ORDINANCE NO. 3141

AMENDING SECTIONS 18-56, 18-58 AND 38-194 OF THE CITY CODE, MAKING AMENDMENTS TO THE 1994 UNIFORM FIRE CODE, AMENDING THE STANDARDS FOR FIRE PROTECTION WATER LINES, ALLOWING SIXTEEN FOOT WIDE FIRE LOOP LANES AND SHARED DRIVEWAYS IN CERTAIN CIRCUMSTANCES

Recitals.
The reasons and rationale for adopting these amendments follow.

(a) Sections (1) and (2) of this Ordinance:
The existing language specifies that a minimum water supply of five hundred (500) gallons per minute ("gpm") at 20 pounds per square inch of pressure ("psi") be available from every hydrant and also that the minimum supply is that specified by the 1980 Insurance Services Office Fire suppression rating schedule ("ISO").

For one and two family dwellings, the ISO requires a flow of: 500 gpm if the distance between structures exceeds one hundred feet; 750 gpm if the distance between structures is thirty one to one hundred feet; 1000 gpm if the distance between structures is eleven feet to thirty feet; and 1500 gpm if there is ten feet or less between structures. For all other buildings, the ISO requires a minimum of 500 gpm, with adjustments upwards based on building size, occupancy hazard, type of construction, height of buildings, separation between structures, and communication factors. The ISO standards do not change if a building is sprinkled.

Two examples:

- A 3000 square foot one-story wood frame building used as a clothing store would have a required fire flow of 1500 gpm. The minimum required gallons per minute of fire flow would increase to as much as 2500 gpm if the wood frame building was surrounded by adjacent buildings.
- A 100,000 square foot joisted masonry department store would be required to supply fire flow of 5700 gpm, even though the building had a fire sprinkler system. There are very few areas within the Grand Valley which have this much fire flow available.

These revisions will substitute the fire flows as determined by appendix III-A of the Fire Code for the current ISO method. With the new rule for one and two family dwellings 1000 gpm would be required, if the home were smaller than 3600 square feet. Larger dwellings and all other buildings would require at least 1500 gpm. The minimum fire flow can be reduced, according to a formula, if the structure has an approved fire sprinkler system.

Two examples:

- For the 3000 square foot one-story wood frame clothing store, the required fire flow would be 1,500 gpm.

- For the 100,000 square foot joisted masonry department store, the fire flow under the new standard is 6750 gpm. However, since the Uniform Building Code requires that this type of building must have a fire sprinkler system, the required fire flow is reduced (by up to 75%) to 1688 gpm. The Fire Code allows a fire flow "credit" of up to 75% for sprinkled buildings, as long as the resulting fire flow is not less than 1500 gpm.

The method of determining fire flow used in the Fire Code is easier to calculate than the ISO method. Also, the Fire Code recognizes that large single family dwellings are not adequately protected with only 500 gpm of flow available; modern trucks and pumps can easily exceed 500 gpm.

Appendix III-A provides a simple method of determining fire flows for buildings. Appendix III-B is used to determine the number and distribution of fire hydrants based on fire flow requirements. The spacing requirements in section 38-194 of the City Code still apply, but III-B will apply for larger buildings or buildings set far back on a large lot, where on-site hydrants are needed to meet the spacing requirements of Table A-III-B-1.

(b) Section (3) of this Ordinance:
Removes the reference to the 1974 ISO Guide for Determination of Required Fire Flow. The rest of this section remains the same. Section (3) of this ordinance recognized that looping is beneficial but if the cost of looping is prohibitively high and adequate water is normally available, the Fire Chief may accept less than the minimum standards.

(c) Sections (4), (9), (11), (12), (13), and (14) of this Ordinance:
The existing language in the Fire Code refers to UFC Standard 10-3, which is the 1990 edition of the NFPA Standard for fire alarm systems. The Fire Code mandates when a fire alarm system is required, while the standard lists the requirements for how the system is to be installed. The technology of fire alarm systems is changing rapidly. These changes will apply the latest standard to take advantage of the latest equipment and test data available. One of the major changes in fire alarm systems involves the Americans with Disabilities Act requirements for visual notification devices. The 1996 edition of NFPA 72 lists installation and design standards for these devices, while the 1990 edition does not. The Uniform Fire Code, section 1007.3.3.3.4, lists some general requirements for visual alarms and refers to CABO/ANSI Standard A117.1 (1992 edition) for installation standards. These amendments adopt NFPA 72 (1996 edition) which reflects the latest technology.

(d) Section (5) of this Ordinance:
The only change is the addition of the phrase "…or where water supplies are inadequate." These amendments propose new language addressing alternative methods of fire protection in cases of inadequate water supply. The new language will establish "an inadequate water supply" as a special hazard in urban areas and allows the Fire Department to require additional fire protection in such cases. Two possible examples where this section of the code could be used:

- A residential subdivision can be approved with "dead-end" water lines exceeding one thousand feet, without looping, because the developer insists that it is too costly to extend looped water lines. The Fire Department could require additional fire protection, such as residential fire sprinklers in homes supplied by lines exceeding 1000' in length. Defining the term "practical" is one of the most difficult areas, left to the Fire Chief on a case-by-case basis.
- A commercial area where a new structure or use is desired but available flow is less than the 1500 gpm minimum. If the proposed commercial buildings are small, the Fire Department could require the buildings to be sprinkled and waive the 1500 gpm flow minimum standard.

(e) The proposed sections (6), (7), (8), and (15) of this Ordinance:
The existing language in the Fire Code refers to UBC Standards 9-1 and 9-3, which are the NFPA 13 and 13R standards (1991 edition) for installation of fire sprinkler systems. Sprinkler systems technology, like that of fire alarm systems, is changing rapidly. These changes adopt the latest available standard. In the case of the 1996 edition of NFPA 13, changes in design standards for quick-response sprinklers have resulted in significant cost savings for fire sprinkler systems in light hazard and ordinary hazard occupancies. The 1991 edition of NFPA 13 would not have allowed this new technology to be used.

(f) Section (10) of this Ordinance: These amendments delete this exception for two reasons:

- All R-1 occupancies meeting the criteria of 1007.2.9.1.1 are required to include a fire sprinkler system, so the exception would always apply.
- A fire sprinkler system will control a fire but will not prevent the spread of smoke during the fire. For R-1 occupancies with interior exit corridors, the desire is to ensure the exits are not blocked by smoke in the event of fire. Smoke alarms, as part of a fire alarm system, placed in the corridors will ensure early detection of smoke before the exits are blocked. Activation of the sprinkler system is by heat detection, which is considerably slower than smoke detection.

(g) Section (16) of this Ordinance:
There are areas within the urban growth boundary where there are inadequate water lines either because of location or size, to provide adequate fire flows. However, there are also otherwise developable lots which, if alternative fire protection measures are adopted, could be developed. The local water providers have policies to eventually upgrade all of such water lines. For instance, if a water line upgrade were to cost $100,000 for one single family residence, this provision would allow the Fire Chief to approve the building permit without construction of the water line but only if the home were sprinklered. A future occupant might not know that there was inadequate water to fight a fire, the source of which could be a neighboring home, a wild land fire or a large fire from inside the home. To alert such an occupant, this provision would also require that a notice be recorded at the time of construction of the residence.

(h) Section (17) of this Ordinance:
The ordinary minimum width of any street is twenty feet (20'). If designed correctly with limited parking, sixteen foot (16') driveways and streets serving only a few homes may work well. These two sections will promote such innovative designs. An example of a fire loop lane which already exists (there is some difference between these rules and the Hillcrest Park) is the street around the Hillcrest "vest pocket" park. See the report "Loop Lanes" dated March 24, 1999 by Mike Pelletier, Associate Planner, City of Grand Junction Community Development Department.

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

1. Section 38-194, paragraphs (a) and (e), are hereby deleted in their entirety and replaced with new paragraphs (a) and (e) which shall read as follows:

"Section 38-194. Development; upgrades of existing water lines and facilities.
(a) To ensure fire protection to users, owners, and the City, for new construction, replacements, and development which occurs after the effective date hereof, all development and water service providers in the City shall meet the following minimum standards:

(1) Water shall be supplied at a residual hydrostatic pressure of not less than twenty pounds per square inch (20 p.s.i.), nor more than one hundred twenty five pounds per square inch (125 p.s.i.);
(2) Hydrants shall be placed in the public right-of-way or City approved utility easement and shall not be spaced more than five hundred feet (500') from each other. In no case shall there be more than two hundred fifty feet (250') from the nearest hydrant to the closest portion of the property. See, Appendix 3 B which has additional requirements for the placement of hydrants;
(3) Hydrants shall provide the required fire flow as specified in the adopted fire code;
(4) Hydrants shall be directly supplied by a line at least six inches (6") in diameter. The Fire Chief may require a line or pipe larger than as described herein based on standards adopted in this section, regulations promulgated pursuant to this section or in accordance with law otherwise applicable to water service providers. Any decision of the City manager, the Fire Chief which requires a line of greater than six inches (6") in diameter may be appealed if a written notice of appeal is delivered to the City Clerk within ten days and if timely filed the appeal shall be heard by the utility hearing board in accordance with the rules and procedures established by Section 38-68. At an appeal hearing convened under that section, the appellant shall have the burden of proof by clear and convincing evidence.

(e) The provisions of the adopted fire code shall supersede any inconsistent provisions of this section."

2. Amend Section 18-56 by adopting, in addition to the existing appendix chapters, appendices III-A and III-B.

3. Amend Section 18-58
(a) Subsection 903.4.2.1.1, [Fire Hydrant Systems], to read: "903.4.2.1.1. Hydrants shall be on a looped (receiving water from more than one direction) water supply line of at least six inches (6") in diameter.

Exceptions:
(a) Hydrants located less than one thousand feet (1,000') from a looped water line (measured along the water line between the hydrant and the looped supply source) may be placed on such a dead-end line provided the water line supplying the hydrant will supply the required fire flow and is not less than six inches (6") in diameter;
(b) The Fire Chief may allow fire hydrants to be supplied by other than a looped water line when the permittee can demonstrate to the satisfaction of the Fire Chief that a looped system is not practicable. In such event, the Fire Chief shall make his findings in writing and shall copy such findings to the Public Works Director and the Director of Community Development. In no case shall the dead-end line be less than six inches (6") in diameter."

(b) Subsection 903.4.2.1.2. by deleting the reference to the 1974 Guide for Determination of Fire Flow.

4. Delete the third paragraph of section 1001.4 and replace with:
"Fire alarm and detection systems shall be tested and maintained in accordance with NFPA 72, 1996 edition."

5. Delete the language of section 1001.9 and replace with:
"1001.9 Special Hazards. For occupancies of an especially hazardous nature or where special hazards exist in addition to the normal hazard of the occupancy, or where access for fire apparatus is unduly difficult, or where water supplies are less than City requirements, the Fire Chief is authorized to require additional safeguards consisting of additional fire appliance units, more than one type of appliance, or special systems suitable for the protection of the hazard involved. Such devices or appliances can consist of automatic fire alarm systems, automatic sprinkler or water spray systems, standpipe and hose, fixed or portable fire extinguishers, suitable fire blankets, breathing apparatus, manual or automatic covers, carbon dioxide, foam, halogenated or dry chemical or other special fire-extinguishing systems. Where such systems are provided, they shall be designed and installed in accordance with the applicable *Uniform Fire Code Standards.* See article 90 and Section 101.3."

6. Delete the language of section 1003.1.2 and replace with:
"1003.1.2 Standards. Fire-extinguishing systems shall comply with the National Fire Protection Association Standard for the installation of sprinkler systems, NFPA 13, 1996 Edition.
Exceptions:

(a) Automatic fire-extinguishing systems not covered by NFPA 13, 1996 edition, shall be approved and installed in accordance with approved standards.
(b) Automatic sprinkler systems may be connected to the domestic water-supply main when approved by the building official, provided the domestic water supply is of adequate pressure, capacity and sizing for the combined domestic and sprinkler requirements. In such case, the sprinkler system connection shall be made between the public water main or meter and the building shutoff valve, and there shall not be intervening valves or connections. The fire department connection may be omitted when approved by the Fire Chief.
(c) Automatic sprinkler systems in Group R Occupancies four stories or less may be in accordance with National Fire Protection Association Standard for the installation of sprinkler systems in residential occupancies, NFPA 13R, 1996 Edition."

7. Delete the language of Section 1003.1.3 and replace with:
"1003.1.3. Modifications. When residential sprinkler systems as set forth in NFPA 13R, 1996 edition, are provided, exceptions to, or reductions in, Building Code requirements based on the installation of an automatic fire-extinguishing system are not allowed."

8. Delete the language of Section 1003.2.5.3 and replace with:
"1003.2.5.3 Group H, Division 6 Occupancies. An automatic fire extinguishing system shall be installed throughout buildings containing Group H, Division 6 Occupancies. The design of the sprinkler system shall not be less than that required under NFPA 13, 1996 edition, for the occupancy hazard classification as follows:

LOCATION	OCCUPANCY HAZARD CLASSIFICATION
Fabrication areas	Ordinary Hazard Group 2
Service corridors	Ordinary Hazard Group 2
Storage rooms without dispensing	Ordinary Hazard Group 2
Storage rooms with dispensing	Extra Hazard Group 2
Exit corridors	Ordinary Hazard Group 2[1]

[1]When the design area of the sprinkler system consists of a corridor protected by one row of sprinklers, the maximum number of sprinklers that needs to be calculated is 13."

9. Delete the second paragraph of section 1003.3.1 and replace with:
"Valve monitoring and water-flow alarm and trouble signals shall be distinctly different and shall be automatically transmitted to an approved central station, remote station or proprietary monitoring station as defined by NFPA 72, 1996 edition or, when approved by the building official with the concurrence of the Fire Chief, shall sound an audible signal at a constantly attended location.
Exception:
Underground key or hub valves in roadway boxes provided by the municipality or public utility need not be monitored."

10. Delete exception number 2 of section 1007.2.9.1.1.

11. Delete the language of section 1007.2.9.1.4 and replace with:
"1007.2.9.1.4 Heat Detectors. Heat detectors shall be provided in common areas such as recreational rooms, laundry rooms, furnace rooms, and similar areas in accordance with NFPA 72 (1996 edition)."

12. Delete the final paragraph of section 1007.2.12.2.3 and replace with:
"The emergency voice alarm-signaling system shall be designed and installed in accordance with the Building Code and NFPA 72 (1996 edition)."

13. Delete the language of section 1007.3.1 and replace with:
"1007.3.1 Design Standards. Fire alarm systems, automatic fire detectors, emergency voice alarm communication systems and notification devices shall be designed, installed and maintained in accordance with the National Fire Protection Association Standard: the National Fire Alarm Code, NFPA 72 (1996 edition)."

14. Delete the language of section 1007.3.3.5 and replace with:
"1007.3.3.5. Supervision. Means of interconnecting equipment, devices and appliances shall be supervised for the integrity of the interconnecting conductors or equivalent, as set forth in NFPA 72 (1996 edition)."

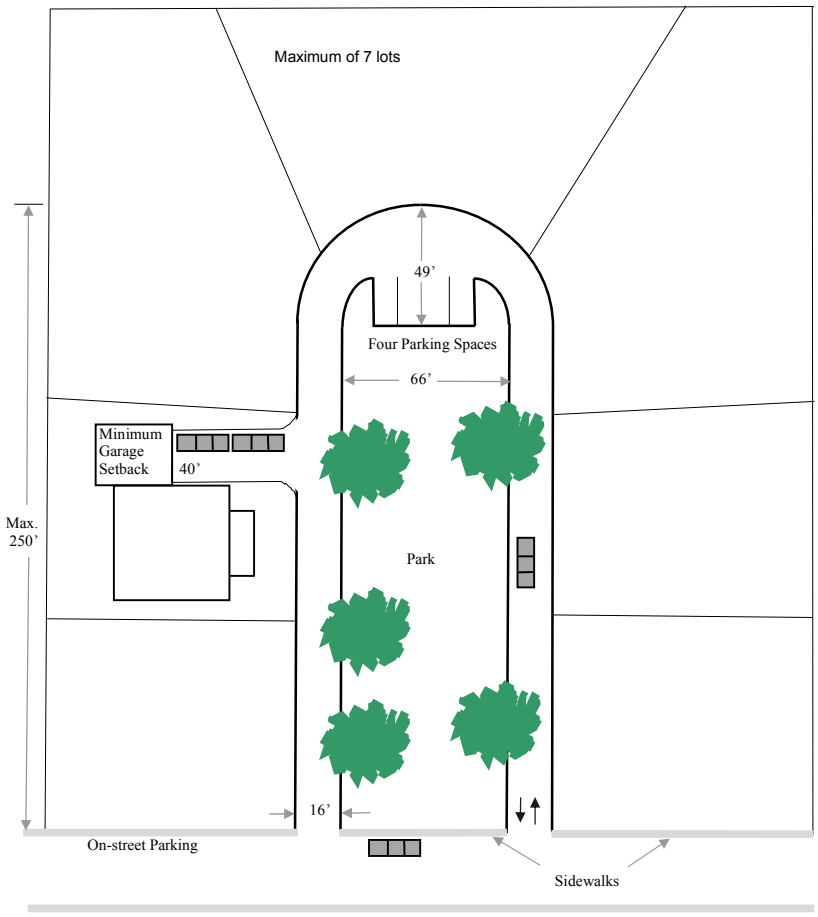
15. Delete the language of section 1003.3.2 and replace with:
"1003.3.2 Alarms. An approved audible sprinkler flow alarm shall be provided on the exterior of the building in an approved location. An approved audible sprinkler flow alarm to alert the occupants shall be provided in the interior of the building in a normally occupied location. Actuation of the alarm shall be as set forth in NFPA 13 (1996 edition)."

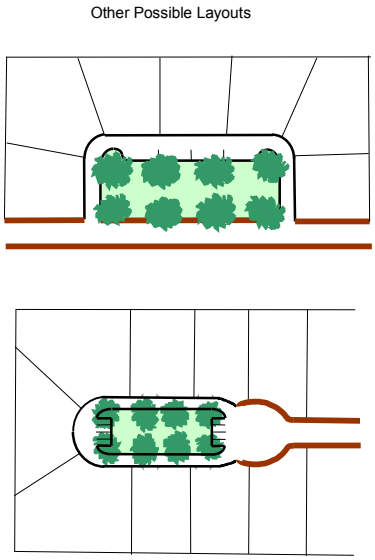
16. Appendix III-A, Section 3.1. Delete the language of section 3.1 and replace with:
"3.1 Alternative Methods**.** In areas which are mostly developed where not more than two buildable lots are created (at the same time) after the effective date hereof, and the existing water lines and fire flow are inadequate in the area, the Fire Chief may allow a residential structure to be built if sprinklered and if he determines that water upgrades would be impracticable. In such event, the Fire Chief shall record a memorandum indicating the fire protection measure used and the facts concerning the inadequate water lines.

17. Amend section 902.2.2.1 by the addition of two additional subsections, numbered 902.2.2.15 and 902.2.2.16, at the end thereof to read:
"902.2.2.15. Fire apparatus access roads may, notwithstanding the foregoing paragraphs, have an unobstructed width of not less than sixteen feet ("fire loop lane") if constructed as a loop, as indicated in the diagram shown below and if all of the following conditions are met:
1. Not more than seven single family residences obtain access from the fire loop lane;
2. The sixteen foot wide fire loop lane shall consist of an all-weather clear surface;

3. No curve on any portion of the flow line of the fire loop lane shall have an inside radius of less than thirty-three feet (33') and an outside radius of less than forty-eight feet (48’). "Flow line" means the area between the curbs or equivalent if curbs are not present;
4. No portion of the fire loop lane shall extend more than two hundred and fifty feet (250') from the abutting street right-of-way;
5. A minimum of four parking spaces shall be constructed at the end of the fire loop lane, as indicated on the diagram;
6. The fire loop lane and parking stalls, as indicated on the diagram, are dedicated to and maintained by the City;
7. Two-way traffic is allowed;
8. No parking signs and markings, as required by the City, are installed and maintained so that no parking is allowed between the curbs on any traveled portion of the fire loop lane;
9. Corner lots that front the fire loop lane and the abutting street shall be required to only obtain access from the fire loop lane;
10. No garage or carport built on a lot obtaining access from the fire loop lane shall be constructed any portion of which is closer than forty feet (40’) from any portion of the fire loop lane;
11. Each residence obtaining access from the fire loop lane shall provide and maintain four parking spaces between the garage or carport and the fire loop lane; and
12. The fire loop lane shall only connect to a street where on-street parking exists now and is expected to remain, according to the City Engineer, based on such factors as the City capital program and any adopted street plans.

[Diagram is on following page]





[End of 902.2.2.15]

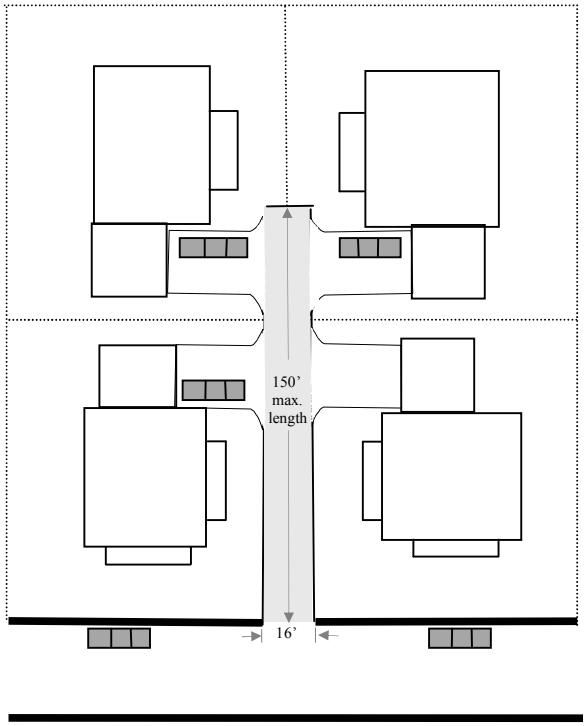
The new section 902.2.2.16 shall read:

"Fire code standards for a shared driveway:

1. A shared driveway shall be owned and maintained by the owners of the parcels or lots which abut the shared driveway;
2. Not more than four single family lots shall abut or touch any portion of the shared driveway and no more than four single family units may access a shared driveway;
3. A shared driveway shall be least sixteen feet (16’) wide and not longer than one hundred and fifty feet (150’);
4. No parking is allowed on the shared driveway;
5. Each lot abutting a shared driveway must provide 4 on-site parking spaces.
6. Each lot abutting a shared driveway must access off the shared driveway unless varied at time of subdivision approval; and

7. A shared driveway may be used only where it intersects a street where on-street parking exists and is expected to remain, according to the City Engineer, based on such factors as the City capital program and any adopted street plans.

Example Layout



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Introduced on first reading this 21st day of April, 1999.

PASSED AND ADOPTED on second reading this 5th day of May, 1999.

/s/ Gene Kinsey
Mayor

Attest:

/s/ Stephanie Nye
City Clerk