

RESOLUTION NO. R-016- 055

THE BOARD OF COUNTY COMMISSIONERS
OF THE COUNTY OF DOUGLAS, COLORADO

A RESOLUTION APPROVING AMENDMENTS TO SECTION 18,
FLOODPLAIN OVERLAY DISTRICT, TO THE DOUGLAS COUNTY ZONING
RESOLUTION

WHEREAS, the Planning Services Division has prepared amendments to Section 18, Floodplain Overlay District ("Amendments") of the *Douglas County Zoning Resolution*, which is attached hereto and incorporated herein as Exhibit A (Project No. DR2016-004); and

WHEREAS, said Amendments were reviewed and recommended for approval by the Planning Commission on April 18, 2016; and

WHEREAS, the Board of County Commissioners considered said Amendments at a public hearing held on May 10, 2016; and

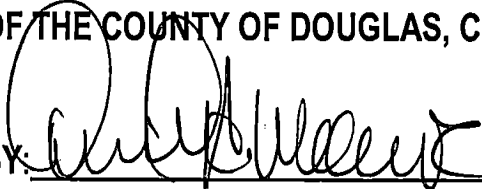
WHEREAS, the Board desires to reflect its approval of said Amendments by the adoption of this Resolution.

NOW, THEREFORE, BE IT RESOLVED, by the Board of County Commissioners of the County of Douglas, State of Colorado, that amendments to Section 18, Floodplain Overlay District are hereby made to the *Douglas County Zoning Resolution*, to read as provided on said Exhibit A; and

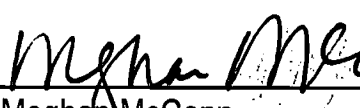
FURTHER RESOLVED, that said Amendments shall be effective as of May 10, 2016.

PASSED AND ADOPTED this _____ day of May, 2016, in Douglas County, Colorado.

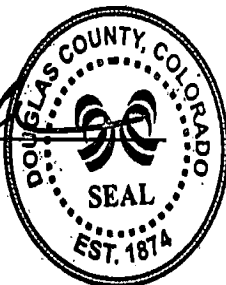
THE BOARD OF COUNTY COMMISSIONERS
OF THE COUNTY OF DOUGLAS, COLORADO

BY: 

David A. Weaver, Chair

ATTEST: 

Meghan McCann
Deputy Clerk to the Board



SECTION 18 FLOODPLAIN OVERLAY DISTRICT**-Section Contents-**

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1801 Intent

The flood hazard areas of Douglas County are subject to periodic inundation, which can result in loss of life and property, health and safety hazards, disruption of commerce and governmental services, and extraordinary public expenditures for flood protection and relief, all of which adversely affect the health, safety, and general welfare of the public.

These flood losses are created by the cumulative effect of obstructions in floodplains which cause an increase in flood heights and velocities, and by the occupancy of flood hazard areas by uses vulnerable to floods and hazardous to other lands because they are inadequately elevated, floodproofed or otherwise protected from flood damage.

It is the intent to minimize public and private flood-related losses in areas subject to flooding and to promote public health, safety, and general welfare through requirements designed to:

- Protect human life and health.
- Recognize the environmental constraints and hazards outlined in the Douglas County Comprehensive Master Plan (CMP) and to implement the CMP goal of limiting land use in floodplains to preclude damage to life and property and maintain floodplains as open space.
- Ensure that landowners of areas within the Floodplain Overlay District assume responsibility for their actions and that potential buyers are notified that property is located within a Floodplain Overlay District.
- Minimize damage to critical facilities, infrastructure and other public facilities and utilities such as water, gas, electric, telephone and sewer lines, roads and bridges located in the Floodplain Overlay District.
- Minimize expenditure of public money for costly flood control projects and the need for rescue and relief efforts associated with flooding and generally undertaken at the expense of the general public.
- Minimize prolonged business interruptions.
- Preserve, protect, and enhance the natural and beneficial functions of floodplains.
- Protect the hydraulic characteristics of the drainageways and maintain the storage capacity of floodplains.
- Comply with the program requirements of the National Flood Insurance Program (NFIP) in order that national flood insurance is available to County residents.

In order to accomplish the intent, this Section includes methods and provisions for:

- Restricting uses or prohibiting certain uses that are dangerous to health, safety or property in times of flooding, or cause increases in flood heights or velocities.
- Requiring permitted floodplain uses to be protected against flooding by providing general flood protection at the time of initial construction or reconstruction.
- Requiring water supply and sanitation systems to be protected against flood damage at the time of initial construction so as to prevent disease, contamination and unsanitary conditions.

- Controlling the alteration of natural floodplains, stream channels, and natural protective barriers which are involved in the accommodation of flood waters.
- Delineating areas that could be inundated by flooding thereby protecting individuals from purchasing floodplain land for purposes which are not suitable.
- Regulating excavation, filling, dumping, dredging, and channelization which may increase flood damage.
- Preventing or regulating the construction of flood barriers which will unnaturally divert floodwater or which may increase flood hazards in other areas.

1802 Definitions

The definitions provided in this Section are for floodplain management purposes and are intended to be consistent with definitions in the National Flood Insurance Program minimum requirements and the minimum standards of the State of Colorado. These definitions do not apply to other sections of the Douglas County Zoning Resolution.

100-Year Flood – A flood having a recurrence interval that has a one-percent chance of being equaled or exceeded during any given year (1-percent-annual-chance flood).

100-Year Floodplain – The area of land susceptible to being inundated as the result of the occurrence of a 100-Year Flood.

500-Year Flood – A flood having a recurrence interval that has a 0.2-percent chance of being equaled or exceeded during any given year (0.2-percent-annual-chance flood).

500-Year Floodplain – The area of land susceptible to being inundated as the result of the occurrence of a 500-Year Flood.

Addition – Any activity that expands the enclosed footprint or increases the square footage of an existing structure.

Appeal - A request for a review of the Floodplain Administrator's interpretation of any provisions of this Section.

Area of Shallow Flooding – A designated Zone AO or AH on Douglas County's Flood Insurance Rate Map (FIRM) with a one-percent chance 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. Such flooding is characterized by ponding or sheet flow.

Base Flood Elevation (BFE) - The elevation shown on a FIRM for Zones AE, AH, A1-A30, AR, AR/A, AR/AE, AR/A1-A30, AR/AH, AR/AO, V1-V30, and VE that indicates the water surface elevation resulting from a flood that has a one percent chance of equaling or exceeding that level in any given year.

Basement – Any area of a building having its floor sub-grade (below ground level) on all sides.

Channel – The physical confine of a stream or waterway consisting of a bed and stream banks, existing in a variety of geometries.

Channelization – The artificial creation, enlargement, or realignment of a stream channel.

Code of Federal Regulations (CFR) – The codification of the general and permanent rules published in the Federal Register by the executive departments and agencies of the Federal Government. It is divided into 50 titles that represent broad areas subject to Federal regulation.

Conditional Letter of Map Revision (CLOMR) – FEMA's comment on a proposed project, which does not revise an effective floodplain map, that would, upon construction, affect the hydrologic or hydraulic characteristics of a flooding source and thus result in the modification of the existing regulatory floodplain.

Critical Facility – A structure or related infrastructure, but not the land on which it is situated, that if flooded may result in significant hazards to public health and safety or interrupt essential services and operations for the community at any time before, during, and after a flood.

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

Digital Flood Insurance Rate Map (DFIRM) – FEMA digital floodplain map. These digital maps serve as “regulatory floodplain maps” for insurance and floodplain management purposes.

Existing Manufactured Home Park or Subdivision – A manufactured home park or subdivision 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) was completed before the effective date of the floodplain management regulations adopted by a community.

Federal Register – The official daily publication for rules, proposed rules, and notices of Federal agencies and organizations, as well as executive orders and other presidential documents.

FEMA – Federal Emergency Management Agency, the agency responsible for administering the National Flood Insurance Program.

Flood or Flooding - A general and temporary condition of partial or complete inundation of normally dry land areas from the overflow of water from channels and reservoir spillways, the unusual and rapid accumulation or run-off of surface waters from any source, or mudslides or mudflows that occur from excess surface water that is

combined with mud or other debris that is sufficiently fluid so as to flow over the surface of normally dry land areas.

Flood Insurance Rate Map (FIRM) - The official map on which the Federal Emergency Management Agency has delineated both the areas of special flood hazards and the risk premium zones.

Flood Insurance Study - The official report provided by the Federal Emergency Management Agency. The report contains the Flood Insurance Rate Map as well as flood profiles for studied flooding sources that can be used to determine Base Flood Elevations for some areas.

Floodplain or Flood-Prone Area – Any land area susceptible to being inundated as the result of a flood, including the area of land over which floodwater would flow from the spillway of a reservoir.

Floodplain Administrator - The Douglas County Public Works Engineering Director or designated representative.

Floodplain Development Permit – A permit required before construction or development begins within the Floodplain Overlay District. Permits are required to ensure that proposed projects or activities meet the minimum requirements of the National Flood Insurance Program and the Floodplain Overlay District.

Floodplain Management – The operation of an overall program of corrective and preventive measures for reducing flood damage, including, but not limited to emergency preparedness plans, flood control works, and floodplain management regulations.

Floodproofing – Any combination of structural and/or non-structural additions, changes, or adjustments to structures which reduce or eliminate flood damage to real estate or improved real property, water and sanitary facilities, structures and their contents.

Floodway - The channel, river, or other watercourse and the adjacent land areas within the floodplain, that are subject to higher regulatory requirements. The floodway is determined through engineering analyses using the assumption of equal conveyance capacity loss on each side of the floodplain, which results in a theoretical rise in the Base Flood Elevation, during discharge of the base flood, of no more than one-half foot.

Freeboard – The vertical distance in feet above a predicted water surface elevation intended to provide a margin of safety to compensate for unknown factors that could contribute to flood heights greater than the flood height calculated for a selected flood.

Highest Adjacent Grade – The highest natural elevation of the ground surface prior to construction next to the proposed walls of a structure.

Historic Structure – Any structure that is listed individually in the National Register of Historic Places or preliminarily determined by the Secretary of the Interior as meeting the requirements for individual listing on the National Register, certified or preliminarily

determined by the Secretary of the Interior as contributing to the historical significance of a registered historic district or a district preliminarily determined by the Secretary to qualify as a registered historic district, individually listed on a state inventory of historic places in states with historic preservation programs which have been approved by the Secretary of the Interior, or individually listed on a local inventory of historic places in communities with historic preservation programs that have been certified by an approved state program as determined by the Secretary of the Interior or directly by the Secretary of the Interior in states without approved programs.

Letter of Map Revision (LOMR) – FEMA's official revision of an effective Flood Insurance Rate Map (FIRM), or Flood Boundary and Floodway Map (FBFM), or both. LOMRs are generally based on the implementation of physical measures that affect the hydrologic or hydraulic characteristics of a flooding source and thus result in modification of the existing regulatory floodway, the effective Base Flood Elevations, or the Special Flood Hazard Area.

Letter of Map Revision Based on Fill (LOMR-F) – FEMA's modification of the Special Flood Hazard Area shown on the Flood Insurance Rate Map based on the placement of fill outside the existing regulatory floodway.

Lowest Floor - The lowest floor of the lowest enclosed area (*including basement*). Any floor used for living purposes which includes working, storage, sleeping, cooking and eating, or recreation or any combination thereof. This includes any floor that could be converted to such a use such as a basement or crawl space. The lowest floor is a determinate for the flood insurance premium for a building, home or business. An unfinished or flood resistant enclosure, 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 that such enclosure is not built so as to render the structure in violation of the applicable non-elevation design requirements of Section 60.3 of the National Flood Insurance Program regulations.

Manufactured Home – 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".

Manufactured Home Park or Subdivision – A parcel (or contiguous parcels) of land divided into two or more manufactured home lots for rent or sale.

Mean Sea Level – For purposes of the National Flood Insurance Program, the North American Vertical Datum (NAVD) of 1988 or other datum to which Base Flood Elevations shown on a community's Flood Insurance Rate Map are referenced.

Material Safety Data Sheet (MSDS) – A form with data regarding the properties of a particular substance. An important component of product stewardship and workplace safety, it is intended to provide workers and emergency personnel with procedures for handling or working with that substance in a safe manner, and includes information such as physical data (melting point, boiling point, flash point, etc.), toxicity, health

effects, first aid, reactivity, storage, disposal, protective equipment, and spill-handling procedures.

National Flood Insurance Program (NFIP) – FEMA's program of flood insurance coverage and floodplain management administered in conjunction with the Robert T. Stafford Relief and Emergency Assistance Act. The NFIP has applicable Federal regulations promulgated in Title 44 of the Code of Federal Regulations. The U.S. Congress established the NFIP in 1968 with the passage of the National Flood Insurance Act of 1968.

New Manufactured Home Park or Subdivision – A manufactured home park or subdivision 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 pouring of concrete pads) is completed on or after the effective date of floodplain management regulations adopted by a community.

Nonconforming Lot – A lot or parcel that lies mostly or entirely within the Floodplain Overlay District and does not allow for construction of a structure outside the Floodplain Overlay District.

No-Rise Certification – A record of the results of an engineering analysis conducted to determine whether a project will increase flood heights in a floodway. A No-Rise Certification must be supported by technical data and signed by a registered Colorado Professional Engineer. The supporting technical data shall be based on the standard step-backwater computer model used to develop the 100-year floodway shown on the Flood Insurance Rate Map or Flood Boundary and Floodway Map.

Recreational Vehicle - A vehicle which is built on a single chassis, 400 square feet or less when measured at the largest horizontal projection, designed to be self propelled or permanently towable by a light duty truck, and designed primarily not for use as a permanent dwelling but as temporary living quarters for recreational, camping, travel, or seasonal use.

Start of Construction - The date the building permit was issued, including Substantial Improvements, provided the actual start of construction, repair, reconstruction, rehabilitation, addition, placement, or other improvement was within 180 days of the permit date. The actual start means either the first placement of permanent construction of a structure on a site, such as the pouring of a 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; installation of streets and/or walkways; excavation for a basement, footings, piers, or foundations or the erection of temporary forms; and 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 Substantial Improvements, the actual start of construction means the first alteration of any wall, ceiling, floor, or other structural part

of the building, whether or not that alteration affects the external dimensions of the building.

Structure - A walled and roofed building, including a gas or liquid storage tank, which is principally above ground, as well as a manufactured home.

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

Substantial Improvement - Any reconstruction, rehabilitation, addition, or other improvement of a structure, the cost of which equals or exceeds 50 percent of the market value of the structure before the "start of construction" of the improvement. The value of the structure shall be determined by Douglas County. This term includes structures which have incurred "substantial damage", regardless of the actual repair work performed. The term does not, however, include either:

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

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

Threshold Planning Quantity (TPQ) – A quantity designated for each chemical on the list of extremely hazardous substances that triggers notification by facilities to the State that such facilities are subject to emergency planning requirements.

Variance - A grant of relief from the requirements of this Section when specific enforcement would result in unnecessary hardship. A variance, therefore, permits construction or development in a manner that would otherwise be prohibited, as outlined in Section 1818.

Violation – The failure of a structure or other development to be fully compliant with the Floodplain Overlay District.

Water Surface Elevation – The height, in relation to the North American Vertical Datum (NAVD) of 1988 (or other datum, where specified), of floods of various magnitudes and frequencies in the floodplains of coastal or riverine areas.

1803 General Provisions

1803.01 A Floodplain Development Permit shall be required for any development within the Floodplain Overlay District to ensure conformance with the provisions of this Section.

- 1803.02 No structure or land shall hereafter be located, altered, or have its use changed within the Floodplain Overlay District without full compliance with the terms of this Section and other applicable regulations.

1804 Nature of District

The Floodplain Overlay District shall be applied as supplemental regulation on existing zoned areas containing flood hazard areas, including planned developments. The Floodplain Overlay District is superimposed on the existing zoning and the restrictions and requirements herein are in addition to those of the underlying zone. All land use review processes that apply to the underlying zone district shall remain in full force and effect. In the case of overlapping or conflicting requirements, the most restrictive provision shall apply.

1805 Boundary

- 1805.01 The boundary of the Floodplain Overlay District shall be the boundary of Special Flood Hazard Areas. The extent of this area shall be based upon the best available information including:

- 1805.01.1 The Flood Insurance Study for Douglas County dated March 16, 2016, and the accompanying series of Flood Insurance Rate Maps (FIRM) and any revisions thereto, produced by FEMA.
- 1805.01.2 Flood Hazard Area Delineation studies produced through the Urban Drainage and Flood Control District and approved by the Floodplain Administrator and designated by the Colorado Water Conservation Board.
- 1805.01.3 Other 100-year floodplain studies as approved by the Floodplain Administrator, accepted by the appropriate local, regional, state, or federal agencies, and designated by the Colorado Water Conservation Board.

1806 Uses Prohibited

The following are strictly prohibited within the Floodplain Overlay District:

- 1806.01 Structures, except fish hatcheries and water-related recreational facilities, single-family dwellings on nonconforming lots, and improvements or Substantial Improvements of existing structures in the Floodplain Overlay District, as allowed by a Floodplain Development Permit.
- 1806.02 Storage or processing of materials.
- 1806.03 Junk or salvage yards, or solid waste disposal facilities or landfills.

1807 Uses Permitted by Right

The following uses shall be allowed by right within the Floodplain Overlay District provided they are permitted in the underlying zone district, and to the extent that they do not impair the flood-carrying capacity of the channel in compliance with the intent of this Section:

- 1807.01 Agricultural uses such as general farming, pasture, sod farming, grazing and crop harvesting.
- 1807.02 Open Space.
- 1807.03 Recreational uses not requiring structures or fences, including parks, golf courses, driving ranges, picnic grounds, wildlife and natural reserves, game farms, target ranges, trap and skeet ranges, hunting, fishing, and hiking areas.
- 1807.04 Lawns, gardens, and other similar uses accessory to the residential use of the land.

The Floodplain Administrator may determine which other uses may be allowed provided that they are very similar in nature to those permitted, and that they comply with the provisions of this Section.

1808 Uses Permitted by Floodplain Development Permit - Within the Floodway

- 1808.01 Underground pipelines, water monitoring devices, and utility and flood control facilities, including floodwater management areas, transmission lines, excluding aboveground support facilities.
- 1808.02 Streets or bridges.

1809 Uses Permitted by Floodplain Development Permit - Within the 100-Year Floodplain

The following listed uses may be permitted within the 100-Year Floodplain, by the approval of a Floodplain Development Permit; in addition, many of these uses also require a Use By Special Review Permit pursuant to Section 21 of this Resolution.

- 1809.01 Utility and flood control facilities, including dams, floodwater management areas, transmission lines, pipelines and water monitoring devices.
- 1809.02 Streets or bridges.
- 1809.03 Fish hatcheries, and water-related recreational facilities, including marinas, boat rentals, docks, piers, and wharves.
- 1809.04 Extraction of topsoil, sand, gravel or other materials.

- 1809.05 Public water and sewage treatment facilities and multiple-use water treatment facilities.
- 1809.06 Public or private water storage facilities, including ponds and reservoirs.
- 1809.07 Channelization, bank stabilization, or any activity which alters or relocates the configuration of the 100-Year Floodplain boundary.
- 1809.08 Reconstruction of a structure or portion thereof which has Substantial Damage or declared unsafe by the County Building Division.
- 1809.09 Single-family dwellings on nonconforming lots.

1810 General Standards

- 1810.01 In the Floodplain Overlay District, the following standards shall apply to new construction and Substantial Improvements, as allowed by Section 1806.01:
 - 1810.01.1 Designed or modified and adequately anchored to prevent flotation, collapse or lateral movement of the structure resulting from hydrodynamic and hydrostatic loads, including the effects of buoyancy.
 - 1810.01.2 Constructed by methods and practices that minimize flood damage.
 - 1810.01.3 Constructed with materials resistant to flood damage.
 - 1810.01.4 Constructed with electrical, heating, ventilation, plumbing, and air conditioning equipment and other service facilities that are designed and/or located so as to prevent water from entering or accumulating within the components during conditions of flooding.
- 1810.02 All Manufactured Homes shall be installed using methods and practices which minimize flood damage. For the purposes of this requirement, Manufactured Homes must be elevated and anchored to resist flotation, collapse, or lateral movement. Methods of anchoring may include, but are not limited to, use of over-the-top or frame ties to ground anchors. This requirement is in addition to applicable State and County anchoring requirements for resisting wind forces.
- 1810.03 All new and replacement public water supply systems shall be designed to minimize or eliminate infiltration of flood waters into the system.
- 1810.04 New and replacement public sanitary sewage systems shall be designed to minimize or eliminate infiltration of flood waters into the system and untreated discharge from the systems into flood waters.

1810.05 Individual on-site waste disposal systems, including leach fields, shall be located in areas above the Base Flood Elevation (except the replacement of a failing system where no alternate location outside the 100-year floodplain is available).

1810.06 When Base Flood Elevation data has not been provided as set forth in Section 1805, the applicant shall be required to use other Base Flood Elevation data, if it exists, or generate the Base Flood Elevation data.

1811 Specific Standards

In the Floodplain Overlay District where Base Flood Elevation data has been provided as set forth in Section 1805 or 1810.06, the following provisions are required:

1811.01 For waterways with Base Flood Elevations for which a regulatory Floodway has not been designated, no new construction, Substantial Improvements, or other development (including fill) shall be permitted within Zones A1-30 and AE on Douglas County's FIRM, unless it is demonstrated that the cumulative effect of the proposed development, when combined with all other existing and anticipated development, will not increase the water surface elevation of the base flood more than one-half foot at any point within the community.

1811.02 Under the provisions of 44 CFR Chapter 1, Section 65.12, of the National Flood Insurance Program regulations, Douglas County may approve certain development in Zones A1-30, AE, AH, on Douglas County's FIRM which increases the water surface elevation of the base flood by more than one-half foot, provided that Douglas County first applies for a conditional FIRM revision through FEMA (Conditional Letter of Map Revision), fulfills the requirements for such revisions as established under the provisions of Section 65.12 of the NFIP and receives FEMA approval.

1811.03 New construction and Substantial Improvements of any residential structure, as allowed by Section 1806.01, shall have the lowest floor including basement, electrical, heating, ventilation, plumbing, and air conditioning equipment and other service facilities including ductwork, elevated to one foot above the Base Flood Elevation. Upon completion of the structure, the elevation of the lowest floor, including basement, shall be certified by a registered Colorado Professional Engineer, architect, or land surveyor. Such certification shall be submitted to the Floodplain Administrator.

1811.04 With the exception of Critical Facilities outlined in Section 1816, Substantial Improvements of any commercial, industrial, or other nonresidential structure shall either have the lowest floor including basement, electrical, heating, ventilation, plumbing, and air conditioning equipment and other service facilities including ductwork, elevated to one

foot above the Base Flood Elevation or, together with attendant utility and sanitary facilities, be designed so that at one foot above the Base Flood Elevation the structure is watertight with walls substantially impermeable to the passage of water and with structural components having the capability of resisting hydrostatic and hydrodynamic loads and effects of buoyancy.

A registered Colorado Professional Engineer or architect shall develop and/or review structural design, specifications, and plans for the construction, and shall certify that the design and methods of construction are in accordance with accepted standards of practice as outlined in this subsection. Such certification shall be maintained by the Floodplain Administrator.

- 1811.05 New construction and Substantial Improvements, as allowed by Section 1806.01, with fully enclosed areas below the lowest floor that are usable solely for parking of vehicles, building access, or storage in an area other than a basement 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 either be certified by a registered Colorado Professional Engineer or architect or meet or exceed the following minimum criteria:

- 1811.05.1 A minimum of two openings having a total net area of not less than one square inch for every square foot of enclosed area subject to flooding shall be provided.

- 1811.05.2 The bottom of all openings shall be no higher than one foot above grade.

- 1811.05.3 Openings shall be equipped with screens, louvers, valves, or other coverings or devices provided that they permit the automatic entry and exit of floodwaters.

- 1811.06 All Manufactured Homes that are placed or substantially improved within Zones A1-30, AH, and AE on Douglas County's FIRM on sites outside of a Manufactured Home Park or Subdivision, in a new Manufactured Home Park or Subdivision, in an expansion to an existing Manufactured Home Park or Subdivision, or in an existing Manufactured Home Park or Subdivision on which the Manufactured Home has incurred "Substantial Damage" as a result of a flood, shall be elevated on a permanent foundation such that the lowest floor of the Manufactured Home, electrical, heating, ventilation, plumbing, and air conditioning equipment and other service facilities including ductwork, are elevated to one foot above the Base Flood Elevation and be securely anchored to an adequately

anchored foundation system to resist flotation, collapse, and lateral movement.

All Manufactured Homes placed or substantially improved on sites in an existing Manufactured Home Park or Subdivision within Zones A1-30, AH and AE on Douglas County's FIRM that are not subject to the provisions of the above paragraph, shall be elevated so that either:

1811.06.1 The lowest floor of the Manufactured Home, electrical, heating, ventilation, plumbing, and air conditioning equipment and other service facilities (including ductwork), are one foot above the Base Flood Elevation, or

1811.06.2 The Manufactured Home chassis is supported by reinforced piers or other foundation elements of at least equivalent strength that are no less than 36 inches in height above grade and be securely anchored to an adequately anchored foundation system to resist flotation, collapse, and lateral movement.

1811.07 All Recreational Vehicles placed on sites within Zones A1-30, AH, and AE on Douglas County's FIRM shall:

1811.07.1 be on the site for fewer than 180 consecutive days, and

1811.07.2 be fully licensed and ready for highway use, or

1811.07.3 meet the permit requirements of Section 1817, and the elevation and anchoring requirements for "Manufactured Homes" in Section 1811.06.

A Recreational Vehicle is ready for highway use if it is on its wheels or jacking system, is attached to the site only by quick disconnect type utilities and security devices, and has no permanently attached additions.

1811.08 Any activity for which a Floodplain Development Permit was issued by Douglas County or a CLOMR was issued by FEMA prior to May 10, 2016, may be completed according to the standards in place at the time of the permit or CLOMR issuance and will not be considered in violation of this Section if it meets such standards.

1812 Areas of Shallow Flooding (AO/AH Zones) Standards

1812.01 All new construction and Substantial Improvements of residential structures, as allowed by Section 1806.01, must have the lowest floor (including basement), electrical, heating, ventilation, plumbing, and air conditioning equipment and other service facilities (including ductwork), elevated above the highest adjacent grade at least one foot above the

depth number specified in feet on the Douglas County's FIRM (at least three feet if no depth number is specified). Upon completion of the structure, the elevation of the lowest floor, including basement, shall be certified by a registered Colorado Professional Engineer, architect, or land surveyor. Such certification shall be submitted to the Floodplain Administrator.

- 1812.02 With the exception of Critical Facilities, outlined in Section 1816, all Substantial Improvements of non-residential structures, must have the lowest floor (including basement), electrical, heating, ventilation, plumbing, and air conditioning equipment and other service facilities (including ductwork), elevated above the highest adjacent grade at least one foot above the depth number specified in feet on the Douglas County's FIRM (at least three feet if no depth number is specified), or together with attendant utility and sanitary facilities, be designed so that the structure is watertight to at least one foot above the base flood level with walls substantially impermeable to the passage of water and with structural components having the capability of resisting hydrostatic and hydrodynamic loads of effects of buoyancy. A registered Colorado Professional Engineer or architect shall submit a certification to the Floodplain Administrator that the standards of this Section, as outlined in Section 1817, are satisfied.

Within Zones AH or AO, adequate drainage paths around structures on slopes are required to guide flood waters around and away from proposed structures.

1813 Floodway Standards

- 1813.01 Encroachments in the Floodway are prohibited, unless a No-Rise Certification has been provided.
- 1813.02 Douglas County may permit encroachments within the Floodway that would result in an increase in Base Flood Elevations, provided that a CLOMR and Floodway revision through FEMA are obtained.

1814 Alteration of a Watercourse

For all proposed developments that alter a watercourse within the Floodplain Overlay District, the following standards shall apply:

- 1814.01 Channelization and flow diversion projects shall address issues of sediment transport, erosion, deposition, and channel migration and properly mitigate potential problems through the project as well as upstream and downstream of any improvement activity. A detailed analysis of sediment transport and overall channel stability shall be provided, when required by the County, to assist in determining the most appropriate design.

1814.02 Channelization and flow diversion projects shall require an evaluation of the residual 100-Year Floodplain.

1814.03 Any channelization or other stream alteration activity proposed shall require an evaluation of its impact on the 100-Year Floodplain.

1814.04 Any stream alteration activity shall be designed and sealed by a registered Colorado Professional Engineer.

1814.05 All activities within the 100-Year Floodplain shall meet all applicable Federal and State regulations, and the requirements of this Section.

1814.06 Within the Floodway, stream alteration activities shall not be constructed unless a No-Rise Certification has been provided or a CLOMR and Floodway revision through FEMA are obtained.

1814.07 Maintenance shall be required for any altered or relocated portions of watercourses so that the flood-carrying capacity is not diminished.

1815 Properties Removed From the Floodplain by Fill

A Floodplain Development Permit shall not be issued for the construction of a new structure or addition to an existing structure on a property removed from the floodplain by the issuance of a FEMA Letter of Map Revision Based on Fill (LOMR-F), with a lowest floor elevation placed below the Base Flood Elevation with one foot of freeboard that existed prior to the placement of fill.

1816 Critical Facilities

It is the responsibility of Douglas County to identify and confirm the specific structures in Douglas County that are Critical Facilities.

1816.01 Critical Facilities are classified under the following categories: essential services; hazardous materials; at-risk populations; and vital to restoring normal services.

1816.01.1 Essential services facilities include:

- (1) Public safety facilities (police stations, fire and rescue stations, emergency vehicle and equipment storage, and emergency operation centers).
- (2) Emergency medical (hospitals, ambulance service centers, urgent care centers having emergency treatment functions, and non-ambulatory surgical structures but excluding clinics, doctor's offices, and non-urgent care medical structures that do not provide these functions).

- (3) Designated emergency shelters.
- (4) Communications (main hubs for telephone, broadcasting equipment for cable systems, satellite dish systems, cellular systems, television, radio, and other emergency warning systems, but excluding towers, poles, lines, cables, and conduits).
- (5) Public utility plant facilities for generation and distribution (hubs, treatment plants, substations and pumping stations for water, power and gas, but not including towers, poles, power lines, buried pipelines, transmission lines, distribution lines, and service lines).
- (6) Air transportation lifelines (airports-municipal and larger), helicopter pads and structures serving emergency functions, and associated infrastructure (aviation control towers, air traffic control centers, and emergency equipment aircraft hangars).

Specific exemptions to this category include wastewater treatment plants (WWTP), non-potable water treatment and distribution systems, and hydroelectric power generating plants, and related appurtenances.

Public utility plant facilities may be exempted if it can be demonstrated to the satisfaction of the Board of County Commissioners that the facility is an element of a redundant system for which service will not be interrupted during a flood. At a minimum, it shall be demonstrated that redundant facilities are available (either owned by the same utility or available through an intergovernmental agreement or other contract) and connected, the alternative facilities are either located outside of the 100-year floodplain or are compliant with the provisions of this Section, and an operations plan is in effect that states how redundant systems will provide service to the affected area in the event of a flood. Evidence of ongoing redundancy shall be provided to the Board of County Commissioners on an as-needed basis upon request.

1816.01.2 Hazardous materials facilities include:

- (1) Chemical and pharmaceutical plants.
- (2) Laboratories containing highly volatile, flammable, explosive, toxic and/or water-reactive materials.
- (3) Refineries.

- (4) Hazardous waste storage and disposal sites.
- (5) Above ground gasoline or propane storage or sales centers.

Facilities shall be determined to be Critical Facilities if they produce or store materials in excess of threshold limits. If the owner of a facility is required by the Occupational Safety and Health Administration (OSHA) to keep a Material Safety Data Sheet on file for any chemicals stored or used in the work place, and the chemical(s) is stored in quantities equal to or greater than the Threshold Planning Quantity (TPQ) for that chemical, then that facility shall be considered to be a Critical Facility. The TPQ for these chemicals is: either 500 pounds or the TPQ listed (whichever is lower) for the chemicals listed under 40 C.F.R. § 302 (2010), also known as extremely hazardous substances; or 10,000 pounds for any other chemical.

Specific exemptions to this category include:

- (1) Finished consumer products within retail centers and households containing hazardous materials intended for household use, and agricultural products intended for agricultural use.
- (2) Buildings and other structures containing hazardous materials for which it can be demonstrated to the satisfaction of Douglas County by hazard assessment and certification by a qualified professional, as determined by Douglas County, that a release of the subject hazardous material does not pose a major threat to the public.
- (3) Pharmaceutical sales, use, storage, and distribution centers that do not manufacture pharmaceutical products.

These exemptions shall not apply to buildings or other structures that also function as Critical Facilities under another category outlined in Sections 1816.

1816.01.3 At-risk population facilities include:

- (1) Elder care (nursing homes).
- (2) Congregate care serving 12 or more individuals (day care and assisted living).
- (3) Public and private schools (pre-schools, K-12 schools), and before-school and after-school care serving 12 or more children.

1816.01.4 Facilities vital to restoring normal services include:

- (1) Essential government operations (public records, courts, jails, building permitting and inspection services, community administration and management, maintenance and equipment centers).
- (2) Essential structures for public colleges and universities (dormitories, offices, and classrooms only).

These facilities may be exempted if it is demonstrated to Douglas County that the facility is an element of a redundant system for which service will not be interrupted during a flood. At a minimum, it shall be demonstrated that redundant facilities are available (either owned by the same entity or available through an intergovernmental agreement or other contract), the alternative facilities are either located outside of the 100-year Floodplain or are compliant with this Section, and an operations plan is in effect that states how redundant facilities will provide service to the affected area in the event of a flood. Evidence of ongoing redundancy shall be provided to the County on an as-needed basis upon request.

1816.02 Standards for Critical Facilities

All new and substantially improved Critical Facilities and new additions to Critical Facilities located within the Floodplain Overlay District shall be:

- 1816.02.1 Located outside the Floodplain Overlay District; or
- 1816.02.2 Elevated so that the lowest floor is at least two feet above the Base Flood Elevation; or
- 1816.02.3 Floodproofed, including attendant utility and sanitary facilities, to at least two feet above the Base Flood Elevation; and
- 1816.02.4 Provided continuous non-inundated access (ingress and egress for evacuation and emergency services) during a 100-Year Flood, if required.

1817 Floodplain Development Permit Procedures

- 1817.01 An application for a Floodplain Development Permit shall be submitted to the Floodplain Administrator on forms issued by the Engineering Services Division, prior to any development activity, and may include, but not be limited to, plans in duplicate drawn to scale showing the location, dimensions, and elevations of proposed land alterations, existing and proposed structures, including the placement of manufactured homes,

and the location of the foregoing in relation to the Floodplain Overlay District. Additionally, the following information is required, as applicable:

- 1817.01.1 Elevation in relation to Mean Sea Level of the lowest floor including basement of all new structures and Substantial Improvements.
- 1817.01.2 Elevation in relation to Mean Sea Level to which any nonresidential structure shall be floodproofed.
- 1817.01.3 A certificate from a registered Colorado Professional Engineer that the nonresidential floodproofed structure shall meet the floodproofing criteria of Section 1811.04.
- 1817.01.4 Description of the extent to which any watercourse or natural drainage will be altered or relocated as a result of proposed development.
- 1817.01.5 Records of all such information.
- 1817.01.6 Relevant information, requested by the Floodplain Administrator, necessary to evaluate the proposed activity and conformance with the requirements of Section 18.
- 1817.02 Approval or denial of a Floodplain Development Permit by the Floodplain Administrator shall be based on all of the provisions of this Section and the following relevant factors:
 - 1817.02.1 The danger to life and property due to flooding or erosion damage.
 - 1817.02.2 The susceptibility of the proposed facility and its contents to flood damage and the effect of such damage on the individual owner.
 - 1817.02.3 The danger that materials may be swept onto other lands to the injury of others.
 - 1817.02.4 The compatibility of the proposed use with existing and anticipated development.
 - 1817.02.5 The safety of access to the property in times of flood for ordinary and emergency vehicles.
 - 1817.02.6 The costs of providing governmental services during and after flood conditions including maintenance and repair of streets and bridges, and public utilities and facilities such as sewer, gas, electrical and water systems.

- 1817.02.7 The expected heights, velocity, duration, rate of rise and sediment transport of the flood waters and the effects of wave action, if applicable, expected at the site.
- 1817.02.8 The necessity to the facility of a waterfront location, where applicable.
- 1817.02.9 The availability of alternative locations, not subject to flooding or erosion damage, for the proposed use.
- 1817.02.10 The relationship of the proposed use to the CMP goals of limiting land use in floodplains to preclude damage to life and property and maintain floodplains as open space.

1818 Variance Provisions

A variance may be requested from the Floodplain Administrator from certain provisions of this Section.

1818.01 Variances shall be limited to:

- 1818.01.1 New construction and Substantial Improvements to be erected on a lot of 1/2 acre or less in size contiguous to and surrounded by lots with existing structures constructed below the base flood level, provided the relevant factors in Section 1817 have been fully considered. As the lot size increases beyond 1/2 acre, the technical justifications required for issuing the variance increase.
- 1818.01.2 The repair or rehabilitation of historic structures upon a determination that the proposed repair or rehabilitation will not preclude the structure's continued designation as a historic structure and the variance is the minimum necessary to preserve the historic character and design of the structure.

1818.02 Variances shall not be granted within any designated Floodway if any increase in flood levels during the base flood discharge would result.

1818.03 Variances shall only be granted upon a determination that:

- 1818.03.1 the variance is the minimum necessary, considering the flood hazard, to afford relief;
- 1818.03.2 a showing of good and sufficient cause;
- 1818.03.3 failure to grant the variance would result in exceptional hardship to the applicant; and

1818.03.4 the granting of a variance will not result in increased flood heights, additional threats to public safety, extraordinary public expenses, create nuisances, cause fraud on or victimization of the public or conflict with existing local laws or regulations.

In granting the variance, the Floodplain Administrator may attach such conditions as deemed necessary to further the purpose and objectives of this Section, as stated in Section 1801.

1818.04 Notification

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 below the Base Flood Elevation and that the cost of flood insurance will be commensurate with the increased risk from the reduced lowest floor elevation.

1819 Appeals

The Board of Adjustment shall hear and decide appeals, pursuant to Section 26A of this Resolution, when it is alleged there is an error in any requirement, decision, or determination made by the Floodplain Administrator in the enforcement or administration of the Floodplain Overlay District.

1820 Warning and Disclaimer of Liability

The degree of flood protection intended to be provided by this Section is considered reasonable for regulatory purposes and is based on engineering and scientific considerations. On rare occasions, greater floods can and will occur and flood heights may be increased by man-made or natural causes, such as ice jams and bridge openings restricted by debris. This Section does not imply the areas outside Floodplain area boundaries or land uses permitted within such areas will always be totally free from flooding or flood damages, nor shall this Section create a liability on the part of, Douglas County or any official or employee thereof for any flood damages that result from reliance on this Section or any administrative decision lawfully made hereunder.