

### III. FLOODPLAINS

#### Introduction

A floodplain is an area adjacent to a stream or river that is subject to flooding or inundation during severe storm events. Often called the 100-year floodplain, this area encompasses the extent of land where flooding occurs on average, once every 100 years. The boundaries of floodplains are irregularly shaped and often meander through a community unnoticed. Although unseen, floodplains are integral assets of communities because of the many benefits they provide, which include flood water storage, protecting water quality, habitat for wildlife, and enhancing community character.

By storing flood waters, floodplains reduce the velocity of flood waters and peak flows downstream thereby decreasing property damage and other potential hazards to people residing or working in the floodplain. A floodplain can also improve water quality by filtering out pollutants and sediment and recharging groundwater. Vegetated floodplains can stabilize soils during floods, thus reducing the amount of sediment carried downstream. Floodplains provide habitat for plants and animals and are particularly important as breeding and feeding areas. Floodplains are also excellent areas for open space, parks, greenways, and recreation areas, all of which protect the natural functions of the floodplain.



Unfortunately, as floodplains are developed, their beneficial functions are diminished, which can increase property damage, endanger lives, reduce water quality and wildlife habitat, and impact the local economy. The heavy rains of May 2004 are a poignant example of how destructive floods can be, which led to Macomb County and twenty-two other Michigan counties being declared federal disaster areas. Macomb County was one

of the hardest hit and received \$1.6 million in disaster relief. (Source: The Macomb Daily) The damage, however, was probably not due to the volume of rain alone but likely exacerbated by the cumulative effect of development (i.e., buildings) located within floodplains. During a flood, buildings and parking lots can't absorb flood waters thereby increasing flood heights and velocities. Development pressure within floodplains will likely continue, so it is important for communities to adopt regulatory programs and standards that protect and enhance the natural functions of a floodplain and protect people and property during floods. To gain public support, floodplain management should promote public involvement and the coordination of floodplain management with other community concerns, such as economic development, housing, water quality, habitat protection, and recreation.

Floodplains can be regulated at the local, state, and federal level. There are several planning and regulatory techniques that local communities can use to protect floodplains. They include: 1) incorporating floodplain protection into the Master Plan, 2) establishing a natural features setback or buffer ordinance, 3) implementing a resource protection overlay district, and/or 4) protecting floodplains through regulations and site plan review. The introduction to this series discusses Master Plan elements in general terms. Chapters 5 and 6 discuss resource protection overlay districts and natural features setback or buffer ordinances, respectively. This Chapter illustrates how a community can regulate development within a floodplain through an ordinance. The model ordinance used is from a community in Macomb County.

## **Regulatory Considerations**

In addition to local regulations, state and federal statutes also play a role in protecting floodplains. The State of Michigan's Floodplain Regulatory Authority (found in Part 31, Water Resources Protection, of the Natural Resources and Environmental Protection Act (NREPA), 1994 PA 451, as amended), requires that a permit be obtained prior to any alteration or occupation of the 100 year floodplain of a river, stream, or drain. The purpose of Part 31 is to assure that the flow-carrying capacity of a watercourse is not harmfully obstructed, and that the floodway is not used for residential construction.

The State also regulates inland lakes and streams through Part 301 of NREPA, 1994 PA 451, as amended.

A municipality must also satisfy other regulatory requirements in relation to water resources, which include:

- Soil Erosion and Sedimentation Control Act (Act No. 347 of the Public Acts of Michigan of 1972 MCL 282.101 et seq., MSA 13.1820(1) et seq., as amended);
- Inland Lakes and Streams Act (Act No. 346 of the Public Acts of Michigan of 1972 (MCL 281.951 et seq., MSA 11.475(1) et seq., as amended);

- Flood Plain Control Act; Goemaere-Anderson Wetland Protection Act (Act No. 203 of the Public Acts of Michigan of 1979, (MCL 281.701 et seq., 18.595(51) et seq., as amended);
- National Flood Insurance Act of 1968, as amended; and
- Flood Disaster Protection Act of 1973, as amended.

In 1968, Congress created the National Flood Insurance Program (NFIP) to provide federally backed flood insurance to encourage communities to enact and enforce floodplain regulations. To be covered by a flood insurance policy, a property must be in a community that participates in the NFIP. Community participation in the NFIP is voluntary. Currently, twenty-two of Macomb County's twenty-seven communities participate in the NFIP.

To qualify for the program, a community must adopt and enforce a floodplain management ordinance to regulate development in flood hazard areas. The ordinance must meet or exceed the minimum criteria established by the NFIP. These floodplain management criteria are contained in 44 Code of Federal Regulations (CFR) Part 60, *Criteria for Land Management and Use*. Under the NFIP, the minimum floodplain management requirements that a community must adopt depends on the type of flood risk for that particular community. Flood risk data is provided by the Federal Emergency Management Agency (FEMA). The emphasis of the NFIP floodplain management requirements is to regulate all development in special flood hazard areas (100-year floodplain), and reduce threats to lives and the potential for damages to property in flood prone areas.

The NFIP also administers the Community Rating System (CRS), which provides discounts on flood insurance premiums in those communities that establish floodplain management programs that go beyond the minimum NFIP requirements. Under the CRS, communities receive credit towards premium reductions for more restrictive regulations, plans, and/or programs that reduce flood damages or protect the natural resources and functions of floodplains. The CRS recognizes eighteen creditable activities, organized under four categories: Public Information, Mapping and Regulations, Flood Damage Reduction, and Flood Preparedness. Although premium discounts are one of the benefits of participation in the CRS, these communities are carrying out important activities that save lives, reduce property damage, and protect the natural and beneficial functions of floodplains.

## **Example Ordinance Language**

The following provides example language of a floodplain ordinance. This ordinance meets the minimum requirements for floodplain management established by the NFIP and the State of Michigan. Like any example, this language should only be used as a guide. Each community has a unique set of circumstances, features, and existing ordinances that this regulation needs to compliment. Therefore, each ordinance section is

accompanied by general considerations for individualizing the ordinance. A qualified attorney should review a floodplain ordinance before it is enacted.

# FLOOD PREVENTION DISTRICT REGULATIONS

(COMMUNITY NAME), MICHIGAN

Ordinance No. \_\_\_\_\_

## SECTION 1 - GENERAL

### Section 1.1 - Findings

The flood hazard areas of the (Community Name) are subject to periodic inundation which results in loss or impairment of life, property, health and safety, disruption of commerce and governmental services, extraordinary expenditures of public funds for flood protection and relief and impairment of the tax base, all of which adversely affect public health, safety and general welfare. These flood losses are caused by the cumulative effect of obstructions in floodplains causing increased heights and velocities of floodwaters by the occupation of the flood-hazard areas of uses vulnerable to floods or hazards to other lands which are inadequately elevated, flood-proofed or otherwise protected from flood damage.

### Section 1.2 - Purposes

It is the purpose of the Flood Prevention District to protect the natural, human, structures, and economic resources of the (Community Name); and to promote the public health, safety and general welfare by application of special regulations for the use of land which is, or may be, subject to periodic inundation by floods and floodwaters at predictable intervals. Said regulations, while permitting reasonable economic use and considering the physical limitations of such land, will help to protect public health, public safety and general welfare, and will reduce the financial burdens imposed upon the community which may result from the improper use of such land. Said regulations are designed to:

- A. Restrict or prohibit uses which are dangerous to health, safety and welfare, and property due to water or erosion or in flood heights or velocities;
- B. Require that uses vulnerable to floods, including facilities which serve such uses, to be protected against flood damage at the time of initial construction;
- C. Control, filling, grading, dredging, obstructions and other developments which may increase erosion or flood damage; and
- D. Prevent or regulate the construction of flood barriers which will unnaturally divert floodwaters, or impede or obstruct the flow thereof, or which may increase flood hazards to other lands.

## SECTION 2 - DEFINITIONS

### Section 2.1 – Definitions

The words used in this article which are not expressly defined in this section shall be given their usual customary meaning with consideration to the context in which they are used. The following terms are expressly defined herein and shall mean:

**AREA OF SHALLOW FLOODING** means a designated AO or VO Zone (defined below) on the flood insurance rate map for the (Community Name) with base flood depths from one to three (3) feet where a clearly defined channel or watercourse does not exist, where the path of flooding is unpredictable and indeterminate, and where floodwater velocity flow may be evident.

#### SIDEBAR TEXT

- An AO zone is a special flood hazard area with sheet flow, ponding, or shallow flooding. Base flood depths are provided on the community's Flood Insurance Rate Map (FIRM).
- The VO zone is a Special Flood Hazard Area subject to coastal high hazard flooding.

**BASE FLOOD** means the flood having a one percent chance of being equaled or exceeded in any given year and shall be based upon a flood which is representative of large floods known to have occurred generally in the area and is reasonably characteristic of what can be expected to occur in a particular stream, channel or watercourse.

**DEVELOPMENT** means any man-made change to improved or unimproved real estate, including but not limited to the erection of buildings or other structures, mining, dredging, filling, grading, paving, excavation or drilling operations.

#### SIDEBAR TEXT

- According to 44CFR59.1 *Definitions*, areas of special flood hazard is the land in the floodplain within a community subject to a one (1) percent or greater chance of flooding in any given year. Special flood hazard area is synonymous in meaning with the phrase, "area of special flood hazard."
- The Flood Prevention District described in this section is commonly called an overlay district, which is an approach to applying special restrictions to areas with unique characteristics. Properties within these districts retain their underlying zoning classification but are subject to additional requirements specified in the overlay district ordinance.

**FLOOD OR FLOODING** means a general and temporary condition of partial or complete inundation of land which is, in its normal state, dry and unsubmerged, from the overflow of inland waters or the unusual and rapid accumulation or runoff of surface waters from any surface.

**FLOOD BOUNDARY AND FLOODWAY MAP** means that map (or maps) prepared by the United States Department of Housing and Urban Development which indicates the location of the floodway and the floodway fringe areas within the (Community Name), a copy of which is available for examination in the office of the Clerk of the (Community Name).

**FLOOD FRINGE** means the portion of the floodplain lying on either side of the floodway.

**FLOOD INSURANCE RATE MAP** means that map (or maps) prepared by the Federal Emergency Management Agency which classifies the floodplain into various zones for purposes of determining flood insurance premium rates within the (Community Name), a copy of which is available for examination at the office of the Clerk of the (Community Name).

**FLOOD INSURANCE STUDY** means that study (or studies) prepared by the Federal Emergency Management Agency which examines, evaluates and determines flood hazards, and if appropriate, corresponding water surface elevations for the (Community Name), and contains flood profile studies as well as a flood hazard boundary and floodway map and the water surface elevation of the base flood.

**FLOODPLAINS ASSOCIATED WITH THE BASE FLOOD** means that area which is inundated by the base flood. This is the floodplain area which shall be regulated by the standards and criteria of this article and shall be determined with reference to the flood boundary and floodway and the flood insurance study.

**FLOODPROOFING** means any combination of structural and nonstructural additions, changes or adjustments to structures which reduce or eliminate flood damage to real estate or improves real property, water and sanitary facilities, structures and their contents.

**FLOODWAY** means the channel of the watercourse and those portions of the adjoining floodplains which carry and discharge the floodwaters of the base flood, as determined by the Federal Emergency Management Agency (FEMA) and as indicated in the flood boundary and floodway map.

**NEW CONSTRUCTION** means all structures, including the placement of mobile homes, for which construction is started or commenced on or after the effective date of this article.

**OBSTRUCTION** means any dam, dike, wall, wharf, embankment, levee, pile abutment, projection, excavation, bridge, conduit, culvert, building, wire, fence, rock, gravel, refuse, file, structure, or other matter, in, along, across or projecting into any channel, watercourse or flood-hazard area which may impede, retain or change the direction of the flow of water or that is placed where the flow of water might carry the same downstream to damage life or property.

**SUBSTANTIAL IMPROVEMENT** means any repair, reconstruction, or improvement of a structure, the cost of which equals or exceeds fifty (50) percent of the market value of the structure either (a) before the improvement or repair is started, or (b) if the structure has been damaged, and is being restored, before the damage occurred. For purposes of this definition "substantial improvement" shall be considered to occur when the first alteration of any structural part of the building commences, whether or not that alteration affects the external dimensions of the structure. The term does not include any project for improvement to comply with existing state or city health, sanitary or safety code requirements which are solely necessary to assure safe living conditions or to any alteration of a structure listed on the National Register of Historic Places or the State of Michigan Register of Historic Places.

**WATERCOURSE** means any natural or artificial watercourse, stream, channel, creek, ditch, canal, conduit, culvert, drain, waterway, gully, ravine or wash in which water flows in a definite direction or course, either continuously or intermittently, and which has a definite channel, bed and banks, and shall include any area adjacent tracts subject to inundation by reason of overflow of floodwater.

### **SECTION 3 – APPLICATION OF ORDINANCE**

#### **Section 3.1 - Lands to Which Floodplains District Applies**

This article shall apply to all areas of special flood hazards within the jurisdiction of the (Community Name). The flood district shall be considered to overlay existing zoning districts and shall constitute additional terms to those imposed by the underlying zoning district and shall be known as the Flood Prevention District. This District is hereby divided into two (2) areas, which areas shall be known as the "floodway" area and "flood fringe" area as defined in Section 2.1 (Definitions) of this article. The location and boundaries of the floodway and floodway fringe areas shall coincide with the location and boundaries of floodways and floodway fringe areas as shown on the (Name and Date of Flood Insurance Study) as published by the Federal Emergency Management Agency, with accompanying flood insurance rate maps and floodway maps, and any revisions thereto all of which are hereby adopted by reference and declared to be a part of this article.



### **Section 3.2 - Development Permit Required**

From and after the effective date of this article, it shall be unlawful for any person to undertake any development, including the placement of mobile homes, within the Flood Protection District, without having first procured a development permit as hereinafter provided, said permit being required for all development as defined in Section 2.1 (Definitions), and irrespective of whether or not said development involves the actual construction for building or structure.

#### **SIDEBAR TEXT**

- In all cases the minimum requirements governing the adequacy of the floodplain management regulations for flood-prone areas depend on the level of flood risk for that community.

### **Section 3.3 – Compliance**

No structure shall hereafter be located, extended, converted or altered, nor shall any land be used, except in full compliance with the terms of this article and other applicable regulations.

### **Section 3.4 - Abrogation and Greater Restrictions**

This article is not intended to repeal, abrogate or impair any existing easement, covenant or deed restriction. When this article and any other ordinance, conflict or overlap, the ordinance, which imposes the most stringent standard shall be applicable.

### **Section 3.5 – Interpretation**

In the interpretation and application of this article, all provisions shall be:

- A. Considered as minimum requirements;
- B. Liberally construed in favor of the governing body; and
- C. Deemed neither to limit nor repeal any other powers granted under state statutes.

### **Section 3.6 - Warning and Disclaimer of Liability**

The degree of flood protection required by this article is considered reasonable for regulatory purposes and is based on scientific and engineering considerations. Larger floods can and will occur on rare occasions. Flood heights may be increased by man-made or natural causes. This article does not imply that land outside the areas of special flood hazards or uses permitted within such areas will be free from flooding or flood damages. This article shall not create liability on the part of the (Community Name) or by any officer or employee thereof for any flood damages that result from reliance on this article or any administrative decision lawfully made thereunder.

## **SECTION 4 – ADMINISTRATION**

### **Section 4.1 - Administration**

- A.** Designation of a (Community Name) authority. The (Community Name) authority is hereby appointed to administer and implement the provisions of this article.
- B.** Duties and responsibilities of the (Community Name) authority. Duties of the (Community Name) authority shall include, but not be limited to:
  - 1.** Review all development permits to assure that the permit requirements of this article have been satisfied.
  - 2.** Review permits for proposed development to assure that all necessary permits have been obtained from those federal, state or local governmental agencies from which prior approval is required.
  - 3.** Review all permits for proposed new development to determine whether such proposals will be reasonably safe from flooding, to assure that:
    - (a)** All such proposals are consistent with the need to minimize flood damage within flood-prone areas;
    - (b)** All public utilities, and facilities, such as sewer, gas, electrical and water systems are located and instructed to minimize or eliminate flood damage; and
    - (c)** Adequate drainage is provided to reduce expenses to flood damage.

4. Notify adjacent communities and the Michigan Department of Natural Resources prior to any alteration or relocation of a watercourse, and submit evidence of such notification to the Federal Insurance Administration.
5. Assure that maintenance is provided within the altered or relocated portion of said watercourse so that the flood-carrying capacity is not diminished.
6. Verify and record the actual elevation (in relation to mean sea level) of the lowest floor (including basement) of all new or substantially improved structures.
7. Verify and record the actual elevation (in relation to mean sea level) to which the new or substantially improved structures have been flood-proofed.
8. When flood-proofing is utilized for a particular structure, the (Community Name) authority shall obtain certification from a registered professional engineer or architect.
9. Where interpretation is needed as to the exact location of the boundaries of the areas of special flood hazards (for example, where there appears to be a conflict between a mapped boundary and actual field conditions), the (Community Name) authority shall make the necessary interpretation. The person contesting the location of the boundary shall be given a reasonable opportunity to appeal the interpretation as provided in this article.
10. When base flood elevation data has not been provided in accordance with Section 2.1 (Definitions) of this article, then the (Community Name) authority shall obtain, review, and reasonably utilize any base flood elevation data available from a federal, state or other source, in order to administer the provisions of Section 4.1 (Administration) of this article.
11. All records pertaining to the provisions of this article shall be maintained in the office of the (Community Name) authority and shall be open for public inspection.

#### **Section 4.2 - Permit Procedures**

Application for a development permit shall be made to the (Community Name) authority on forms furnished by him and may include, but not be limited to, the following plans in

duplicate drawn to scale showing the nature, location, dimensions and elevations of the area in question; existing or proposed structures, fill storage of materials; drainage facilities, and the location of the foregoing. Specifically, the following information is required:

- A. Elevation in relation to mean sea level, of the lowest floor (including basement) of all structures;
- B. Elevation in relation to mean sea level to which any nonresidential structure has been flood-proofed;
- C. Provide a certificate from a registered professional engineer or architect that the nonresidential flood-proofed structure meets the flood-proofing criteria in Section 5.1(B) (herein); and
- D. Description of the extent to which any watercourse will be altered or relocated as a result of proposed development.

#### **SIDEBAR TEXT**

- All development proposed for a floodplain must secure a permit from the Michigan Department of Environmental Quality (MDEQ) before issuance of any local permits.

#### **Section 4.3 - Variances Procedures; Standards for Determination Conditions**

- A. The zoning board of appeals, as established by the (Community Name), shall hear and decide appeals and requests for variances from the requirements of this article.
- B. The zoning board of appeals shall hear and decide appeals when it is alleged there is an error in any requirement, decision, or determination made by the (Community Name) authority in the enforcement or administration of this article.
- C. Any person aggrieved by the decision of the zoning board of appeals may appeal such decision to the Macomb County Circuit Court, as provided by statute.
- D. Variances may be issued for the reconstruction, rehabilitation or restoration of structures listed on the National Register of Historic Places or the State Inventory of Historic Places, without regard to the procedures set forth in the remainder of this section.

- E.** In passing upon such applications, the zoning board of appeals shall consider all technical evaluations, all relevant factors, standards specified in other sections of this article, and:
- 1.** The danger that materials may be swept onto other lands to the injury of others;
  - 2.** The danger to life and property due to flooding or erosion damage;
  - 3.** The susceptibility of the proposed facility and its contents to flood damage and the effect of such damage on the individual owner;
  - 4.** The importance of the services provided by the proposed facility to the community;
  - 5.** The necessity to the facility of a waterfront location, where applicable;
  - 6.** The availability of alternative locations, not subject to flooding or erosion damage, for the proposed use;
  - 7.** The compatibility of the proposed use with existing and anticipated development;
  - 8.** The relationship of the proposed use to the comprehensive plan and floodplain management program for that area;
  - 9.** The safety of access to the property in times of flood for ordinary and emergency vehicles;
  - 10.** The expected heights, velocity, duration, rate of rise and sediment transport of the floodwaters and the effects of wave action, if applicable, expected at the site;
  - 11.** The costs of providing governmental services during and after flood conditions including maintenance and repair of public utilities and facilities such as sewer, gas, electrical and water systems and streets and bridges; and
  - 12.** Generally, variances may be issued for new construction and substantial improvements to be erected on a lot of one-half (1/2) acre or less in size contiguous to and surrounded by lots, existing structures constructed below the base flood level, providing items (1) through (11) have been fully considered. As the lot size increases beyond the one-half (1/2) acre, the technical justification required for issuing the variance increases.

- F.** Upon consideration of the factors listed above and the purpose of this article, the zoning board of appeals may attach such conditions to the granting of variances as it deems necessary to further the purposes of this article.
- G.** Variances shall not be issued within any designated floodway if any increase in flood levels during the base flood discharge would result.
- H.** Conditions for variances:
- 1.** Variances shall only be issued upon a determination that the variance would result in exceptional hardship to the applicant; and
  - 2.** Variances shall only be issued upon:
    - (a)** A showing of good and sufficient cause;
    - (b)** A determination that failure to grant the variance would result in exceptional hardship to the applicant; and
    - (c)** A determination that the granting of a variance will not result in increased flood heights, additional threats to public safety, extraordinary public expense, create nuisance, cause fraud on or victimization of the public, or conflict with existing local laws or ordinances.
  - 3.** Any applicant to whom a variance is granted shall be given written notice that the structure will be permitted to be built with the lowest floor elevation below the base flood elevation, and that the cost of flood insurance will be commensurate with the increased risk resulting from the reduced lowest floor elevation.
  - 4.** The (Community Name) authority shall maintain the records of all appeal actions and report any variances to the Federal Insurance Administration upon request.
  - 5.** An applicant for a variance to permit development in any floodway shall secure a permit from the Michigan Department of Natural Resources under the authority of 1929 PA 245, as amended by 1968 PA 167, and evidence thereof shall be submitted to the (Community Name) authority.

## **SIDEBAR TEXT**

- If a community develops a pattern of inconsistent variances, FEMA can impose sanctions. Therefore, communities must carefully consider variance requests.

## **SECTION 5 – GENERAL STANDARDS**

### **Section 5.1 - Provisions for Flood Hazard Reduction**

- A.** *General standards.* In all areas of special flood hazards the following provisions are required:
1. All new construction and substantial improvements shall be designed and adequately anchored to prevent flotation, collapse or lateral movement of the structures;
  2. All new construction and substantial improvements shall be constructed with materials and utility equipment resistant to flood damage;
  3. All new construction or substantial improvements shall be constructed by methods and practices that minimize flood damage;
  4. All new and replacement water supply systems shall be designed to minimize or eliminate infiltration of floodwaters into the system;
  5. New and replacement sanitary sewage systems shall be designed to minimize or eliminate infiltration of floodwaters into the systems and discharges from the systems into floodwaters; and
  6. On-site waste disposal systems shall be located to avoid impairment to them or contamination from them during flooding.
- B.** *Specific standards.* In all areas of special flood hazards the following provisions are required:
1. *Residential construction:* New construction or substantial improvement of any residential structure shall have the lowest floor, including basement, elevated to one foot above base flood elevation.

2. *Nonresidential construction:* New construction or substantial improvement of any commercial, industrial or other nonresidential structure shall either have the lowest floor, including basement, elevated to one foot above the base flood elevation or, together with attendant utility and sanitary facilities, be flood-proofed so that below the base flood level the structure is watertight with walls substantially impermeable to the passage of water and with components having the capability of resisting hydrostatic and hydrodynamic loads and effects of buoyancy. A registered professional engineer or architect shall certify that the flood-proofing methods are adequate to withstand the flood depths, pressure, velocities, impact and uplift forces and other factors associated with the base-flood. Such certification shall be provided to the (Community Name).

3. *Mobile Homes:*

(a) No mobile home shall be placed in a floodway area, except in an existing mobile home park or existing mobile home subdivision.

(b) All mobile homes placed within the floodway and floodway fringe areas shall be anchored to resist flotation, collapse, or lateral movement by providing over-the-top ties to ground anchors. Specific requirements shall be that:

i. Over-the-top ties be provided at each of the four (4) corners of the mobile home, with two (2) additional ties per side at intermediate locations and mobile homes less than fifty (50) feet long requiring one additional tie per side;

ii. Frame ties be provided at each corner of the home with five (5) additional ties per side at intermediate points and mobile homes less than fifty (50) feet long requiring four (4) additional ties per side;

iii. All components of the anchoring system be capable of carrying a force of four thousand eight hundred (4,800) pounds; and

iv. Any additions to the mobile home be similarly anchored.



- (c) For new mobile home parks and subdivisions, for expansions to existing mobile home parks and subdivisions, for existing mobile home parks and subdivisions where the repair, reconstruction or improvement has commenced, and for mobile homes not placed in a mobile home park or subdivision, it is required that:

    - i. Stands or lots are elevated on compacted fill or on pilings so that the lowest floor of the mobile home will be one foot above the base flood level;
    - ii. Adequate surface drainage and access for a hauler are provided; and
    - iii. In the instance of elevation on pilings:
      - Lots are large enough to permit steps;
      - Piling foundations are placed in stable soil no more than ten (10) feet apart; and
      - Reinforcement is provided for pilings more than six (6) feet above the ground level.
4. *Floodways:* Located within the areas of special flood hazard established in Section 3.2 are areas designated as floodways. Since the floodway is an extremely hazardous area due to the velocity of floodwaters which carry debris, potential projectiles and erosion potential, the following provisions shall apply:
- (a) Encroachments, including fill, new construction, substantial improvements and other developments are prohibited unless certification by a professional registered engineer or architect is provided demonstrating that encroachments shall not result in any increase in flood levels during occurrence of the base flood discharge.
  - (b) If section 5.1 (B) (4) (a) of this article is satisfied, all new construction and substantial improvements shall comply with all applicable flood hazard reduction provisions of this article.
  - (c) The placement of any mobile homes is prohibited except in an existing mobile home park or existing mobile subdivision.

## SECTION 6 – PERMITTED USES AND SPECIFIC STANDARDS

### Section 6.1 - Permitted Uses By Right in the Floodway Area of the Flood Prevention District

The following uses having a low flood damage potential and present either no, or minimal obstruction to flood flows, shall be permitted within the floodway district to the extent that they are not prohibited by any other ordinance and provided they do not require structures, fill, or storage of materials or equipment. No use shall in any manner, affect the capacity of the channels or floodways of any tributary to the main stream, drainage ditch, or any other drainage facility or system. Approval from the State of Michigan Department of Natural Resources is needed for construction activity (of the following,) taking place in the floodway and floodway fringe areas of the Flood Prevention District:

- A. *Recreation uses:* Parks, playgrounds, playfields, bridle paths, nature trails, natural wildlife preserves, outdoor tennis courts, archery ranges, boat launching ramps, target ranges, trap and skeet ranges, game farms, fish hatcheries and similar uses.
- B. *Golf courses and driving ranges:* In accordance with the requirements of the zoning ordinance of the (Community Name).
- C. *Agricultural uses:* General farming, pasture, grazing, outdoor plant nurseries, horticulture, viticulture, truck farming, and wild crop farming.
- D. *Vegetated buffers:* Existing and/or constructed vegetative buffers.
- E. *Uses incidental to single-family dwellings:* Lawns, gardens, and play areas.
- F. *Parking areas:* Provided said parking areas are unpaved and are incidental to those uses permitted in the subsections listed above.
- G. *Uses not permitted:* Permitted uses in underlying zoning districts shall not be construed as being permitted uses in the floodway area of the Flood Prevention District unless those uses are indicated as being permitted in the subsections listed above.

### **SIDEBAR TEXT**

- Permitted uses within a floodplain and floodway should generally have minimal or no adverse impact on the ability of the floodplain to store flood waters or on the safety of persons residing or working within the floodplain.
- In prescribing allowable and restricted uses a community must strike an important balance. The right of citizens to live and work where they please, and to reasonably use their lands, must be balanced with public costs and the need to protect those same citizens and the whole community, including its natural resources, cultural amenities, and economic vitality.

### **Section 6.2 - Uses Permitted by Special Use Permit in the Floodway Area of the Flood Prevention District**

Provided such uses shall not, in the opinion of the planning commission, be adverse to the purpose of this section or damaging to the public health, safety or welfare, or impose a financial burden upon the community or shall in any manner affect the capacity of the channels or floodways of any tributary to the main stream, drainage ditch, or any other drainage facility or system, the following uses may be permitted by issuance of a special use permit in accordance with all other requirements of the zoning ordinance of the (Community Name) and section 6.1 of this article:

- A. Railroads, streets, bridges, utility transmission lines and pipe lines;
- B. Marinas, boat rentals, piers, wharves;
- C. Extraction of sand, gravel and other minerals;
- D. Structures for recreational uses such as shelter houses, outbuildings or wildlife sanctuaries;
- E. Paved parking areas; and
- F. Other uses similar in nature to uses described in section 6.1 which are consistent with the provisions of this article.

### **Section 6.3 - Requirements for Special Use Permit for Uses in the Floodway Area of the Flood Prevention District**

In addition to all other requirements of the zoning ordinances of the (Community Name), the application for a special use permit in the floodway area of the Flood Prevention District shall submit the following:

- A. A letter of approval from the State of Michigan Department of Natural Resources;
- B. A location map including existing topographic data at two-foot interval contours at a scale of one inch representing one hundred (100) feet;
- C. A map showing proposed grading and drainage plans including the location of all public drainage easements, the limits, extent, and elevation of the proposed fill, excavation and occupation;
- D. A statement from the Macomb County Drain Commissioner indicating that he or she has reviewed and approved the proposal;
- E. A statement from the (Community Name) engineer concerning feasibility of the proposal and his approval; and
- F. Any other information requested by the planning commission.

### **Section 6.4 - Standards for Special Use Permits Within the Floodway**

The planning commission shall review the particular circumstances and facts of each proposed use in terms of the following standards as well as those in Section 6.3:

- A. Structures shall not be designed for human habitation and shall have a low flood damage potential;
- B. Structures, if permitted, shall be constructed and placed on the building site so as to offer the minimum obstruction to the flow of the floodwaters and whenever possible, shall be constructed with the longer of the two (2) axes parallel to the direction of flood flow to minimize flow resistance;
- C. No special use permit shall be issued for the development of new structures, substantial improvement or relocation of old structures, or development of any kind within the floodway when such development, construction, improvement or relocation would cause any increase in flood level associated with the base flood.

## **SIDEBAR TEXT**

- The State's Floodplain Regulatory Authority, found in Part 31, Water Resources Protection of the Natural Resources and Environmental Protection Act (NREPA), 1994 PA 451, as amended, prohibits the construction of a human habitation in the floodway.
- However, the NFIP does not prohibit development or human habitation in the floodway although it is discouraged.

### **Section 6.5 - Standards for Areas of Shallow Flooding (AO Zones)**

Located within the areas of the special flood hazard established in Section 2.1 of this article are areas designated as shallow flooding. These areas have special flood hazards, associated with base flood depths of one to three (3) feet, where a clearly defined channel does not exist and where the path of flooding is unpredictable and indeterminate; therefore, the following provisions apply:

- A. All new construction and substantial improvements of residential structures have the lowest floor, including basement, elevated above the crown of the nearest street to or above the depth number specified on the flood insurance rate map for the (Community Name).
- B. All new construction and substantial improvements of nonresidential structures shall:
  1. Have the lowest floor, including basement, elevated aboveground of the nearest street to or above the depth number specified on the flood insurance rate map; or
  2. Together with attendant utility and sanitary facilities be completely flood-proofed to or above that level so that any space below that level is watertight with walls substantially impermeable to the passage of water and with structural components having the capability of resisting hydrostatic and hydrodynamic loads and effects of buoyancy.

### **Section 6.6 - Permitted Uses By Right in the Floodway Fringe Area of the Flood Prevention District**

The following uses having a low flood damage potential and present either no, or minimal obstruction to flood flows, shall be permitted within the floodway fringe district to the extent that they are not prohibited by any other ordinance and provided they do not

require structures, fill or storage of materials or equipment. Approval from the State of Michigan Department of Natural Resources is needed for construction activity taking place in the floodway fringe.

- A. Recreation uses: Parks, playgrounds, playfields, bridle paths, nature trails, natural wildlife preserves, outdoor tennis courts, archery ranges, boat launching ramps, target ranges, trap and skeet ranges, game farms, fish hatcheries and similar uses.
- B. Golf courses and driving ranges: In accordance with the requirements of the zoning ordinance of the (Community Name).
- C. Agricultural uses: General farming, pasture, grazing, outdoor plant nurseries, horticulture, viticulture, truck farming and wild crop farming.
- D. Uses incidental to single-family dwellings: Lawns, gardens and play areas.
- E. Uses not permitted: Permitted uses in underlying zoning districts shall not be construed as being permitted uses in the floodway area of the Flood Prevention District unless those uses are indicated as being permitted in the subsections listed above.

**Section 6.7 - Uses Permitted by Special Use Permit in the Floodway Fringe Area of the Flood Prevention District**

Provided such uses shall not, in the opinion of the planning commission, be adverse to the purpose of this section or damaging to the public health, safety or welfare, or impose a financial burden upon the community, the following uses may be permitted by issuance of a special use permit in accordance with the zoning ordinance of the (Community Name) and any other requirements contained herein:

- A. Railroads, streets, bridges, utility transmission lines and pipe lines;
- B. Marinas, boat rentals, piers, wharves;
- C. Extraction of sand, gravel and other minerals;
- D. Structures for recreational uses such as shelter houses, outbuildings or wildlife sanctuaries;
- E. Those uses indicated as being permitted uses or as being permissible with a special use permit in those zoning districts which underlie the Flood Prevention District;

- F. Dumping or backfilling with any material in any manner. In the case where floodway fringe areas have no groundwater recharge or impoundment potential, filling may occur through compensating excavation and shaping of the floodway fringe in such a way as to maintain or improve the flow or natural impoundment capacity of the floodway fringe. In no case shall the flow or impoundment capacity of the floodway fringe be reduced.
- G. Other uses similar in nature to uses described in section 6.5 which are consistent with the provisions of this article.

### **Section 6.8 - Requirements for Special Use Permits for Uses in the Floodway Fringe Area of the Flood Prevention District**

In addition to all other requirements of the zoning ordinance of the (Community Name), the applicant for a special use permit in the Flood Prevention District shall meet the following requirements:

- A. The applicant for a special use permit shall be required to submit that information listed as necessary in Section 6.3 herein.

### **Section 6.9 - Standards for Special Use Permits Within the Floodway Fringe**

The planning commission shall review the particular circumstances and facts of each proposed use in terms of the following standards as well as those in Section 6.3 herein:

- A. All new residential structures and residential structures requiring substantial improvement shall have the lowest floor (including basement) elevated to one foot above the level of the base flood floodplain.
- B. All new nonresidential structures and nonresidential structures requiring substantial improvement shall have the lowest floor (including basement) elevated to one foot above the level of the intermediate regional floodplain or shall be flood-proofed to one foot above the level of the intermediate regional floodplain.

### **Macomb County Area Communities with a Floodplain Ordinance**

The following communities in Macomb County are considering or have adopted a floodplain ordinance:

- 1) **City of St. Clair.** Contact: Clerk 810-329-7121

## **Additional Resources**

- 1) **Federal Emergency Management Agency.** *Answers to Questions About the National Flood Insurance Program.* March, 1992. Also look on the FEMA website at [www.fema.gov](http://www.fema.gov) under the “Mitigation and Flood Insurance” button.
- 2) **Morris, Marya.** *Subdivision Design in Flood Hazard Areas.* American Planning Association. 1997.
- 3) **Planning and Zoning Center, Inc.** “Floodplain Management.” *Community Planning Handbook: Tools and Techniques for Guiding Community Change.* Michigan Society of Planning Officials. 1991.
- 4) **Southeast Michigan Council of Governments.** “Floodplain and Stream Corridor Protection.” *Land Use Tools and Techniques. A Handbook for Local Communities.* March, 2003.
- 5) **Association of State Floodplain Managers.** [www.floods.org](http://www.floods.org).
- 6) **National Flood Insurance Program Community Rating System CRS Coordinator’s Manual. 2002.** Federal Emergency Management Agency.