

**APPENDIX F**

City of Redding Floodplain Ordinance

## Chapter 18.47 FP FLOODPLAIN COMBINING DISTRICT

### 18.47. 010 Purpose.

1. A. The Federal Emergency Management Agency (FEMA) requires that flood-hazard regulations be adopted by all agencies participating in the National Flood Insurance Program which was established by Congress for the purpose of minimizing flood losses by providing federally subsidized flood insurance for existing structures and reduced premiums for new structures. To participate in the program, the city must adopt and enforce floodplain-management measures to reduce the risk of flood losses. It is the purpose of the FP Combining District to implement this federal mandate, to carry out the city's general plan policies regarding development in floodplain areas, and to provide land-use regulations in areas with properties situated within the designated floodplains of rivers, creeks, streams and water courses in order to:

1. Protect human life and health, safety and welfare.
2. Minimize public and private losses as a product of floods or construction in flood-hazard areas.
3. Require that uses vulnerable to floods be protected against flood damage by incorporating floodproof construction standards in their design or be developed outside flood-prone areas at the time of their initial construction.
4. Protect riparian corridors along waterways by reducing alterations to the natural floodplain and stream channels.
5. Prohibit filling, grading, dredging or development which may individually or cumulatively cause flood damage or danger to life or property.
6. Prevent stream erosion which may adversely affect the fisheries of streams and rivers or cause loss of property.
7. Prevent the construction of flood barriers which may unnaturally direct floodwaters or raise flood levels thereby increasing flood hazards in other areas.
8. Protect areas of pleasing appearance to the community and visitors, enhance the natural environment through the provision of open space, break up the monotony of continuous urban development and increase community pride.
9. Make every effort to preserve and improve public access to and along the Sacramento River and area creeks for riding, hiking, fishing and nature observation.
10. Encourage development to occur outside of flood-prone areas Discourage development within the one-hundred-year floodplain.
11. Reduce public liability and the need for expensive public works projects in flood-prone areas. Minimize damage to public facilities and utilities located in areas of special flood hazard.
12. Preserve wildlife and wildlife habitat along the Sacramento River and area creeks from

erosion, loss of vegetation, degradation of water quality and loss of thermal cooling.

13. Ensure that adequate capacity for future urban runoff is reserved.

14. Recognize the Sacramento River as an economic resource for tourism, commercial recreation, private recreation and public enjoyment.

15. Ensure that as a product of any encroachment into the floodplain, flood levels are not significantly raised on other properties.

16. Ensure that stream velocities are not significantly increased, which could cause erosion above, below, or across from an area of encroachment or realignment.

17. Ensure that proposals to encroach into floodplains fully address the following issues:

a. Size of stream, major or minor.

b. Existing and future volume of water.

c. Existing and future changes in the velocity of water.

d. Impact on adjoining properties.

e. Potential for increased erosion upstream or downstream.

f. Potential for riprap and type of riprap.

g. Riparian habitat.

h. Fisheries and wildlife.

i. Urban trails and fishing access.

j. Water temperature.

k. Aesthetics.

l. general plan consistency.

m. Liability, both public and private.

n. Depth of floodplain and fill needed

o. Amount of existing usable area on parcel and additional area to be created.

p. Maintenance responsibility and costs.

q. Short-term gains versus long-term costs.

r. Future increases in runoff.

18. Protect individuals from buying land by identifying such land that is unsuited for intended purposes because of flood hazards.

19. Minimize prolonged business interruptions.

20. Minimize the need for rescue and relief efforts associated with flooding and generally undertaken at the expense of the general public.

(Ord. 2284 § 1 (part), 2001)

#### 18.47.020 Definitions.

1. As used in this chapter, unless the context otherwise requires, the following words and phrases shall have the meanings respectively ascribed to them:

1. "Appeal" means a request for a review of the floodplain administrator's interpretation of any provision of this chapter or a request for a variance.

2. "Area of shallow flooding" means a designated AO or AH Zone on the Flood Insurance Rate Map (FIRM). The base flood depths range from one to three feet; a clearly defined channel does not exist; the path of flooding is unpredictable and indeterminate; and velocity flow may be evident. Such flooding is characterized by ponding or sheet flow.

3. "Area of special flood hazard" See "Special flood hazard area."

4. "Base flood" means a flood having a one percent chance of being equaled or exceeded in any given year. Same as the one-hundred-year flood.

5. "Basement" means any area of the building having its floor below ground level on all sides.

6. "Base Floodplain" means the area covered by a base flood which is generally defined by FEMA as Zone A, AO, AI-30, and AE on the Flood Insurance Rate Map or the base flood area or elevation shown on any drainage study approved or adopted by the city (citywide storm drain master plan by Montgomery-Watson Engineers dated October 1993), whichever is highest.

7. "Contiguous to" means property bordering the base floodplain which would have a finished lot level of less than one foot above the base flood elevation, unless otherwise protected.

8. "Design flood" means the flood against which protection is to be provided by means of land-use regulation or flood-protective or flood-control works. The design flood shall be the base flood recurrence interval (See "Base flood" definition).

9. "Development" means any manmade change to improved or unimproved real estate, including but not limited to, buildings or other structures, mining, dredging, filling, grading, landscaping, paving, excavation, drilling operations or storage of equipment or materials.

10. "Encroachment" means the advance or infringement of uses, plant growth, fill, excavation, buildings, permanent structures or development into a floodplain which may impede or alter the flow capacity of a floodplain.

11. "Equal conveyance" means an equal amount of encroachment on both sides of a channel and an equal displacement of water or narrowing of the natural channel.

12. "Existing manufactured home park or subdivision" means a manufactured home park, subdivision or planned development for which the construction of facilities for servicing the lots on which the manufactured homes are to be affixed (including, at a minimum, the installation of utilities, the construction of streets and either final site grading or the pouring of concrete pads) is completed before January 19, 1988.

13. "Flood or Flooding" means a general and temporary condition of partial or complete inundation of normally dry land areas from (a) the overflow of floodwaters, (b) the unusual and rapid accumulation or runoff of surface waters from any source, and/or (c) the collapse or subsidence of land along the shore of a lake or other body of water as a result of erosion or undermining caused by waves or currents of water exceeding anticipated cyclical levels, or suddenly caused by an unusually high water level in a natural body of water accompanied by a severe storm or by an unanticipated force of nature such as flash flood or by some similarly unusual and unforeseeable event which results in flooding as defined in this definition.

14. "Flood fringe" means the area between the one-hundred-year flood boundary and the floodway shown on the Flood Insurance Rate Maps incorporated in the Flood Insurance Study or on the citywide storm drain master plan, whichever is highest.

15. "Flood Insurance Rate Map (FIRM)" means the official map on which the federal Insurance Administration has delineated the "floodway," the "floodplain" and "risk-premium" zones applicable to the city.

16. "Flood Insurance Study" means the official report, provided by the federal Insurance Administration that includes flood profiles, the FIRM, the Flood Boundary and Floodway Map, and the water-surface elevation of the base flood.

17. "Floodplain" includes the floodway, flood fringe, and means the same as "base floodplain" and the "area of special flood hazard." "Floodplain" or "floodplain area" means any land area susceptible to being inundated by water from any source. (See definition of "flooding.") The elevations and boundaries of flooding within the floodplain are defined by Zones A, AO, A1-30 and AE of the Flood Insurance Rate Map prepared by the Federal Emergency Management Agency or as shown on any drainage study (citywide storm drain master plan by Montgomery-Watson Engineers dated October 1993) approved or adopted by the city, whichever is highest.

For creeks where FEMA or the citywide storm drain master plan has not established floodplain elevations with a detailed study, the elevations shall be determined by a registered civil engineer and approved by the planning commission pursuant to Section 18.47.110. Backwater areas along the Sacramento River or area creeks which rise or fall with the level of water in the adjacent stream are considered to be within the floodplain, unless proven by a licensed hydrologist/engineer that those water levels are not the same as the floodplain of the adjacent stream and have a floodplain of their own.

18. "Floodplain administrator" is the development services director or the designee appointed to administer and enforce the city's floodplain management regulations and the CiWs Community Rating Service (CR5) program.

19. "Floodplain area" means an area having flood, mud slide (i.e., mud flow) and/or flood-related

erosion hazards as shown on a FIRM or Flood Boundary and Floodway Map and also that area shown on any drainage study (citywide storm drain master plan) approved or adopted by the city, whichever is highest.

20. "Floodplain (FP) district " is a zoning district that is combined with other zoning designations of lots that are either wholly or partially within the floodplain.

21. "Floodplain management" means the operation of an overall program of corrective and preventive measures for reducing flood damage and preserving and enhancing, where possible, natural resources in the floodplain, including, but not limited to, emergency preparedness plans, flood-control works, floodplain management regulations, and open-space plans.

22. "Floodplain management regulations" means zoning ordinances, subdivision regulations, building codes, health regulations, special-purpose ordinances (such as floodplain ordinance, grading ordinance, and erosion-control ordinance), and other applications of police power. The term describes such state or local regulations in any combination thereof which provide standards for the purpose of flood-damage prevention and reduction.

23. "Flood proofing" means any combination of structural and nonstructural additions, changes or adjustments to structures which reduces or eliminates flood damage to real estate or improved real property, water and sanitary facilities, and structures and their contents.

24. "Flood protection" means an action taken to protect property and structures from inundation by the base flood or greater event.

25. "Flood protection elevation" means an elevation expressed in feet, which the city requires for elevation of the lowest floor above the one-hundred-year floodplain. The city's required flood protection elevation is a minimum of one foot. The one-hundred-year floodplain is defined by the Flood Insurance Rate Maps prepared by FEMA or the citywide storm drain master plan by Montgomery-Watson Engineers, whichever is highest.

26. "Flood-related erosion" means the collapse or subsidence of land along the shore of a river, creek or other body of water as a result of erosion or undermining caused by currents of water exceeding anticipated cyclical levels or suddenly caused by an unusually high water level in a natural body of water accompanied by a severe storm or by an unanticipated force of nature such as a flash flood or by some similarly unusual and unforeseeable event which results in flooding.

27. "Floodway" means the channel of a river or other watercourse and the adjacent land areas that must be reserved in order to discharge the base flood without cumulatively increasing the water surface elevation more than one foot. A floodway includes those areas so designated on any drainage study approved or adopted by the city.

28. "Freeboard" means a factor of safety expressed in feet above a flood level for purposes of floodplain management. A freeboard tends to compensate for the many unknown factors that could contribute to flood heights greater than the height calculated for a selected size flood and floodway conditions such as wave action, bridge openings and the hydrological effect of urbanization of the watershed.

29. "Hydraulic Engineering Center Model 1 (HEC-1) (succeeded by HEC-HMS)" is designed to

simulate the surface runoff response of a stream basin to precipitation by representing the basin as an interconnected system of hydrologic and hydraulic components. Each component models an aspect of the precipitation-runoff process within a portion of the basin, commonly referred to as a subbasin. A component may represent a surface-runoff entity, a stream channel or a reservoir. Representation of a component requires a set of parameters which specify the particular characteristics of the component and mathematical relations which describe the physical processes. The result of the modeling process is the computation of stream flow by hydrographs at desired locations in the stream basin. The model can be used in making flood predictions from rainfall runoff for any state of upstream urbanization. In so doing, the model considers time of concentration and detention characteristics of the tributary area. The model can also be used to estimate the velocity of surface water but cannot be used to determine backwater-curve elevations. A hydraulic computer program (HEC-2) is generally used in conjunction with HEC-1 to obtain backwater curves or surface-water profiles. The model can also be used to develop discharge-frequency curve and associated levels of confidence through sensitivity analysis of rainfall and runoff parameter input.

30. "Hydraulic Engineer Center Model 2 (HEC-2) (succeeded by HEC-RAS)" is intended for calculating water-surface profiles for steady, gradually varied flow in natural or manmade channels. Both subcritical and supercritical flow profiles can be calculated. The effects of various obstructions such as bridges, culverts, weirs and structures in the floodplain may be considered in the computations. The computational procedure is based on the solution of the one-dimensional energy equation with energy loss due to friction evaluated with Manning's equation. The computational procedure is generally known as the Standard Step Method. The program is also designed for application in floodplain management and flood-insurance studies to evaluate floodway encroachments and to designate flood-hazard zones. Also, capabilities are available for assessing the effects of channel improvements and levees on water-surface profiles.

31. "Hydraulic Engineering Center Water Resources Council Model CPD-13" is used in calculating the flood-frequency curve from data over a period of time from stream-gauge history of sufficient length (40 years, if available; if only 20 years or less is available, several gauges or other methodologies should be considered). The model is capable of developing confidence limits associated with the frequency curve.

32. "Lowest floor" means the lowest floor of the lowest enclosed area, including a basement. An unfinished or flood-resistant enclosure below the lowest floor that is usable solely for parking of vehicles, building access or storage in an area other than a basement area is not considered a building's lowest floor, provided it conforms to applicable non-elevation design requirements, including, but not limited to:

- a. The wet floodproofing standard in Section 18.47.090(D)(3).
- b. The anchoring standards in Section 18.47.090(B).
- c. The construction materials and methods standards in Section 18.47.090(C).
- d. The standards for utilities in Section 18.47.090(E).

For residential structures, all subgrade-enclosed areas are prohibited because they are considered

to be basements. This prohibition includes below-grade garages and storage areas.

33. "Manufactured home" means a structure, transportable in one or more sections, which is built on a permanent chassis and is designed for use with or without a permanent foundation when connected to the required utilities. The term "manufactured home" does not include a "recreational vehicle."

34. "Manufactured home park or subdivision" means a parcel (or contiguous parcels) of land divided into two or more manufactured home lots for rent or sale.

35. "Market value of the structure" shall be determined by estimating the cost to replace the structure in a new condition and adjusting that cost figure by the amount of depreciation which has accrued since the structure was constructed. The cost of replacement of the structure shall be based on a square-foot cost factor determined by reference to a building cost estimating guide recognized by the building construction industry as approved by the floodplain administrator. The amount of depreciation shall be determined by taking into account the age, physical deterioration of the structure and functional obsolescence as approved by the floodplain administrator, but shall not include economic obsolescence. Use of replacement costs or accrued depreciation factors different from those contained in recognized building cost estimating guides may be considered only if such factors are included in a report prepared by an independent professional appraiser and supported by a written explanation of the differences.

36. "New construction" for floodplain management purposes means structures for which the "start of construction" commenced on or after the effective date of floodplain management regulations adopted by this community (July 1, 1985) and includes any subsequent improvements to such structures.

37. "No-rise floodway and flood fringe" refers to maintenance of the city's floodway and floodplain fringe with no rise in floodplain elevations that would adversely affect properties.

38. "One-hundred-year flood" See "base flood."

39. "Recreational vehicle" means a vehicle which is:

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

40. "Remedy a violation" means to bring the structure or other development into compliance with state or local floodplain management regulations or, if this is not possible, to reduce the impacts of its noncompliance. Ways that impacts may be reduced include:

- a. Protecting the structure or other affected development from flood damages;
- b. Implementing the enforcement provisions of the ordinance or otherwise deterring future

similar violations; and/or

c. Reducing State or federal financial exposure with regard to the structure or other development.

41. "Riverine" means relating to, formed by or resembling a river (including tributaries), stream, brook, etc.

42. "Scenic or riparian corridor" includes areas that border segments of seasonal creeks and all of the Sacramento River's floodplain which contain vegetation natural to waterways.

43. "Special Flood Hazard Area (SFHA)" means an area having special flood or flood-related erosion hazards and shown on a FIRM as Zone A, AO, A1-30, AE or AH.

44. "Standard project flood" is the largest flood that can be expected from the most severe combination of meteorological and hydrological conditions reasonably characteristic of the geographical region involved. Such a flood provides a reasonable upper limit to be considered in designing flood-control works and in delineating floodplain limits and shall be generally applicable where its occurrence would have high probability of hazard to human life.

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

46. "Substantial damage" means damage of any origin sustained by a structure whereby the cost of restoring the structure to its before-damaged condition would equal or exceed fifty percent of the market value of the structure before the damage occurred.

47. "Substantial Improvement" means any reconstruction, rehabilitation, addition, or other proposed new development of a structure, the cost of which equals or exceeds fifty percent of the market value of the structure before the "start of construction" of the improvement. This term includes structures which have incurred "substantial damage," regardless of the actual repair work performed. The term does not, however, include either:

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

b. Any alteration of a structure listed on the National Register of Historic Places or a State

Inventory of Historic Places, provided that the alteration will not preclude the structure's continued designation as a "historic structure."

48. "Variance" means a grant of relief from the requirements of this chapter which permits construction in a manner that would otherwise be prohibited by this chapter.

49. "Velocity of water" is the rate of flow measured in feet per second at specified depths within the floodway, flood fringe, or area immediately adjacent to a proposed floodplain encroachment.

50. "Violation" means the failure of a structure or other development to be fully compliant with the city's floodplain-management regulations. A structure or other development without the elevation certificate, other certifications or other evidence of compliance required in this chapter is presumed to be in violation until such time as that documentation is provided.

#### 18.47.030 Basis for establishing areas of special flood hazard.

1. The areas of special flood hazard identified by the Federal Insurance Administration (FIA) of the Federal Emergency Management Agency (FEMA) in the Flood Insurance Study (FIS) dated September 29, 1989, and accompanying Flood Insurance Rate Maps (FIRMs) with Map Index dated September 29, 1989, and all subsequent amendments and/or revisions, are hereby adopted by reference and declared to be a part of this ordinance. The FIS and attendant mapping are the minimum area of applicability of this ordinance and are supplemented by the citywide Storm Drain Master Plan by Montgomery-Watson Engineers dated October 1993. The FIS, FIRMs and the Montgomery-Watson drainage study are on file at the Development Services Department, 777 Cypress Avenue, Redding, California 96049-6071. (Ord. 2284 § 1 (part), 2001)

#### 18.47.040 General provisions.

1. A. Applicability. The regulations of this chapter provide seven levels of protection within and along waterways of the FP Combining District by:

1. Generally prohibiting development within the floodway,
2. Allowing only limited use and development in the flood fringe,
3. Regulating uses and development on properties contiguous to the flood fringe and outside of the floodplain, which do not meet the minimum protection standards,
4. Reviewing proposed development located in designated scenic corridors,
5. Reviewing all development permits to determine that the permit requirements of this chapter have been satisfied,
6. Reviewing all permits to determine that the site is reasonably safe from flooding, and
7. Reviewing all development permits to determine if the proposed development adversely affects the flood-carrying capacity of the area of special flood hazard.

Accordingly, the regulatory scope of this chapter is as follows:

1. These regulations and standards shall be applied uniformly to all lots which, after considering evidence from flood experience and engineering studies, are deemed subject to inundation by a one-hundred-year flood or are within the FP District of the city limits. These regulations and standards are recommended for all lots meeting the same criteria within the city's sphere of influence.
2. These regulations and standards shall apply to land outside the FEMA floodplain but within the FP District if the planning commission determines that the proposed development or use of the property bears relationship to the floodplain, has an unprotected lowest floor level of less than two feet above the one-hundred-year flood elevation, may adversely affect a designated scenic corridor, or is in an area where a potential of bank undermining exists.
3. Property that is zoned "U" Unclassified District and is determined to be contiguous to, within, or partially within the floodplain subsequent to the adoption of this chapter is automatically subject to the regulations of the FP Combining District without further consideration by the planning commission and city council and shall be considered as if already zoned FP Floodplain District.
4. Ensure that floodplain development does not unnecessarily adversely affect a scenic corridor or riparian habitat.

#### B. Interpretation

1. Except as provided for in this chapter, all development and uses in the base floodplain, including grading and fill, are prohibited without approval as specified herein.
2. Any development within the floodplain as determined by FEMA or higher floodplain elevation adopted by the citywide storm drain master plan shall comply with the standards of Section 60.3 (a, b, c, and d) and Section 60.6 (a) of the Rules and Regulations of the National Flood Insurance Program (44 CFR 59), incorporated herein by reference; the development standards of this chapter; and any conditions of approval applied to the development.
3. Where there appears to be a conflict between a mapped boundary and actual field conditions and the conflict cannot be attributed to fill material being deposited to alter the elevations, the floodplain administrator and public works director may make interpretations, where needed, as to the exact location of the boundary of the floodway and one-hundred-year floodplain consistent with the purpose of this chapter. Any person contesting the location of the boundary shall be given a reasonable opportunity to appeal the interpretation to the planning commission. Such appeals shall be reviewed consistent with the variance and exception procedures of Title 44, Section 60.6 of the Rules and Regulations of the National Flood Insurance Program (44 CFR 59, etc.). All costs for information necessary to make an interpretation shall be borne by the property owner and shall follow the procedures listed in Section 18.47.110.
4. Backwater areas along streams, which rise or fall with the level of water in the adjacent stream, are considered to be within the base floodplain of the adjacent creek or stream unless proven by a registered hydrologist/engineer that these water levels are not the same level as the

base flood of the adjacent stream and may have a base floodplain of their own.

5. When base flood elevation data has not been provided by federal, state or local agencies, the owner shall be responsible for obtaining the information in accordance with Section 18.47.110.

6. The public works department and development services department will review proposed development to ensure that all necessary permits have been received from those governmental agencies from which approval is required by federal or state law, including Section 404 of the Federal Water Pollution Control Act Amendments of 1972 and CDFG's 1601 or 1603 Agreements.

(Ord. 2284 § 1 (part), 2001)

18.47.050 Uses prohibited in a floodway and flood-fringe area.

1. Structures or insurable improvements other than those listed in Section 18.47.060(A) through(D) and Section 18.47.070(A) through (E) shall not be located within the floodway.

The following uses in a floodway and flood-fringe area are prohibited unless the area is raised to a height of flood protection elevation (one foot above the base floodplain elevation) based upon an approved application for encroachment:

A. The storage or processing of materials that, in time of flooding, are buoyant or explosive; that could be injurious to human, animal, or plant life; or that may affect the capacity of the floodway or increase flood heights.

B. The storage or parking of recreational vehicles as defined in Section 18.47.020 within the floodway or floodplain of local streams.

C. Underground storage of toxic or flammable substances that could be injurious to human, animal or plant life.

D. Fences or walls.

E. Swimming pool equipment.

(Ord. 2284 § 1 (part), 2001)

18.47.060 Permitted uses within the floodway and flood fringe (not requiring a use permit).

1. The following uses are allowed within the floodway and flood fringe, provided they are allowed in the district combined with the FP District, meet FEMA development standards and are approved by all agencies with jurisdiction:

A. Emergency actions approved by the city manager taken to protect existing property or facilities, not including concrete or asphalt riprap or narrowing the existing channel.

B. Removal of water-deposited debris that could result in channel alteration subject to obtaining a grading permit and any permits from the Department of Fish and Game.

C. Maintenance and repair to existing structures and yards pursuant to Chapter 18.58 of this code and normal maintenance of existing channels, ditches, or levees.

D. Bridges with a design capacity to pass a one-hundred-year flood without impedance of base floodwaters (bridges without piers or abutments in the floodway), taking into consideration full urbanization of the tributary area.

(Ord. 2284 § 1 (part), 2001)

18.47.070 Uses requiring a use permit within the floodway and flood fringe.

1. The following uses may be permitted by use permit in the FP District for the area of floodway and flood fringe, provided such uses meet the standards of Section 18.47.090 and Section 18.47.110 and are approved by all agencies with jurisdiction:

In the floodway or flood fringe:

A. Dams or diversions for water supply, flood control, hydroelectric production, irrigation, or fisheries enhancement. Levees and pumping stations.

B. Actions approved by the Department of Fish and Game to enhance riparian or wildlife habitat. Streambank stabilization structures.

C. Gravel- and sand-extraction operations along such waterways as Stillwater Creek, Clear Creek and the Sacramento River when a riparian and fishery reclamation plan has been approved by the planning commission and necessary permits have been obtained from the state Department of Fish and Game and the Army Corps of Engineers, provided such operations will not broaden the floodplain nor direct flood flows out of the natural floodplain.

D. Bridges with piers or abutments in the floodway or flood fringe.

E. Water-related recreational uses not exceeding thirty consecutive days in any one year, excluding recreational uses that create permanent improvements or would result in destruction of banks.

In the flood fringe only:

F. Public parks, picnic areas, playgrounds, boat launch, equestrian, pedestrian and bicycle trails and golf courses which involve only the open use of land without permanent structures and which do not impede flood flows.

G. Underground utilities including sewer, water, electric, telephone and cable lines properly floodproofed. Overhead electric lines greater than 12kV.

H. Agriculture and hobby farming, including field crops, orchards, vineyards and grazing. New residential or substantially improved residential structures, agricultural, commercial and industrial structures permitted by the underlying district regulations involved, provided floodproofing and/or flood-protective measures have been installed in a manner meeting with the approval of the floodplain administrator, city engineer, building official and fire marshal.

J. Mobile homes or manufactured homes.

K. The storage or parking of recreational vehicles within the floodplain of the Sacramento River.

L. Unless otherwise noted, any use allowed by the district with which the FP District is combined may be permitted subject to obtaining a use permit and meeting the standards of Sections 18.47.090 and 18.47.110, provided the following are in evidence:

1. The use meets the provisions of this chapter.
2. The use is consistent with the Redding general plan.
3. The use is consistent with the zoning of the parcel.
4. Adequate floodproofing and/or flood-protection measures have been installed meeting with the approval of the floodplain administrator, city engineer, building official, fire marshal and planning commission.

(Ord. 2284 § 1 (part), 2001)

18.47.080 Permitted uses within the city's fp district, outside the floodway and the flood fringe.

1. The following use is permitted without a use permit in the FP District for the area outside the flood fringe:

A. Any permitted use in the district combined with the FP District, provided there is not any encroachment into the base floodplain. The minimum setback from the base floodplain lines shall be thirty feet when adjacent to the Sacramento River where there is moving water. The minimum setback from the base floodplain line shall be fifteen feet, when adjacent to any creek. The lowest floor elevation of any habitable structure shall be one foot above the base floodplain elevation, as identified by FEMA or the city's master storm drain study, whichever is highest, and the structure shall have year-round access not subject to inundation by a base flood of a depth of more than one foot.

(Ord. 2284 § 1 (part), 2001)

18.47.090 Construction standards.

1. Any structures or construction activities within the flood fringe shall be subject to the following:

A. Construction, General

1. No construction or grading is to limit the capacity of the floodway or increase the base flood elevation unless the following requirements are met:

a. Revision to the Flood Insurance Rate-Map is prepared by the applicant's engineer and is adopted by FEMA in accordance with 44 CFR 65 to incorporate the increase in the base flood

elevation.

b. Appropriate legal documents are prepared in which all property owners

B. Anchoring affected by the increased base flood elevations consent to the impacts on their property. All new construction and substantial improvements subject to a one-hundred-year flood shall be anchored to prevent flotation, collapse or lateral movement of the structure.

C. Construction Materials and Methods.

1. All new construction and substantial improvements shall be constructed with materials and utility equipment resistant to flood damage and flood-resistant materials as specified in FEMA Technical Bulletin 2-93 entitled, Flood-Resistant Materials Requirement, when subject to a one-hundred-year flood.

2. All new construction and substantial improvements shall use methods and practices that minimize flood damage.

3. All nonstructural elements that function as a part of the structure such as furnace, hot-water heater, air conditioner, electrical equipment, plumbing fixtures and other service facilities shall be elevated to one foot above the base flood elevation or to the depth number specified on the Flood Insurance Rate Map (FIRM) or the citywide storm drain master plan (whichever is more restrictive), plus one foot.

D. Elevation and Floodproofing.

1. Residential construction, including new or substantial improvement in flood zones A, AE, AO or A1-30, shall have the lowest floor, including basement, elevated a minimum of one foot above the base floodplain elevation as determined by the FIRM maps, by the method in Section 18.47.110, or by the citywide master storm drain study by Montgomery-Watson Engineers, whichever is more restrictive. The elevation of the lowest floor, including the basement, shall be certified by a registered professional engineer or licensed land surveyor per Section 18.47.040(D)(4) and (5). Said certification shall be submitted to the development services department for approval and to verify that certification requirements have been met.

2. Nonresidential construction, including new or substantial improvement, shall either be elevated consistent with Section 18.47.090(D)(1) or together with attendant utility and sanitary facilities shall be required to do the following:

a. Be floodproofed below the elevation recommended under Section 18.47.090(D)(1) so that the structure is watertight with walls substantially impermeable to the passage of water.

b. Have structural components capable of resisting hydrostatic and hydrodynamic loads and effects of buoyancy.

c. Be certified by a registered professional engineer, licensed land surveyor or architect that the standards of this subsection and the standards required in FEMA Technical Bulletin 3-93, entitled Nonresidential Floodproofing Requirements and Certification are satisfied. Such certifications shall be provided to the city's development services department.

3. All new construction and substantial improvement with fully enclosed areas below the lowest floor (excluding basements) that are usable solely for parking of vehicles, building access or storage and which are subject to flooding shall be designed to automatically equalize hydrostatic flood forces on exterior walls by allowing for the entry and exit of floodwaters. Designs for meeting this requirement must meet the specifications in the FEMA Technical Bulletins 1-93 and 7-93, entitled Openings in Foundation Walls and Wet Floodproofing Requirements, respectively, and/or exceed the following minimum criteria:

a. Be certified by a registered professional engineer or architect.

b. Have a minimum of two openings on different sides of the structure, having a total net area of not less than one square inch for every square foot of enclosed area subject to flooding. The bottom of all openings shall be no higher than one foot above grade. Openings may be equipped with screens, louvers, valves, or other coverings or devices, provided that they permit the automatic entry and exit of floodwaters.

4. An Elevation Certificate for residential construction (FEMA Form 81-31) of the lowest adjacent grade and lowest floor, based on construction drawings, shall be required prior to issuance of a building permit. Prior to pouring a foundation, the engineer shall provide written verification that the foundation form elevations are consistent with elevations shown on approved construction drawings. A second certification of the elevation of the lowest floor and utilities is required at the time of finished construction prior to final building permit approval (prior to occupancy). The elevation certificates must be prepared by a licensed land surveyor, registered professional engineer or architect who is authorized by state or local law to certify elevation and shall be approved by the development services department. Failure to submit elevation certification shall be cause to issue a stop-work order for a project.

5. An Elevation Certificate (FEMA Form 81-31) or a nonresidential Floodproofing Certificate (FEMA Form 81-65) for nonresidential construction is required prior to issuance of a building permit. Prior to pouring a foundation, the engineer shall provide written verification that the foundation form elevations are consistent with elevations shown on approved construction drawings. A second Elevation Certificate is required at the time of finished construction, prior to the final building permit.

#### E. Standards for Utilities.

1. All new and replacement water-supply and sanitary-sewage systems shall be designed to minimize or eliminate infiltration of floodwaters into the system and discharge from systems into floodwaters.

2. On-site, waste-disposal systems shall be located to avoid impairment to them or contamination from them during flooding.

#### F. Standards for Levees.

1. Design criteria for levees shall incorporate adequate design, operation, and maintenance systems to provide protection from the base flood. The following requirements must be met:

a. Freeboard-riverine levees must provide a minimum freeboard of three feet above the water-surface level of the base flood. An additional one foot above the minimum is required within one hundred feet of either side of structures (such as bridges) riverward of the levee or wherever the flow is constricted. An additional one-half foot above the minimum at the upstream end of the levee, tapering to not less than the minimum at the downstream end of the levee, is also required.

#### G. Standards for Manufactured Homes.

1. All manufactured homes that are placed or substantially improved within Zones A, AO, A1-30, AE or AH on the Flood Insurance Rate Map or in the one-hundred-year floodplain as identified on the citywide storm drain master plan shall be elevated on a permanent foundation such that the lowest floor of the manufactured home is elevated at least one foot above the base floodplain elevation and be securely fastened to an adequately anchored foundation system to resist flotation collapse and lateral movement.

(Ord. 2284 § 1 (part), 2001)

#### 18.47.100 Existing parcels.

1. Existing parcels which, at the time of the effective date of this chapter, fall wholly within a floodplain or which have a residual area outside the floodplain which, by itself, does not meet the minimum lot size for the zoning district in which it is located or is less than five thousand square feet, whichever is less, may seek relief as follows:

A. Petition to encroach into the flood fringe pursuant to Section 18.47.110.

B. Seek a use permit to reduce any required setback by fifty percent, provided the floodplain area is placed in an open-space easement or dedicated to the city.

C. Offer to dedicate the flood-fringe area to the city council in exchange for a dwelling-unit credit at a ratio of one unit per ten acres dedicated. Floodplain areas claimed by the State of California (Reclamation Board's designated floodway) are not eligible for a dwelling-unit credit. If the city council approves the exchange, the dwelling-unit credit could then be added to the density of any unsubdivided residential property of five acres or more in the city subject to the following:

1. Any dwelling-unit credit must be used within five years of the date approved by the city council.

2. The density of the recipient property is not increased by more than twenty percent above what the Redding general plan otherwise would allow.

3. The dwelling-unit credit would not change the intended use shown by the general plan. For example, single family would not become multiple family.

4. The development of the recipient property meets all other standards of the city pertaining to the property.

5. The dwelling-unit credit is not in addition to any other bonus-density provisions sought for the property.

6. Any dwelling-unit credit shall be in the form of a recorded agreement.

7. The fringe area shall be calculated as follows:

The base floodplain elevation and the edge of floodway shall be plotted on a one- to four- foot interval contour map of the property. The area then bounded by the edge of floodway, edge of base floodplain, and property lines shall then be planimetered to calculate the flood fringe. That number shall then be divided by ten and reduced to the nearest whole number. In the event the flood-fringe area is less than ten acres, one dwelling unit credit can be given.

8. Any offer to dedicate flood fringe shall also include any adjacent floodway under the same ownership.

9. Areas that are surrounded by floodway are not considered eligible for density credit.

(Ord. 2284 § 1 (part), 2001)

18.47.110 Application for encroachment into the flood fringe.

1. Property owners requesting permission to encroach into the flood fringe shall submit to the planning commission a hydraulic assessment of the base flood event prepared by a hydrologist who is a registered civil engineer. The cost of evaluating the analysis by the city or its consultant will be the responsibility of the applicant. The assessment shall meet the requirements for surveying, hydraulic analysis and flood-flow frequency analysis, as outlined in the Guidelines and Specifications for Study Contractors prepared by FEMA, dated January 1995, or as subsequently amended. The city shall specify the hydraulic method and model to be used. Acceptable models for water-surface profiles include the latest version of the HEC-2, HEC-RAS, HEC-HMS, HSPF or other identical models. The city shall also require that calculations include the runoff from projected upstream urbanization of the tributary area, which may be obtained from the HEC-1 (HEC-HMS) hydrograph model.

Except along the Sacramento River, the assessment shall include a flood-flow frequency analysis obtained from HECWRC Program Model (CPD 13); and when there is insufficient gauged flood history, then the frequency analysis and associated levels of confidence shall be developed through sensitivity analysis of rainfall and runoff parameters impacts using HEC-1 (HEC-HMS). The results of the estimated frequency curve of the base flood event and resulting surface-water analysis shall be compared with a frequency chart using a ninety percent confidence limit and curves of standard deviations from the mean versus the frequency exceedance range, showing bands of confidence ranging from .05 to .95.

Except along the Sacramento River, the assessment shall also include calculations and cross sections with a minimum interval of one hundred feet or less based on one-foot contour intervals and shall be submitted in a format for review by the city relative to FEMA Flood Insurance Study Guidelines. Additional information may also be required by the city as necessary to make a final determination. (Ord. 2284 § 1 (part), 2001)

18.47.120 Equal encroachment.

1. All requests for encroachments into a floodplain shall, to the greatest extent possible, assume equal encroachment on both sides of a stream, unless it can clearly be determined that the opposite bank above the base floodplain elevation which would be affected is unusable and not subject to erosion or undercutting from increased water velocity or raised flood levels or has been placed in a permanent open-space status to the extent that there would be no impact from an increase in the level of the base flood. (Ord. 2284 § 1 (part), 2001)

18.47.130 Environmental review.

1. Any application for encroachment into a flood-fringe area shall be subject to environmental clearance under the California Environmental Quality Act (CEQA). Any encroachment which significantly raises the projected flood levels on adjacent property or has the potential to increase erosion or diverts the natural flow of water shall be subject to an environmental impact report. The environmental impact report shall evaluate the area needed to make a determination, taking into consideration the cumulative and long-term impact of the proposed encroachment, the relationship of the project to the purpose of this chapter, and alternatives to the proposed project. (Ord. 2284 § 1 (part), 2001)

18.47.135 Whenever a floodway or floodplain is to be altered or relocated.

1. The city will notify adjacent communities and the California Department of Water Resources prior to such alteration or relocation of a floodway or floodplain, submit evidence of such notification to the Federal Emergency Management Agency in a request for a Conditional Letter of Map Revision (CLOMR), and ensure that the flood-carrying capacity of the altered or relocated portion of said watercourse is maintained. Preparation of the Conditional LOMR application by the applicant's engineer and approval of the Conditional LOMR by FEMA will be required prior to issuance of a grading permit or building permit. Approval of the Final LOMR is typically required prior to Final building permit approval (Certificate of Occupancy).

(Ord. 2284 § 1 (part), 2001)

18.47.140 Warning and disclaimer of liability.

1. The degree of flood protection required by this chapter is considered reasonable for regulatory purposes and is based on scientific and engineering considerations. It is probable that larger floods can and will occur, that the base flood may occur more often than the one percent frequency, and that flash floods may cause equal or greater damage. Flood heights inside the city limits may also be increased by manmade or natural causes in unincorporated areas. This chapter 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 damage. This chapter shall not create liability on the part of the city or any officer or employee thereof, the State of California, or the Federal Insurance Administration of the Federal Emergency Management Agency for any flood damages that result from reliance on this chapter or any administrative decision lawfully made thereunder.

(Ord. 2284 § 1 (part), 2001)

18.47.150 Nonconforming uses in the floodway or floodplain.

1. If any nonconforming use or structure within the floodway is destroyed by any means, including floods, to an extent of fifty percent or more of its market value as defined in Section 18.47.020, it shall not be reconstructed. Within the flood fringe, a structure may be reconstructed pursuant to the Nonconforming Uses, Structures Section of the city's Zoning code, provided that upon reconstruction, the structure is adequately and safely floodproofed, elevated or otherwise protected in conformity with the requirements of this ordinance.

(Ord. 2284 § 1 (part), 2001)

18.47.160 Prohibitions.

1. No building permit, license, certificate or other approval or entitlement shall be issued or given by the city or any department or employee thereof with respect to any improvement until the design of the improvement has been approved, as provided in this chapter, and the one-hundred-year flood elevation has been determined. No certificate of use and occupancy or similar approval shall be issued or given for any improvement subject to use permit by this chapter, unless and until a representative of the Development Services Department has certified that the improvement has been completed in accordance with the use permit approved pursuant to this chapter.

18.47.170 Nuisance.

1. A. Any improvement constructed, located, repaired, altered or maintained contrary to the provisions hereof, after the effective date of this chapter, is hereby declared to be unlawful and a public nuisance. If any permit is issued based on plans or other submittals by the applicant or his/her representative which are contrary to the chapter or planning commission approval, the applicant shall be responsible for correcting any work done under such permit in order to bring it into conformance with the approved design.

B. Any grading or filling within the floodplain contrary to the provisions of this chapter is hereby declared unlawful and a public nuisance.

C. When the director of public works has been made aware of the unlawful deposit of fill or grading within the floodplain, he shall advise the property owner by registered mail that such material shall be removed within thirty working days and that a riparian reclamation plan must be submitted for approval by the planning commission within the same period of time. Thereafter, the property owner will have nine months to implement the approved plan. The city-approved reclamation plan shall be recorded and shall remain in the title report until the city is satisfied that compliance has been achieved. Within thirty days of planning commission approval, the property owner shall deposit improvement security based on the value of reclamation improvements to ensure that the plan is implemented. Until such time as the

property is restored to its natural conditions, no building, grading or use permit shall be issued for improvement of the property.

(Ord. 2284 § 1 (part), 2001)

#### 18.47.180 Standards for subdivisions.

1. A. Unless encroachment into the flood fringe has been approved by the planning commission or the city council, as the case may be, no subdivision shall be approved which creates lots that extend into any flood fringe or floodway area and no lots shall use areas subject to flooding by a base flood in order to meet minimum area requirements. The surface area of all lots in a subdivision that are not subject to flooding by a base flood shall be a minimum of one foot above the base flood elevation; or all lowest floor elevations, including basements, shall be at least one foot above the base floodplain elevation. Both the tentative and final maps for a subdivision shall show the boundary of the base flood. The boundary shall be certified by the engineer preparing the map. All final maps shall also have a warning note on the map similar to Section 18.47.140.

B. All final subdivision plans will provide the elevation of proposed structures, pads and adjacent grade. If the site is filled above the base floodplain, the final pad elevation shall be certified by a registered professional engineer or surveyor and provided to the director of public works and shown on the final map. Approval of a Conditional Letter of Map Revision (CLOMR) by FEMA is required prior to grading.

C. All subdivision proposals shall be consistent with the need to minimize flood damage.

D. All subdivision proposals shall have public utilities and facilities such as sewer, gas, electrical and water systems located and constructed to minimize flood damage.

E. All subdivision proposals shall have adequate drainage, provided to reduce exposure to flood damage. Certification of compliance shall be required of the developer.

F. Subdivisions will be required to have the base floodplain elevation established with consideration of the tentative map.

(Ord. 2284 § 1 (part), 2001)

#### 18.47.190 Variances.

1. A. The planning commission shall hear requests for variances from the requirements of this chapter.

B. Those aggrieved by the decision of the planning commission may appeal such decision to the city council.

C. In considering a variance application, the planning commission shall consider all technical evaluations, all relevant factors, standards, etc., specified in other sections of this chapter, 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 for the proposed uses that are not subject to flooding or erosion damage.
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, water system and streets and bridges.

D. Generally, variances may only be issued for new construction and substantial improvements to be erected on a lot of one-half acre or less in size contiguous to and surrounded by lots with existing structures constructed below the base flood level providing subsections (A) through (F) of this section have been fully considered. As the lot size increases beyond the one-half acre, the technical justification required for issuing the variance increases.

E. Upon consideration of the factors of Section 18.47.190(C) and the purpose of this chapter, the planning commission may attach such conditions to the granting of variances as it deems necessary to further the purpose of this chapter.

F. The floodplain administrator shall maintain the records of all appeal actions and report any variances to the Federal Insurance Administration of the Federal Emergency Management Agency in the biennial report.

G. Conditions for Variances:

1. Variances may be issued for the repair, rehabilitation, or restoration of structures listed on the National Register of Historic Places or the State Inventory of Historic Places, provided that the proposed repair, rehabilitation, or restoration will not preclude the structure's continued designation as an historic structure and the variance is the minimum necessary to preserve the historic character and design of the structure.
2. Variances shall not be issued within any designated floodway if any increase in flood levels during the base flood discharge would result.
3. Variances shall only be issued upon a determination that the variance is the minimum

necessary, considering the flood hazard, to afford relief.

4. Variances shall only be issued upon:

a. A showing of good and sufficient cause such as renovation, rehabilitation or reconstruction. Variances issued for economic considerations, aesthetics or because variances have been used in the past, are not good and sufficient cause.

b. A determination that failure to grant the variance would result in exceptional hardship to the applicant.

c. A determination that the granting of a variance will not result in increased flood heights, additional threats to public safety, or extraordinary public expense; create nuisances; cause fraud on or victimization to the public or conflict with existing local laws or ordinances.

5. Any applicant to whom a variance is granted shall be given written notice that the structure will be permitted to be built with a 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. It is recommended that a copy of the notice be recorded by the floodplain administrator in the office of the Shasta County recorder and be recorded in a manner so that it appears in the chain of title of the affected parcel of land.

(Ord. 2284 § 1 (part), 2001)