

ORDINANCE NO. 93655-1116

**AN ORDINANCE AMENDING CHAPTER FOUR OF TITLE TEN OF THE
CITY CODE RELATING TO FLOODPLAIN MANAGEMENT REGULATIONS
IN THE CITY OF MUSCATINE, IOWA.**

WHEREAS, in order for City of Muscatine residents and businesses to be able to continue to participate in the National Flood Insurance Program, the City of Muscatine must make number of changes to the Floodplain Management Regulations (Chapter 4 of Title 10 of the City Code), in order to keep them compliant with Title 44 Code of Federal Regulations 60.3; and

WHEREAS, the City of Muscatine in order to ensure that residents will continue to be eligible to participate in the National Flood Insurance Program has prepared an ordinance to Chapter Four of Title Ten that will bring the City's floodplain management regulations into compliance with Title 44 Code of Federal Regulations 60.3; and

**NOW, THEREFORE BE IT ORDAINED BY THE CITY COUNCIL OF THE
CITY OF MUSCATINE, IOWA:**

SECTION 1. The currently adopted versions of Chapter Four of Title Ten of the City Code are here by deleted and Exhibit A as attached hereby to is adopted in lieu thereof.

SECTION 2. If any section, provision or part of this ordinance shall be adjudged invalid or unconstitutional, such adjudication shall not affect the validity of the ordinance as a whole or any section, provision or part thereof not adjudged invalid or unconstitutional.

SECTION 3. Any Ordinance or part thereof in conflict or inconsistent with the provisions of this Ordinance is repealed.

SECTION 4. This ordinance shall be in effect from and after the passage and approval an publication of this ordnance, as provided by law

PASSED, APPROVED AND ADOPTED this 17th day of November, 2016.

**By the City Council of the
City of Muscatine, Iowa**




Diana L. Broderson, Mayor

ATTEST:


Gregg Mandsager, City Clerk

First Reading: November 10, 2016
Second Reading: November 17, 2016
Third Reading: November 17, 2016
Publication Date: Nov. 24, 2016

Title 10 – Zoning
Chapter 4 – FP Flood Plain District

SECTIONS:

- 10-4-1 Intent and Purpose
- 10-4-2 District Boundaries
- 10-4-3 General Provisions
- 10-4-4 Permissive Uses
- 10-4-5 Conditional Uses
- 10-4-6 Height, Area, Parking Requirements
- 10-4-7 Flood Control Manual
- 10-4-8 Administration
- 10-4-9 Variances
- 10-4-9 Definitions

10-4-1 Intent and Purpose.

A. The Legislature of the State of Iowa has in Chapter 414, Code of Iowa, as amended, delegated the power to cities to enact zoning regulations to secure safety from flood and to promote health and the general welfare.

B. It is the purpose of the Flood Plain District to apply special regulations to the use of land in those areas of the City which are subject to predictable inundations at frequent intervals and to assure that flood carrying capacity within the altered or relocated portion of any watercourse is maintained. Such land use controls are necessary to qualify property owners for flood insurance under the National Flood Insurance Act of 1968 (as amended).

C. The regulations, while permitting reasonable economic and social use of such properties, will help protect health, safety, and general welfare and reduce financial burdens imposed on the community, governmental units, and its individuals caused by frequent and periodic floods and the overflow of lands.

D. The standards required by this Chapter are considered reasonable for regulatory purposes. This Chapter does not imply that areas outside the designated Floodplain (Overlay) District areas will be free from flooding or flood damages. This Chapter shall not create liability on the part of the City of Muscatine or any officer or employee thereof for any flood damages that result from reliance on this Chapter or any administrative decision lawfully made there under.

10-4-2 District Boundaries.

- A. The boundaries of the Flood Plain District are hereby established as the areas classified as “Zone AE or Zone A” on the Flood Insurance Rate Map (FIRM) for Muscatine County and Incorporated Areas, City of Muscatine, Panels 19139C0185C, 192C, 225C, dated July 18, 2011; Panels 19139C0169D, 175D, 187D, 188D, 189D, 193D, 281D, 282D, 301D, dated April 16, 2014, and Panels 19139C0179E 183E, 184E, 191E, dated November 4, 2016 which were prepared as part of the Flood Insurance Study for Muscatine County. Which is (are) hereby

adopted by reference and declared to be the Official Floodplain Zoning Map. The flood profiles and all explanatory material contained with the Flood Insurance Study are also declared to be a part of this ordinance.

B. All lands included in such Flood Plain Districts shall be subject to the terms imposed herein, in addition to the terms imposed by any other zoning use district in which said lands should be located.

10-4-3 General Provisions

A. It is not intended by this Chapter to repeal, abrogate or impair any existing easements, covenants, or deed restrictions. However, where this Chapter imposes greater restrictions, the provision of this Chapter shall prevail.

B. All activities in this district shall obtain all necessary permits have been received as required by Federal or State law (including Section 404 of the Federal Water Pollution Control Act Amendments of 1972, 33 U.S.C. 1334).

C. No use shall affect the capacity or conveyance of the channel or floodway of any tributary to the main stream, drainage ditch or any other drainage facility or system.

10-4-4 Permissive Uses

When the use proposed herein is allowable in a zoning district, the following uses and types of activities are permitted in the district; provided that such uses and types of activities do not entail any man-made changes to improved or unimproved real estate, including but not limited to buildings or other structures (including the placement of factory built buildings), mining, dredging, filling, grading, paving, excavation, or drilling operations.

A. Agricultural uses such as general farming, pasture, grazing, outdoor plant nurseries, horticulture, viticulture, truck farming, forestry, sod farming and wild crop harvesting.

B. Open recreational uses such as golf courses, tennis courts, driving ranges, archery ranges, picnic grounds, boat launching ramps, swimming areas, parks, wildlife and nature preserves, game farms, fish hatcheries, shooting preserves, target ranges, trap and skeet ranges, hunting and fishing areas, hiking and horseback riding trails.

C. Marinas.

D. Industrial-commercial uses such as loading areas, parking areas, airport landing strips.

E. For residential districts, area within the Flood Plain District, may be used for computing lot area requirements and may, therefore, be used for yard and park areas.

F. Storage yard for materials and equipment not subject to removal or major damage by flood waters.

10-4-5 Conditional Uses.

A. Any permissive or conditional use in the Zoning District applicable to the location in question and not identified as a permissive use in Section 10-4-4 is considered a conditional use.

B. Any man-made change to improved or unimproved real estate located in the Flood Plain District, including but not limited to buildings or other structures (including the placement of factory built buildings), mining, dredging, filling, grading, paving, excavation, or drilling operations, is considered a conditional use.

C. In addition to complying with the provisions contained within Section 10-22-1 of the City Code, conditional uses in the Flood Plain District must meet the following criteria to be approved:

1. Any proposed new construction or substantial improvements including the placement of factory built buildings shall meet the following standards:
 - a. Be designed (or modified) and adequately anchored to prevent flotation, collapse, or lateral movement of the structure resulting from hydrodynamic and hydrostatic loads, including the effects of buoyancy, designed and/or modified and anchored to prevent flotation, collapse, or lateral movement of the structure.
 - b. Use construction materials and equipment that are resistant to flood damage.
 - c. Use construction methods and practices that shall minimize flood damage.
 - d. New and substantially improved structures must be constructed with electrical, heating, ventilation, plumbing, and air conditioning equipment and other service facilities that are designed and/or located so as to prevent water from entering or accumulating within the components during conditions of flooding.
 - e. Factory-built homes including those placed in existing factory built home parks or subdivisions shall be elevated on a permanent foundation such that the lowest floor of the structures is a minimum of one (1) foot above the one hundred(100) year flood.
 - f. All new construction or substantial improvements of residential structures located in the flood plain shall have the lowest floor (including basement) elevated one (1) foot above the level of the one hundred (100) year flood.
 - g. All new and substantially improved residential and nonresidential structures with fully enclosed areas below the "lowest floor" (not

including basements) 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 meet or exceed the following minimum criteria:

1. A minimum of two openings having a total net area of not less than one square inch for every square foot of enclosed area subject to flooding shall be provided.
 2. The bottom of all openings shall be no higher than one foot above grade.
 3. Openings may be equipped with screens, louvers, valves, or other coverings or devices provided that they permit the automatic entry and exit of floodwaters.
 4. Such areas shall be used solely for parking of vehicles, building access, low damage potential storage.
- h. All new construction or substantial improvements of nonresidential structures located in the Flood Plain District shall have the lowest floor (including basement) elevated one (1) foot above the level of the one hundred (100) year flood or together with all attendant utility and sanitary systems be flood proofed. When floodproofing is utilized, a professional engineer registered in the State of Iowa shall certify that:
1. The floodproofing methods used are adequate to withstand the flood depths, pressures, velocities, impact and uplift forces and other factors associated with the 100-year flood; and
 2. That the structure, below the 100-year flood level is watertight with walls substantially impermeable to the passage of water.
- i. All utility and sanitary facilities shall be flood proofed one (1) foot above the level of the one hundred (100) year flood so that any space below the level of the one hundred (100) year flood is watertight with walls substantially impermeable to the passage of water with structural components having the capability of resisting hydrostatic and hydrodynamic loads and effects of buoyancy.
- j. On site waste disposal systems shall be located or designed to avoid impairment to the system or contamination from the system during flooding.
- k. All new and replacement sanitary sewage systems shall be designed to minimize or eliminate infiltration of flood waters into the system as well as the discharge of effluent into flood waters.
- l. Wastewater treatment facilities (other than on-site systems) shall be provided with a level of flood protection equal to or greater than one (1) foot above the 100-year flood elevation.

m. New or replacement water supply systems shall be designed to minimize or eliminate infiltration of flood waters into the system.

n. Water supply treatment facilities shall be provided with a level of protection equal to or greater than one (1) foot above the one hundred (100) year flood elevation.

o. Utilities such as a gas or electrical system shall be located and constructed to minimize or eliminate flood damage to the system and the risk associated with such flood damaged or impaired systems.

p. All applicants for conditional use permits for new or substantially improved structures shall be accompanied by records of elevations and flood proofing levels, and whether or not such structures contain a basement. It shall be the responsibility of the applicant to obtain the appropriate topographic data, engineering studies, or other studies needed by the Zoning Board of Adjustment, the City Administrator or his/her designee, and/or other appropriate agency or official. All such data shall be prepared and certified by technically qualified persons and will be maintained by the City Administrator or his/her designee.

q. All applicants for conditional use permits for new or substantially improved structures shall be reviewed by the City Administrator or his/her designee to determine if the site of the proposed improvements is reasonably safe from flooding and that all necessary permits have been received as required by Federal or State law (including Section 404 of the Federal Water Pollution Control Act Amendments of 1972, 33 U.S.C. 1334).

r. Storage of materials and equipment that are flammable, explosive or injurious to human, animal or plant life is prohibited unless elevated a minimum of one (1) foot above the one hundred (100) year flood level. Other material and equipment must either be similarly elevated or (i) not be subject to major flood damage and be anchored to prevent movement due to flood waters or (ii) be readily removable from the area within the time available after flood warning.

s. Flood control structural works such as levees, flood walls, etc. shall provide, at a minimum, protection from a one hundred (100) year flood with a minimum of 3 feet (3') of design freeboard and shall provide for adequate interior drainage. In addition, structural flood control works shall be approved by the Department of Natural Resources.

u. Detached garages, sheds, and similar structures that are incidental to a residential use are exempt from the base flood elevation requirements where the following criteria are satisfied.

1. The structure shall be designed to have low flood damage potential. Its size shall not exceed 600 sq. ft. in size. Those

portions of the structure located less than 1 foot above the BFE must be constructed of flood-resistant materials.

2. The structure shall be used solely for low flood damage potential purposes such as vehicle parking and limited storage. The structure shall not be used for human habitation.

3. The structure shall be constructed and placed on the building site so as to offer minimum resistance to the flow of floodwaters.

4. The structure shall be firmly anchored to resist flotation, collapse and lateral movement.

5. The structure's service facilities such as electrical and heating equipment shall be elevated or floodproofed to at least one foot above the base flood elevation.

6. The structure's walls shall include openings that satisfy the provisions of 10-4-5 (C) 1g of this Ordinance.

2. All subdivision proposals and all other proposed new developments located in the Flood Plain District shall be reviewed by the appropriate agency to assure that:

a. All such proposals are consistent with the need to minimize flood damage.

b. All public utilities and facilities, such as sewer, gas, electrical, and water systems, are located and constructed to minimize or eliminate flood damage.

c. Adequate drainage is provided to reduce exposure to flood hazards.

d. All such proposals greater than fifty (50) lots or five (5) acres, whichever is lesser, include, within such proposals, base flood elevation data.

e.. Subdivision proposals intended for residential use shall provide all lots with a means of access which will be passable by wheeled vehicles during the 100-year flood

3. Factory built home development is considered a conditional use in the Flood Plain District, provided the subject property is appropriately zoned for such use and further provided that such development follows the procedures designed in the Zoning Ordinance for consideration of such use.

A. For new factory built home parks, for expansions to existing factory built home parks and for existing factory built home parks where the repair, reconstruction, or improvement of streets, utilities, and pads equal or exceeds fifty percent (50%) of the value of the streets, utilities, and pads before the repair, reconstruction, or improvement has commenced, it is required that:

1. Ground anchors for tie downs be provided in accordance with the Mobile Home Manufacturers Association standards.

2. The special flood hazard is disclosed to the factory built home and/or lot purchaser or lessee in the purchase contract, deed or lease. Notification of both the one hundred (100) year flood elevation and the regulatory flood protection elevation shall be provided.

3. Adequate surface drainage and easy access for a hauler is provided.

4. In the instance of elevation on piers, lots are large enough to permit steps, and steel reinforcement is provided for piers more than six feet (6') high.

5. Stands or lots are elevated on compacted fill or piers so that the lowest floor of the home will be one foot (1') above the level of the one hundred (100) year flood.

B. For factory built homes moving into existing factory built home parks, where concrete pads for the placement of factory built homes are in existence and where street and utility connections are in existence, it is required that:

1. Ground anchors for tie downs are required in accordance with the Mobile Home Manufacturers Association standards.

2. The special flood hazard is disclosed to the factory built home and/or lot purchaser or lessee in the purchase contract, deed, or lease. Notification of both the one hundred (100) year flood elevation and the regulatory flood protection elevation shall be provided.

4. All pressurized tanks and other containers storing materials or bulk materials hazardous to the public health, safety, and welfare shall be anchored to prevent lateral movement, collapse, flotation, or buoyancy.

5. Further, requirements for recreational vehicles placed on sites within Zone AE on on the Flood Insurance Rate Map (FIRM) for Muscatine County and Incorporated Areas, City of Muscatine, Panels 19139C0185C, 192C, 225C, dated July 18, 2011; Panels 19139C0169D, 175D, 187D, 188D, 189D, 193D, 281D, 282D, 301D, dated April 16, 2014, and Panels 19139C0179E 183E, 184E, 191E, dated November 4, 2016:

A. Be on the site for fewer than 180 consecutive days.

B. Be fully licensed and ready for highway use, or

C. Meet the permit, elevation and anchoring requirements for "manufactured homes".

D. A recreational vehicle is ready for highway use if it is on its wheels or jacking system, is attached to the site only by disconnect type utilities and security devices, and has no permanent attached additions.

10-4-6 Height, Area, Parking Requirements

The height, area, and parking requirements must conform to the district on which the Flood Plain District is superimposed.

10-4-7 Flood Control Manual

The 2002 Flood Control Manual for the City of Muscatine, as amended, is hereby adopted by reference. Said Flood Control Manual shall have the same force and effect as though fully set forth herein. Copies of said Flood Control Manual are available in the office of the City Clerk.

10-4-8 Administration

Duties and responsibilities of the City Administrator or his/her designee, specifically relating to this Chapter, shall include, but not necessarily be limited to the following:

A. Review conditional use permit applications to assure that all necessary permits have been obtained from federal, state and local governmental agencies including approval when required from the Department of Natural Resources for floodplain construction.

B. Record and maintain a record of (i) the elevation (in relation to North American Vertical Datum 1988) of the lowest floor (including basement) of all new or substantially improved structures or (ii) the elevation to which new or substantially improved structures have been floodproofed.

C. Notify adjacent communities/counties and the Department of Natural Resources prior to any proposed alteration or relocation of a watercourse and submit evidence of such notifications to the Federal Emergency Management Agency.

D. Submit to the Federal Insurance Administrator an annual report concerning the City of Muscatine's participation, utilizing the annual report form supplied by the Federal Insurance Administrator.

E. Notify the Federal Insurance Administration of any annexations or modifications to the City of Muscatine corporate limit.

F. A conditional use permit issued by the Administrator shall be secured prior to any floodplain development (any man-made change to improved and unimproved real estate, including but not limited to buildings or other structures, mining, filling, grading, paving, excavation or drilling operations), including the placement of factory-built homes

10-4-9 Variance

The Board of Adjustment may authorize upon request in specific cases such variances from the terms of this Ordinance that will not be contrary to the public interest where, owing to special conditions, a literal enforcement of the provisions of this Ordinance will result in unnecessary hardship. Variances granted must meet the following applicable standards.

A. Variances shall only be granted upon: (i) a showing of good and sufficient cause, (ii) a determination that failure to grant the variance would result in exceptional hardship to the applicant, and (iii) a determination that the granting of the variance will not result

in increased flood heights, additional threats to public safety, extraordinary public expense, create nuisances, cause fraud on or victimization of the public or conflict with existing local codes or ordinances.

B. Variances shall not be issued within any designated floodway if any increase in flood levels during the 100-year flood would result. Consideration of the effects of any development on flood levels shall be based upon the assumption that an equal degree of development would be allowed for similarly situated lands.

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

D. In cases where the variance involves a lower level of flood protection for buildings than what is ordinarily required by this Ordinance, the applicant shall be notified in writing over the signature of the Administrator that: (i) the issuance of a variance will result in increased premium rates for flood insurance up to amounts as high as \$25 for \$100 of insurance coverage and (ii) such construction increases risks to life and property.

E. All variances granted shall have the concurrence or approval of the Department of Natural Resources.

10-4-10 Hearings and Decisions of the Board of Adjustment

A. Hearings. Upon the filing with the Board of Adjustment of an Appeal, an application for a Conditional Use or a request for a Variance, the Board shall hold a public hearing. The Board shall fix a reasonable time for the hearing and give public notice thereof, as well as due notice to parties in interest. At the hearing, any party may appear in person or by agent or attorney and present written or oral evidence. The board may require the appellant or applicant to provide such information as is reasonably deemed necessary and may request the technical assistance and/or evaluation of a professional engineer or other expert person or agency, including the Department of Natural Resources.

B. Decisions. The Board shall arrive at a decision on an Appeal, Conditional Use or Variance within a reasonable time. In passing upon an Appeal, the Board may, so long as such action is in conformity with the provisions of this ordinance, reverse or affirm, wholly or in part, or modify the order, requirement, decision, or determination appealed from, and it shall make its decision, in writing, setting forth the findings of fact and the reasons for its decision. In granting a Conditional Use or Variance, the board shall consider such factors as contained in this section and all other relevant sections of this ordinance and may prescribe such conditions as contained in CH 10-4-10 (B) 2.

1. Factors Upon Which the Decision of the Board of Adjustment Shall be Based. In passing upon applications for Variances, the Board shall consider all relevant factors specified in other sections of this Ordinance and:

- (a) The danger to life and property due to increased flood heights or velocities caused by encroachments.
- (b) The danger that materials may be swept on to other land or downstream to the injury of others.
- (c) The proposed water supply and sanitation systems and the ability of these systems to prevent disease, contamination and unsanitary conditions.
- (d) The susceptibility of the proposed facility and its contents to flood damage and the effect of such damage on the individual owner.
- (e) The importance of the services provided by the proposed facility to the City.
- (f) The requirements of the facility for a floodplain location.
- (g) The availability of alternative locations not subject to flooding for the proposed use.
- (h) The compatibility of the proposed use with existing development and development anticipated in the foreseeable future.
- (i) The relationship of the proposed use to the comprehensive plan and floodplain management program for the area.
- (j) The safety of access to the property in times of flood for ordinary and emergency vehicles.
- (k) The expected heights, velocity, duration, rate of rise and sediment transport of the flood water expected at the site.
- (l) The cost of providing governmental services during and after flood conditions, including maintenance and repair of public utilities (sewer, gas, electrical and water systems), facilities, streets and bridges.
- (m) Such other factors which are relevant to the purpose of this Ordinance.

(2) Conditions Attached to Variances - Upon consideration of the factors listed above, the Board of Adjustment may attach such conditions to the granting of variances as it deems necessary to further the purpose of this Ordinance. Such conditions may include, but not necessarily be limited to:

- (a) Modification of waste disposal and water supply facilities.
- (b) Limitation of periods of use and operation.
- (c) Imposition of operational controls, sureties, and deed restrictions.
- (d) Requirements for construction of channel modifications, dikes, levees, and other protective measures, provided such are approved by the Department of Natural Resources and are deemed the only practical alternative to achieving the purpose of this Ordinance.
- (e) Floodproofing measures shall be designed consistent with the flood protection elevation for the particular area, flood velocities, duration, rate of rise, hydrostatic and hydrodynamic forces, and other factors associated with the regulatory flood. The Board of Adjustment shall require that the applicant submit a plan or document certified by a registered professional engineer that the floodproofing measures are consistent with the regulatory flood protection elevation and associated flood factors for the particular area.

6. Appeals to the Court - Any person or persons, jointly or severally, aggrieved by any decision of the Board of Adjustment may present to a court of record a petition, duly verified, setting forth that such decision is illegal, in whole or in part, specifying the grounds of the illegality. Such petition shall be presented to the court within thirty days after the filing of the decision in the office of the Board.

10-4-10 Definitions.

Unless specifically defined below, words or phrases used in this ordinance shall be interpreted so as to give them the meaning they have in common usage and to give this ordinance its most reasonable application.

Basement - Any enclosed area of a building which has its floor' or lowest level below ground level (subgrade) on all sides. Also see "lowest floor."

Development - Any man-made change to improved or unimproved real estate, including but not limited to buildings or other structures, mining, dredging, filling, grading, paving, excavation or drilling operations.

Existing Factory-Built Home Park or Subdivision - A factory-built home park or subdivision for which the construction of facilities for servicing the lots on which the factory-built 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 August 25, 1981.

Expansion of Existing Factory-Built Home Park or Subdivision - The preparation of additional sites by the construction of facilities for servicing the lots on which the factory-

built 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).

Factory-Built Home - Any structure, designed for residential use, which is wholly or in substantial part, made, fabricated, formed or assembled in manufacturing facilities for installation or assembly and installation, on a building site. For the purpose of this Ordinance factory-built homes include mobile homes, manufactured homes and modular homes and also include park trailers, travel trailers and other similar vehicles placed on a site for greater than 180 consecutive days.

Factory-Built Home Park - A parcel or contiguous parcels of land divided into two or more factory-built home lots for rent or sale.

Flood - A general and temporary condition of partial or complete inundation of normally dry land areas resulting from the overflow of streams or rivers or from the unusual and rapid runoff of surface waters from any source.

Flood Elevation - The elevation floodwaters would reach at a particular site during the occurrence of a specific flood. For instance, the 100-year flood elevation is the elevation of flood waters related to the occurrence of the 100-year flood.

A. For locations in areas classified as “Zone AE” on the Flood Insurance Rate Map (FIRM) for Muscatine County and Incorporated Areas, City of Muscatine, Panels 19139C0185C, 192C, 225C, dated July 18, 2011; Panels 19139C0169D, 175D, 187D, 188D, 189D, 193D, 281D, 282D, 301D, dated April 16, 2014, and Panels 19139C0179E 183E, 184E, 191E, dated November 4, 2016: the flood elevation is the base flood elevation shown on the Flood Insurance Rate Map.

B. For locations in areas classified as “Zone A” on the Flood Insurance Rate Map (FIRM) for Muscatine County and Incorporated Areas, City of Muscatine, Panels 19139C0185C, 192C, 225C, dated July 18, 2011; Panels 19139C0169D, 175D, 187D, 188D, 189D, 193D, 281D, 282D, 301D, dated April 16, 2014, and Panels 19139C0179E 183E, 184E, 191E, dated November 4, 2016:, and located south of Hershey Avenue one of the two methods shall be used to calculate the base flood elevation:

1. Computed using data on file with the City Engineer. or:
2. The Iowa Department of Natural Resources may be contacted to compute such data. The applicant will be responsible for providing the Department of Natural Resources with sufficient technical information to make such a calculation.

C. For locations in areas classified as “Zone A” on the Flood Insurance Rate Map (FIRM) for Muscatine County and Incorporated Areas, City of Muscatine, Panels 19139C0185C, 192C, 225C, dated July 18, 201; Panels 19139C0169D, 175D, 187D, 188D, 189D, 193D, 281D, 282D, 301D, dated April 16, 2014, and Panels 19139C0179E 183E, 184E, 191E, dated November 4, 2016:, and located north of Hershey Avenue, the Iowa Department of Natural Resources shall be contacted to

compute such data. The applicant will be responsible for providing the Department of Natural Resources with sufficient technical information to make such a calculation.

Flood Insurance Rate Map - The official map prepared as part of (but published separately from) the Flood Insurance Study which delineates both the flood hazard areas and the risk premium zones applicable to the community.

Flood Insurance Study - A study initiated, funded, and published by the Federal Insurance Administration for the purpose of evaluating in detail the existence and severity of flood hazards; providing the city with the necessary information for adopting a flood plain management program; and establishing actuarial flood insurance rates.

Flood Plain - Any land area susceptible to being inundated by water as a result of a flood.

Flood Plain Management - An overall program of corrective and preventive measures for reducing flood damages and promoting the wise use of flood plains, including but not limited to emergency preparedness plans, flood control works, floodproofing and flood plain management regulations.

Floodproofing - Any combination of structural and nonstructural additions, changes, or adjustments to structures, including utility and sanitary facilities, which will reduce or eliminate flood damage to such structures.

Floodway Fringe - Those portions of the flood plain, other than the floodway, which can be filled, leveed, or otherwise obstructed without causing substantially higher flood levels or flow velocities.

Historic Structure - 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 in communities with historic preservation programs that have been certified either:
 - 1. By an approved state program as determined by the Secretary of Interior, or
 - 2. Directly by the Secretary of Interior in states without approved programs.

Lowest Floor - The floor of the lowest enclosed area in a building including a basement

except when all the following criteria are met:

- A. The enclosed area is designed to flood to equalize hydrostatic pressure during floods with walls or openings that satisfy the provisions of Section 10-4-4(C)1(d), and
- B. The enclosed area is unfinished (not carpeted, drywalled, etc.) and used solely for low damage potential uses such as building access, parking or storage, and
- C. Machinery and service facilities (e.g., hot water heater, furnace, electrical service) contained in the enclosed area are located at least one (1) foot above the 100-year flood level, and
- D. The enclosed area is not a "basement" as defined in this section.

In cases where the lowest enclosed area satisfies criteria A,B,C, and d above, the lowest floor is the floor of the next highest enclosed area that does not satisfy the criteria above.

New Construction: structures for which the start of construction commenced on or after August 25, 1981 and includes any subsequent improvements to such structures.

New Factory-Built Home Park or Subdivision - A factory-built home park or subdivision for which the construction of facilities for servicing the lots on which the factory-built 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 first floodplain management regulations adopted by the community.

One Hundred (100) Year Flood - A flood, the magnitude of which has a one (1) percent chance of being equaled or exceeded in any given year or which, on the average, will be equaled or exceeded at least once every one hundred (100) years.

Recreational Vehicle - A vehicle which is:

- A. Built on a single chassis;
- B. 400 square feet or less when measured at the largest horizontal projection;
- C. Designed to be self-propelled or permanently towable by a light duty truck; and
- D. Designed primarily not for use of a permanent dwelling but as temporary living quarters for recreational, camping, travel, or seasonal use.

Regulatory Floodway: 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 a designated height.

Substantial Damage - A damage or any original sustained by a structure whereby the cost of restoring the structure to its before damaged condition would equal or exceed 50 percent of the market value of the structure before the damage occurred.

Special Flood Hazard Area - The land subject to the "100-year flood". This land is identified as Zone A or AE on the Flood Insurance Rate Map for Muscatine

County and Incorporated Areas, City of Muscatine, Panels 19139C0185C, 192C, 225C, dated July 18, 2011; Panels 19139C0169D, 175D, 187D, 188D, 189D, 193D, 281D, 282D, 301D, dated April 16, 2014, and Panels 19139C0179E 183E, 184E, 191E, dated November 4, 2016.

Start of Construction - Includes substantial improvement, and means the date the development permit was issued, provided the actual start of construction, repair, reconstruction, rehabilitation, addition, placement, or other improvement, was within 180 days of the permit date. The actual start means either the first placement or permanent construction of a structure on a site, such as pouring of a slab or footings, the installation of pile, the construction of columns, or any work beyond the stage of excavation; or the placement of a factory-built home on a foundation. Permanent construction does not include land preparation, such as clearing, grading and filling; nor does it include the installation of streets and/or walkways; nor does it include excavation for a basement, footings, piers, or foundations or the erection of temporary forms; nor does it include the installation on the property of accessory buildings such as garages or sheds not occupied as dwelling units or not part of the main structure. For a substantial improvement, the actual start of construction means the first alteration of any wall, ceiling, floor, or other structural part of the building, whether or not that alteration affects the external dimensions of the building.

Structure - Anything constructed or erected on the ground or attached to the ground, including, but not limited to, buildings, factories, sheds, cabins, factory-built homes, storage tanks, and other similar uses.

Substantial Improvement - Any reconstruction, rehabilitation, addition, or other improvement of a structure, which satisfies following criteria:

A. The cost of which equals or exceeds 50 percent of the market value of the structure before the "start of construction" of the improvement. This term includes structures which have incurred "substantial damage," regardless of the actual repair work performed.

B. Any addition which increases the original floor area of a building by 25 percent or more. All additions constructed after August 25, 1981 shall be added to any proposed addition in determining whether the total increase in original floor space would exceed 25 percent

The term does not, however, include either:

A. Any project for improvement of a structure to correct existing violations of state or local health, sanitary, or safety code specifications which have been identified by the local code enforcement official and which are the minimum necessary to assure safe living conditions or

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

Variance - A grant of relief by a community from the terms of the floodplain management regulations.

Violation - The failure of a structure or other development to be fully compliant with the regulations contained in this chapter.



City Hall, 215 Sycamore St.
Muscatine, IA 52761-3840
(563) 262-4141
Fax (563) 262-4142

COMMUNITY DEVELOPMENT

MEMORANDUM

Planning,
Zoning,
Building Safety,
Construction Inspection Services,
Public Health,
Housing Inspections,
Code Enforcement

To: Planning & Zoning Commission

From: Andrew Fangman, City Planner

Date: November 10, 2016

Re: Ordinance Amending Chapter Four of Title Ten of the City Code, Floodplain Management Regulations

BACKGROUND:

In order allow for City of Muscatine residents and businesses to continue participating in the National Flood Insurance Program, the City's floodplain management must be compliant with standards contained within with Title 44 Code of Federal Regulations 60.3. The City of Muscatine's current floodplain management regulations can be found in Chapters 4 and 5 of Title 10 of the City Code of Muscatine. The Iowa Department of Natural Resources has reviewed the City's floodplain regulations, and is requiring the following changes to be made in order for the City to be complaint with City's floodplain management must be compliant with standards contained within with Title 44 Code of Federal Regulations 60.3. Ammeded language is highlighted in yellow.

1. Amend 10-4-5 (C) 1 (g):

g. All new and substantially improved residential and nonresidential structures with fully enclosed areas below the "lowest floor" (not including basements) 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 meet or exceed the following minimum criteria:

1. A minimum of two openings having a total net area of not less than one square inch for every square foot of enclosed area subject to flooding shall be provided.
2. The bottom of all openings shall be no higher than one foot above grade.
3. Openings may be equipped with screens, louvers, valves, or other coverings or devices provided that they permit the automatic entry and exit of floodwaters.
4. Such areas shall be used solely for parking of vehicles, building access, low damage potential storage.

2. Amend 10-4-5 (C) 1 (h):

h. All new construction or substantial improvements of nonresidential structures located in the Flood Plain District shall have the lowest floor (including basement) elevated one (1) foot above the level of the one hundred (100) year flood or together with all attendant utility and sanitary systems be floodproofed. When floodproofing is utilized, a professional engineer registered in the State of Iowa shall certify that:

3. Amend 10-4-5 (C) 1 (u):

u. Detached garages, sheds, and similar structures that are incidental to a residential use are exempt from the base flood elevation requirements where the following criteria are satisfied.

1. The structure shall be designed to have low flood damage potential. Its size shall not exceed 600 sq. ft. in size. Those portions of the structure located less than 1 foot above the BFE must be constructed of flood-resistant materials.
 2. The structure shall be used solely for low flood damage potential purposes such as vehicle parking and limited storage. The structure shall not be used for human habitation.
 3. The structure shall be constructed and placed on the building site so as to offer minimum resistance to the flow of floodwaters.
 4. The structure shall be firmly anchored to resist flotation, collapse and lateral movement.
 5. The structure's service facilities such as electrical and heating equipment shall be elevated or floodproofed to at least one foot above the base flood elevation.
 6. The structure's walls shall include openings that satisfy the provisions of Chapter 10-4-5 (C) 1g of this Ordinance.
2. Exemption from the 100-year flood elevation requirements for such a structure may result in increased premium rates for flood insurance coverage of the structure and its contents.

4. Amend 10-4-5 (C) 2:

2. All subdivision proposals and all other proposed new developments located in the Flood Plain District shall be reviewed by the appropriate agency to assure that:

- a. All such proposals are consistent with the need to minimize flood damage.
- b. All public utilities and facilities, such as sewer, gas, electrical, and water systems, are located and constructed to minimize or eliminate flood damage.
- c. Adequate drainage is provided to reduce exposure to flood hazards.
- d. All such proposals greater than fifty (50) lots or five (5) acres, whichever is lesser, include, within such proposals, base flood elevation data.

e. Subdivision proposals intended for residential use shall provide all lots with a means of access which will be passable by wheeled vehicles during the 100-year flood.

5. Amend 10-4-8:

Duties and responsibilities of the City Administrator or his/her designee, specifically relating to this Chapter, shall include, but not necessarily be limited to the following:

A. Review conditional use permit applications to assure that all necessary permits have been obtained from federal, state and local governmental agencies including approval when required from the Department of Natural Resources for floodplain construction.

B. Record and maintain a record of (i) the elevation (in relation to North American Vertical Datum 1988) of the lowest floor (including basement) of all new or substantially improved structures or (ii) the elevation to which new or substantially improved structures have been floodproofed.

C. Notify adjacent communities/counties and the Department of Natural Resources prior to any proposed alteration or relocation of a watercourse and submit evidence of such notifications to the Federal Emergency Management Agency.

D. Submit to the Federal Insurance Administrator an annual report concerning the City of Muscatine's participation, utilizing the annual report form supplied by the Federal Insurance Administrator.

E. Notify the Federal Insurance Administration of any annexations or modifications to the City of Muscatine corporate limit.

F. A conditional use permit issued by the Administrator shall be secured prior to any floodplain development (any man-made change to improved and unimproved real estate, including but not limited to buildings or other structures, mining, filling, grading, paving, excavation or drilling operations), including the placement of factory-built homes.

Add

10-4-9 Variance

The Board of Adjustment may authorize upon request in specific cases such variances from the terms of this Ordinance that will not be contrary to the public interest where, owing to special conditions, a literal enforcement of the provisions of this Ordinance will result in unnecessary hardship. Variances granted must meet the following applicable standards.

A. Variances shall only be granted upon: (i) a showing of good and sufficient cause, (ii) a determination that failure to grant the variance would result in exceptional hardship to the applicant, and (iii) a determination that the granting of the variance will not result in increased flood heights, additional threats to public safety, extraordinary public expense, create nuisances, cause fraud on or victimization of the public or conflict with existing local codes or ordinances.

B. Variances shall not be issued within any designated floodway if any increase in flood levels during the 100-year flood would result. Consideration of the effects of any development on flood levels shall be based upon the assumption that an equal degree of development would be allowed for similarly situated lands.

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

D. In cases where the variance involves a lower level of flood protection for buildings than what is ordinarily required by this Ordinance, the applicant shall be notified in writing over the signature of the Administrator that: (i) the issuance of a variance will result in increased premium rates for flood insurance up to amounts as high as \$25 for \$100 of insurance coverage and (ii) such construction increases risks to life and property.

E. All variances granted shall have the concurrence or approval of the Department of Natural Resources.

RECOMMENDATION/RATIONALE: It is recommended that the proposed ordinance revising the City of Muscatine Floodplain Management Regulations, as required by the Iowa Department of Natural Resources to be adopted. Adoption of this ordinance will for City of Muscatine residents and businesses to continue participating in the National Flood Insurance Program

BACKUP INFORMATION:

1. Ordinance amending Chapter Four of Title Ten of the City Code, floodplain management.

PROOF OF PUBLICATION

I, Jeff Lee, being duly sworn, on my oath, say that I am an advertising clerk at the *Muscatine Journal*, a newspaper of general circulation, published in the City of Muscatine, Muscatine County, Iowa; and that the following Notice:

Muscatine City Clerk
Ordinance No. 93655-1116

Of which the annexed printed slip is a true, correct and complete copy, was published in said *Muscatine Journal* one time having been made there in on:

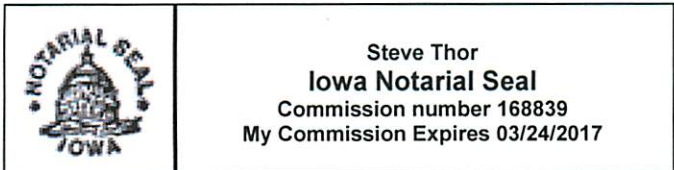
November 24, 2016

Jeff Lee

STATE OF IOWA
MUSCATINE COUNTY

28th day of November, 2016

Steve Thor, Notary Public



**ORDINANCE NO. 93655-1116
AN ORDINANCE AMENDING CHAPTER
FOUR OF TITLE TEN OF THE CITY
CODE RELATING TO FLOODPLAIN
MANAGEMENT REGULATIONS IN THE
CITY OF MUSCATINE, IOWA.**

WHEREAS, in order for City of Muscatine residents and businesses to be able to continue to participate in the National Flood Insurance Program, the City of Muscatine must make number of changes to the Floodplain Management Regulations (Chapter 4 of Title 10 of the City Code), in order to keep them compliant with Title 44 Code of Federal Regulations 60.3; and

WHEREAS, the City of Muscatine in order to ensure that residents will continue to be eligible to participate in the National Flood Insurance Program has prepared an ordinance to Chapter Four of Title Ten that will bring the City's floodplain management regulations into compliance with Title 44 Code of Federal Regulations 60.3; and

**NOW, THEREFORE BE IT ORDAINED
BY THE CITY COUNCIL OF THE CITY
OF MUSCATINE, IOWA:**

SECTION 1. The currently adopted versions of Chapter Four of Title Ten of the City Code are hereby deleted and Exhibit A as attached hereby to is adopted in lieu thereof.

SECTION 2. If any section, provision or part of this ordinance shall be adjudged invalid or unconstitutional, such adjudication shall not affect the validity of the ordinance as a whole or any section, provision or part thereof not adjudged invalid or unconstitutional.

SECTION 3. Any Ordinance or part thereof in conflict or inconsistent with the provisions of this Ordinance is repealed.

SECTION 4. This ordinance shall be in effect from and after the passage and approval an publication of this ordinance, as provided by law.

PASSED, APPROVED AND ADOPTED
this 17th day of November, 2016.

By the City Council of the
City of Muscatine, Iowa
Diana L. Broderson, Mayor

ATTEST:
Gregg Mandsager, City Clerk

First Reading: November 10, 2016
Second Reading: November 17, 2016
Third Reading: November 17, 2016
Publication Date: November 24, 2016
Title 10 - Zoning
Chapter 4 - FP Flood Plain District
SECTIONS:

10-4-1 Intent and Purpose
10-4-2 District Boundaries
10-4-3 General Provisions
10-4-4 Permissive Uses
10-4-5 Conditional Uses
10-4-6 Height, Area, Parking Requirements
10-4-7 Flood Control Manual
10-4-8 Administration
10-4-9 Variances
10-4-9 Definitions

10-4-1 Intent and Purpose.

A. The Legislature of the State of Iowa has in Chapter 414, Code of Iowa, as amended, delegated the power to cities to enact zoning regulations to secure safety from flood and to promote health and the general welfare.

B. It is the purpose of the Flood Plain District to apply special regulations to the use of land in those areas of the City which are subject to predictable inundations at frequent intervals and to assure that flood carrying capacity within the altered or relocated portion of any watercourse is maintained. Such land use controls are necessary to qualify property owners for flood insurance under the National Flood Insurance Act of 1968 (as amended).

C. The regulations, while permitting reasonable economic and social use of such properties, will help protect health, safety, and general welfare and reduce financial burdens imposed on the community, governmental units, and its individuals caused by frequent and periodic floods and the overflow of lands.

D. The standards required by this Chapter are considered reasonable for regulatory purposes. This Chapter does not imply that areas outside the designated Floodplain (Overlay) District areas will be free from flooding or flood damages. This Chapter shall not create liability on the part of the City of Muscatine or any officer or employee thereof for any flood damages that result from reliance on this Chapter or any administrative decision lawfully made there under.

10-4-2 District Boundaries.

A. The boundaries of the Flood Plain District are hereby established as the areas classified as "Zone AE or Zone A" on the Flood Insurance Rate Map (FIRM) for Muscatine County and Incorporated Areas, City of Muscatine, Panels 19139C0185C, 192C, 225C, dated July 18, 2011; Panels 19139C0169D, 175D, 187D, 188D, 189D, 193D, 281D, 282D, 301D, dated April 16, 2014, and Panels 19139C0179E 183E, 184E, 191E, dated November 4, 2016 which were prepared as part of the Flood Insurance Study for Muscatine County. Which is (are) hereby adopted by reference and declared to be the Official Floodplain Zoning Map. The flood profiles and all explanatory material contained with the Flood Insurance Study are also declared to be a part of this ordinance.

B. All lands included in such Flood Plain Districts shall be subject to the terms imposed herein, in addition to the terms imposed by any other zoning use district in which said lands should be located.

10-4-3 General Provisions

A. It is not intended by this Chapter to repeal, abrogate or impair any existing easements, covenants, or deed restrictions. However, where this Chapter imposes greater restrictions, the provision of this Chapter shall prevail.

B. All activities in this district shall obtain all necessary permits have been received as required by Federal or State law (including Section 404 of the Federal Water Pollution Control Act Amendments of 1972, 33 U.S.C. 1334).

C. No use shall affect the capacity or conveyance of the channel or floodway of any tributary to the main stream, drainage ditch or any other drainage facility or system.

10-4-4 Permissive Uses

When the use proposed herein is allowable in a zoning district, the following uses and types of activities are permitted in the district; provided that such uses and types of activities do not entail any man-made changes to improved or unimproved real estate, including but not limited to buildings or other structures (including the placement of factory built buildings), mining, dredging, filling, grading, paving, excavation, or drilling operations.

A. Agricultural uses such as general farming, pasture, grazing, outdoor plant nurseries, horticulture, viticulture, truck farming, forestry, sod farming and wild crop harvesting.

B. Open recreational uses such as golf courses, tennis courts, driving ranges, archery ranges, picnic grounds, boat launching ramps, swimming areas, parks, wildlife and nature preserves, game farms, fish hatcheries, shooting preserves, target ranges, trap and skeet ranges, hunting and fishing areas, hiking and horseback riding trails.

C. Marinas.

D. Industrial-commercial uses such as loading areas, parking areas, airport landing strips.

E. For residential districts, area within the Flood Plain District, may be used for computing lot area requirements and may, therefore, be used for yard and park areas.

F. Storage yard for materials and equipment not subject to removal or major damage by flood waters.

10-4-5 Conditional Uses.

A. Any permissive or conditional use in the Zoning District applicable to the location in question and not identified as a permissive use in Section 10-4-4 is considered a conditional use.

B. Any man-made change to improved or unimproved real estate located in the

Administrator shall be secured prior to any floodplain development (any improvement real estate, including but not limited to buildings or other structures, mining, filling, grading, paving, excavation or drilling operations), including the placement of factory-built homes.

10-4-9 Variance

The Board of Adjustment may authorize upon request in specific cases such variances from the terms of this Ordinance that will not be contrary to the public interest where, owing to special conditions, a literal enforcement of the provisions of this Ordinance will result in unnecessary hardship. Variances granted must meet the following applicable standards:

(i) a showing of good and sufficient cause; (ii) a determination that failure to grant the variance would result in exceptional hardship to the applicant; and (iii) a determination that the granting of the variance will result in increased flood damages, additional threats to public safety, extraordinary public expense, creation of nuisances, or adverse effects on other local codes or ordinances.

B. Variances shall not be issued within flood levels during the 100-year flood without results during the 100-year flood would result. Consideration of the effects of any development on flood levels shall be based upon the assumption that an allowed for similarly situated lands.

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

D. In cases where the variance involves a flood hazard, the variance involves a flood hazard, to afford relief.

E. All variances granted shall have the concurrence or approval of the Department of Natural Resources.

10-4-10 Hearings and Decisions of the Board of Adjustment

Hearings. Upon the filing with the Board of Adjustment of an appeal, an application for a Conditional Use or a request for a Variance, the Board shall hold a public hearing. The Board shall fix a reasonable time for the hearing and give notice thereof, as well as due notice to parties in interest. At the hearing, the Board may require the applicant to produce evidence. The Board may require the applicant to provide such information as is reasonably deemed necessary and may request the technical assistance and/or evaluation of a professional engineer or other expert person or agency, including the Department of Natural Resources.

Decisions. The Board shall arrive at a decision on an Appeal, Conditional Use or Variance within a reasonable time. In passing upon an appeal, the Board may, not longer than the provisions of this Ordinance, reverse or affirm, wholly or in part, or modify the order, requirement, decision, or determination appealed from, and it shall make its findings of fact and the reasons for its decision, in granting a Conditional Use or Variance, the Board shall consider such factors as contrasted in this section and all other relevant sections of this Ordinance contained in CH 10-4-10 (B) 2.

Factors Upon Which the Decision of the Board of Adjustment Shall be Based. In passing upon applications for Variances, the Board shall consider all relevant factors specified in other sections of this Ordinance and:

(a) The danger that materials may be swept on to other land or downstream to the injury of others;

(b) The proposed water supply and sanitary systems and the ability of these systems to prevent disease, contamination and unsanitary conditions;

(c) The susceptibility of the proposed facility and its contents to flood damage and the effect of such damage on the individual owner;

(d) The importance of the services provided by the proposed facility to the City;

(e) The requirements of the facility for a floodproofing location;

(f) The availability of alternative locations not subject to flooding for the proposed facility.

[illegible][illegible]

Any proposed new construction or substantial improvements, including the reconstruction of factory buildings shall meet the following standards:

- a. The design for (existing) and additional anchorage to prevent flotation, corrosion, or lateral movement of the structure, or the resulting from hydrodynamic and hydrostatic forces, including the effects of any flood, surge, or modified or increased water level, shall be designed and constructed to prevent flotation, collapse, or lateral movement of the structure.
- b. Use construction materials and equipment that are resistant to flood damage.
- c. Use construction methods and practices that shall minimize flood damage.
- d. New and substantially improved structures must be constructed with electrical, plumbing, ventilation, and air conditioning equipment and other service facilities that are designed and/or located as to prevent water from entering or accumulating within the components during conditions of flooding.
- e. Factory-built homes including those located in existing factory buildings, mobile parks or subdivisions shall be elevated on a permanent foundation such that the lowest floor of the structure is a minimum of one (1) foot above the one hundred (100) year flood.
- f. All new construction or substantial improvements of residential structures located in the flood plain shall have the lowest floor (including basement) elevated one (1) foot above the level of the one hundred (100) year flood.
- g. All new and substantially improved residential and nonresidential structures with enclosed basements that are subjected to flooding shall be designed to equalize hydrostatic flood forces on exterior walls by allowing for the entry and exit of flood waters. Designs for meeting this requirement must be certified by a registered professional engineer, or meet or exceed the following minimum criteria:
- h. A minimum of two openings having a total net area of not less than one square foot for every square foot of enclosed area subject to flooding shall be provided.
- i. The bottom of all openings shall be no higher than one foot above grade.
- j. Openings may be equipped with automatic closures, valves, or other coverings.
- k. Such areas shall be used solely for parking of vehicles, building access, low storage, and/or storage of materials.
- l. All new construction or substantial improvements of nonresidential structures located in the Flood Plain District shall have the lowest floor (including basement) elevated one (1) foot above the level of the one hundred (100) year flood.
- m. Together with all attendant utility and sanitary systems be flood proofed. When floodproofing is utilized, a professional engineer registered in the State of Iowa shall certify that:
1. The floodproofing methods used are adequate to withstand the flood depths, pressures, velocities, impact and uplift associated with the flood.
2. The 100-year flood, and the 100-year flood level is watertight with no substantial imperviousness to the passage of water.
3. All utility and sanitary facilities shall be flood proofed one (1) foot above the level of the one hundred (100) year flood so that no space below the level of the one hundred (100) year flood is watertight.
4. All walls substantially impervious to the passage of water with structural components having the capability of resisting hydrostatic and hydrodynamic loads and effects of buoyancy.
5. On site waste disposal systems shall be designed or designed to avoid impairment to the system or contamination from the system during flooding.
6. All new and replacement sanitary sewerage systems shall be designed to minimize or eliminate infiltration of flood waters into the system as well as the discharge of effluent into flood waters.
7. Wastewater treatment facilities (other than on-site systems) shall be provided with a level of flood protection equal to or greater than one (1) foot above the 100-year flood elevation.
8. New or replacement water supply systems shall be designed to minimize or eliminate infiltration of flood waters into the system.

The compatibility of the proposed use with existing development and development anticipated in the foreseeable future.

(l) The relationship of the proposed use to the comprehensive plan and floodplain management program for the area.

(j) The safety of access to the property in times of flood for ordinary and emergency vehicles.

(k) The expected heights, velocity, duration, rate of rise and sediment transport of the flood water expected at the site.

(l) The cost of providing governmental services during and after flood conditions, including maintenance and repair of public utilities (sewer, gas, electrical and water systems), facilities, streets and bridges.

(m) Such other factors which are relevant to the purpose of this Ordinance.

(2) Conditions Attached to Variances - Upon consideration of the factors listed above, the Board of Adjustment may attach such conditions to the granting of variances as it deems necessary to further the purpose of this Ordinance. Such conditions may include, but not necessarily be limited to:

(a) Modification of waste disposal and water supply facilities.

(b) Limitation of periods of use and operation.

(c) Imposition of operational controls, sureties, and deed restrictions.

(d) Requirements for construction of channel modifications, dikes, levees, and other protective measures, provided such are approved by the Department of Natural Resources and are deemed the only practical alternative to achieving the purpose of this Ordinance.

(e) Floodproofing measures shall be designed consistent with the flood protection elevation for the particular area, flood velocities, duration, rate of rise, hydrostatic and hydrodynamic forces, and other factors associated with the regulatory flood. The Board of Adjustment shall require that the applicant submit a plan or document certified by a registered professional engineer that the floodproofing measures are consistent with the regulatory flood protection elevation and associated flood factors for the particular area.

6. Appeals to the Court - Any person or persons, jointly or severally, aggrieved by any decision of the Board of Adjustment may present to a court of record a petition, duly verified, setting forth that such decision is illegal, in whole or in part, specifying the grounds of the illegality. Such petition shall be presented to the court within thirty days after the filing of the decision in the office of the Board.

10-4-10 Definitions.

Unless specifically defined below, words or phrases used in this ordinance shall be interpreted so as to give them the meaning they have in common usage and to give this ordinance its most reasonable application.

Basement - Any enclosed area of a building which has its floor or lowest level below ground level (subgrade) on all sides. Also see "lowest floor."

Development - Any man-made change to improved or unimproved real estate, including but not limited to buildings or other structures, mining, dredging, filling, grading, paving, excavation or drilling operations.

Existing Factory-Built Home Park or Subdivision - A factory-built home park or subdivision for which the construction of facilities for servicing the lots on which

the factory-built 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 August 25, 1981.

Expansion of Existing Factory-Built Home Park or Subdivision - The preparation of additional sites by the construction of facilities for servicing the lots on which the factory-built 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).

Factory-Built Home - Any structure, designed for residential use, which is wholly or in substantial part, made, fabricated, formed or assembled in manufacturing facilities for installation or assembly and installation, on a building site. For the purpose of this

Ordinance factory-built homes include mobile homes, manufactured homes and modular homes and also include park trailers, travel trailers and other similar vehicles placed on a site for greater than 180 consecutive days.

Factory-Built Home Park - A parcel or contiguous parcels of land divided into two or more factory-built home lots for rent or sale.

Flood - A general and temporary condition of partial or complete inundation of normally dry land areas resulting from the overflow of streams or rivers or from the unusual and rapid runoff of surface waters from any source.

Flood Elevation - The elevation floodwaters would reach at a particular site during the occurrence of a specific flood. For instance, the 100-year flood elevation is the elevation of flood waters related to the occurrence of the 100-year flood.

A. For locations in areas classified as "Zone AE" on the Flood Insurance Rate Map (FIRM) for Muscatine County and Incorporated Areas, City of Muscatine, Panels 19139C0185C, 192C, 225C, dated July 18, 2011; Panels 19139C0169D, 175D, 187D, 188D, 189D, 193D, 281D, 282D, 301D, dated April 16, 2014, and Panels 19139C0179E, 183E, 184E, 191E, dated November 4, 2016; the flood elevation is the base flood elevation shown on the Flood Insurance Rate Map.

B. For locations in areas classified as "Zone A" on the Flood Insurance Rate Map (FIRM) for Muscatine County and Incorporated Areas, City of Muscatine, Panels 19139C0185C, 192C, 225C, dated July 18, 2011; Panels 19139C0169D, 175D, 187D, 188D, 189D, 193D, 281D, 282D, 301D, dated April 16, 2014, and Panels 19139C0179E, 183E, 184E, 191E, dated November 4, 2016; and located south of Hershey Avenue one of the two methods shall be used to calculate the base flood elevation:

1. Computed using data on file with the City Engineer; or

2. The Iowa Department of Natural Resources may be contacted to compute such data. The applicant will be responsible for providing the Department of Natural Resources with sufficient technical information to make such a calculation.

C. For locations in areas classified as "Zone A" on the Flood Insurance Rate Map (FIRM) for Muscatine County and Incorporated Areas, City of Muscatine, Panels 19139C0185C, 192C, 225C, dated July 18, 2011; Panels 19139C0169D, 175D, 187D, 188D, 189D, 193D, 281D, 282D, 301D, dated April 16, 2014, and Panels 19139C0179E, 183E, 184E, 191E, dated November 4, 2016; and located north of Hershey Avenue, the Iowa Department of Natural Resources shall be contacted to compute such data. The applicant will be responsible for providing the Department of Natural Resources with sufficient technical information to make such a calculation.

Flood Insurance Rate Map - The official map prepared as part of (but published separately from) the Flood Insurance Study which delineates both the flood hazard areas and the risk premium zones applicable to the community.

Flood Insurance Study - A study initiated, funded, and published by the Federal Insurance Administration for the purpose of evaluating in detail the existence and severity of flood hazards; providing the city with the necessary information for adopting a flood plain management program; and establishing actuarial flood insurance rates.

Flood Plain - Any land area susceptible to being inundated by water as a result of a flood.

Flood Plain Management - An overall program of corrective and preventive measures for

reducing flood damages and promoting the wise use of flood plains, including but not limited to emergency preparedness plans, flood control works, floodproofing and flood plain management regulations.

Floodproofing - Any combination of structural and nonstructural additions, changes, or adjustments to structures, including utility and sanitary facilities, which will reduce or eliminate flood damage to such structures.

Floodway Fringe - Those portions of the flood plain, other than the floodway, which can be filled, leveed, or otherwise obstructed without causing substantially higher flood levels or flow velocities.

Historic Structure - 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 in communities with historic preservation programs that have been certified either:

1. By an approved state program as determined by the Secretary of Interior, or

2. Directly by the Secretary of Interior in states without approved programs.

Lowest Floor - The floor of the lowest enclosed area in a building including a basement except when all the following criteria are met:

A. The enclosed area is designed to flood to equalize hydrostatic pressure during floods with walls or openings that satisfy the provisions of Section 10-4-4(C)(1)(d), and

B. The enclosed area is unfinished (not carpeted, drywalled, etc.) and used solely for low damage potential uses such as building access, parking or storage, and

C. Machinery and service facilities (e.g., hot water heater, furnace, electrical service) contained in the enclosed area are located at least one (1) foot above the 100-year flood level, and

D. The enclosed area is not a "basement" as defined in this section.

In cases where the lowest enclosed area satisfies criteria A, B, C, and D above, the lowest floor is the floor of the next highest enclosed area that does not satisfy the criteria above.

New Construction - structures for which the start of construction commenced on or after August 25, 1981 and includes any subsequent improvements to such structures.

New Factory-Built Home Park or Subdivision - A factory-built home park or subdivision for which the construction of facilities for servicing the lots on which the factory-built 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 first floodplain management regulations adopted by the community.

One Hundred (100) Year Flood - A flood, the magnitude of which has a one (1) percent chance of being equaled or exceeded in any given year or which, on the average, will be equaled or exceeded at least once every one hundred (100) years.

Recreational Vehicle - A vehicle which is:

A. Built on a single chassis;

B. 400 square feet or less when measured at the largest horizontal projection;

C. Designed to be self-propelled or permanently towable by a light duty truck; and

D. Designed primarily not for use of a permanent dwelling but as temporary living quarters for recreational, camping, travel, or seasonal use.

Regulatory Floodway - 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 a designated height.

Substantial Damage - A damage or any original sustained by a structure whereby the cost of restoring the structure to its before damaged condition would equal or exceed 50 percent of the market value of the structure before the damage occurred.

Special Flood Hazard Area - The land subject to the "100-year flood". This land is identified as Zone A or AE on the Flood Insurance Rate Map for Muscatine County and Incorporated Areas, City of Muscatine, Panels 19139C0185C, 192C, 225C, dated July 18, 2011; Panels 19139C0169D, 175D, 187D, 188D, 189D, 193D, 281D, 282D, 301D, dated April 16, 2014, and Panels 19139C0179E, 183E, 184E, 191E, dated November 4, 2016.

Start of Construction - Includes substantial improvement, and means the date the development permit was issued, provided the actual start of construction, repair, reconstruction, rehabilitation, addition, placement, or other improvement, was within 180 days of the permit date. The actual start means either the first placement or permanent construction of a structure on a site, such as pouring of a slab or footings, the installation of pile, the construction of columns, or any work beyond the stage of excavation; or the placement of a factory-built home on a foundation. Permanent construction does not include land preparation, such as clearing, grading and filling; nor does it include the installation of streets and/or walkways; nor does it include excavation for a basement, footings, piers, or foundations or the erection of temporary forms; nor does it include the installation on the property of accessory buildings such as garages or sheds not occupied as dwelling units or not part of the main structure. For a substantial improvement, the actual start of construction means the first alteration of any wall, ceiling, floor, or other structural part of the building, whether or not that alteration affects the external dimensions of the building.

Structure - Anything constructed or erected on the ground or attached to the ground, including, but not limited to, buildings, factories, sheds, cabins, factory-built homes, storage tanks, and other similar uses.

Substantial Improvement - Any reconstruction, rehabilitation, addition, or other improvement of a structure, which satisfies following criteria:

A. The cost of which equals or exceeds 50 percent of the market value of the structure before the "start of construction" of the improvement. This term includes structures which have incurred "substantial damage," regardless of the actual repair work performed.

B. Any addition which increases the original floor area of a building by 25 percent or more. All additions constructed after August 25, 1981 shall be added to any proposed addition in determining whether the total increase in original floor space would exceed 25 percent.

The term does not, however, include either:

A. Any project for improvement of a structure to correct existing violations of state or local health, sanitary, or safety code specifications which have been identified by the local code enforcement official and which are the minimum necessary to assure safe living conditions or

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

Variance - A grant of relief by a community from the terms of the floodplain management regulations.

Violation - The failure of a structure or other development to be fully compliant with the regulations contained in this chapter.