

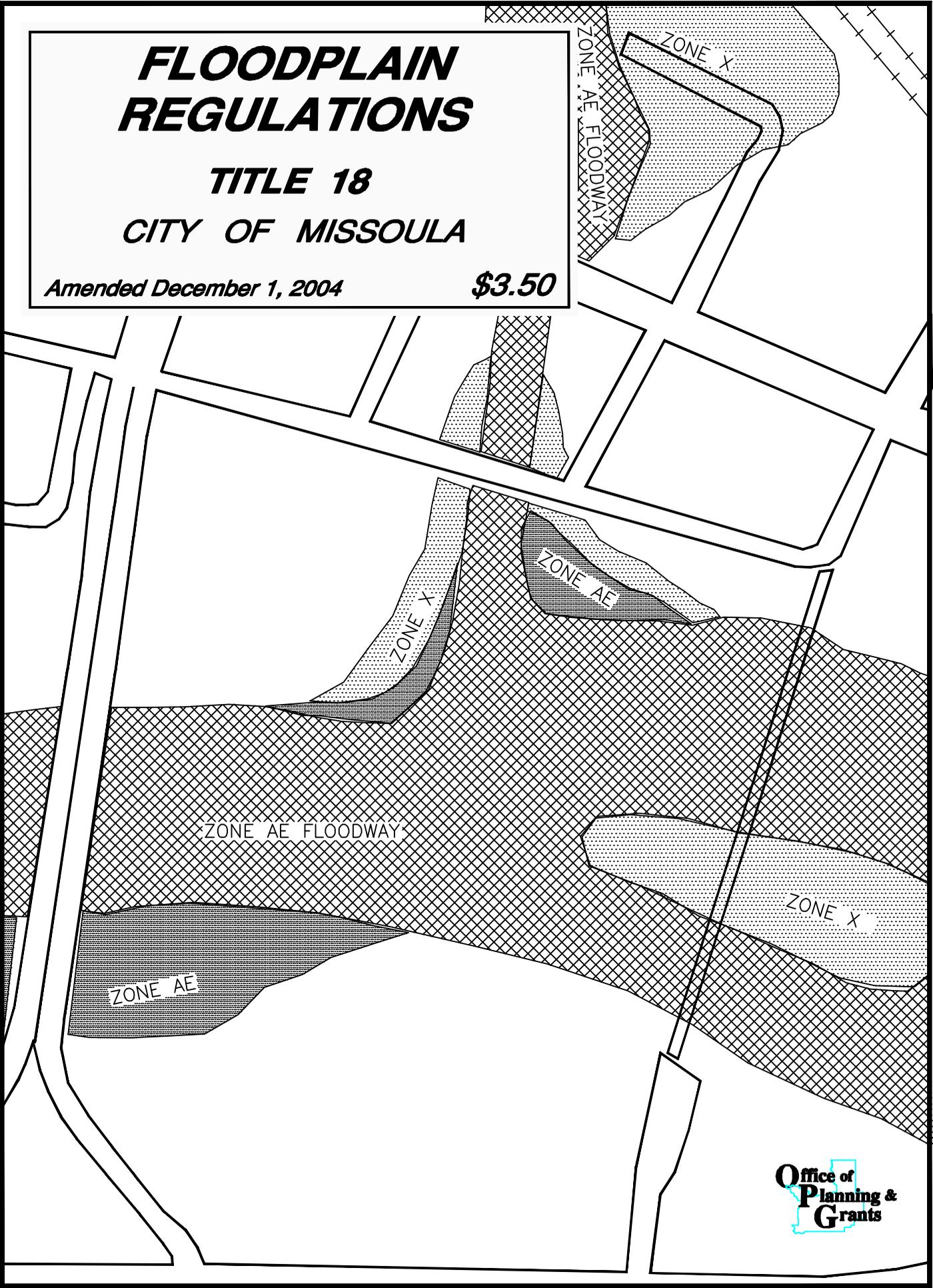
FLOODPLAIN REGULATIONS

TITLE 18

CITY OF MISSOULA

Amended December 1, 2004

\$3.50



City of Missoula Floodplain Regulations

Adopted by Ordinance:

#1722 - April 28, 1975

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Intent

This Ordinance is passed in order to comply with the Montana Floodplain and Floodway Management Act (Title 76, Chapter 5 MCA) and to ensure compliance with the requirements for the continued participation by the City of Missoula in the National Flood Insurance Program. These land-use regulations which are hereby adopted under Title 18 of the Missoula Municipal Code and will apply to all identified 100-year floodplains within the jurisdiction of the City of Missoula.

Statutory Authority

Municipalities have authority to adopt ordinances as provided for in Section 7-1-4123, MCA to promote the general public health and welfare.

Other authority for municipalities to adopt floodplain management regulations appear in Section 76-5-101 through 406, MCA.

Adoption

This Ordinance adopts the set of comprehensive land-use regulations for identified 100-year floodplains within the City of Missoula.

Identification of 100-year floodplains is based on the Flood Insurance Study for Missoula County and Incorporated Areas, dated August 16, 1988. All other Ordinances are hereby repealed to the extent of any inconsistencies.

CHAPTER 1

TITLE AND PURPOSE

1.01 Title

These Regulations shall be known and cited as the City of Missoula Floodplain Regulations. These Regulations are in accordance with exercising the authority of the laws of the State of Montana.

1.02 Purpose

To promote the public health, safety, and general welfare, to minimize flood losses in areas subject to flood hazards, and to promote wise use of the floodplain. These Regulations have been established with the following purposes intended:

- A. To guide development of the 100-year floodplain areas of the City of Missoula consistent with the enumerated findings by:
 - 1. Recognizing the right and need of water courses to periodically carry more than the normal flow of water;
 - 2. Participating in coordinating efforts of federal, state and local management activities for 100-year floodplains; and
 - 3. Insuring the regulations and minimum standards adopted, insofar as possible, balance the greatest public good with the least private injury.
- B. Specifically it is the purpose of these Regulations to:
 - 1. Restrict or prohibit uses which are dangerous to health, safety, and welfare of property in times of flood, or cause increase flood heights or velocities;
 - 2. Require that uses vulnerable to floods, including public facilities which serve such uses, be provided with flood protection at the time of initial construction;
 - 3. Utilize information which identifies lands which are unsuited for certain development purposes because of flood hazards;
 - 4. Minimize the need for rescue and relief efforts associated with flooding and generally undertaken at the expense of the general public;
 - 5. Ensure that potential buyers are notified that property is within a 100-year floodplain and subject to the provisions of these Regulations; and
 - 6. Ensure that those who occupy 100-year floodplains assume responsibility for their actions.

2.01 Definitions

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

1. **Accessory Use or Structure** - A use or structure on the same lot with, and of a nature customarily incidental and subordinate to, the principal use or structure.
2. **Act** - Montana Floodplain and Floodway Management Act, Section 76-5-101 through 406, MCA.
3. **Alteration** - Any change or addition to a structure or artificial obstruction that increases its external dimension or increases potential flood hazard.
(Ord. #2640 -- 10/24/88)
4. **Appeal** - A request for a review of the Floodplain Administrator's interpretation of any provision of these Regulations or a request for a variance.
5. **Area of Shallow Flooding** - A designated AO or AH zone on the FIRM with a one percent (1%) or greater annual chance of flooding to an average depth of one to three feet where a clearly defined channel does not exist, where the path of flooding is unpredictable and where velocity flow may be evident. (Ord. #2631 -- 8/15/88)
6. **Area of Special Flood Hazard** - The land in the floodplain within the community subject to inundation by a one percent (1%) or greater chance of flood in any given year, i.e., the 100-year floodplain.
7. **Artificial Obstruction - Development** - Any obstruction which is not natural and includes any dam, diversion, wall, riprap, embankment, levee, dike, pile, abutment, projection, revetment, excavation, channel rectification, bridge, conduit, culvert, building, refuse, automobile body, fill or other analogous structure or matter in, along, across or projecting into any 100-year floodplain which may impede, retard or alter the pattern of flow of water, either in itself or by catching or collecting debris carried by the water, or that is placed where the natural flow of water would carry the same downstream to the damage or detriment of either life or property.
8. **Base Flood** - A flood having a one percent (1%) chance of being equaled or exceeded in any given year.
9. **Base Flood Elevation** - The elevation above sea level of the base flood in relation to National Geodetic Vertical Datum of 1929 unless otherwise specified in the flood hazard study.

10. **Channelization Project** - The excavation and/or construction of an artificial channel for the purpose of diverting the entire flow of a stream from its established course.
11. **Development** - Any manmade 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. (Ord. #2631 -- 8/15/88)
12. **Drainway** - Any depression two (2) feet or more below the surrounding land serving to give direction to a current of water less than nine (9) months of the year, having a bed and well-defined banks; provided that in the event of doubt as to whether a depression is a watercourse or drainway, it shall be presumed to be a watercourse.
13. **Establish** - To construct, place, insert or excavate.
14. **Existing Mobile Home Park or Subdivision** - A mobile home park or subdivision where the construction of facilities for servicing the manufactured homes lots is completed before the effective date of the floodplain management regulations. This includes, at a minimum, the installation of utilities, the construction of streets, and either final site grading or the pouring of concrete pads.
15. **FEMA** - The Federal Emergency Management Agency.
16. **Flood or Flooding** - A general and temporary condition of partial or complete inundation of normally dry lands from the overflow of a stream, or the unusual and rapid accumulation or runoff of surface waters from any source.
17. **Floodplain Administrator** - Director of the Office of Planning and Grants or his/her designee.
18. **Floodplain** - The areas adjoining a stream which would be covered by flood water.
19. **Floodway** - The channel of a stream and the adjacent overbank areas that must be reserved in order to discharge a base flood without cumulatively increasing the water surface elevation more than one-half (1/2) foot.
20. **Floodway Fringe** - That portion of the floodplain outside the limits of the floodway.
21. **Flood Insurance Rate Map** - The map on which the Federal Emergency Management Agency has delineated both the 100-year floodplains and the risk premium zones.
22. **Flood Insurance Study** - The report in which the Federal Emergency Management Agency has provided flood profiles, as well as the Flood Boundaries and Floodway Map and the water surface profiles.
23. **Levee** - A man-made embankment, usually earthen, designed and constructed in accordance with sound engineering practices to contain, control, or divert the flow of water to provide protection from temporary flooding.
24. **Levee System** - A flood protection system that consists of a levee, or levees, and associated structures, such as drainage and closure devices, which are constructed and operated in accordance with sound engineering practices.

25. **Lowest Floor Elevation** - Any floor usable, or that could be converted to use for living purposes, storage or recreation.
26. **Mean Sea Level** - The National Geodetic Vertical Datum (NGVD) of 1929 or other datum to which base flood elevations are referenced.
27. **Mobile Home** - A structure that is transportable in one or more sections built on a permanent chassis and designed to be used with or without a permanent foundation when connected to the required utilities. It does not include recreational vehicles or travel trailers.
28. **Mobile Home Lot** - A designated portion of a mobile home park designed for the accommodation of one (1) mobile home and its accessory buildings or structures for the exclusive use of the occupants.
29. **Mobile Home Park** - A tract of land providing two (2) or more mobile home lots for lease or rent to the general public.
30. **Mobile Home Stand** - The area of a mobile home lot which has been reserved for the placement of a mobile home.
31. **Natural Obstruction** - Any rock, tree, gravel, or analogous natural matter that is an obstruction and has been located within the floodplain or floodway by a non-human cause.
32. **New Construction** - Structures for which the start of construction, substantial improvement or alteration commences on or after the effective date of these Regulations.
33. **Non-Conforming Use** - A land use not in accordance with these Regulations.
34. **Official Floodplain Maps** - The Flood Insurance Rate Maps and Flood Boundary Floodway Maps provided by the Federal Emergency Management Agency for the City of Missoula.
35. **Owner** - Any person who has dominion over, control of, or title to an obstruction.
36. **Permit Issuing Authority** - Floodplain Administrator as designated by the City of Missoula.
37. **Recreational Vehicle** - A vehicle which is (1) built on a single chassis; (2) 400 square feet or less when measured at the largest horizontal projections; (3) designed to be self-propelled or permanently towable by a light duty truck; and, (4) designed primarily for use as temporary living quarters for recreation, camping, travel, or seasonal use and not for use as a permanent dwelling.
38. **Responsible Political Subdivision** - City of Missoula, upon endorsement of this Ordinance by the Montana Board of Natural Resources and Conservation.
39. **Riprap** - Stone, rocks, concrete blocks or analogous material that is placed along the banks or bed of a stream for the purpose of alleviating erosion.

40. **Start of Construction** - Shall include substantial improvement and means the date the floodplain permit is issued, provided the actual start of construction, repair, reconstruction, placement, or other improvement begins within 180 days of the permit date. The actual start means either the first placement of permanent construction of a structure (other than a mobile home) on a site, such as the pouring of slabs or footings, the installation of piles, the construction of columns or any work beyond the state of excavation. 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 the excavation for a basement, footings, piers or foundation 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 as part of the main structure. For mobile homes being placed in an existing park or subdivision, start of construction means placement of the home on the foundation. (Res. #88-083--8/10/88)
41. **Structure** - A walled and roofed building or portions thereof, mobile home, gas or liquid storage tank, bridge, culvert, dam, diversion, wall, revetment, dike, or other projection that may impede, retard, or alter the pattern of flow of water.
42. **Substantial Damage** - Damage sustained by a structure where the cost of restoring the structure to its condition before damage would equal or exceed fifty percent (50%) of the market value of the structure before the damage occurred.
43. **Substantial Improvement** - Any repair, reconstruction, or improvement of a structure, the cost of which equals or exceeds fifty percent (50%) 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 the purposes of this definition, substantial improvement is considered to occur when the first construction to any wall, ceiling, floor or other structural part of the building commences. A substantial improvement differs from the alteration of a structure in that it is not defined to include increasing or affecting the external dimensions of the structure. The term also does not include either:

- a. Any project for improvement of a structure to comply with existing state or local health, sanitary or safety code specifications which are solely necessary to assure safe living conditions, or
 - b. Any alteration of a structure listed on the National Register of Historic Places or State Inventory of Historic Places.
44. **Suitable Fill** - Fill material which is stable, compacted, well graded, pervious, generally unaffected by water and frost, devoid of trash or similar foreign matter, and tree stumps or other organic material; and is fitted for the purpose of supporting the intended use and/or permanent structure.

45. **Variance** - A grant of relief from the requirements of these Regulations which would permit construction in a manner that would otherwise be prohibited by these Regulations.
46. **Violation** - The failure of a structure or other development to be fully compliant with these regulations. A structure or other development without elevation certificate, certification by a licensed engineer or architect of compliance with these regulations, or other evidence of compliance is presumed to be in violation until such time as documentation is provided.
47. **Watercourse** - Any depression two (2) feet or more below the surrounding land serving to give direction to a current of water at least nine (9) months of the year, having a bed and well-defined banks; provided that it shall, upon order of the Board of Natural Resources, also include any particular depression which would not otherwise be within the definition of watercourse.
48. **100-Year Flood** - A flood having a one percent (1%) chance of being equaled or exceeded in any given year. A 100-year flood has nearly a twenty-three percent (23%) chance of occurring in a 25-year period. A 100-year flood is the same as a base flood.

3.01 Jurisdictional Area

These Regulations shall apply to all lands within the jurisdiction of the City of Missoula, State of Montana, shown on the Official Floodplain Maps as being located within a 100-year floodplain district.

3.02 Floodplain District Establishment

The floodplain districts established are defined by the 100-year floodplains as delineated in the City of Missoula Flood Insurance Study. The basis for the Flood Insurance Study is a scientific and engineering report entitled, "Flood Insurance Study, Missoula County, Montana and Incorporated Areas," dated August 16, 1988, with accompanying Flood Insurance Rate Maps and Flood Boundary and Floodway Maps. The Official Floodplain Maps, together with the Flood Insurance Study are on file in the Office of the City of Missoula Floodplain Administrator. (Ord. #2631 -- 8/15/88)

3.03 City of Missoula Floodplain Administrator

Director of the Office of Planning and Grants or his/her designee. The responsibilities of this position are outlined in Chapter IV of these regulations.

3.04 Rules for Interpretation of Floodplain District Boundaries

The boundaries of the 100-year floodway shall be determined by scaling distances on the official floodplain maps and using the floodway data table contained in the flood insurance study report. The maps may be used as a guide for determining the 100-year floodplain boundary, but the exact location of the floodplain boundary shall be determined where the base flood elevation intersects the natural ground. For unnumbered A Zones and AO Zone floodplains, where there is a conflict between a mapped floodplain boundary and actual field conditions, the Floodplain Administrator may interpret the location of the 100-year floodplain boundary based on field conditions or available historical flood information.

3.05 Compliance

No structure or land use shall be located, extended, converted or structurally altered without full compliance with the provisions of these Regulations and other applicable regulations. These Regulations meet the minimum floodplain development requirements as set forth by the Montana Board of Natural Resources and Conservation and in the National Flood Insurance Program.

3.06 Abrogation and Greater Responsibility

It is not intended by these Regulations to repeal, abrogate or impair any existing easements, covenants, deed restrictions or underlying zoning. However, where these Regulations impose greater restrictions, the provisions of these Regulations shall prevail.

3.07 Regulation Interpretation

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

3.08 Warning and Disclaimer of Liability

These Regulations do not imply that areas outside the delineated floodplain boundaries or permitted land uses within such areas will always be totally free from flooding or flood damages. These Regulations shall not create a liability on the part of, or a cause of action against the City of Missoula, or any officer or employee thereof for any flood damages that may result from reliance upon these Regulations.

3.09 Severability

If any section, clause, provision or portion of these Regulations is adjudged unconstitutional or invalid by a court of competent jurisdiction, the remainder of these regulations shall not be affected thereby.

3.10 Disclosure Provision

All owners of property in an identified 100-year floodplain as indicated on the Official Floodplain Maps must notify potential buyers or their agents that such property is subject to the provisions of these Regulations. Upon resale of property, the lending institution must notify potential buyers ten days prior to closing that the property is located within a special flood hazard area. The lender must also notify potential buyers whether, in the event of a flood disaster, Federal disaster relief would be available to the property.

4.01 Administration

- A. As provided in Section 3.03 of these regulations, the Floodplain Administrator has been designated by the Missoula City Council and has all the responsibility of such position as outlined in these regulations.
- B. Activities or uses which require the issuance of a permit, including the expansion or alteration of existing uses, shall not be initiated, established or undertaken until a permit has been issued by the Floodplain Administrator.
- C. The Floodplain Administrator is hereby appointed with the authority to review floodplain development permit applications and proposed uses or construction to determine compliance with these Regulations.
 - 1. Additional Factors - Floodplain development permits shall be granted or denied by the Floodplain Administrator on the basis of whether the proposed establishment, alteration, or substantial improvement of an artificial obstruction or non-conforming use meets the requirements of these Regulations. Additional factors that shall be considered for every permit application are:
 - a. The danger to life and property due to increased flood heights, increased flood water velocities or alterations in the pattern of flood flow caused by encroachments;
 - b. The danger that materials may be swept onto other lands or downstream to the injury of others;
 - c. The proposed water supply and sanitation systems and the ability of these systems to prevent disease, contamination and unsanitary conditions;
 - d. The susceptibility of the proposed facility and its contents to flood damage and the effects of such damage on the individual owner;
 - e. The importance of the services provided by the facility to the community;
 - f. The requirement of the facility for a water-front location;
 - g. The availability of alternative locations on the parcel not subject to flooding for the proposed use;
 - h. The compatibility of the proposed use with existing development and anticipated development in the foreseeable future;
 - i. The relationship of the proposed use to the comprehensive plan and floodplain management for the area. As provided in A.R.M. 36.15.701, the proposed use must be compatible with the comprehensive plan. In assessing compatibility, the following factors

should be considered: the goals and objectives expressed by the plan, the more specific land uses recommended in the plan, the availability of services to support additional development in the project area, and whether or not the current development pattern in the project area -- if different from the plan's recommended land use pattern for that area -- is consistent with the plan's goals and objectives;

- j. The safety of access to property in times of flooding for ordinary and emergency services; and,
 - k. Such other factors as are in harmony with the purposes of these Regulations, the Montana Floodplain and Floodway Management Act and regulations and the National Flood Insurance Program.
- D. The applicant shall submit in writing a letter from the City Zoning Officer stating compliance with existing zoning regulations, prior to issuance of a floodplain permit.
- E. A floodplain development permit application is considered to have been automatically granted sixty (60) days after the date of receipt of the application by the Floodplain Administrator, unless the applicant has been notified that the permit is denied, conditionally approved or additional information pertinent to the permit review process is required.
- Permits shall be valid for a period of one hundred eighty (180) days unless a longer period is specified when the permit is issued or an extension is granted by the Floodplain Administrator.
- F. The Floodplain Administrator shall adopt such administrative procedures as may be necessary to efficiently administer the provision of these Regulations.
- G. The Floodplain Administrator shall maintain such files and records as may be necessary to document non-conforming uses, base flood elevations, fee receipts, the issuance of permits, agendas, minutes, records of public meetings, and any other matters related to floodplain management in the City of Missoula.
- H. Copies of all permits granted shall be sent to the Department of Natural Resources and Conservation in Helena, Montana.

- I. Notifications by the Floodplain Administrator shall be made, to adjacent communities, the Floodplain Management Section (DNRC), and the Federal Emergency Management Agency prior to any alteration or relocation of a stream having a designated floodplain to assure that the flood-carrying capacity within the altered or relocated portion of any stream is maintained.
- J. The Floodplain Administrator may require whatever additional information is necessary to determine whether the proposed activity meets the requirements of these regulations. Additional information may include hydraulic calculations assessing the impact on base flood elevations or velocities; level survey; or certification by a registered land surveyor, professional engineer, or licensed architect that the requirements of these regulations are satisfied.
- K. Upon receipt of an application for a permit, the Floodplain Administrator shall prepare a notice containing the facts pertinent to the application and shall publish the notice at least once in the newspaper of general circulation in the area. Notice shall also be served by first-class mail to adjacent property owners and the DNRC Floodplain Management Section. The notice shall provide a reasonable period of time, not less than fifteen (15) days, for interested parties to submit comments on the proposed activity.

4.02 Permit Applications

- A. Permit applicant's shall be required to furnish as much of the following as is deemed necessary by the Floodplain Administrator for determining the suitability of the particular site for the proposed use:
 - 1. Plans in duplicate drawn to scale with dimensions shown, showing the nature, location and elevation of the lot, existing and proposed structure locations, fill, storage or materials site, flood-proofing measures, first floor of proposed structures in mean sea level elevation and location of the channel; and,
 - 2. A plan view of the proposed development indicating external dimensions of structures, street or road finished grade elevations, well location and individual sewage treatment and disposal site, excavation and/or fill quantity estimates, site plan and/or construction plans.
 - 3. Specifications for flood-proofing, filling, excavating, grading, riprapping, storage of materials and utilities location.
 - 4. A professional engineer's or registered architect's design calculations and certification that the proposed activity has been designed to be in compliance with these regulations.
 - 5. Certification of flood-proofing and/or elevation shall be provided on a standard form available from the Floodplain Administrator.
 - 6. The applicant is required to submit proof that all permits have been received from those governmental agencies from which approval is required by

federal and state law and local codes, or resolutions, including but not limited to Section 404 of the Federal Water Pollution Control Act of 1972, 33 USC 1334, and under the provisions of the Natural Streambed and Land Preservation Act.

- B. Applicants who have been granted permits, at the time of an on-site inspection, to determine compliance with permit specifications and conditions, shall provide the following:
1. Certification by a registered professional engineer or licensed land surveyor of the actual mean sea level elevation of the lowest floor (including basement) of all new, altered or substantially improved structures.
 2. If flood-proofing techniques were utilized for the above described structure, then the mean sea level elevation to which the flood-proofing was accomplished must be similarly certified.
 3. In the case of flood control works, certification from a registered professional engineer or licensed land surveyor is required, stating that the structure meets the requirements of the floodplain regulations. Certification must be made where anchoring is required.
 4. Certification of flood-proofing and/or elevation shall be provided on a standard form available from the floodplain administrator.
- C. If the Floodplain Administrator determines, in the course of reviewing the permit application submittals, that a technical review is needed to insure compliance with these Regulations, the cost shall be borne by the applicant.

4.03 Emergency Waiver

- A. Emergency repair to and/or replacement of severely damaged public transportation facilities, public water and sewer facilities, and flood control works may be authorized and floodplain development permit requirements waived if:
1. Upon notification and prior to the emergency repair and/or replacement, the Floodplain Administrator determines that an emergency condition exists warranting immediate actions; and
 2. The Floodplain Administrator agrees upon the nature and type of proposed emergency repair and/or replacement.

- B. Authorization to undertake emergency repair and/or replacement work may be given verbally if the Floodplain Administrator feels that such a written authorization would unduly delay the emergency works. Such verbal authorization must be followed by a written authorization describing the emergency condition, and the type of emergency work agreed upon and a notation that a verbal authorization had been previously given.

4.04 Review-Variance-Appeals

- A. There is hereby created a City of Missoula Floodplain Regulation Board of Appeals, the membership, administration and rules of procedure of which are identical to and the same as the City of Missoula Building Code Board of Appeals.

Appeals from any decision made by the Floodplain Administrator may be made to the Missoula City Council within thirty (30) days of such decision by an aggrieved person or persons, jointly or separately aggrieved.

- B. The Missoula City Council may, by variance, grant a permit that is not in compliance with the minimum standards contained in these Regulations according to the following procedures:
 - 1. Variances shall not be issued for areas within a floodway if any additional increase in flood elevations or velocities after allowable encroachments into the floodway fringe would result;
 - 2. Variances shall only be issued upon:
 - a. A showing of good and sufficient cause;
 - b. A determination that refusal of a permit would, because of exceptional circumstances, cause a unique or undue hardship on the applicant or community involved;
 - c. A determination that the granting of a variance will not result in increased flood heights, present additional threats to public safety, be an extraordinary public expense, create nuisances, cause fraud, victimize the public, or conflict with existing state and local laws;
 - d. A determination that a proposed use would be adequately floodproofed.
 - e. A determination that a reasonable alternative location outside the floodplain is not available;
 - f. A determination that the variance requested is the minimum necessary to afford relief, considering the flood hazard; and
 - g. An approval of the Montana Department of Natural Resources and Conservation is required prior to the Missoula City Council approving any permit application which is in variation to these Regulations.

3. Variances shall be issued in writing from the Missoula City Council and shall notify the applicant that:
 - a. the specific variance that is granted, along with any conditions attached thereon;
 - b. the issuance of a variance to construct a structure below the 100-year floodplain elevation will result in increased premium rates for flood insurance up to amounts as high as \$25 or \$100 of insurance coverage; and
 - c. such construction below the 100-year flood elevation increases risks to life and property. The Floodplain Administrator shall maintain the records of variance notification, variance actions, justification for their issuance and forward copies of all variances, including actions, to the Montana Department of Natural Resources and Conservation, and the Federal Emergency Management Agency.
- C. Appeals from any decision of the City of Missoula or its officers or agencies may be taken within thirty (30) days of such decision by an aggrieved person or persons, jointly or separately aggrieved, to a court of record.

4.05 Fees

A processing fee is required for processing permits and variances, and shall cover the cost of providing public notice, processing permits and variances, and performing sufficient field inspections to ensure compliance with these regulations.

4.06 Violation Notice

The Floodplain Administrator shall bring any violation of these Regulations to the attention of the City Council and the City Attorney and the Montana Department of Natural Resources and Conservation.

4.07 Compliance

An applicant is required to submit certification by a registered professional engineer, architect, land surveyor or other qualified person designated by the Floodplain Administrator, that finished fill and lowest floor elevations, flood-proofing, hydraulic design, or other flood protection measures were accomplished in compliance with these Regulations. Any use, arrangement or construction not in compliance with that authorized by permit shall be deemed a violation of these Regulations and punishable as provided in Section 4.08 or enforced as provided in MCA 76-5-109.

4.08 Penalties

Violation of the provisions of these Regulations or failure to comply with any of the requirements, including failure to obtain permit approval prior to development of floodprone lands and conditions and safe-guards established, shall constitute a misdemeanor. Any person who violates these Regulations or fails to comply with any of its requirements shall, upon conviction thereof, be fined not more than \$100 or be imprisoned in jail for not more than ten (10) days or both. Each day's continuance of a violation shall be deemed a separate and distinct offense. Nothing herein contained shall prevent the City of Missoula from taking such other lawful action as is necessary to prevent or remedy any violation of these regulations or to mitigate true damages caused by any violation.

4.09 Public Notice

After receiving a floodplain request but before acting on the same, the Floodplain Administrator shall provide notice as required which will include publishing notice in a legal newspaper with a period of not less than fifteen (15) days to receive comment regarding the proposed activity. At the end of the public comment period, the Floodplain Administrator shall either issue or deny the floodplain permit.

4.10 Emergency Preparedness Planning

In formulating community development goals, the community shall consider the development of a plan for evacuating residents of all manufactured home parks or subdivisions located within flood prone areas. This plan should be developed, filed with, and approved by appropriate community emergency management authorities.

5.01 Application

The minimum floodplain development standards listed in this chapter apply to the floodway/floodway fringe portions of the 100-year floodplain as delineated on the Missoula Floodway and Flood Boundary Maps, and also correspond to the numbered A or AE zones depicted on the Missoula Flood Insurance Rate Maps.

5.02 Floodway

- A. Uses Allowed Without Permit - The following open space uses shall be allowed without a permit anywhere within the floodway, provided that such uses conform to the provisions of Chapter VII of these Regulations, are not prohibited by any other ordinance, resolution or statute and do not require fill, excavation, permanent storage of materials or equipment or structures other than portable structures:
1. Agricultural uses;
 2. Accessory uses such as loading or parking areas, or emergency landing strips associated with industrial-commercial facilities;
 3. Private and public recreational uses such as golf courses, driving ranges, archery ranges, picnic grounds, boat-launching ramps, parks, wildlife management and natural areas, game farms, fish hatcheries, shooting preserves, target ranges, trap and skeet ranges, hunting and fishing areas, and hiking or horseback riding trails;
 4. Forestry, including processing of forest products with portable equipment;
 5. Residential uses such as lawns, gardens, parking areas and play areas;
 6. Irrigation and livestock supply wells, provided that they are located at least five hundred (500) feet from domestic water supply wells; and
 7. Fences, except permanent fences crossing channels.
 8. Maintenance or historical maintenance shall mean customary and historical cleaning and removal of silt, branches, trees, sticks and other debris as well as minor repair or restoration of an existing structure or artificial obstruction to the size, shape, position and height it had immediately prior to its deterioration or destruction. Repair and restoration maintenance must occur within one (1) year after its obvious deterioration or destruction. If an artificial obstruction other than a structure as defined by these Regulations is left in a state of disrepair or deterioration for a period of one (1) year or more, it shall be considered to be abandoned and its reconstruction or repair shall require a Floodplain Permit and conformance to these Regulations. If an artificial obstruction other than a structure as defined by these Regulations is over fifty (50) percent destroyed, a Floodplain Permit and conformance to these Regulations shall be required. The property

owner may be granted the option of filing a maintenance plan with the Floodplain Administrator. This maintenance plan shall be permitted only when found to be in compliance with these and all other applicable Regulations. This maintenance plan shall be subject to the same provisions as any other Floodplain Development Permit application. Such a maintenance plan shall be subject to review and shall specify a limited time of applicability.

Further, the operation or use of any tractor, backhoe, bulldozer, or other blade or bucket equipped vehicle within a stream channel or along the bank of any stream channel shall always require a floodplain permit and conformance to these Regulations, unless such use has been provided with a permit under an approved maintenance plan. (Ord. #2640 -- 10/24/88)

9. Recreational vehicles provided that they be on the site for fewer than one hundred eighty (180) consecutive days or be fully licensed and ready for highway use. A recreational vehicle is ready for highway use if it is on its wheels or jacking system with wheels intact, is attached to the site only by quick disconnect type utilities and security devices, and has no permanently attached additions.
- B. Uses Requiring Permits - The following artificial obstructions and non-conforming uses may be permitted in the floodway subject to the issuance of a permit by the Floodplain Administrator:
1. Excavation of material from the pits and pools provided that:
 - a. a buffer strip of undisturbed land of sufficient width to prevent flood flows from channeling into the excavation is left between the edge of the channel and the edge of the excavation;
 - b. the excavation meets all applicable laws and regulations of other local and state agencies; and
 - c. excavated material is disposed of or stockpiled outside the floodway.

2. Railroad, highway and street stream crossings provided the crossings are designed to offer minimal obstruction to flood flow. Stream crossings shall not increase the elevation of the 100-year flood more than one-half foot nor cause a significant increase in flood velocities.
3. Limited filling for highway, street and railroad embankments not associated with stream crossings provided that:
 - a. reasonable alternative transportation routes outside the designated floodway are not available; and
 - b. such floodway encroachment is located as far from the stream channel as possible, and shall not result in a cumulative increase in base flood elevations, after allowable encroachments into the floodway fringe, exceeding one-half (1/2) foot.
4. Buried or suspended utility transmission lines, provided that:
 - a. suspended utility transmission lines are designed such that the lowest point of the suspended line is at least six (6) feet higher than the elevation of the flood of 100-year frequency;
 - b. towers and other appurtenant structures are designed and placed to withstand and offer minimal obstruction to flood flows; and
 - c. utility transmission lines carrying toxic or flammable materials are buried to a depth of at least twice the calculated maximum depth of scour for a flood of 100-year frequency. The maximum depth of scour shall be determined from any of the accepted hydraulic engineering methods, but final calculated figures shall be subject to approval by the Floodplain Administrator.
5. Storage of materials and equipment provided that:
 - a. the material or equipment is not subject to major damage by flooding and is properly anchored to prevent flotation or downstream movement; or
 - b. the material or equipment is readily removable within the limited time available after flood warning. Storage of flammable, toxic or explosive materials shall not be permitted.
6. Domestic water supply wells provided that:
 - a. they are driven or drilled wells located on ground higher than the surrounding ground to assure positive drainage from the well;
 - b. well casings are water tight to a distance of at least twenty-five (25) feet below the ground surface;
 - c. water supply and electrical lines have a watertight seal where the lines enter the casing;

- d. all pumps, electrical lines and equipment are either of the submersible type or are adequately flood proofed; and
 - e. check valves are installed on main water lines at wells and all building entry locations.
- 7. Buried and sealed vaults for sewage disposal in recreational areas provided that they meet applicable laws and standards administered by the Department of Health and Environmental Sciences.
- 8. Public or private campgrounds provided that:
 - a. access roads require only limited fill and do not obstruct or divert flood waters; and
 - b. no dwellings or permanent mobile homes are allowed.
 - c. Recreational vehicles and travel trailers are licensed and ready for highway use. They are ready for highway use if it is on its wheels or jacking system with wheels intact, are attached to the site with only by quick disconnect type utilities and securing devices, and have no permanently attached additions.
- 9. Structures accessory to the uses permitted in this section such as boat docks, marinas, sheds, picnic shelters, tables and toilets provided that:
 - a. the structures are not intended for human habitation;
 - b. the structures will have a low flood damage potential;
 - c. the structures will, insofar as possible, be located on ground higher than the surrounding ground and as far from the channel as possible;
 - d. the flood-proofing standards of Chapter VII are met; and
 - e. the structures will be constructed and placed so as to offer a minimal obstruction to flood flows and also are anchored to prevent flotation.

10. Substantial improvements to any legal non-conforming structures which existed prior to the delineation of the regulatory floodway provided all the provisions of Section 5.03.B.3 and 5.03.B.4 of these Regulations are met. In the floodway, the structure must be elevated on a permanent foundation rather than on fill. Flood-proofing shall be accomplished in accordance with Chapter VII of these Regulations.
 11. Replacement of mobile homes within an existing mobile home park or mobile home subdivision on a developed site with servicing utilities. The replacement home must be elevated on a permanent foundation so the lowest floor is two (2) feet above the base flood elevation. The foundation must be reinforced concrete, reinforced mortared block, reinforced piers, or other foundation elements of at least equivalent strength, whichever is less. The mobile home chassis must be securely anchored to the foundation system so that it will resist floatation, collapse, and lateral movement. Methods of anchoring may include, but are not limited to, use of over-the-top or frame ties to ground anchors. Flood-proofing shall be accomplished in accordance with Chapter VII of these regulations. Special requirements shall be that:
 - a. 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. Mobile homes less than fifty (50) feet long will require one (1) additional tie per side;
 - b. frame ties to be provided at each corner of the home with five (5) additional ties per side at intermediate points, with mobile homes less than fifty (50) feet long requiring four (4) additional ties per side;
 - c. all components of the anchoring system be capable of carrying a force of 4,800 pounds;
 - d. any additions to the mobile home must be similarly anchored; and
 - e. adequate surface drainage and access for a hauler are provided.
 12. All other artificial obstructions, substantial improvements or non-conforming uses not specifically listed in, or prohibited by these Regulations.
- C. Permits for Flood Control Works - Flood control works shall be allowed within floodways subject to the issuance of a permit by the Floodplain Administrator under the following conditions:
1. Levees and floodwalls are permitted if:
 - a. the proposed levee or floodwall is designed and constructed to safely convey a flood of 100-year frequency; and
 - b. the cumulative effect of the levee or floodwall combined with allowable floodway fringe encroachments does not increase the unobstructed elevation of the flood of 100-year frequency. The Floodplain

Administrator may establish either a lower or higher permissible increase in the elevation of the flood of 100-year frequency for individual levee projects, with concurrence of the Montana Department of Natural Resources and Conservation and the Federal Emergency Management Agency based upon the following criteria:

- (1) the estimated cumulative effect of other reasonable anticipated future permissible uses; and
 - (2) the type and amount of existing flood-prone development in the affected area.
- c. the proposed levee or floodwall, except those to protect agricultural land only, are constructed at least three (3) feet higher than the elevation of a flood of 100-year frequency;
2. Riprap, except that which is hand placed, is allowed if:
- a. the riprap is designed to withstand a flood of 100-year frequency;
 - b. the riprap does not increase the elevation of the flood of 100-year frequency; and
 - c. the riprap will not increase erosion upstream, downstream, or adjacent to the riprap site.
3. Channelization projects if they do not significantly increase the magnitude, velocity or elevation of the flood of 100-year frequency in the proximity of the project.
4. Dams are allowed provided that:
- a. they are designed and constructed in accordance with the Montana Dam Safety Act, and applicable approved safety standards; and,
 - b. they will not increase flood hazards downstream, either through operational procedures or improper hydrologic/hydraulic design.
- D. Permits for Water Diversions - Permits for the establishment of a water diversion or change in place of diversion shall not be issued if in the judgment of the Floodplain Administrator:
1. The proposed diversion will increase the upstream elevation of the flood of 100-year frequency to the detriment of neighboring property;
 2. The proposed diversion is not designed and constructed to minimize potential erosion from a flood of 100-year frequency; and
 3. Any permanent diversion structure crossing the full width of the stream channel is not designed and constructed to safely withstand up to a flood of 100-year frequency.
- E. Prohibited Uses - The following artificial obstructions and non-conforming uses are prohibited within the floodway:

1. New construction of any residential, commercial, industrial structure;
2. Encroachments, including fill, new construction, substantial improvements, and other development within the adopted regulatory floodway that would result in erosion of embankment, obstruction of the natural flow of waters, or increase in flood levels within the community during the occurrence of the flood of 100-year frequency;
3. The construction or permanent storage of an object subject to flotation or movement during flood level periods;
4. Mobile homes, except in an existing mobile home park or mobile home subdivision;
5. Solid and hazardous waste disposal, water distribution systems, and sewage treatment and/or disposal systems except as allowed or approved under the laws and standards administered by the Montana Department of Health and Environmental Sciences;
6. Storage of highly toxic, flammable or explosive materials;
7. Alterations of structures unless it can be shown the alteration will not raise flood heights; and,
8. Manufactured homes.

5.03 Floodway Fringe

- A. Uses Allowed Without Permits - All uses allowed in the floodway, according to the provisions of these Regulations, shall also be allowed without a permit in the floodway fringe. In addition, individual or multiple family subsurface sewage disposal systems are allowed only when they are reviewed and approved under laws and regulations administered by the Department of Health and Environmental Sciences or the local health board.
- B. Uses Requiring Permits - All uses allowed in the floodway subject to the issuance of a permit, according to the provisions of these Regulations, shall also be allowed by permit within the floodway fringe. In addition, new construction, substantial improvements and alterations to structures including, but not limited to, residential, commercial and industrial, and suitable fill shall be allowed by permit from the Floodplain Administrator subject to the following conditions:
 1. Such structures or fill must not be prohibited by any other statute, regulation, ordinance or resolution;
 2. Such structures or fill must be compatible with local comprehensive plans;
 3. The new construction, alterations and substantial improvements of residential structures must be constructed on suitable fill such that the lowest floor elevations (including basement) are two (2) feet or more above the elevation of the flood of 100-year frequency. The suitable fill shall be at an

elevation no lower than the elevation of the flood of 100-year frequency and shall extend for at least fifteen (15) feet at that elevation beyond the structures in all directions;

4. The new construction, alteration and substantial improvement of commercial and industrial structures must be either constructed on suitable fill as specified in these Regulations or be adequately floodproofed to an elevation no lower than two (2) feet above the elevation of the flood of 100-year frequency. Flood-proofing shall be accomplished in accordance with Chapter VII of these Regulations and shall further include impermeable membranes or materials for floors and walls, and water tight enclosures for all windows, doors, and all other openings, and be certified by a registered professional engineer or architect that the flood-proofing methods are adequate to withstand the flood depths, pressures, velocities, impact and uplift forces associated with the flood of 100-year frequency. Prior to the issuance of a building permit for any such construction, a registered engineer or architect, retained by the property owner and/or developer, must certify that the building plans satisfy the flood-proofing requirements of these Regulations. Prior to the issuance of an occupancy permit for any such building, a registered engineer or architect must certify that the floodproofing elements of the building have been constructed as designed and approved. (Ord. #2639 -- 10/3/88)
 - a. If the structure is designed to allow internal flooding of areas below the lowest floor, use of this space shall be limited to parking, loading areas, building access, and storage of equipment or materials not appreciably affected by flood waters. The floors and walls shall be designed and constructed of materials resistant to flooding to an elevation no lower than two (2) feet above the base flood elevation. Walls shall be designed to automatically equalize hydrostatic forces by allowing for entry and exit of floodwaters. Openings may be equipped with screens, louvers, valves, other coverings, or devices which permit the automatic entry and exit of floodwaters.
 - b. Structures whose lowest floors are used for a purpose other than parking, loading, or storage of materials resistant to flooding shall be flood-proofed to an elevation no lower than two (2) feet above the base flood elevation. Flood-proofing shall include impermeable membranes or materials for floors and walls and watertight enclosures for all windows, doors, and other openings. These structures shall also be designed to withstand the hydrostatic, hydrodynamic, and buoyancy effects of a 100-year flood.
 - c. Flood-proofing of electrical, heating, and plumbing systems shall be accomplished in accordance with Chapter VII of these regulations.
5. A development, including subdivisions, proposed for a 100-year floodplain, where water surface elevations are available but no floodway is delineated, may significantly increase flood velocities or depths or generally alter patterns of flood flow. The Floodplain Administrator may require a permit

applicant to furnish additional hydraulic data before acting on a permit application for such a floodplain. The data may include, but is not limited to, any of the following:

- a. a hydraulic study documenting probable effects on upstream or downstream property owners caused by the proposed development; or
- b. the calculated increase in the 100-year frequency water surface profile caused by the proposed development.

Permits for such proposed development may be modified or denied if the additional information shows that the proposed use would cause an additional flood hazard to adjacent property or significantly increase flood heights. A significant increase in flood heights is to be one-half (1/2) foot unless existing or anticipated development in the area dictates a lesser value of allowable increase.

Also, 100-year water surface profile data shall be provided for subdivision proposals and other proposed development which contain at least fifty (50) lots or five (5) acres, whichever is less.

6. All mobile homes placed in the floodway fringe must have the chassis securely anchored to a foundation system that will resist floatation, collapse, or lateral movement. Anchoring must meet the requirements of Section 5.02 B.10 of these regulations. Flood-proofing shall be accomplished in accordance with Chapter VII of these Regulations and shall further include impermeable membranes or materials for floors and walls, and water-tight enclosures for all windows, doors, and all other openings, and be certified by a registered professional engineer or architect that the flood-proofing methods are adequate to withstand the flood depths, pressures, velocities, impact and uplift forces associated with the flood of 100-year frequency.
 - a. When a mobile home is 1) altered, 2) replaced because of substantial damage as a result of a flood, or 3) replaced on an individual site, the lowest floor must be elevated two (2) feet above the base flood elevation. The home can be elevated on fill or raised on a permanent foundation of reinforced concrete, reinforced mortar block, reinforced piers, or other foundation elements of at least equivalent strength.
 - b. Replacement or substantial improvement of mobile homes in an existing mobile home park or subdivision must be raised on a permanent foundation. The lowest floor must be raised two (2) feet above the base flood elevation. The foundation must consist of reinforced concrete, reinforced mortared block, reinforced piers, or other foundation elements of at least equivalent strength.
 - c. Mobile homes proposed for use as commercial or industrial structures must be elevated.

- d. Adequate surface drainage and access for a hauler are provided for.
7. Roads, streets, highways and rail lines shall be designed to minimize increases in flood heights. Where failure or interruption of transportation facilities would result in danger to the public health or safety, the facility shall be located two (2) feet above the elevation of the flood of 100-year frequency.

8. Agricultural structures that have a low flood damage potential, such as sheds, barns, shelters, and hay or grain storage structures must be adequately anchored to prevent flotation or collapse. Flood-proofing shall be accomplished in accordance with Chapter VII of these Regulations and shall further include impermeable membranes or materials for floors and walls, and water tight enclosures for all windows, doors, and all other openings, and be certified by a registered professional engineer or architect that the flood-proofing methods are adequate to withstand the flood depths, pressures, velocities, impact and uplift forces associated with the flood of 100-year frequency.
 9. Fill material placed in the floodway fringe must be stable, compacted, well graded, pervious, generally unaffected by water and frost, devoid of trash or similar foreign matter, devoid of tree stumps or other organic material, and appropriate for the purpose of supporting the intended use and/or permanent structure.
 10. Recreational vehicles, if they are on the site for more than one hundred eighty (180) consecutive days or are not ready for highway use, must meet the elevating requirements of Section 5.03-B.3.
- C. Prohibited Uses - The following artificial obstructions and non-conforming uses are prohibited within the floodway fringe:
1. Solid and hazardous waste disposal, water distribution systems, and sewage treatment and/or disposal systems except as allowed or approved under the laws and standards administered by the Montana Department of Health and Environmental Sciences and as allowed or approved under regulations administered by the Missoula City-County Board of Health.
 2. Storage of highly toxic, flammable, hazardous or explosive materials. Storage of petroleum products may be allowed by permit if stored on compacted fill at least two (2) feet above the elevation of the base flood elevation.

5.04 Floodplain Areas with Flood Elevations and No Delineated Floodway

- A. A development proposed for a 100-year floodplain, where water surface elevations are available but no floodway is delineated, may not significantly increase flood velocities or depths or generally alter patterns of flood flow. The provisions of Section 5.03, floodway fringe, shall apply to these areas. The Floodplain Administrator may require a permit applicant to furnish additional hydraulic data before acting on a permit application for such a floodplain. The data may include, but are not limited to, any of the following:
1. A hydraulic study documenting probable effects on upstream, downstream, or adjacent property owners caused by the proposed development; or
 2. The calculated increase in the 100-year flood water surface profile caused by the proposed development.

- B. Permits for such proposed development may be modified or denied if the additional information shows that the proposed use would cause an additional flood hazard to adjacent property or significantly increase flood heights. A significant increase in flood heights is one-half (1/2) foot unless existing or anticipated development in the area dictates a lesser amount of allowable increase.

5.05 Shallow Flooding (AO Zones)

- A. Shallow flooding areas are delineated as AO Zone floodplains on the Flood Insurance Rate Maps. The provisions of Section 5.03, Floodway Fringe, of these Regulations shall apply to AO Zone floodplains, including Section 5.03.B.5 of these Regulations. The depth of 100-year flood is indicated as the depth number on the Flood Insurance Rate Maps and shall be referenced to the highest adjacent grade or stream flow line in determining which fill and/or flood-proofing heights are to be utilized in applying the provisions of Section 5.03.B.3 and Section 5.03.B.4 of these Regulations. Flood-proofing shall be accomplished in accordance with Chapter VII of these Regulations and shall further include impermeable membranes or materials for floors and walls, and water tight enclosures for all windows, doors, and all other openings, and be certified by a registered professional engineer or architect that the floodproofing methods are adequate to withstand the flood depths, pressures, velocities, impact and uplift forces associated with the flood of 100-year frequency. (Res. #88-083--8/10/88) In the absence of depth or elevation information, a minimum of two (2) foot flood depths shall be used.
- B. Floodplain Boundary Interpretation - The Floodplain Administrator shall make interpretations where needed as to the exact location of an AO Zone floodplain boundary where there appears to be a conflict between a mapped boundary and actual field conditions. When necessary to make such an interpretation the Floodplain Administrator may require information prepared by a certified engineer or registered land surveyor.

CHAPTER VI A-ZONES WITH NO BASE FLOOD ELEVATIONS

GENERAL STANDARDS

6.01 Applications

The minimum floodplain development standards listed in this chapter apply to the 100-year floodplains delineated by approximate methods and identified as unnumbered A Zones on the City of Missoula Flood Insurance Rate Maps.

- A. Uses Allowed Without Permits - All uses allowed in a floodway, according to the provisions of Section 5.02.A of these Regulations shall also be allowed without a permit in the unnumbered A zone floodplains.
- B. Uses Requiring Permits - All uses allowed in the floodway fringe subject to the issuance of a permit, according to the provisions of Section 5.03.B shall require permits from the Floodplain Administrator for Zone A floodplains. Also, the provisions of Section 5.03.B.5 apply to the Zone A floodplains with no floodway delineated or water surface profile computed. Flood-proofing shall be accomplished in accordance with Chapter VII of these Regulations and shall further include impermeable membranes or materials for floors and walls, and water-tight enclosures for all windows, doors, and all other openings, and be certified by a registered professional engineer or architect that the floodproofing methods are adequate to withstand the flood depths, pressure, velocities, impact and uplift forces associated with the flood of 100-year frequency. Since there are no 100-year frequency water surface profiles computed for Zone A floodplains, the following conditions also shall apply:
 - 1. Elevation data on the 100-year frequency flood shall be provided for subdivision proposals according to the rules of the Montana Sanitation in Subdivisions Act, MCA 76-4 Part 1 and the rules adopted Department of Health and Environmental Sciences (DHES) under this act be utilized in applying Sections 5.03.B.3, 5.03.B.4, and 5.03.B.5 of these Regulations. Subdivision proposals shall also provide for adequate drainage to minimize potential flood hazards; and
 - 2. Obtain, review, and reasonably utilize any 100-year flood and floodway elevation data available from a Federal, State, or other source, until such data has been provided by the Federal Emergency Management Agency to enforce Section 5.03.B.3 and 5.03.B.4 of these Regulations; and
 - 3. Historical flood elevations may be used by the Floodplain Administrator in determining suitable fill or flood-proofing elevations to be achieved and used in accordance with Section 5.03.B.3 and Section 5.03.B.4 of these Regulations;
 - 4. If historical flood evidence is not available, then the Floodplain Administrator shall determine, from a field review at the proposed development site, an appropriate fill and/or flood-proofing elevation to be utilized in applying Section 5.03.B.3 and 5.03.B.4 of these Regulations. In the absence of depth or elevation information, a minimum of two (2) foot flood depth shall be used; and

5. Proposed structures must be anchored to prevent flotation or collapse and must be located as far from stream channels as practicable. (Res. #88-083--8/10/88)
- C. Prohibited Uses - Those uses prohibited in the Floodway Fringe, in accordance with Section 5.03 C of these Regulations shall also be prohibited within the Zone A floodplain boundaries.
- D. Floodplain Boundary Interpretation - The Floodplain Administrator shall make interpretations where needed as to the exact location of the unnumbered A Zone floodplain boundary where there appears to be a conflict between a mapped boundary and actual field conditions.

7.01 Certification

The following flood-proofing requirements are to be utilized for a proposed structure in accordance with these Regulations; the methods used must be certified as adequate by a registered professional engineer or architect.

7.02 Conformance

Permitted flood-proof systems shall conform to the conditions listed below -- and the flood-proofing standards listed in Section 5.03-B.4 of these regulations for commercial and industrial structures.

A. Electrical Systems

1. All incoming power service equipment including all metering equipment, control centers, transformers, distribution and lighting panels and all other stationary equipment must be located at least two (2) feet above the elevation of the flood of 100-year frequency provided that the equipment can be disconnected by a single plug-and-socket assembly of the submersible type;
2. Portable or movable electrical equipment may be placed below the elevation of the flood of 100-year frequency provided that the equipment can be disconnected by a single plug-in-socket assembly of the submersible type;
3. The main power service line shall have automatically operated electrical disconnect equipment or manually operated electrical disconnect equipment located at an accessible remote location outside the floodplain of 100-year frequency and above the elevation of the flood of 100-year frequency; and
4. All electrical wiring systems installed at or below the elevation of the flood of 100-year frequency shall be suitable for continuous submergence and may not contain fibrous components.

B. Heating Systems

1. Float operated automatic control valves must be installed in supply lines to gas furnaces so that the fuel supply is automatically shut off when the flood waters reach the floor level where the furnaces are located;
2. Manually operated gate valves that can be operated from a location above the elevation of the flood of 100-year frequency shall also be provided in gas supply lines; and
3. Electric heating systems must be installed in accordance with the provisions of Section 7.02.A.

C. Plumbing Systems

1. Sewer lines, except those to be buried and sealed in vaults, must have check valves installed to prevent sewage backup into permitted structures; and
2. All toilet stools, sinks, urinals and drains must be located such that the lowest point of possible water entry is at least two (2) feet above the elevation of the flood of 100-year frequency.

APPENDIX A: Illustrations

THE FLOODWAY

The floodway is the channel of a stream, plus any adjacent floodplain areas, that must be kept free of encroachment in order that the 100-year flood be carried without substantial increases in flood height.

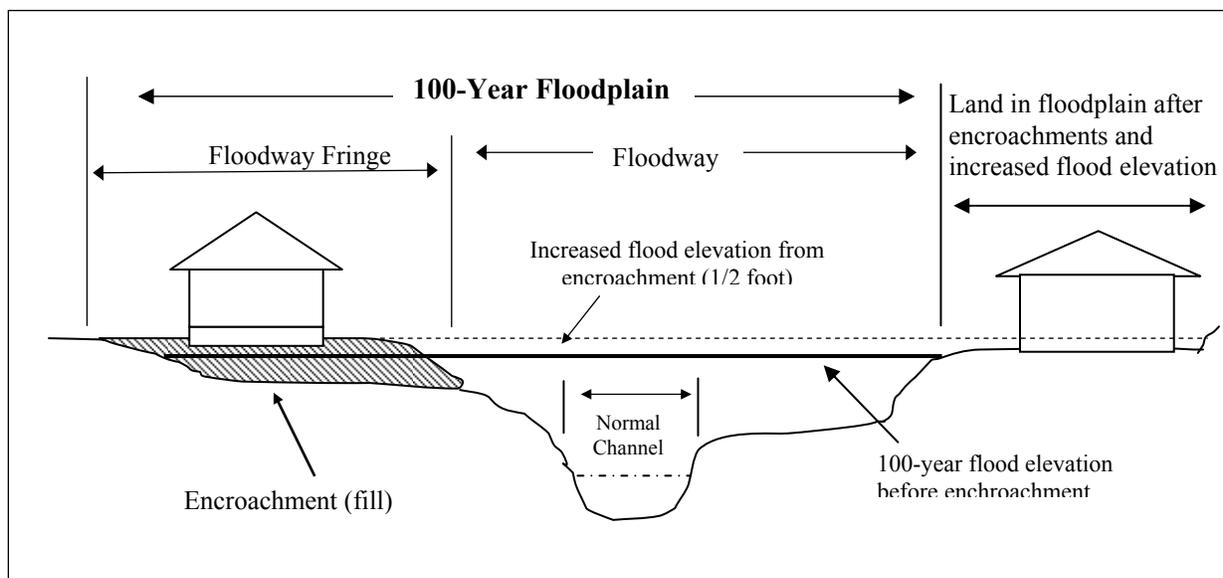
THE PURPOSE OF THE FLOODWAY

The National Flood Insurance Program (NFIP) requires that new structures be protected from flooding to the 100-year flood elevation, or Base Flood Elevation (BFE). If the BFE is increased, these structures are no longer protected from the 100-year flood.

Base flood elevations can be increased by obstructions in the floodplain. To avoid the possibility of significantly increasing the BFE, the NFIP calls for a community to reserve a part of the floodplain. This reserved area is called the floodway. The State of Montana has determined that the BFE must not be increased more than one-half (1/2) foot.

Thus, the 100-year floodplain is divided into two parts; the floodway and floodway fringe. The floodway fringe is all parts of the 100-year floodplain that are outside the floodway. In theory, if all of this floodway fringe were filled, the BFE would raise by one-half (1/2) foot.

Encroachments can cause flood heights to rise above the elevation of land that was previously not in the 100-year floodplain.



HOW THE FLOODWAY IS DETERMINED

A floodway study is usually done with a computer. The floodway boundary is determined by “squeezing in” the floodplain boundary on the computer until the base flood is raised one-half foot. This simulates the effect of building a “wall” from both sides of the floodplain toward the center.

Residential Construction in the Floodway Fringe

