CITY OF GRAND JUNCTION, COLORADO

ORDINANCE NO. 4583

AN ORDINANCE AMENDING SECTION 21.07.010, FLOOD DAMAGE PREVENTION, AND SECTION 21.10.020, TERMS DEFINED, OF THE GRAND JUNCTION MUNICIPAL CODE CONCERNING FLOODPLAIN REGULATIONS

Recitals:

The Colorado Water Conservation Board (CWCB) is the agency responsible for administering the National Flood Insurance Program (NFIP) in the state of Colorado. In 2010, the CWCB adopted revised Rules and Regulations for Floodplains in Colorado (Rules). The Rules became effective as of January 14, 2011. The Rules provide higher floodplain management standards that will help Colorado communities to reduce the risks to people and property caused by flooding.

All Colorado Communities that participate in the NFIP are required to adopt the new Rules by January 14, 2014. The City has been an active participant in the NFIP since 1983.

Mesa County adopted the new Rules and Regulations in October of 2012.

On March 26, 2013 the Grand Junction Planning Commission reviewed the proposed changes and recommended that the City Council adopt the changes as presented.

The Grand Junction City Council encourages updating of the Zoning and Development Code in order to maintain its effectiveness and responsiveness to the citizens' best interests.

The City Council finds that adoption of the proposed amendments promotes the health, safety and welfare of the community.

NOW THEREFORE BE IT ORDAINED BY THE CITY COUNCIL OF THE CITY OF GRAND JUNCTION THAT:

Section 21.070.010(a) shall read as follows:

(a) **Purpose.** Flood damage prevention regulations promote the public health, safety and general welfare and minimize public and private losses due to flooding. The regulations are designed to:

(1) Protect human life and health;

(2) Minimize expenditure of public money for costly flood control projects;

(3) Minimize the need for rescue and relief efforts associated with flooding;

(4) Minimize prolonged business interruptions;

(5) Minimize damage to critical facilities, infrastructure and other public facilities and utilities such as water and gas mains, electric, telephone and sewer lines, streets and bridges;

(6) Help maintain a stable tax base by providing for the sound use and development of flood prone areas of special flood hazard so as to minimize future flood blight areas;

(7) Ensure that potential buyers are notified that property is in an area of special flood hazard; and

(8) Ensure that those who occupy the areas of special flood hazard assume responsibility for their actions.

Section 21.070.010(c) shall read as follows:

(c) **General Provisions.**

(1) This chapter applies to all areas of special flood hazard areas and areas removed from the floodplain by the issuance of a Federal Emergency Management Agency (FEMA) Letter of Map Revision Based on Fill (LOMR-F) within the City.

(2) Basis for Establishing the Areas of Special Flood Hazard. FEMA has identified areas of special flood hazard in a scientific and engineering report entitled, "The Flood Insurance Study for Mesa County and Incorporated Areas," dated October 16, 2012. The study together with the Flood Insurance Rate Maps (FIRMs) are hereby adopted by reference and declared to be a part of this code. The FIRMs may be superseded by local engineering studies approved by the Director, provided such studies fully describe and analyze, based on the FIRMs and generally accepted engineering practice, design floodwater build-out conditions.

(3) Compliance. No structure shall be constructed, located, extended, converted or altered without full compliance with the terms of this section and other applicable regulations. No land shall be developed without full compliance with the terms of this section and other applicable regulations. For waterways with base flood elevations (BFEs) 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 the City's FIRMs, 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 City. Under the provisions of 44 CFR Chapter 1, Section 65.12, of the NFIP regulations. The City may approve certain development in Zones A1-30, AE, AH, on the City's FIRM which increases the water surface elevation of the base flood by more than one-half foot, provided that 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 and receives FEMA approval.

(4) This section does not and it is not intended to repeal, abrogate or impair any existing easements, covenants or deed restrictions. If this section and another ordinance, easement, covenant or deed restriction conflict or overlap, whichever imposes the more stringent restrictions on use and development shall prevail and be applied.

(5) All terms and provisions of this section shall be:

(i) Considered as minimum requirements;

(ii) Liberally construed in favor of the City; and

(iii) Deemed neither to limit nor repeal any other powers granted or reasonably construed or interpreted under law, charter, rule or regulation.

(6) Warning and Disclaimer of Liability. The degree of flood protection required by this section is considered reasonable for regulatory purposes and is based on scientific and engineering considerations. Larger floods can and will occur. Flood heights may be increased because of manmade or natural causes. This section does not imply that land outside the areas of special flood hazard or uses permitted within such areas will be free from flooding or flood damages. This section shall not create liability on the part of the City, or any officer or employee thereof, or FEMA for any flood damage that results from reliance on this section or any administrative decision lawfully made hereunder.

(7) The flood carrying capacity within an altered or relocated portion of any watercourse shall be maintained.

(8) The Director shall maintain records obtained as part of a floodplain development permit, including but not limited to the lowest floor and floodproofing elevations for new and substantially improved construction.

(9) In riverine situations, notice shall be given by the Director to an adjacent community(ies) prior to any alteration or relocation of a watercourse.

Section 21.070.010(d) shall read as follows:

(d) **Provisions for Flood Hazard Reduction.**

(1) General Standards. The following standards shall apply to all property located in special flood hazard areas:

(i) Anchoring.

(A) All new construction and substantial improvement shall be anchored to prevent flotation, collapse or lateral movement of the structure and as

anchored must be capable of resisting the hydrostatic and hydrodynamic loads.

(B) All manufactured homes shall be elevated and anchored to resist flotation, collapse or lateral movement and as anchored is capable of resisting the hydrostatic and hydrodynamic loads. Methods of anchoring may include, but are not limited to, over the top or frame ties to ground anchors. This requirement is in addition to applicable State and local anchoring requirements for resisting wind forces. Specific requirements may be:

a. Over the top ties provided at each of the four corners of the manufactured home, with two additional ties per side at intermediate locations, with manufactured homes less than 50 feet long requiring one additional tie per side;

b. Frame ties provided at each corner of the home with five additional ties per side at intermediate points, with manufactured homes less than 50 feet long requiring four additional ties per side;

c. Each component of the anchoring system shall be capable of carrying a force of 4,800 pounds; and

d. Any addition to the manufactured home shall be similarly anchored.

(ii) Construction Materials and Methods.

(A) All new construction and substantial improvements shall be constructed with materials and utility equipment resistant to flood damage.

(B) All new construction and substantial improvements shall be constructed using methods and practices that minimize flood damage.

(C) All new construction and substantial improvements shall be constructed with electrical, heating, ventilation, plumbing and air conditioning equipment and other service facilities that are designed and/or located so as to prevent water from entering or accumulating within the components during flooding.

(iii) Utilities.

(A) All new and replacement water supply systems shall be designed to minimize or eliminate infiltration of floodwaters into the system;

(B) New and replacement sanitary sewage systems shall be designed to minimize or eliminate infiltration of floodwaters into the systems and discharge from the systems into floodwaters; and

(C) On-site waste disposal systems shall be located to avoid impairment to them or contamination from them during flooding.

(iv) Subdivision Proposals.

(A) All subdivision proposals shall be consistent with the need to minimize flood damage;

(B) All subdivision proposals shall have public utilities and facilities such as sewer, gas, electrical, and water systems located and constructed to minimize flood damage;

(C) All subdivision proposals shall have adequate drainage provided to reduce exposure to flood damage; and

(D) BFE data shall be provided for subdivision proposals and other proposed development which contain at least 50 lots or five acres (whichever is less).

(2) Specific Standards. The following provisions, as determined from BFE data, are required for all special flood hazard areas:

(i) New construction and substantial improvement of any residential structure shall have the lowest floor (including basement) elevated at least one foot above the BFE.

(ii) New construction and substantial improvement of any commercial, industrial or other nonresidential structure shall either have the lowest floor (including basement) elevated at least one foot above the level of the BFE; or, together with attendant utility and sanitary facilities, shall:

(A) Be flood-proofed so that below the BFE the structure is watertight with walls being substantially impermeable to the passage of water;
(B) Have structural components capable of resisting hydrostatic and hydrodynamic loads and effects of buoyancy; and

(C) Be certified by a Colorado registered professional engineer. The certification shall state that the design and methods of construction are in accordance with accepted standards of practice and meet the minimum provisions of this code. Such certifications shall be provided to and reviewed by the Director.

(iii) Openings in Enclosures Below the Lowest Floor. For all new construction and substantial improvements, fully enclosed areas below the lowest floor that are subject to flooding shall be designed to automatically equalize hydrostatic flood forces on exterior walls by allowing for the entry and exit of floodwaters. Designs for meeting this requirement shall be

certified by either a Colorado registered professional engineer or architect and must meet or exceed the following minimum criteria:

(A) 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;

(B) The bottom of all openings shall be no higher than one foot above grade;

(C) Openings may be equipped with screens, louvers, or other coverings or devices; provided that they permit the automatic entry and exit of floodwaters.

(iv) Manufactured Homes.

(A) All manufactured homes that are placed and/or substantially improved on a site:

a. Outside of a manufactured home subdivision;

b. In a new manufactured home park or manufactured home subdivision;

c. In an expansion to an existing manufactured home park or manufactured home subdivision; or

d. On an existing manufactured home park or manufactured home subdivision on which a manufactured home has incurred substantial damage as a result of a flood;

(B) Shall be anchored and elevated on a permanent foundation such that the lowest floor of the manufactured home is at least one foot above the BFE;

(C) The manufactured home shall be securely anchored to an anchored foundation system in order to resist flotation, collapse and lateral movement; and

(D) Manufactured homes that are placed or substantially improved on sites in existing manufactured home parks or manufactured home subdivisions that are not subject to the provisions of this subsection shall be elevated so that either:

a. The lowest floor of the manufactured home is at least one foot above the BFE; or

b. The manufactured home frame or chassis is supported by reinforced piers or other foundation elements that are no less than 36 inches in height above grade and securely anchored to an

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

(v) Recreational Vehicles. Recreational vehicles occupied as a temporary dwelling in a special flood hazard area shall:

(A) Be permitted only where allowed in appropriate zone districts according to Section 21.04.010;

(B) Be authorized by an appropriate land use approval(s) from the City in accordance with the balance of this Code (if no appropriate land use approval has been granted, the use is not allowed);

(C) Not be on the site between April 1 and June 30 of each year;

(D) Be on the site for fewer than 180 consecutive days;

(E) Be fully licensed and ready for highway use;

(F) Be attached to the site only by quick disconnect type utilities and security devices;

(G) Include no permanently attached additions; and

(H) Meet the permit requirements, elevation and anchoring requirements for resisting wind forces as required for manufactured homes.

(3) Specific Standards for Areas of Shallow Flooding. Specific standards are required for special flood hazard areas associated with base flood depths of one to three feet where a clearly defined channel does not exist and where the path of flooding is unpredictable and where velocity flow may be evident. Such flooding is characterized by ponding or sheet flow; therefore, the following provisions apply:

(i) Residential Construction. All new construction and substantial improvements of residential structures must have the lowest floor (including basement) elevated above the highest adjacent grade at least one foot above the depth number specified in feet on the City'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.

(ii) Nonresidential Construction. With the exception of critical facilities, all new construction and substantial improvements of nonresidential structures, must have the lowest floor (including basement) elevated above the highest adjacent grade at least one foot above the depth number specified in feet on the City'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 which shall state that the design and methods of construction are in accordance with accepted standards of practice and meet the minimum provisions of this code.

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

(4) Specific Standards for Floodways. A floodway is an area within a special flood hazard area. The floodway is extremely hazardous due to the velocity of floodwaters, debris and erosion potential. To mitigate those hazards the following provisions apply:

(i) Encroachments, including fill, new construction, substantial improvements and other development are prohibited unless a Colorado registered professional engineer certifies in writing with a No-Rise Certificate that encroachments will not result in any increase in flood levels during the occurrence of the base flood discharge. The supporting technical date for the No-Rise Certificate shall be based on the standard step-backwater computer model used to develop the 100-year floodway shown on the FIRM or Flood Boundary and Floodway Map (FBFM), unless otherwise approved by the Director.

(ii) All new construction and substantial improvements shall comply with all applicable flood hazard reduction provisions of this section.

(5) Specific Standards for Alteration of a Watercourse. For all proposed developments that alter a watercourse within a special flood hazard area, the following standards apply:

(i) Channelization and flow diversion projects shall appropriately consider 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 should be considered, when appropriate, to assist in determining the most appropriate design.

(ii) Channelization and flow diversion projects shall evaluate the residual 100-year floodplain.

(iii) Any channelization or other stream alteration activity proposed by a project proponent must be evaluated for its impact on the regulatory floodplain and be in compliance with all applicable Federal, State and local floodplain rules, regulations and ordinances.

(iv) Any stream alteration activity shall be designed and sealed by a registered Colorado professional engineer or certified professional hydrologist.

(v) All activities within the regulatory floodplain shall meet all applicable Federal, State and City floodplain requirements and regulations.

(vi) Within the regulatory floodway, stream alteration activities shall not be constructed unless the project proponent demonstrates through a floodway analysis and report, sealed by a registered Colorado professional engineer, that there is not more than a 0.00-foot rise in the proposed conditions compared to existing conditions floodway resulting from the project, otherwise known as a No-Rise Certification.

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

(6) Specific Standards for 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.

(7) Specific Standards for Critical Facilities. A critical facility is a structure or related infrastructure, but not the land on which it is situated, as classified below, that if flooded may result in significant hazards to public health and safety or interrupt essential services and operations for the City at any time before, during and after a flood.

(i) Classification of Critical Facilities. Critical facilities are classified under the following categories: (a) Essential Services; (b) Hazardous Materials; (c) At-risk Populations; and (d) Vital to Restoring Normal Services.

(A) Essential services facilities include public safety, emergency response, emergency medical, designated emergency shelters, communications, public utility plant facilities, and transportation lifelines.

These facilities consist of:

a. Public safety (police stations, fire and rescue stations, emergency -vehicle and equipment storage, and, emergency operation centers);

b. Emergency medical (hospitals, ambulance service centers, urgent care centers having emergency treatment functions, and nonambulatory surgical structures but excluding clinics, doctors offices, and nonurgent care medical structures that do not provide these functions);

c. Designated emergency shelters;

d. 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);

e. 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); and

f. 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), nonpotable water treatment and distribution systems, and hydroelectric power generating plants and related appurtenances.

Public utility plant facilities may be exempted if it is demonstrated to the satisfaction of the Director 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 otherwise compliant with all floodplain regulations, 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. A development approval includes the condition that evidence of ongoing redundancy be provided to the Director upon the Director's request.

(B) Hazardous materials facilities include facilities that produce or store highly volatile, flammable, explosive, toxic and/or water-reactive materials.

These facilities include:

a. Chemical and pharmaceutical plants (chemical plant, pharmaceutical manufacturing);

b. Laboratories containing highly volatile, flammable, explosive, toxic and/or water-reactive materials;

c. Refineries;

d. Hazardous waste storage and disposal sites; and

e. Above ground gasoline or propane storage or sales centers.

(C) At-risk population facilities include medical care, congregate care, and schools.

These facilities consist of:

a. Elder care (nursing homes);

b. Congregate care serving 12 or more individuals (day care and assisted living);

c. Public and private schools (pre-schools, K-12 schools), before-school and after-school care serving 12 or more children);

(D) Facilities vital to restoring normal services including government operations.

These facilities consist of:

a. Essential government operations (public records, courts, jails, building permitting and inspection services, community administration and management, maintenance and equipment centers);

b. Essential structures for public colleges and universities (dormitories, offices, and classrooms only).

These facilities may be exempted if it is demonstrated to the Director 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 otherwise compliant with all floodplain regulations 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 Director on an as-needed basis as determined by the Director upon request.

(ii) Protection for Critical Facilities. All new and substantially improved critical facilities and new additions to critical facilities located within the special flood hazard area shall be regulated to a higher standard than structures not determined to be critical facilities. For the purposes of critical facilities, protection shall include one of the following:

(A) Location outside the special flood hazard area; or

(B) Elevation or floodproofing of the structure to at least two feet above the BFE.

(iii) Ingress and Egress for New Critical Facilities. New critical facilities shall, when practicable as determined by the Director, have continuous non-inundated access (ingress and egress for evacuation and emergency services) during a100-year flood event.

The following defined terms shall be changed to read as follows or added to Section 21.10.020:

Area of shallow flooding means a designated Zone AO or AH on the City'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) means the elevation shown on a FEMA Flood Insurance Rate Map 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 means any area of a building having its floor subgrade (below ground level) on all sides.

Conditional letter of map revision (CLOMR) is 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 means 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 City at any time before, during and after a flood.

Five-hundred-year (500-year) flood means 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-chance-annual-flood).

Five-hundred-year (500-year) floodplain means an area of land susceptible to being inundated as a result of the occurrence of a five-hundred-year flood.

Flood or flooding means a general and temporary condition of partial or complete inundation of normally dry land areas from:

(1) The overflow of inland waters; and/or

(2) The unusual and rapid accumulation or runoff of surface waters from any source. (See graphic.)

(3) 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 (such as earth carried by a current of water and deposited along the path of the current).

Flood control structure means a physical structure designed and built expressly or partially for the purpose of reducing, redirecting, or guiding flood flows along a particular waterway. These specialized flood modifying works are those constructed in conformance with sound engineering standards.

Floodway means the channel of a river or other water course and the adjacent land areas that must be reserved in order to discharge the base flood without cumulatively increasing the water surface elevation more than a designated height. The Colorado statewide standard for the designated height to be used for all newly studied reaches shall be one-half foot (six inches). (See graphic.)

Freeboard means 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 height calculated for a selected size flood such as debris blockage of bridge openings and the increased runoff due to urbanization of the watershed.

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.

No-Rise Certification is 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.

One-hundred-year (100 year) flood means 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).

One-hundred-year (100-year) floodplain means the area of land susceptible to being inundated as a result of the occurrence of a one-hundred-year flood, including the low land near a watercourse which has been, or may be, covered by water of a flood of 100-year frequency, as established by engineering practices of the U.S. Army Corps of Engineers and/or the Colorado Water Conservation Board.

Special flood hazard area means the land in the floodplain within the City subject to a one percent or greater chance of flooding in any given year, i.e., the 100-year floodplain.

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.

Water surface elevation means 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.

All other provisions of Section 21.07.010 and 21.10.020 not specifically referred to herein shall remain in full force and effect.

INTRODUCED on first reading the 3rd day of April, 2013 and ordered published in pamphlet form.

PASSED and ADOPTED on second reading the 17th day of April, 2013 and ordered published in pamphlet form.

ATTEST:

President of the Council

City Clerk

CITY OF GRAND JUNCTION COLORADO

I HEREBY CERTIFY THAT the foregoing Ordinance, being Ordinance No. 4583 was introduced by the City Council of the City of Grand Junction, Colorado at a regular meeting of said body held on the 3rd day of April, 2013 and that the same was published in The Daily Sentinel, a newspaper published and in general circulation in said City, in pamphlet form, at least ten days before its final passage.

I FURTHER CERTIFY THAT a Public Hearing was held on the 17th day of April, 2013, at which Ordinance No. 4583 was read, considered, adopted and ordered published in pamphlet form by the Grand Junction City Council.

IN WITNESS WHEREOF, I have hereunto set my hand and affixed the official seal of said City this 26th day of April 2013.

Stephanie Tuin

Stephanie Tuin, MMC
City Clerk

Published: April 5, 2013
Published: April 19, 2013
Effective: May 19, 2013