

**APPENDIX C**  
**Design Standards for Streets and Utilities.**

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## C.1. GENERAL PROVISIONS.

### C.1.1. Compliance.

- Except as hereinafter provided, before any final plat of a subdivision shall be eligible for final approval, and before any street or utility shall be accepted for maintenance by the city, minimum improvements shall have been completed and approved in accordance with <sup>(1)</sup>the Land Development Standards Manual (LDSM), or their completion shall have been guaranteed with an irrevocable letter of credit in accordance with Article 6 of this Ordinance.<sup>(1)</sup>

### C.1.2. Intent of specifications.

- The intent of the specifications set out in <sup>(1)</sup>the LDSM is to prescribe minimum requirements for storm drainage, water supply, sanitary sewerage, sidewalks and street improvements to be undertaken by the developer within the city or its extraterritorial jurisdiction. Satisfactory completion of these improvements attested by approval of the city engineer will qualify streets in the city and utilities in the city or its extraterritorial jurisdiction to be accepted for maintenance by the city.

### C.1.3. Statement by owner.

- The owner of land, or his authorized agent, shown on a subdivision plat submitted for approval by the City Council shall sign a statement on the plat stating whether or not any land shown thereon is within the subdivision regulation jurisdiction of the City of Kannapolis.

### C.1.4. Effect of plat approval on dedications.

- Pursuant to General Statutes 160A-374, the approval of a plat shall not be deemed to constitute or effect the acceptance by the city or public of the dedication of any street or other ground, public utility line, or other public facility shown on the plat. However, the City Council may, by resolution, accept any dedication made to the public of lands or facilities for streets, parks, public utility lines, or other public purposes, when the lands or facilities are located within its subdivision regulation jurisdiction. Acceptance of dedication of lands or facilities located within the subdivision regulation jurisdiction but outside the corporate limits of the city shall not place on the city any duty to open, operate, repair, or maintain any street, utility line, or other land or facility, and the city shall in no event be held to answer in any civil action or proceeding for failure to open, repair, or maintain any street located outside its corporate limits.

### C.1.5. Abrogation.

- It is not intended that this ordinance repeal, abrogate, annul, impair, or interfere with any existing easements, covenants, deed restrictions, agreements, rules, regulations, or permits previously adopted or issued pursuant to law. However, where this ordinance imposed greater restrictions, the provisions of this ordinance shall govern.

### C.1.6. <sup>(1)</sup>RESERVED.

### C.1.7. Improvements variance.

- The city engineer may grant a variance from the terms of these improvements regulations when such variance will not be contrary to the public interest and where, because of the existence of unusual physical conditions, strict compliance with the provisions of this chapter would cause an unusual and unnecessary hardship on the subdivider. Such variance shall not be granted if it has the effect of nullifying the intent and purpose of these regulations. Furthermore, such variance shall not be granted by the city engineer unless and until:
  - A written application for an improvement's variance is submitted to the office of the city engineer on forms provided by that office demonstrating:
    1. That special conditions and circumstances exist which are peculiar to the land, structures or required subdivision improvements involved and which are not applicable to other lands, structures, or

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(1) TA-2019-05 – City Council approved 12/09/2019 which negates City Council approved 9/27/2004

- required subdivision improvements;
2. That a literal interpretation of the provisions of these regulations would deprive the applicant of rights commonly enjoyed by other properties with similar conditions;
  3. That the special conditions and circumstances do not result from the actions of the applicant;
  4. That the granting of the variance requested will not confer on the applicant any special privilege that is denied by these regulations to other lands, structures, or required subdivision improvements under similar conditions. No existing conditions on neighboring lands which are contrary to these regulations shall be considered grounds for the issuance of a variance.
- The city engineer shall make findings that the requirements of this section have been met.
  - The city engineer shall further make a finding that the reasons set forth in the application justify the granting of the variance that would make possible the reasonable use of the land, buildings, or other improvements.
  - The city engineer shall make further finding that the granting of the variance would be in harmony with the general purpose and intent of these regulations, will not be injurious to the surrounding territory, or otherwise be detrimental to the public welfare.
  - The city engineer shall make all findings required by this section within seven (7) days of the date of receipt of the written application.
  - An appeal from the finding of the city engineer may be taken to the City Council by any person aggrieved. An appeal is taken by filing with the zoning administrator a written notice requesting a subdivision variance and specifying the grounds therefore, as set forth in Article 6 of this Ordinance.
  - An appeal must be taken within seven (7) days after the date of the findings by the city engineer.
  - The City Council may reverse or affirm (wholly or partly) or may modify the findings appealed from and shall make any order, requirements, decision or determination that in its opinion ought to be made in the case before it.

**C.2. <sup>(1)</sup>RESERVED.**

## C.3. FIRE PROTECTION.

### C.3.1. Fire Hydrants.

- Applicants shall install fire hydrants in accordance with Kannapolis <sup>(1)</sup>Fire Department specifications and requirements.
- The Kannapolis Public Works Department may contract with a developer to install fire hydrants as required, but in all cases, the full cost of providing for such hydrants shall be borne by the developer
- Any hydrant connected to the Kannapolis water system constructed pursuant this subsection, shall constitute dedication to the Kannapolis Public Works Department of such hydrant.
- All newly installed fire hydrants shall be 5-1/4 inch barrel hydrants. All foot valves shall be 5-1/4 inch in diameter. Only three-way hydrants shall be installed with steamer connections. All hydrants shall be delivered with a primer coat. After hydrant installation, the primer shall be touched up and then painted <sup>(1)</sup>red with reflective top (2 coats).
- **Hydrant Spacing.** All newly installed fire hydrants shall be spaced at <sup>(1)</sup>800-foot intervals in residential zoning districts, except as provided herein. In Commercial, Industrial and Multi-family construction developments, hydrants shall be spaced at <sup>(1)</sup>400-foot intervals. No application for development approval shall be approved for any building unless a hydrant is installed within 400 feet of the most remote area of the building. Structures having sprinkler systems may provide yard hydrants to meet this requirement. Mains shall be sized to provide 500 gpm exterior hose streams.
  - **Testing and Acceptance.** All newly installed fire hydrants shall be tested by the Kannapolis Fire Department, or the fire department in whose jurisdiction it is located. The water authority shall notify the Kannapolis Fire Department, upon completion of the system and its availability for testing. No construction shall be allowed in the protected area until the water system has been tested and approved unless otherwise allowed by the authority having jurisdiction.<sup>(1)</sup>

### C.3.2. Fire Protection Facilities.

- **Connections.** Connections for fire protection systems shall be made in compliance with the City of Kannapolis Backflow Prevention and Cross-Connection Control Policy. Fire protection water facilities installed upon the owner's private property are for the use of the owner, and Kannapolis Public Works Department assumes no responsibility for such facilities. No water service, other than fire protection, will be taken from water mains intended to provide fire protection only. Metering may be required of systems that are run periodically for testing with the water going to waste. Notification of testing shall be given a minimum of 48 hours prior to testing. Violation of this notification may require the installation of approved metering devices and appurtenances as specified by the City of Kannapolis Public works Department. The Kannapolis Public Works Department reserves the right to make necessary inspections to ensure compliance with these regulations. No pumps may be directly connected to the Kannapolis system.
- **Cold Water Meters – Fire Service Type Size 6", 8" AND 12".** All meters shall fully comply with the AWWA specification C-703-79. Fire service meters shall consist of a combination of main line meter of the proportional type, having an unobstructed waterway of essentially the full pipe size for measuring high rates of flow, and a by-pass meter of appropriate size for measuring low rates of flow. The meter shall have an automatic valve mechanism for diverting low rates of flow through the by-pass meter. Meters must be approved by the National Fire Protection Association and listed by the Underwriters Laboratories. Loss inhead not to exceed for (4) psi.
- **Casing.** Main casing shall be either of copper alloy containing not less than seventy-five percent (75%) copper or of cast iron protected by a corrosion resistant coating or other anti-corrosion treatment. Main-case connections shall be flanged. Flanges shall be of the round type, faced and drilled, and shall conform to ANSI B16.1, Class 125. Companion flanges are not required.
- **Registers.** Registers shall be straight reading type and shall read in cubic feet. Registers will be provided with a center-sweep test hand. Registers will be perma-sealed.
- **Automatic Valves.** The automatic valve shall be of a type suitable for the purpose. It shall close by force. The weight of the valve and any supplemental force imposed on it shall offer sufficient resistance to the

incoming water to diver all small flows through the by-pass meter until such time as the rate of flow through the meter is great enough to ensure efficient operation of the main measuring section. Test plugs must be comparable to meter size.

- **Test Outlet.** A minimum 2 inch outlet shall be provided on the downstream side of the meter.
- **Piping Sizes.**
  - 3/4" - 2" piping shall be brass.
  - 3" - 10" piping shall be ductile iron (cement lined).

### C.3.3. Fire Service Requirements.

- **Requirements in Residential Zoning Districts.** The minimum size of fire service water mains in residential developments shall be 6 inches. All 6 inch mains must be looped. Dead end mains shall be 8 inches or greater. Exceptions: Mains installed may meet minimum performance specifications for the expected demand upon the system. Mains shall be designed to provide the following flow rates at 20 psi:
  - RE and RL zoning: 1,000 gpm
  - RM-1, RM-2, RV, and RC zoning: <sup>(1)</sup>1,000 gpm
- **Requirements in Non-Residential Zoning Districts.** The minimum size of fire service water mains in commercial and multi-family dwelling areas shall be 8 inches. All 8-inch mains shall be looped. Dead end mains shall be 12 inches. The minimum size of fire service water mains in industrial areas shall be 12 inches. All 12-inch mains shall be looped. Dead end mains shall provide the minimum fire flow as required in this subsection. Notwithstanding the foregoing, mains installed may meet minimum performance specifications for the expected demand upon the system in lieu of the minimum size requirement. Mains shall be designed to provide the following flows at 20 psi:
  - AG zoning: 1,000 gpm
  - B-1 and O-I zoning: 1,750 gpm
  - C-1, C-2, CD and I-1 zoning: 2,000 gpm
  - I-2 zoning: 2,500 gpm
  - All other districts: 1,500 gpm
- Individual large structures with life safety hazards or extra hazardous operations shall, where required, be provided with on-site hydrants and water mains designed to provide the required fire flow as determined by the ISO formula and the Kannapolis Fire Department.

## C.4. PUBLIC STREETS.

### C.4.1. <sup>(1)</sup>RESERVED.

#### C.4.2 <sup>(1)</sup>RESERVED.

##### C.4.2.1. <sup>(1)</sup>RESERVED.

##### C.4.2.2. <sup>(1)</sup>RESERVED.

##### C.4.2.3. <sup>(1)</sup>RESERVED.

##### C.4.2.4. <sup>(1)</sup>RESERVED.

##### C.4.2.5. <sup>(1)</sup>RESERVED.

##### C.4.2.6. <sup>(1)</sup>RESERVED.

##### C.4.2.7. <sup>(1)</sup>RESERVED.

##### C.4.2.8. <sup>(1)</sup>RESERVED.

##### C.4.2.9. <sup>(1)</sup>RESERVED.

##### C.4.2.10. <sup>(1)</sup>RESERVED.

##### C.4.2.11. **Sign Installation.**

- **Standard street signs installed by the City of Kannapolis.** In all subdivisions which include public streets, except as provided for in below, standard street signs shall be installed by the City of Kannapolis. The developer shall reimburse the city for full costs of installation. Installation, maintenance and replacement shall be the responsibility of the city.
- **Custom street signs installed by the developer.** In nonresidential subdivisions with architectural standards, restrictive covenants, and a property owner's association, custom street signs may be installed by the developer with all costs of installation, maintenance and replacement paid by the developer and as set forth below.
  - Such street signs shall comply with the Manual on Uniform Traffic Control Devices published by the U.S. Department of Transportation and may be installed only after written approval by the City Director of Streets and Traffic Engineering. Submission requirements for consideration of custom street signs shall include detailed color drawings, plans and specifications of the proposed street signs and a written statement describing funding for installation, maintenance and replacement.
- Replacement of lost or damaged regulatory or warning signs, as defined by the Uniform Manual, shall be accomplished immediately by the city using standard street signs until the developer or property owner's association installs replacement custom street signs. If the developer or property owner's association fails to install replacement custom street signs for regulatory and warning signs within ninety (90) days, the replacement by the city shall be considered permanent and full costs shall be paid by the developer or property owner's association. Replacement of lost or damaged guide signs, as defined by the Uniform Manual, shall be accomplished by the developer or property owner's association within ninety (90) days or the city shall install standard street signs with full costs paid by the developer or property owner's association.

##### C.4.2.12. <sup>(1)</sup>RESERVED.

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<sup>(1)</sup> TA-2019-05 – City Council approved which negates: City Council approved 4/28/2003, City Council approved 4/12/2004 & City Council approved 9/26/2005

**C.4.2.13.** <sup>(1)</sup>RESERVED.

**C.4.2.14. Unopened dedicated streets.**

- Streets for which right-of-way has been dedicated by subdivision plat or deed to the North Carolina Department of Transportation or the City of Kannapolis recorded with the Cabarrus or Rowan County Register of Deeds, (but which have never been constructed) shall not be constructed or maintained by the city until the following conditions have been met:
  - Right-of-way shall be dedicated, and surveyed if necessary, sufficiently wide for the street and utilities, as determined by the city engineer.
  - Right-of-way shall be cleared and graded to meet city standards for slope and drainage.
  - Roadway shall be improved with a surface of crusher-run stone to a depth of not less than six (6) inches, two (2) inches of HB binder, and one and one-half (1½) inches of I-2 asphalt. Width of roadway shall be not less than eighteen (18) feet.
  - The city engineer or his authorized representative shall inspect all work.
  - The city engineer or his authorized representative shall issue a certificate of completion for the required improvements.

**C.4.2.15. Street names.**

- Proposed street names shall not duplicate nor too closely approximate phonetically the name of any street within the city and Cabarrus or Rowan County. Where proposed streets are extensions of existing streets, the existing street names shall be used except where a new name can reasonably be used to facilitate proper house numbering or to avoid further street name duplication.
- In addition to names to identify new streets, the following classifications shall apply:
  - North-south streets shall be designated as avenues;
  - East-west streets shall be designated as streets;
  - Streets changing direction shall be designated as drives, lanes or roads;
  - Streets changing direction which form a loop connected at both ends of the same street may also be designated as circles; and
- Cul-de-sacs or streets terminating in a similar dead-end shall be designated as courts if oriented east-west or places if oriented north-south.

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(1) TA-2019-05 – City Council approved 12/09/2019 which negates City Council approved 6/24/2002