

ARTICLE VII – FIRE SAFETY SYSTEMS

Section 701: Purpose

The purpose of this section is to address the minimum requirements for design and construction of public fire safety systems and to require the installation and testing of an underwriter approved detector meter or a factory mutual fire meter on all unmetered fire service systems having private fire hydrant(s), hand hose connection(s), or sprinkler head(s) on private property. as defined by the City of Cornelia. This document is intended to convey the general design and construction requirements for a typical project and therefore is not intended as a substitute for site-specific engineering and construction techniques nor as a substitute for the requirements of the local and State Fire Marshall or the Rules and Regulations of the State Minimum Fire Safety Standards of the State of Georgia, under authority of O.C.G.A. 25-2-14, 25-2-12 AND 50-13-21. If any Sections of the Georgia Minimum Fire Safety Standards conflict with the requirements listed within this Ordinance herein, the stricter policy shall apply. Individual project conditions may require waivers from the provisions in this document.

Section 702: General Policy and Requirements

- A. Water Supply System: Water supply systems complete with fire hydrants shall be designed and in accordance provided for all new developments in accordance with Article VI of this *Minimum Development Standards Ordinance*.
- B. Fire Hydrants: Fire hydrants shall be furnished and installed in accordance with these standards on all new water mains that are 6-inches in diameter or larger.
- C. Fire Lanes: The City shall designate fire lanes on public streets and private property used for townhouse, multi-family, commercial, institutional and industrial developments. The purpose of the fire lanes shall be to prevent parking adjacent to fire hydrants and also to provide clear access to buildings and fire protection equipment.
- D. Fire Lines: Fire protection lines shall be designed and installed to serve private fire hydrants, hand hose connections and fire sprinkler systems. All fire lines shall be installed with an underwriter approved detector check valve located in a concrete vault and the fire lines shall be privately owned and maintained downstream of the detector check valve assembly.
- D.E. It is unlawful for anyone other than City personnel to use a public fire hydrant for any reason without first obtaining a permit from the City.

Section 703: Planning and Design

Section 703.01: Fire Lanes

1. Fire lanes in residential, commercial, institutional and industrial developments shall be designated by the City and shall be a minimum of 18 feet in width. This dimension

shall be measured perpendicularly from the painted curb or perimeter line.

2. A minimum of two (2) signs shall designate fire lanes, one at each end of the lane. Additional signs shall be provided at minimum intervals of 200 feet. Fire lanes may be painted in parking areas where no curb and gutter exists and where posting of a metal sign is not feasible. See construction standards for fire lanes in this manual.

Section 703.02: Emergency Access in General

1. Emergency access shall have an all-weather surface capable of supporting heavy equipment.
2. Emergency access driveways, excluding parking, shall be a minimum of twenty (20) feet wide. The minimum turning radii shall be thirty-two (32) feet.
3. Reasonable accessibility shall be provided to and around all buildings for firefighting equipment, including ladder trucks on multiple-story buildings. A minimum of twenty (20) feet on all sides of buildings and a radius of fifty (50) feet at all building corners shall be maintained.
4. Where the number of dwelling units in a project exceeds 30, there shall be two (2) entrances/exits to the project where road frontage is adequate for two (2) entrances.
5. Accessibility for firefighting equipment shall be maintained throughout all stages of construction and occupancy.

Section 703.03: Emergency Access to Front of Building

An unobstructed emergency space of at least nine (9) feet in width shall be provided in front of the main entrance of buildings where vehicle parking is adjacent to the building and not separated by a fire lane.

A series of nine (9) foot wide unobstructed emergency spaces shall be provided in front of a strip shopping center where parking is adjacent to the building and not separated from it by a fire lane. The spaces shall be provided at 100-foot intervals along the front of the building.

Section 703.04: Emergency Access to Rear and Side of Building

Each building with a rear dimension exceeding 100 feet in length shall have an access capable of handling emergency equipment if the building is not accessible from a street, driveway, service area, or parking area. The access used exclusively for emergency purposes shall be a minimum of 20 feet wide.

Section 703.05: Emergency Access Limits

1. Emergency access limits are defined as the maximum distance between a building and the closest point of emergency vehicle access. These limits shall be measured from the main building entrance to the edge of pavement, curb line or emergency access point. An emergency access point is defined as the closest point to the main entrance of a building that an emergency vehicle can reach on all weather surface capable of supporting such a vehicle.
2. In townhouse developments, the maximum distance from the curb line (or the

emergency access point) to the building entrance may not exceed 75 feet.

3. In multi-family developments, the maximum distance from the curb line (or the emergency access point) to the building entrance shall be 50 feet.
4. In buildings over three (3) stories in height, the maximum distance from the curb (or the emergency access point) shall conform to the guidelines listed in Table 7-1. For purposes of this section, the building height measured in feet is the distance between the lowest level of fire department access to the finish floor level of the topmost habitable floor.

**Table 7-1
Building Height Distance From The
Curb or Emergency Access Point**

Building Height (feet)	Distance (feet)
30 to 45	50
40 to 60	40
61 to 75	30
Greater than 75	20

Section 703.06: Fire Main Size

1. Single family: Single-family residential developments shall use a minimum of eight (8) inch mains. Larger mains may be required depending on the water demand, fire flow requirements and the City’s overall distribution system master plan.
2. Multi-family: Multi-family residential developments shall use a minimum of eight (8) inch mains.
3. Commercial areas with less than 200,000 square feet shall use fire mains a minimum of eight (8) inches in size.
4. Large shopping centers, strip-malls, etc. shall use fire mains a minimum of eight (8) inches in size.
5. Motels, light industrial & schools shall use fire mains a minimum of eight (8) inches in size.
6. Heavy industry, warehouses and office buildings greater than 200,000 square feet shall use fire mains a minimum of ten (10) inches in size.
7. The City or its designated representative shall have the authority to waive the above minimum fire main sizes provided the following conditions have been met:
 - Note on Plans: "I have designed the water service installation for this facility in accordance with all applicable City water specifications in regards to fire flows and these conditions have been met". This note is to be signed and stamped by the engineer providing the calculations.
 - Provide the City with the calculations stamped and certified as required in Section 704 of this ordinance.

Section 704: Fire Flow Requirements

Section 704.01: Flow Requirements

1. An adequate supply of water to meet the instantaneous flow and peak domestic water demand requirements of the proposed project must be available prior to approval of any plans. Water systems shall be designed to provide fire flows in accordance with Insurance Services Office (ISO) requirements, plus the domestic demand required by the City. A residual pressure of not less than 20 pounds per square inch (psi) to at least one point within 500 feet hose lay of each building proposed to be served shall be provided.
2. The minimum fire flows in Table 7-2 apply to new development. Where the size and the scope of the development exceed these requirements, additional flow shall be provided in accordance with Insurance Services office (ISO) requirements.
3. Fire flow requirements may be met in single-family residential and two-family developments with a single hydrant within 300 or 500 feet hose lay of a structure in accordance with Table 7-2. In special circumstances, a written waiver from these requirements may be obtained from the Administrative Officer and Fire Chief.
4. In areas of multi-use development, the higher flow rates listed in Table 7-2 shall be provided for each hydrant,

Other residential (i.e., multi-family, condominium, townhouse), commercial, institutional, and industrial developments shall provide a fire flow in accordance with Insurance Services office (ISO) requirements.

**TABLE 7-2
FIRE FLOW REQUIREMENTS FOR SINGLE-FAMILY
DETACHED AND TWO-FAMILY DWELLINGS**

Unit to Unit Exposure Distance (Feet)	Flow Requirements per Hydrant (gpm)	Flow Requirements for a Hydrant within 500 feet of a Structure (gpm)
0 to 10	1,500	2,000
10 to 30	1,000	1,500
Greater than 30	1,000	1,000

Section 704.02: Fire Flow Test

- A. A fire flow test must be conducted on the existing water system in the vicinity of the proposed subdivision or development prior to submitting design drawings for approval to determine the adequacy of water supply for the project. The City will perform the pre-development test at the Developer’s expense. The Applicant or Developer shall request, coordinate, and pay all necessary fees to the City for required pre-development fire flow tests on existing water mains prior to the performance of the test at the rate established by the City. Flow test are valid for one

(1) year and use of a fire flow test for more than one project is prohibited. The City will also perform a post-development fire flow test to confirm fire flows available on newly installed water mains before the new water system will be accepted by the City. The Developer must also request, coordinate and pay all necessary fees to the City for required post-development fire flow tests.

- B. The test shall consist of a fire hydrant(s) flow test and a 24-hour flow and pressure test. Test information provided to the Developer shall consist of:
- a. Static pressure and approximate elevation of the Static gauge;
 - b. Residual pressure and recorded flow rate in gallons per minute (GPM);
 - c. Projected flow at the test hydrant in GPM at 20 psi;
 - d. 24-hour pressure chart;
 - e. Site map including fire hydrant locations tested.

Section 704.03: Fire Flow Calculations

1. The Developer's engineer shall furnish fire flow calculations when submitting plans for water system extensions to serve a development. All projects which have flow test results with static pressure less than 35 psi will require a special design study of the water distribution system that is to be submitted by the Developer's engineer with the development plans for the City to review and approve to ensure no problems are encountered during peak demands. This study must be completed prior to construction plan approval. Water Mmodel results (pump, tank, valve, junction, pipe reports, etc.) shall include simulations at ultimate build-out of the proposed development including:
 - Average day demand
 - Peak day demand
 - Peak day demand plus fire flowA written summary shall be provided explaining the water model and its assumptions, deficiencies identified and impact of proposed improvements.
2. The fire flow calculations shall include assumptions about the existing water system plus the fire flow test results and the 24-hour pressure chart recording furnished by the City. The calculations shall indicate available flows at the proposed hydrants and the pressure throughout the proposed water system. Fire flow calculations for projects to be developed in sections or phases shall indicate the available fire flows during each section or phase of the project. The water system shall meet the instantaneous fire flow demand plus peak domestic demand requirements for the existing water service area plus the proposed development.
3. For small sites that propose no major waterline extensions, an evaluation of the existing fire flow available may be substituted for existing fire flow calculations.

4. In the event that minimum fire flows cannot be achieved, the Developer of a property shall design additional fire protection measures into every building not covered by adequate flows. Any deviation from the minimum fire flow requirements shall require a site development plan waiver application for conditional fire flow requirements. See Section II Article I in this manual Ordinance for more information.

5. Flow calculations shall be prepared using a program that is acceptable to the City, such as the “K Pipe” program developed by the University of Kentucky, WaterCAD by Bentley or InfoWater by Innowyze. Flow calculations shall utilize a pipe roughness factor, $c=120$ for pipes that are 12 inches in diameter and greater. For pipes smaller than 12 inches a roughness factor of $c=100$ shall be utilized. Since a conservative “c” factor is utilized in the calculations, no allowance is required for the losses in valves and other fittings.

Section 705: Fire Hydrants

1. All fire hydrants shall be designed and manufactured to comply with the latest specifications of the American Water Works Association (AWWA) M-17 Manual. They shall be designed for 150 pounds working pressure. The hydrants shall be of simple design, easy to operate, effectively and positively drained and protected from damage by freezing and convenient for repairing and replacing parts.
2. Hydrants shall be equipped with one 4 ½-inch diameter pumper nozzle and two 2 ½ - inch diameter hose connections. The hydrants shall have threads meeting the latest requirements of the State Fire Insurance Commission, Hydrants shall also have a safety flange on the barrel and a safety coupling on the valve stem, to prevent damage to barrel and stem in case of traffic accident. Hydrants shall be either U. S. Pipe or M & H Valve and Fitting Co. Style 129 Traffic Model.

Section 705.01: Fire Hydrant Locations

1. The 4 1/2-inch pumper connection on the hydrant shall face the street, travel lane or service drive.
2. The bottom of the 4 1/2-inch nozzle shall be 18 inches minimum to 24 inches maximum above the finished elevation of the edge of the shoulder on streets without curb and gutter and 24 inches above the elevation of the curb on streets with curb and gutter.
3. The 2 1/2-inch hose connections shall have a minimum of four (4) feet of clearance on all sides.
4. No fire hydrant shall be obscured from view by plantings, fences, etc.
5. Fire hydrants shall be placed at high points along the water line so as to bleed air from the water lines. Locations to be field verified and approved by the City.

Section 705.02:

Section 705.03: Section 705.02: Spacing of Fire Hydrants

1. Single Family — Fire hydrants shall be spaced not more than 300 feet apart. Fire hydrants shall be located at all intersections and shall be located at the end of all dead-end lines, such as those installed in cul-de-sacs.
2. Multi-Family, Condominiums & Townhouses — Fire hydrants shall be spaced not more than 500 feet or at the Fire Department's discretion.
3. Shopping Centers, Malls, etc. — Fire hydrants shall be spaced not more than 300 feet or at the Fire Department's discretion.
4. Motels, Light Industry and Schools — Fire hydrants shall be spaced not more than 300 feet or at the Fire Department's discretion.
5. Heavy Industry/Tall Buildings — Fire hydrants shall be spaced not more than 300 feet or at the Fire Department's discretion.

No installation requiring fire hydrants shall have spacing greater than 1,000 feet apart, as measured along the main supply line, except in large tract developments, where spacing may either be 1,000 feet or the distance from the center of a lot, whichever is greater.

Section 705.04: Section 705.03: Fire Hydrants in Relation to Streets and Parking Lots

1. Fire hydrants shall be located along the right-of-way at street intersections and at intermediate locations where necessary, as determined by the City Fire Chief or his designee in cooperation with the Public Works Director. All distance measurements are to be made along with the centerline of streets, travel ways or other unobstructed path that may be used by the Fire Department.
2. In areas with curb and gutter, the center of the fire hydrant shall be located no less than 18 inches nor more than 36 inches from the face of the curb. No part of a fire hydrant shall conflict with or overhand a sidewalk, trail or vehicular travel way.
3. On streets without curb and gutter, fire hydrants shall be located behind the ditch.
4. Traffic bollards or other protective measures shall be provided in areas, such as parking lots where the proposed site improvements will not provide adequate protection of the fire hydrant from vehicles,
5. When installed in parking areas, clear access shall be provided to the front of the hydrant (that portion with the large pumper connection at the center) and 15 feet to each side. This clear access area shall be marked as fire lane,
6. Plantings and other obstructions shall be kept clear of fire hydrants for a minimum of 4 feet around the hydrant.

Section 705.05: Section 705.04: Fire Hydrants in Relation to Buildings

1. Fire hydrants shall be located to serve remote areas of buildings. Those hydrants used to meet fire flow requirements shall be located within 500 feet hose lay of the building to be protected,
2. Fire hydrants shall be required along the perimeter of the building for use groups in

accordance with Table 7-3. The remote distance shall be measured to the most remote distance the hydrant will serve.

**TABLE 7-3
USE GROUP AND FIRE HYDRANT REMOTE DISTANCE**

Use Group	Remote Distance
Heavy industrial & Warehouse Buildings	250 Feet
School & institutional buildings	300 Feet
Commercial, church & office buildings	300 Feet
Motels, multi-family, condominium & townhouse buildings	250 Feet
Single-family detached dwellings	400 Feet

3. Fire hydrants shall be a minimum of 50 feet away from all buildings, except single-family dwellings.

Section 705.06: Section 705.05: Fire Hydrants in Relation to Sprinklers/Standpipes

Fire hydrants shall be located within 50 feet of any Fire Department sprinkler connection or standpipes where those systems are required or provided in buildings.

Section 706: Fire Lines & Sprinkler/Standpipe Fire Department Connections

Sprinkler/Standpipe Fire Department Connections (New)

Fire Department connections shall be located to be visible from a street. If a visible location from a street is not possible, the Fire Chief or his designee shall approve alternate locations. Such connections shall be located to provide immediate access to the Fire Department. Generally, walls, fences, trees, shrubs and other obstructions shall not be placed to prevent access.

Fire Department connections shall be arranged to allow the use of any one water sprinkler connection to serve all the sprinklers within the building and to allow the use of any one standpipe connection to serve all the standpipes within the building.

Fire Department connections shall not be less than 18 inches or more than 42 inches in elevation measured from ground level to the centerline of the inlets.

In buildings classified as high-rise by the building code, the Fire Department connections shall be located a minimum of 50 feet from the building. The Fire Chief or his designee and the Public Works Director shall approve the location of this yard connection.

Fire Safety Systems – Plan Submission Requirements

Plan Elements in General

The site development and subdivision plans shall include the following:

Fire lanes.

Emergency access.

Existing and proposed fire hydrants.

Fire protection lines.

Water storage supplies, where applicable.

Fire Flow Calculations

Fire flow calculations including the results of the 24-hour fire flow test shall be included with the site and subdivision development plans.

Deviations from the minimum fire flow requirements in Section 704 of this manual shall require a conditional fire flow waiver with the site and subdivision development plan application. The waiver shall address current fire flow available and provide a system analysis to determine measures for bringing deficiencies up to minimum standards.

The Development Department, after coordinating with the Fire Chief and Fire Marshall, shall approve additional fire protection measures proposed for every building not covered by adequate fire flows, prior to the approval of the site and subdivision development plans.

Section 706.01: Fire Line Ordinance

Section 706.02: Section 706.01: Purpose

The purpose of this ordinance section is to require the installation of an underwriter approved detector meter or a factory mutual fire meter on all unmetered fire service systems having fire hydrant(s), hand hose connection(s), or sprinkler head(s) on private property.

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Section 706.03: Section 706.02: Effective Date

1. Upon adoption of this Ordinance, all persons making applications for new fire service connections with private fire hydrant(s), hand hose connection(s), or sprinkler head(s) attached thereto shall be required to have an underwriter approved detector meter or factory mutual fire line meter. However, if consumption of unmetered water from an existing fire service systems is discovered, the City will require immediate installation of an approved detector meter or factor mutual fire line meter on the existing unmetered fire service system.
2. When unauthorized water is used through a detector meter in three (3) or more billing periods in one (1) calendar year, it shall be replaced with a factory mutual fire line meter. Unauthorized use of water is defined as non-firefighting water and/or water use without prior notification and approval of the City.
3. All domestic water supply must be metered with a proper meter.

Section 706.04: Section 706.03: Other ItemsGeneral Requirements

1. Installation of detector meters or factory mutual billing periods in one calendar year shall be handled by the developer under the supervision of the City's inspectors. The cost of installation will be at a rate established for each individual site.
2. The City shall have the authority to cut off water service to buildings whose owners refuse to comply with the provisions of this ordinance upon proper notification of 60 days.
3. The regular monthly fire service standby charge shall be continued for fire service installation having a detector or mutual fire line meter. The water that is measured by the detector meter will be billed at five (5) times normal water charge. If the services of an attorney are required to collect bills, the attorney's fees and any associated costs of court shall be added to the billing.

4. Fire Department connections shall be located to be visible from a street. If a visible location from a street is not possible, the Fire Chief or his designee shall approve alternate locations. Such connections shall be located to provide immediate access to the Fire Department. Generally, walls, fences, trees, shrubs and other obstructions shall not be placed to prevent access.
5. Fire Department connections shall be arranged to allow the use of any one water sprinkler connection to serve all the sprinklers within the building and to allow the use of any one standpipe connection to serve all the standpipes within the building.
6. Fire Department connections shall not be less than 18 inches or more than 42 inches in elevation measured from ground level to the centerline of the inlets.
7. In buildings classified as high-rise by the building code, the Fire Department connections shall be located a minimum of 50 feet from the building. The Fire Chief or his designee and the Public Works Director shall approve the location of this yard connection.

Section 707: Private Fire Hydrants

Section 707.01: Purpose

The purpose of this section is to require the maintenance and inspection of private fire hydrants located on private property or public right-of-way in the City of Cornelia which are not owned, controlled or maintained by the City to ensure that every private fire hydrant will function as designed to produce the water necessary to respond appropriately to the fire or other emergency.

Section 707.01: Section 707.02: Definitions

The following words, terms and phrases, when used in this sectionArticle, shall have the meanings ascribed to them herein, except where the context clearly indicates a different meaning and are in addition to those definitions found in Article II:

1. *Certified private hydrant contractor* means a person who has demonstrated to the Cornelia Fire Department the degree of competency required to perform necessary inspection of private hydrants and to certify to the City the private fire hydrant meets the NFPA Standard. The Cornelia Fire Department shall maintain a list of certified private hydrant contractors for reference by an owner or owner's designee desiring such information.
2. *Emergency impairment* means a condition where a private hydrant is out-of-service due to an unexpected occurrence, whereby the hydrant fails, or may fail, to provide an adequate water supply.
3. *Fire Department* means the Fire Department of the City of Cornelia.
4. *Impaired hydrant* means a private hydrant which is not operational due to an emergency impairment or a pre-planned impairment which renders the hydrant non-operational and therefore out-of-service.
5. *Impairment* means a shutdown of a private hydrant which renders they hydrant non-operational and therefore out of service.

6. *Inspection* means a visual examination of a private hydrant to verify that it appears to be in operating condition and is free from physical damage.
7. *Maintenance* means work performed to keep a private hydrant operable or to make repairs.
8. *NFPA Standard* means Publication 25 of the National Fire Protection Association (NFPA) titled Standard for the Inspection, Testing and Maintenance of Water-Based Fire Protection Systems 2012, and any subsequent amendments or revisions thereto.
9. *Owner* means the person that holds record title to the property upon which a private fire hydrant is located. For fire hydrants located in the public right-of-way of a public road in the City of Cornelia that are not owned by the City of Cornelia, the Owner is the person that owns the fire hydrant itself.
10. *Owner's designee* means the occupant, management firm, or managing individual designated by the owner who, through specific provisions in the lease, written use agreement or covenants, has assumed responsibility to inspect, test, maintain and repair a private hydrant located on the Owner's property.
11. *Person* means any individual, partnership, institution, public or private corporation, or other entity.
12. *Pre-planned impairment* means a condition where a private fire hydrant is out-of-service due to work that has been planned in advance.
13. *Private fire hydrant* means a valved connection to a water main or water supply system for the purpose of supplying water to a fire hose or other fire protection apparatus that is owned by any person other than the City of Cornelia. A private fire hydrant also includes any fire hydrant located in a public right-of-way that is not owned by the City of Cornelia.
14. *Record* means written documentation of the inspection, testing, maintenance, correction, or repair of a private hydrant.
- 15.14. *Shall* means indicated a mandatory requirements.
- 16.15. *Testing* means a procedure of periodic physical and operational checks used to determine whether a private fire hydrant is capable of being operated as intended and will perform as intended, e.g. water flow tests. These test shall be performed at intervals specified in this Ordinance.

Section 707.02: Section 707.03: General Requirements

1. All Private fire hydrants shall comply with the requirements in this Article.
- 1.2. *Responsibility.*: Responsibility for properly inspecting and maintaining a private hydrant shall be that of the owner or the owner's designee. Where the owner has designated and owner's designee to be responsible for maintaining the private property of the owner on which a private hydrant is located, the owner's designee shall comply with the requirements of this ordinance and shall be subject to enforcement of this ordinance in the event of a failure to so comply.

- 2.3. *Time of Inspection.*: All private hydrants shall be field tested annually and shall meet, or exceed, the NFPA Standard, which the certified private hydrant contractor shall certify to the Fire Department. Private hydrants shall also be inspected and tested after completion of any repairs to ensure that they hydrant is operational and according to the NFPA Standard and they hydrant manufacture’s specifications and recommendations.
- 3.4. *Testing.*: All testing of a private fire hydrant shall be conducted in accordance with the NFPA standard. The owner or owner’s designee shall notify the Fire Department and/or the Public Utilities Department before testing and shutting down a private fire hydrant or its water supply and also when returning it to service..
- 4.5. *Repair.*: The Owner or the owner’s designee shall repair as soon as possible a private hydrant which does not pass inspection, is impaired or otherwise does not function as required by the NFPA Standard or the manufacturer’s specifications. After completing any repairs, the owner or the owner’s designee shall have the hydrant inspected to certify it meets the NFPA Standard.
- 5.6. *Impairment Device.*: An approved impairment device shall be place on any hydrant with has been turned off for repairs or is out-of-service for any reason. The Fire Department shall be notified of: (i) the hydrant being taken out-of-service; (ii) the completion of repairs; and (iii) the hydrant being placed back in service.

Section 707.04: Inspections, Testing, Maintenance and Repair of Private Fire Hydrants

1. Each private fire hydrant must be inspected by August 1st annually to determine if it is in proper working condition. Owners or Owner’s designee may contract with the City Fire Department to perform the testing or they may hire a qualified contractor to do so. Regardless of whether the Fire Department or a third party performs the testing, the property owner is ultimately responsible for the cost and performance of any necessary maintenance and repair.
2. If the Fire Department performs the testing and if the hydrant needs repair, the City will notify the property owner in writing by both regular first class and certified mail requesting that the hydrant be repaired within 30 days of the receipt of the letter. If the hydrant is not repaired within 30 days, the city will repair the hydrant and bill the property owner for the cost of the labor and materials necessary to put the hydrant back in proper working condition.
3. If a qualified contractor performs the testing, it must submit to the City the testing results on a form provided by the Fire Department no later than seven days from the testing date. If maintenance or repairs are necessary, the property owner may contract for those repairs with a qualified contractor. If the repairs are not made within 30 days of the results submittal date, the City will repair the hydrant and bill the property owner for the cost of the labor and materials necessary to put the hydrant back in proper working condition.
4. Private fire hydrants shall be lubricated annually to ensure that all stems, caps, plugs, and threads are in proper operating conditions.
5. Private fire hydrants shall be kept free of snow, ice, or other materials or obstructions including plantings and landscaping and protected against mechanical

damage so that free access ensured. A minimum area of 4 ft. around the hydrant shall be kept clear of any obstructions.

6. The owner or the owner's designee shall repair as soon as possible a private fire hydrant which is impaired or otherwise does not function as required by this Ordinance, the NFPA Standard, or the manufacturer's specifications.
7. After completing all necessary repairs to a private fire hydrant, the owner or the owner's designee shall inspect and test the hydrant as necessary consistent with the standards of this Ordinance to ensure that the hydrant is operational.
8. The owner or owner's designee shall notify the Fire Department in advance of a preplanned impairment and testing of a private fire hydrant.
9. The owner or the owner's designee shall notify the Fire Department immediately of an emergency impairment of a private fire hydrant.
10. The owner or owner's designee shall affix an impairment tag to an impaired hydrant at the commencement of a preplanned impairment and at the time of discovery of an emergency impairment.
11. Once the necessary inspection and testing confirm that the repairs have restored a private fire hydrant to operational status, the owner or the owner's designee shall remove the impairment tag and shall notify the Fire Department that the hydrant is operational.

Section 707.03: Section 707.05: Records

1. *Contents:* A permanent record shall be maintained by the owner or owner's designee that shall indicate the procedure performed to inspect, test, maintain, correct, and repair a private hydrant. Such records shall include the entity that performed the work, the results, the date work was performed, and other pertinent information as the Fire Department may reasonable require to make this ordinance effective.
2. *Report to Fire Chief:* Within thirty (30) days after completion of an inspection by a certified private hydrant contractor, the owner or owner's designee shall submit to the Fire Chief of the City a report documenting the inspection of each private hydrant and advising of any repairs made to any hydrant.
3. *Records Retention:* Records shall be maintained by the owner or the owner's designee for a period of four (4) years after the inspection required by this ordinance.

Section 707.04: Section 707.06: Enforcement of Violations and Penalties

Failure to comply with this ordinance shall be a violation and the Owner and/or the Owner's designee is subject to those penalties contained herein and in Section 1-10 of the Code. a civil penalty. Each week that the violation continues shall constitute a separate violation of this ordinance.

Section 707.07: No City Liability

The City is not liable for loss or damage of any nature whatsoever caused by the City's inspection of private fire hydrants. The City does not assume the duty of maintaining a private fire hydrant and is not responsible for any plumbing or equipment necessary for the proper function and maintenance of a private fire hydrant.

Section 708: Fire Safety Systems-Plan Submission Requirements

Section 708.01 Plan Elements in General

The site development and subdivision plans shall include the following:

1. Fire lanes.
2. Emergency access.
3. Existing and proposed fire hydrants.
4. Fire protection lines.
5. Water storage supplies, where applicable.

Section 708.02 Fire Flow Calculations

1. Fire flow calculations including the results of the 24-hour fire flow test shall be included with the site and subdivision development plans.
2. Deviations from the minimum fire flow requirements in Section 704 of this manual shall require a conditional fire flow waiver with the site and subdivision development plan application. The waiver shall address current fire flow available and provide a system analysis to determine measures for bringing deficiencies up to minimum standards.
3. The Development Department, after coordinating with the Fire Chief and Fire Marshall, shall approve additional fire protection measures proposed for every building not covered by adequate fire flows, prior to the approval of the site and subdivision development plans.

Section 708:Section 709: Fire Safety Systems-Construction Standards

Section 709:01 Fire Lane Signs and Painting

1. Fire lane signs shall be constructed of metal with a dimension of approximately 12 inches by 15 inches.
2. The sign shall be painted with red letters on a white background with a 3/8 inch red trim strip around the entire outer edge of the sign. The lettering on the sign shall read, "NO PARKING OR STANDING FIRE LANE", which shall be spaced on the sign face uniformly. Solid arrows shall be painted on the signs to point to and indicate the designated fire lane. The lettering and arrow on the sign shall be in accordance with Table 7-4.
3. Signs for fire lanes shall be posted at intervals of 100 feet with the bottom of the sign no less than six (6) feet from the ground, and the top no more than eight (8) feet from the ground, unless otherwise directed by the Fire Chief or his designee.

4. Letters at least two (2) feet in height may be painted on the pavement where a fire lane runs through a parking area without curbing adjacent to the fire lane, and where the posting of a metal sign(s) is impractical. The lettering shall read "NO PARKING OR STANDING FIRE LANE."

**TABLE 7-4
FIRE LANE SIGN LETTERING SIGN**

Lettering (words)	Letter Height (inches)
No Parking	2
Or	1
Standing	2
Fire Land	2-1/2
Arrows	1

5. When curbing is provided adjacent to the fire lane, it shall be painted red within the limits of the fire lane.
6. When curbing is not provided adjacent to the fire lane, a yellow line shall be painted on the pavement along the perimeter and within the limits of the fire lane with two (2)-foot long intersecting lines and painted at three (3)-foot intervals on the fire lane side of the perimeter.

Section 709:02 Fire Hydrants

1. The construction to the main line shall be with mechanical joint locked hydrant tee equal to American Cast Iron Pipe Company A-10180. Wherever possible the fire hydrant shall be connected to the gate valve by using a locked hydrant adapter equal to American A-10895. The connection at the base of the hydrant shall be mechanical joint with ductile iron retainer gland, for Class 150, centrifugally case, six (6)-inch ductile iron pipe. The valve opening shall meet the requirements of the AWWA Specifications for 5 1/4-inch hydrants. The valve, valve seat and inner working parts shall be easily accessible. The distance from the ground to the hose nozzle shall not be less than 24 inches. Each hydrant shall be neatly painted with a silver red reflecting paint.
2. Each hydrant shall be tested to 200 psi. The first test shall be made with the valve closed. The second test shall be made with the main valve open but all nozzles closed. While this test is being carried on, the hydrant shall be subjected to a hammer test. Any hydrant showing defects by leakage, sweating or otherwise shall be rejected. The barrel and all parts shall withstand these tests. These tests shall be made in the field after the hydrants are installed.

Section 709:03 Setting Fire Hydrants

1. Fire hydrants shall be placed at the locations shown on the plans or as directed by the design professional. Gate valves for fire hydrants shall be connected directly to the main by means of a Locked Hydrant Tee. All other connections between the main and the fire hydrant shall be mechanical joint with ductile iron retainer glands with

setscrews. Fittings shall be restrained by a locked hydrant adapter whenever the fire hydrant is located close enough to the main to allow their use. Care shall be exercised that setscrews and retainer glands are tightened sufficiently to secure the hydrants before pressure is put on the main. Not less than four (4) cubic feet of coarse, broken stone shall be placed around the base of the hydrants, as shown in the Standard Detail Drawings in Article VI. Before placing the hydrants, care shall be taken to see that all foreign material is removed from within the body. The stuffing boxes shall be tightened and the hydrant valve opened and closed to see that all parts are in first class working condition. All hydrant openings shall be kept capped, except when hydrant is being worked on.

2. When a fire hydrant has been constructed but is not yet placed in service, the contractor shall provide and attach to the fire hydrant, an approved impairment device such as flags or collars indicating that the fire hydrant is not in service. Said flags or collars shall remain on the fire hydrant until it is put into service.
3. Whenever an existing fire hydrant is taken out of service, whether temporarily or permanently, it shall be equipped with a flag or collar impairment device indicating that it is not in service. The contractor shall provide and install flags or collars as required and shall notify the City Fire Department whenever the operating status of any fire hydrant changes.
4. FIRE HYDRANTS SHALL NOT BE OPERATED WITH ANY TOOL EXCEPT A SPECIFICALLY DESIGNED FIRE HYDRANT WRENCH. If the contractor observes any other contractor or person operating a fire hydrant with an unapproved fire hydrant wrench, he shall report that fact to the City Fire Department Public Works Director immediately. It is the contractor's responsibility to insure that all new facilities are maintained in a new condition until final completion of the project and acceptance by the City. Fire hydrants with damaged operating nuts shall not be accepted.

Section 709:04 Fire Detection Check Valves

1. Approved detection check valves shall be required on all fire service mains in buildings served by a "wet pipe" type sprinkler system.
2. The detection check valve shall be equipped with a bypass meter assembly. An appropriately sized gate valve shall be installed on either side of the check valve.
3. The vault housing for the detector check valve should be sized in accordance with the Standard Detail Drawings in this manual.

Section 709:05 Sprinkler Standpipe Connections

1. All Fire Department connections shall be fitted with National Standard threads or threads meeting the latest requirements of the State Fire Insurance Commission.

End Article VII