The elevation of the lowest floor shall be certified by a licensed land surveyor or professional engineer.**

P. AREAS OF SHALLOW FLOODING (AO and AH zones)

Located within the areas of special flood hazard as described in Article 2, Section A are areas designated as AO zones. 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. The following provisions apply:

1. *AO Zones*
 - a. All new construction and substantial-improvements of residential structures, including 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 three (3) feet if no depth number is specified).
 - b. All new construction and substantial-improvements of any commercial, industrial, or other non-residential structures, including 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 FIRM (at least three (3) feet

if no depth number is specified) or together with attendant utilities and sanitary facilities be completely floodproofed to that 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.

- c. Adequate drainage paths shall be required around structures on slopes, in order to guide floodwaters around and away from proposed structures.

2. *AH Zones*

- a. The specific standards for all areas of special flood hazard where base flood elevation has been provided shall be required as set forth in, Section 05.231 N.
- b. Adequate drainage paths shall be required around structures on slopes, in order to guide floodwaters around and away from proposed structures.

Q. FLOODWAY

Located within areas of special flood hazard established in Section 05.231 D, are areas designated as floodways. Since the floodway is an extremely hazardous area due to the velocity of floodwaters that carry debris and potential projectiles, the following provisions shall apply:

1. The community shall select and adopt 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 0.001 feet at any point.
2. The community shall prohibit any encroachments, including fill, new construction, substantial improvements, and other development within the adopted regulatory floodway unless it has been demonstrated through hydrologic and hydraulic analyses performed in accordance with standard engineering practice that the proposed encroachment would not result in **any** increase in flood levels within the community during the occurrence of the base flood discharge.
3. If Section 05.231 Q(2), is satisfied, all new construction and substantial-improvements shall comply with all applicable flood hazard reduction provisions of Section 05.231.
4. In unnumbered A zones, the community shall obtain, review, and reasonably utilize any base flood elevation or floodway data currently available from Federal, State, or other sources as set forth in Section 05.231 K(2).

R. RECREATIONAL VEHICLES

Require that recreational vehicles placed on sites within all unnumbered and numbered A Zones, AE, AH, and AO Zones on the community's FIRM 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 manufactured homes of this ordinance.

*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.

S. PENALTIES FOR VIOLATION

Violation of the provisions of this ordinance or failure to comply with any of its requirements (including violations of conditions and safeguards established in connection with granting of variances) shall constitute a misdemeanor. Any person who violates this ordinance or fails to comply with any of its requirements shall, upon conviction thereof, be fined not more than **\$500.00**, and in addition, shall pay all costs and expenses involved in the case. Each day such violation continues, shall be considered a separate offense. Nothing herein contained shall prevent the **City of Paola** or other appropriate authority from taking such other lawful action as is necessary to prevent or remedy any violation.

T. AMENDMENTS

The regulations, restrictions, and boundaries set forth in this ordinance may from time to time be amended, supplemented, changed, or appealed to reflect any and all changes in the National Flood Disaster Protection Act of 1973, provided, however, that no such action may be taken until after a public hearing in relation thereto, at which parties of interest and citizens shall have an opportunity to be heard. Notice of the time and place of such hearing shall be published in a newspaper of general circulation in the **City of Paola**. At least twenty (20) days shall elapse between the date of this publication and the public hearing. A copy of such amendments will be provided to the FEMA Region VII office. The regulations of this ordinance are in compliance with the NFIP regulations.

SECTION 05.232 STANDARDS FOR BENEFICIAL USES IN FLOODPLAIN

All new construction, subdivision proposals, substantial-improvements, prefabricated structures and other developments shall be prohibited except where approved as essential to the provision of a beneficial

property use. In approving any beneficial use permit, in addition to the standards for beneficial uses in Division 21.400, the following standards shall be met.

- A. No structure designed for human habitation shall be permitted in the floodway.
- B. Any occupied residential space shall have its lowest floor, including basement, and lowest opening at least three (3) feet above the flood elevation. All service and utility connections such as water, sewer, gas, and electrical and heating equipment shall be similarly located, or buried with adequate cover to prevent erosion.
- C. New non-residential construction or substantial-improvement of any commercial, industrial, or other non-residential structures, shall have the lowest floor, including basement, elevated 3 feet above the base flood elevation or, together with attendant utility and sanitary facilities, be floodproofed so that below the base flood elevation the structure is watertight with walls substantially impermeable to the passage of water and with structural components having the capability of resisting hydrostatic and hydrodynamic loads and effects of buoyancy. A registered professional engineer or architect shall certify that the standards of this subsection are satisfied. Such certification shall be provided to the Floodplain Administrator.
- D. All development approved under a beneficial use permit shall meet the standards in Section 05.231 B. 5, 6, and 7 above for structural integrity.
- E. Storage, material, and equipment
 - 1. The storage or processing of materials within the special flood hazard area that are in time of flooding buoyant, flammable, explosive, or could be injurious to human, animal, or plant life is prohibited.
 - 2. 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.
- F. Parking
 - 1. Parking may be located within the floodplain provided that the depth of water shall not exceed six (6) inches, except as provided in b. below.
 - 2. Recreational areas that may be closed to access during flooding and are closed to access on a nightly basis may be approved provided the depth of water does not exceed three (3) feet.
 - 3. Areas below lowest floor used solely for parking of vehicles, building access, and that are subject to flooding shall be designed to automatically equalize hydrostatic flood forces on exterior walls by allowing for the entry and exit of floodwaters. Designs for meeting this requirement must either be certified by a registered professional engineer or architect or 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.

G. Fills in Floodplains. The desired method of building in the floodplain is to elevate the structure on piers or columns. Fill material may be deposited provided all of the following are met:

1. It is approved as essential to the provision of a beneficial property use (see Division 21.400). Such fills shall only be permitted in the floodplain and never permitted in the floodway.
2. No fill shall be in or within twenty (20) feet of the floodway or within 20% of the distance between the outside edge of the floodway, and the outside edge of the floodplain, whichever is greater,
3. The fill shall be protected against erosion by riprap, vegetative cover, sheet piling, or bulk-heading sufficient to prevent erosion.
4. The fill shall be clean and compacted to minimize erosion potential.
5. Compensation shall be made for the volume of fill so that neither cross sectional area decreases nor flood level increases more than one one-hundredth (0.01) foot in off-site flood height.

ARTICLE 6 PENALTIES FOR VIOLATION

Violation of the provisions of this ordinance or failure to comply with any of its requirements (including violations of conditions and safeguards established in connection with granting of variances) shall constitute a misdemeanor. Any person who violates this ordinance or fails to comply with any of its requirements shall, upon conviction thereof, be fined not more than **\$500.00**, and in addition, shall pay all costs and expenses involved in the case. Each day such violation continues, shall be considered a separate offense. Nothing herein contained shall prevent the **City of Paola** or other appropriate authority from taking such other lawful action as is necessary to prevent or remedy any violation.

ARTICLE 7 AMENDMENTS

The regulations, restrictions, and boundaries set forth in this ordinance may from time to time be amended, supplemented, changed, or appealed to reflect any and all changes in the National Flood Disaster Protection Act of 1973, provided, however, that no such action may be taken until after a public hearing in relation thereto, at which parties of interest and citizens shall have an opportunity to be heard. Notice of the time and place of such hearing shall be published in a newspaper of general circulation in the **City of Paola**. At least twenty (20) days shall elapse between the date of this publication and the public hearing. A copy of such amendments will be provided to the FEMA Region VII office. The regulations of this ordinance are in compliance with the NFIP regulations.

SECTION 05.233 WETLANDS

Only limited uses are permitted in wetlands. Where structures are necessary to a permitted use and cannot be located outside the wetland, the structure shall be located on piles. Where needed, access shall be provided on structures such as boardwalks. Cases may exist where protection is not a reasonable alternative and mitigation is an acceptable solution. Farm ponds of less than three (3) acres shall not be considered wetlands by the City and may be filled, provided their stormwater capacity is preserved at another location on the same stream. The following regulations apply to wetland mitigation when such areas are to be filled or severely disturbed:

- A. **Mitigation Permitted.** Mitigation is permitted only under the following situations:
 - 1. In the D, TA, BP, and I Districts, the use intensity is so high that retained wetlands of less than two (2) acres will be degraded habitats, and may be isolated and thus serve no significant stormwater benefit. In these cases, filling shall be permitted where:
 - a. A mitigation plan has been approved, designating the area in which the site is located as a mitigation area; or
 - b. Mitigation will actually provide larger, more easily protected and managed on-site wetland areas. This provision permits consolidating many small wetlands into a single wetland management unit; and
 - c. The wetlands to be mitigated are not, and cannot easily become part of an interconnected area that provides drainage and flood storage; and
 - 2. In all districts, where, due to parcel shape and interaction with topography, reshaping the wetland boundary is necessary to provide a reasonable building site, minor filling is permitted provided:
 - a. Less than ten (10) percent of the wetland area or less than two (2) acres, whichever is less, is disturbed.
 - b. High quality wetland areas are avoided.
 - 3. In all districts, where the wetlands are less than one quarter (0.25) acre and not connected to a stream or drainage corridor.

- B. **Mitigation Standards**
 - 1. All fill and mitigation shall meet this Ordinance's requirements or a U.S. Army Corps of Engineers permit requirements, whichever are more stringent. In either case, a permit shall be required.
 - 2. The site plan shall be reviewed to determine if the need for mitigation can be reduced or eliminated by development redesign.
 - 3. All mitigation shall be calculated per acre of wetland filled as follows:

- a. Depressional, less than two (2) acres: one and one-quarter (1.25) acres of new wetland.
 - b. Depressional, two (2) acres or more: one and one-half (1.5) acres of new wetland.
 - c. Depressional wetland classified as high quality, regardless of size: two (2) acres of new wetland.
4. The wetland area shall be replanted using hydric prairie (grassland), emergent vegetation, swamp trees and shrubs, and suitable seed bank soils for the wetland form and type to be created. A wetlands biologist or other professional with experience in wetland creation shall certify the planting plan.

SECTION 05.234 LAKE MIOLA WATERSHED STANDARDS

Lake Miola is the City's water supply reservoir. Its watershed area must be protected to limit the pollutant loading from all surrounding land uses. Its boundary shall be designated on the Zoning Map and shall have 300-foot waterbody buffers around the lake/reservoir and all stream channels up-stream of the lake. The following standards apply:

- A. The 300-foot buffer shall be planted in a mix of pasture grasses, prairie plants and trees (seventy [70] percent minimum coverage) to enhance the buffer's absorption and filtering potential.
- B. In the area bounded by US 169, 287th Street, and Hedge Lane Road upstream of the dam, no septic systems shall be allowed. Elsewhere in the watershed, no septic systems shall be allowed within eight hundred (800) feet of the waterbody.
- C. Sewage lagoons shall only be allowed with the permission of the City and Kansas Department of Health and the Environment.
- D. Discharge from package plants shall be allowed in the Lake Miola watershed only with the permission of the City and Kansas Department of Health and the Environment.
- E. All developments shall maximize the amount of drainage conducted in natural swales rather than storm sewers. Stormwater systems' discharge to streams or watercourses shall be by sheet flow through a grassland or discharge into a wetland and then the stream.
- F. All detention shall either be entirely within dry basins or planted to become wetlands. If wet basins are to be used as amenities, two (2) additional wetland basins shall be required for filtering- a wetland basin filtering the initial inflow, and another filtering at least thirty (30) percent of total detention at the discharge end.
- G. Industrial and commercial parking shall install oil separation devices in their drainage system.

SECTION 05.235 WATERBODY BUFFERS

The waterbody buffers shall meet the following standards (see Section 05.234 for Lake Miola watershed standards):

A. Lakes and ponds

1. The buffer shall be planted in a mix of prairie plants and trees (forty [40] percent minimum coverage) to enhance the buffer's absorption and filtering potential.
2. No septic systems shall be allowed within five hundred (500) feet of the waterbody.
3. All developments shall maximize the drainage amount conducted in natural swales rather than storm sewers. Stormwater systems= discharge to streams or watercourses shall be by sheet flow through a grassland or discharge into a wetland and then the stream.
4. Industrial and commercial parking shall install oil separation devices in their drainage system. All detention shall either be entirely within dry basins or planted to become wetlands. If wet basins are to be used as amenities, two additional wetland basins shall be required for filtering- a wetland basin filtering the initial inflow, and another filtering at least thirty (30) percent of total detention at the discharge end.

B. Rivers and streams

1. The buffer shall be planted in a mix of prairie plants and trees (fifty [50] percent minimum coverage) to enhance the buffer's absorption and filtering potential.
2. No septic systems shall be allowed within five hundred (500) feet of the waterbody.
3. All developments shall maximize the drainage amount conducted in natural swales rather than storm sewers. Stormwater systems= discharge to streams or watercourses shall be by sheet flow through a grassland or discharge into a wetland and then the stream.

SECTION 05.236 STEEP SLOPES

The following practices shall be required when developing steep slope areas:

- A. Permits shall require all earth work to be conducted between April 6 and October 1. This practice will enable a ground cover to be established after work completion.
- B. A ground cover, as approved by Staff, shall be placed on all exposed surfaces prior to October 1, or as the work is completed prior to that date.
- C. All slopes exceeding twenty (20) percent or where water flows can be anticipated shall have a protective cover to hold the seed or plants in place. All protective covers shall be approved by Staff.
- D. All plant materials should be approved by Staff as suitable for the area's soils and exposure, growth, and coverage rate.

SECTION 05.237 FORESTS

Trees may be cut over a greater area than permitted in Table 05.210 only if mitigation is provided and the following standards are met:

- A. A tree survey of the site's forest is conducted. The best forests, in terms of percentage of climax vegetation, tree size, tree health, and habitat value, shall be preserved. The mitigation purpose shall be either:

1. To permit large office type buildings typically requiring large areas. This purpose does not include grading the entire site, and parking should seek to preserve trees; or
 2. To maintain forest through a residential development.
- B. The protection level given forests shall not be less than that below:
1. Mature forest protection may be reduced from sixty (60) percent to fifty (50) percent with mitigation.
 2. Young forest protection may be reduced from forty (40) percent to twenty (20) percent with mitigation.
- C. The land on which the mitigation is to occur may be on site where adequate land is available to achieve the required mitigation level. The land on which mitigation is to occur may be off site if within an approved mitigation bank area for upland mitigation. All land used for mitigation shall be placed under a conservation easement as permanent open space.
- D. Mitigation shall include planting one acre of new woodland for every one (1) acre of disturbed mature or young forest for which mitigation is required.
- E. The plant material in the mitigation area shall be determined based on a tree survey of the disturbed area (Table 05.237 E.).

Table 05.237E.		
STANDARDS FOR FOREST REPLACEMENT		
DBH of Canopy Trees Removed	Replacement Canopy Trees	
	Amount	Caliper
36" or larger	5	3"
24" -35"	3	3"
16" - 23"	3	2.5"
8" - 15"	2	2.5"
4" - 8"	1	2"
undesirable species	2	6 ft. whips
area requirement per acre	40	4 ft. whips

- F. The plant species used in mitigation shall be similar to those destroyed.

SECTION 05.238 DRAINAGEWAYS

In addition to the open space protection, the drainageway area protected shall be kept open to provide continuous drainage corridors. Positive surface drainage in these areas shall be preserved. The protected area may be regraded and reshaped to provide for stormwater detention and drainage. The following standards shall apply:

- A. The drainageways shall be used as a natural positive surface drainage system. Any filling shall keep the drainageway continuous. Enclosed storm drainage to connect areas of drainageways shall be prohibited, except that culverts shall be installed at all road crossings.
- B. The areas shall be restored to a natural state using seed mixes as recommended by the agriculture extension agent.
- C. Where the protected area is to be used for a permitted open space use (Table 05.220), the use shall not interrupt the positive surface drainage flows.
- D. The following standards shall govern the design of detention or surface drainage systems in drainageways:
 - 1. The drainage shall be designed to slow the time of concentration on the site and retain maximum ground infiltration.
 - 2. Where flows permit, the channels shall be designed as grassed swales, wetlands, or mesic grasslands encouraging sheet flow, except in forests.
 - 3. In forests, narrow winding channels shall be used to reduce velocity and avoid trees.
 - 4. All wet basin retention ponds shall be designed to have natural edges using approved plant materials from Staff lists.
- E. The homeowners association shall maintain the drainageway to provide free movement of water and prevent flooding. The City may inspect these areas from time to time and require maintenance.

DIVISION 05.300 STANDARDS FOR OPEN SPACE USES

Various open space uses (see Table 05.220) are limited or conditional in nature. These uses present potential threats to the natural resource involved. This Division sets forth the standards required for approval. If present, limited or conditional use standards established in Table 03.110 A. still apply.

SECTION 05.310 ENVIRONMENTAL IMPACT ASSESSMENT REPORT

All conditional approvals of open space uses (see Table 05.220) requiring submitting an environmental impact assessment report shall have the report prepared by persons trained in the fields of biology, ecology, soil science, forestry, or other relevant professions. Mitigation cannot be used where the conflict can be avoided or minimized. The report shall contain the following criteria, given in order of preference:

- A. **Avoidance.** For such use, alternative sites or routes shall be identified that would not damage the resource or result in less resource damage. Reasons shall be provided explaining why using these sites is impossible or infeasible versus that proposed.

- B. **Minimization.** The applicant shall demonstrate that the plan minimizes the impact of the activity, route, or use on the resource. The applicant shall also demonstrate that the areas impacted shall be the lowest quality and result in the least damage to the resource.
- C. **Mitigation.** A mitigation plan shall be submitted indicating mitigation activities. Replacement is the most acceptable form of mitigation. However, mitigation can include restoration and enhancement after the use is abandoned. Mitigation by replacement on another site shall be at a ratio of two to one (2:1). Mitigation may also include enhancement; this ratio shall be four to one (4:1).

SECTION 05.320 COMMERCIAL KENNELS AND STABLES

Commercial kennels and stables shall be permitted in the floodplain, provided the only element in the floodplain is outdoor enclosures and the enclosures are designed with a shelf upon which animals can take shelter that is located at least one (1) foot above the flood elevation. In no event shall the outdoor enclosures be located where there would be a depth of water exceeding two (2) feet. All other structures shall be outside the floodplain.

SECTION 05.321 NURSERIES

Nurseries in the floodplain and floodway shall be permitted. The area shall be disconnected from adjoining wetland areas and separated by a dike to control the water flow or sediment movement from the nursery to the surrounding wetlands. The following shall be required:

- A. A water control structure shall permit backflow into the nursery area.
- B. Water shall be discharged through a channel, grassed channel, or new wetland.

SECTION 05.322 GOLF COURSES

Golf courses shall be permitted on floodplains, wetlands, steep slopes, and forested areas provided that the following standards are met:

- A. **Floodplains.** Golf courses shall be permitted provided that there is no change in the flood elevation due to the construction. Tees and greens shall be above flood elevation.
- B. **Wetlands.** These shall be preserved. The course shall be designed so that wetlands are natural hazards. No filling will be permitted.
- C. **Steep slopes.** Areas of protected steep slope may be used as part of the golf course provided this does not involve the cutting of forest cover. If natural grass cover is to be disturbed, the earth work should be finished in less than sixty (60) days and a new vegetative cover installed immediately. Erosion control matting shall be used to reduce erosion and prevent the seed from washing out.
- D. **Forests.** No area of protected forest shall be used for golf courses if the tree cover is to be disturbed. Areas of mature forest where the trees are to remain may have undergrowth removed and be seeded in grass.

SECTION 05.323 PLAYING COURTS AND POOLS

The playing courts shall be designed and located so as not to trap debris resulting in floodwater backups. No fill shall be permitted. Parking areas shall be gravel, or pervious paving blocks or grids. Paving shall not exceed five (5) percent of the floodplain area.

SECTION 05.324 TRAILS

All trails in wetlands shall be elevated walkways. There shall be a minimum of eighteen (18) inches of clearance of the structure above the normal high water elevation.

SECTION 05.325 PUBLIC/PRIVATE ROADS AND SEWER/WATER

Disturbances of resources with roadways or utility lines and easements shall be discouraged. The applicant must demonstrate no feasible alternative to crossing the resource exists and the route selected is the least disruptive.

SECTION 05.326 ESSENTIAL ACCESS

Essential access shall be permitted only upon finding (in the Environmental Impact Assessment Report) that the access cannot avoid crossing waterbodies or floodways. If several properties in the area suffer the same problem, then the essential access shall be designed to serve all properties, and access easements shall be provided. Staff shall make every effort to gain the cooperation of all property owners, including financial sharing of costs. If adjoining property owners do not cooperate, the landowner making the improvements may submit a certified billing on the cost of the access. Subsequent essential access requests in the area shall be denied. The landowners shall be required to use the initial access and pay for their share of the documented expenses based on the number of dwellings or lots served.

SECTION 05.327 PUBLIC INTEREST AND SPECIAL INTEREST EVENTS

Public interest and special events may involve significant numbers of people, equipment, and temporary structures; they may be permitted in the floodplain and floodway when Staff can determine that flooding during the event is unlikely. Such determination is accomplished by calculating the concentration time required for a 100-year storm to flood the property. No permit shall be issued if the time of concentration is less than four (4) hours. In no case shall a permit be issued if the depth of water would exceed two (2) feet. A preliminary permit may be issued up to one hundred (100) days prior to the event. The final permit may be revoked if the Zoning Officer determines that stream flow conditions and weather conditions are favorable for flooding.