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**PLANNING, ZONING AND BUILDING SAFETY**

**Public Health,  
Housing Inspections &  
Inspection Services**

**MEMORANDUM**

**To:** Mayor and City Council Members

**Cc:** Gregg Mandsager, City Administrator

**From:** Andrew Fangman, City Planner

**Date:** May 19, 2011

**Re:** An ordinance amending Chapter Four and Five of Title Ten of the City Code, Floodplain Management Regulations

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**INTRODUCTION:** The Federal Emergency Management Agency (FEMA) has completed a Flood Insurance Study and Flood Insurance Rate Map for Muscatine County, including the City of Muscatine which becomes effective on July 18, 2011. 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 by July 18th adopt legally enforceable floodplain management regulations that are compliant with Title 44 Code of Federal Regulations 60.3.

**BACKGROUND:** 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 proposed ordinance will replace these chapters with a revised version that adopts the new floodplain rate insurance maps, and makes other minor changes to bring them up to date with Title 44 Code of Federal Regulations 60.3. The Iowa Department of Natural Resources has reviewed the proposed ordinance and has determined that when it is adopted the City of Muscatine will be compliant with Title 44 Code of Federal Regulations 60.3 and that residents will continue to be eligible to participate in the National Flood Insurance Program.

Below is a list of the most significant changes being proposed to the floodplain regulations. The most significant is adoption of new floodplain maps, these new maps are attached. All other changes are primarily designed to make it easier to demonstrate how the City of Muscatine floodplain management regulations comply with Title 44 Code of Federal Regulations 60.3 and not represent a significant policy change.

## Significant Changes Between Current and Proposed Floodplain Management Regulations

1. Adopt the revised Flood Insurance Rate Map released by FEMA.
2. Allow for industrial-commercial uses such as loading areas, parking areas, airport landing strips as an allowed use in the Floodplain District, as they are currently an allowed use in the more restrictive Floodway District.
3. In situations, involving new and substantially improved structures, where floodproofing a portion of structure is an allowed alternative to elevating one foot above the base flood elevation, floodproofing is now defined in greater detail, a requirement that a registered engineer certify that the structure meets the floodproofing requirements added, and the City is now required to maintain a record to what elevation the structure has been floodproofed.
4. For areas south of Hershey Avenue the most current study is now used for defining the base flood elevation
5. Consolidated three separate definitions of "substantial improvement" into one.
6. Added sections that spell out how the floodplain regulations are administered.
7. Added references to the portion of the Code of Iowa that grants the necessary regulatory authority to the City to implement these regulations.
8. Added disclaimers of liability stating that compliance with the floodplain regulations does not guarantee protection from possible flood damage.
9. Added statements clarifying that nothing in the floodplain regulations is intended to repeal, abrogate or impair any existing easements, covenants, or deed restrictions. Where greater restrictions are imposed, the provisions of the floodplain regulations prevail.
10. Added a statement clarifying that 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.

**RECOMMENDATION/RATIONALE:** Staff recommends approving the attached ordinance on the first reading.

**ORDINANCE NO. \_\_\_\_.**

**AN ORDINANCE AMENDING TITLE 10, CHAPTERS 4 AND 5  
OF THE CITY CODE RELATING TO FLOODPLAIN MANAGEMENT  
REGULATIONS IN THE CITY OF MUSCATINE, IOWA.**

**WHEREAS,** The Federal Emergency Management Agency (FEMA) has completed a Flood Insurance Study and Flood Insurance Rate Map for Muscatine County, including the City of Muscatine which become effective on July 18, 2011; and

**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 by July 18<sup>th</sup> adopt legally enforceable floodplain management regulations that are 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 Title 10, Chapters 4 and 5 that will bring the City's floodplain management regulations into compliance with Title 44 Code of Federal Regulations 60.3; and

**WHEREAS,** The City Council has conducted a public hearing concerning the following amendments to Title 10, Chapters 4 and 5 of the City Code, floodplain management regulations;

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

**SECTION 1.** The currently adopted versions of Title 10, Chapters 4 and 5 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 its final passage, approval and publication as provided by law.

**PASSED, APPROVED AND ADOPTED** this \_\_\_\_\_ day of June, 2011.

**BY THE CITY COUNCIL OF THE  
CITY OF MUSCATINE, IOWA**

\_\_\_\_\_  
Richard W. O'Brien, Mayor

ATTEST:

\_\_\_\_\_  
Gregg Mandsager, City Administrator

First Reading: \_\_\_\_\_

Second Reading: \_\_\_\_\_

Final Reading: \_\_\_\_\_

Publication: \_\_\_\_\_

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 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 19139C0169C, 179C, 183C, 184C, 187C, 188C, 189C, 191C, 192C, 193C, 281C, 282C, 310C, dated July 18, 2011 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.
- h. All new construction or substantial improvements of nonresidential structures located in the Flood Plain District shall have the lowest floor (including basement) flood proofed and elevated one (1) foot above the level of the one hundred (100) year flood. 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. The exemption of detached garages, sheds, and similar structures from the one hundred (100) year flood elevation requirements may result in increased premium rates for insurance coverage of the structure and contents, however, said detached garages, sheds, and similar accessory type structures are exempt from the one hundred (100) year flood elevation requirements when:

1. The structure shall not be used for human habitation.
2. The structure shall be designed to have low flood damage potential.
3. The structure shall be constructed and placed on the building site so as to offer minimum resistance to the flow of floodwaters.

4. Structures shall be firmly anchored to prevent flotation which may result in damage to other structures.
5. The structure's service facilities such as electrical and heating equipment shall be elevated or flood proofed to at least one (1) foot above the one hundred (100) year flood level.

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.

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 19139C0169C, 179C, 183C, 184C, 187C, 188C, 189C, 191C, 192C, 193C, 281C, 282C, 310C, dated July 18, 2011:
  - 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.

#### *10-4-9 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 19139C0169C, 179C, 183C, 184C, 187C, 188C, 189C, 191C, 192C, 193C, 281C, 282C, 310C, dated July 18, 2011 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 19139C0169C, 179C, 183C, 184C, 187C, 188C, 189C, 191C, 192C, 193C, 281C, 282C, 310C, dated July 18, 2011 effective and revised July 18, 2011, 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 19139C0169C, 179C, 183C, 184C, 187C, 188C, 189C, 191C, 192C, 193C, 281C, 282C, 310C, dated July 18, 2011, 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 19139C0169C, 179C, 183C, 184C, 187C, 188C, 189C, 191C, 192C, 193C, 281C, 282C, 310C, dated July 18, 2011.

**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."

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

## SECTIONS:

10-5-1 Intent and Purpose

10-5-2 District Boundaries

10-5-3 Permissive Uses

10-5-4 Conditional Uses

10-5-5 Responsibility for Studies

### *10-5-1 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 Channel (Floodway) District to apply special regulations to the use of land in those areas of the City which are subject to predictable inundation and flow of flood waters such that the floodway efficiency will not be affected, or its capacity restricted. Such land use controls are necessary to qualify property owners for flood insurance under the National Flood Insurance Act of 1968 (as amended). The regulations, while permitting reasonable economic and social use of such properties, will help protect the public 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.

C. The standards required by this Chapter are considered reasonable for regulatory purposes. This Chapter does not imply that areas outside the designated Floodway 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.

D. 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.

### *10-5-2 District Boundaries.*

The boundaries of the Flood Channel (Floodway) District are hereby established as the areas shown as "Floodway Areas in Zone AE" as shown on the Flood Insurance Rate Map (FIRM) for Muscatine County and Incorporated Areas, City of Muscatine, Panels 19139C0169C, 179C, 183C, 184C, 187C, 188C, 189C, 191C, 192C, 193C, 281C, 282C, 310C, dated July 18, 2011 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. All lands included in such Flood Channel (Floodway) District shall be subject to the terms imposed herein.

### *10-5-3 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.

### *10-5-4 Permissive Uses.*

The following open space uses shall be permitted within the Flood Channel (Floodway) District to the extent that they are not prohibited by any other ordinance and provided that they do not require structures, placement of factory built buildings, fill, other obstructions, excavation, alteration of a watercourse, or storage of materials or equipment unless as otherwise provided by this Ordinance.

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

B. Industrial and commercial uses such as docks, dock piers, boat landings, loading areas, parking areas, and airport landing strips.

C. 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.

D. Open space, nonstructural uses such as lawns, gardens, parking areas, and play areas.

E. For residential districts, area within the Flood Channel (Floodway), may be used for computing lot area requirements.

F. Other water-oriented uses such as dams, power plants, underground pipelines, canals, drainage ditches, and bridges, provided such uses shall be approved by the Iowa Department of Natural Resources and meet other applicable Federal, State, and local regulations (including Section 404 of the Federal Water Pollution Control Act Amendments of 1972, 33 U.S.C. 1334).

#### 10-5-5 Conditional Uses.

Any use that includes structures, placement of factory built buildings, fill, other obstructions, excavation, alteration of a watercourse, or storage of materials or equipment requires a conditional use permit.

No structure (temporary or permanent), fill (including fill for roads and levees), deposit, obstruction, storage of materials or equipment, or other uses shall be permitted which acting alone or in combination with existing or proposed uses affects 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. For any such use, review shall be conducted by the Iowa Department of Natural Resources to determine if the proposed use would increase in flood levels within the community during the occurrence of the base flood.

#### *10-5-6 Responsibility for Studies*

Where topographic data, engineering studies, or other studies are needed by the appropriate City agency and/or Iowa Department of Natural Resources to determine the effects of flooding on a structure and/or the effects of the structure on the flow of water, the applicant shall submit such data or studies. All such data shall be prepared by technically qualified persons. All such data shall be maintained by the City of Muscatine

#### *10-5-7 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. 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.

#### *10-5-8 Definitions.*

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, additionally definition as contained in Section 10-4-9 shall also apply to this Chapter.

# South Muscatine





# FEMA Flood Zones



0.2% Annual Chance Flood Hazard

A

AE

X

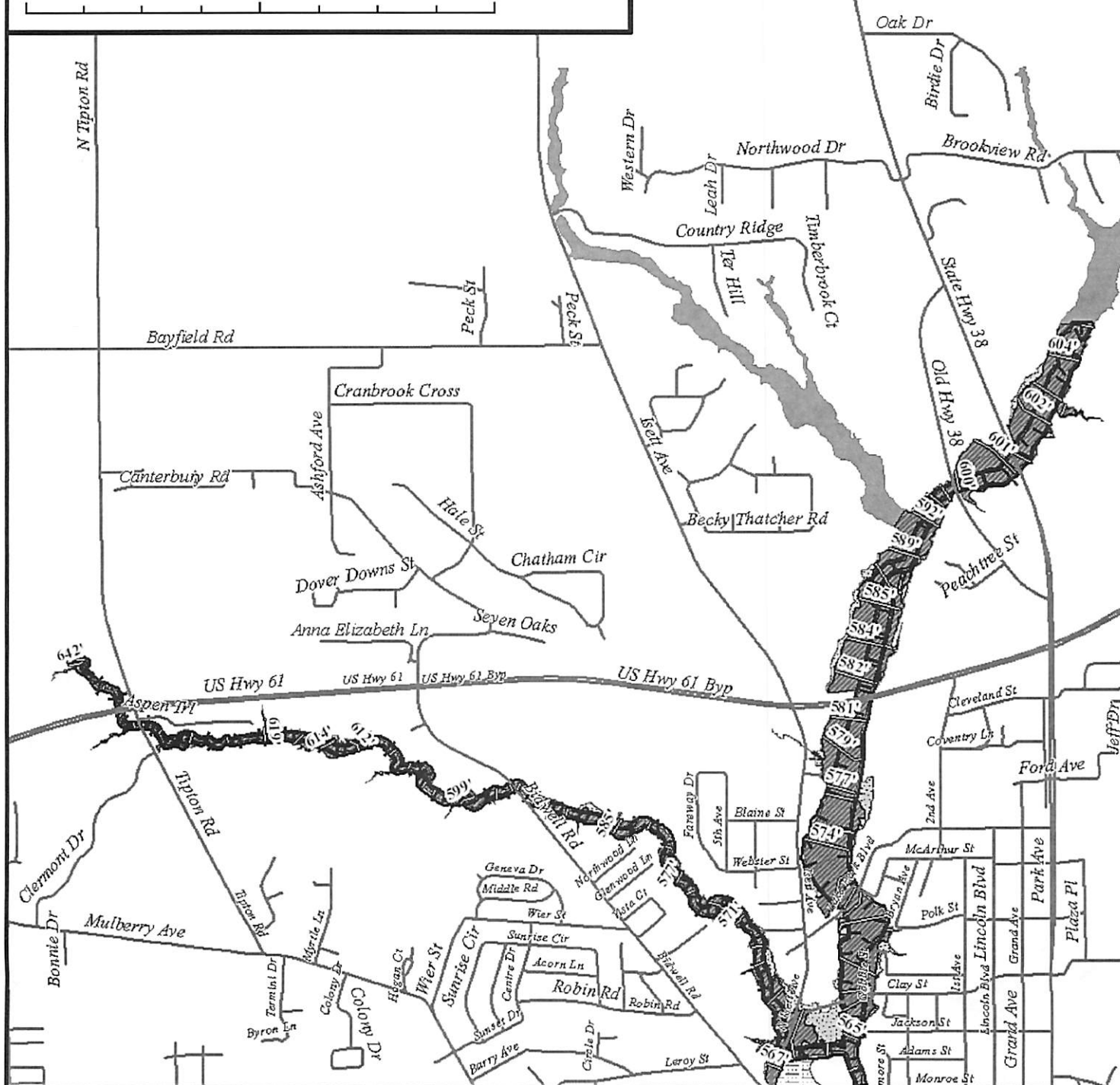
X, Protected By Levee

Floodway

Base Flood Elevations

Date Source: Muscatine Area Geographic  
Information Consortium, &  
Federal Emergency Management Agency  
Prepared by: Andrew Fangman  
Date: April 21, 2011

0 1,500 3,000 6,000 Feet



# FEMA Flood Zones



0.2% Annual Chance Flood Hazard

A

AE

X

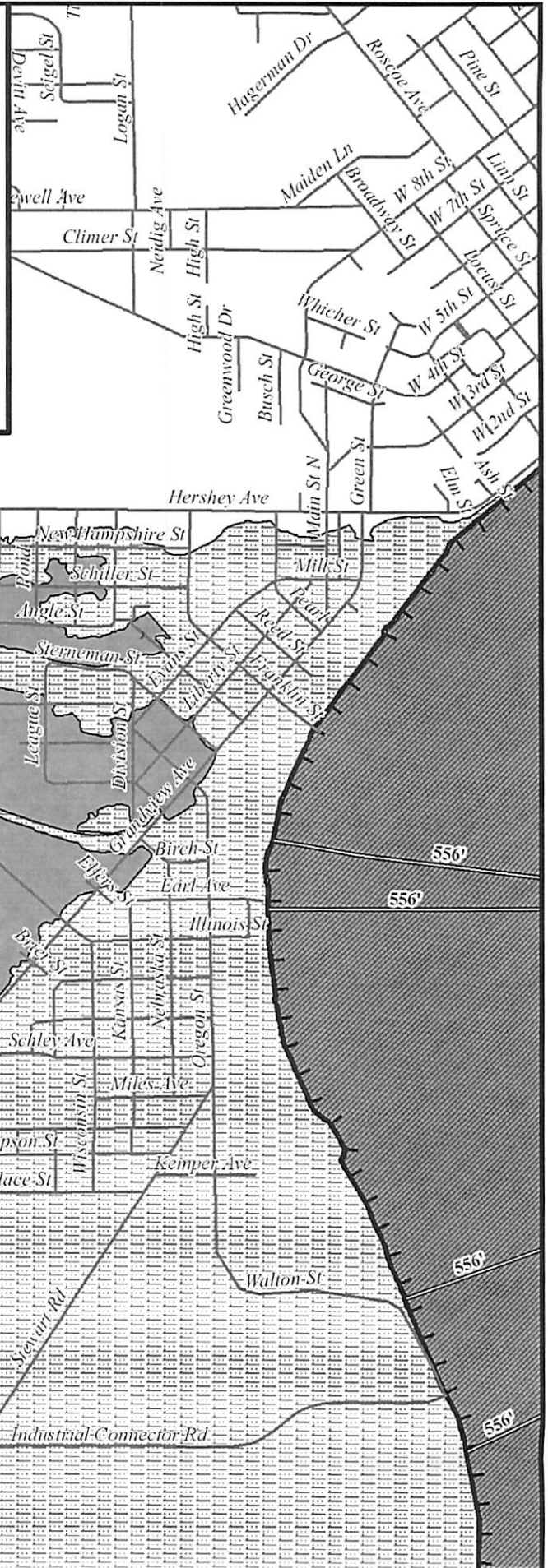
X, Protected By Levee

Floodway

Base Flood Elevations

Date Source: Muscatine Area Geographic Information Consortium, & Federal Emergency Management Agency  
Prepared by: Andrew Fangman  
Date: April 21, 2011

0 1,000 2,000 4,000 Feet



# FEMA Flood Zones



0.2% Annual Chance Flood Hazard

A

AE

X

X, Protected By Levee

Floodway

Base Flood Elevations

Date Source: Muscatine Area Geographic  
Information Consortium, &  
Federal Emergency Management Agency  
Prepared by: Andrew Fangman  
Date: April 21, 2011

0 1,875 3,750 7,500 Feet

