

## Chapter 17. INFRASTRUCTURE IMPROVEMENT REQUIREMENTS

### 17.1 General Infrastructure Improvement Requirements

- A.** In addition to the standards found elsewhere in this Ordinance, all developments shall be required to install or provide the following improvements, as applicable:
- Water supply distribution and fire hydrants (Chapter 17)
  - Sanitary sewer (or meet Wake County Health Department requirements for on-site systems) (Chapter 17)
  - Streets (Chapters 9, 17) and other public rights-of-ways (e.g., greenway paths; see Chapter 7)
  - Easements (Chapter 17)
  - Sidewalks (Chapter 9)
  - Storm drainage in streets (Chapter 9)
  - Street lighting (Chapter 17)
  - Wiring (Chapter 17)
  - Dedicated recreational open space (Chapter 7)
  - Landscaping (Chapter 8)
  - Storm drainage infrastructure (Chapter 17)
  - Special street signs and other traffic control devices in accordance with the *Manual of Uniform Traffic Control Devices*, latest edition. (Chapter 17)
- B.** All required improvements set forth in this Chapter shall be installed or constructed by the developer at no cost to the Town except as may otherwise be specifically provided herein or by Town policy or agreement. Required improvements under this Chapter shall not be installed or constructed until required construction plans have been approved by the Administrator and an order to proceed has been issued. The Town may, in order to serve future development, require the developer to install certain oversized improvements and/or to increase such improvements to a size and/or extent beyond that necessary for the needs created by the developer. In such cases, the Town shall enter into an agreement to reimburse the developer for the oversizing and/or extension based upon rates as agreed to by the Town.
- C. Infrastructure Design Specifications:** All infrastructure shall be designed and installed in accordance with the *Wendell Standard Specifications and Details Manual* and the City of Raleigh Public Utilities Department's current handbook.

- D. Phasing:** Developments may be designated to be constructed and platted in phases. Provided, however, the Administrator may not approve a phasing plan when in the Administrator's opinion such phasing will not provide for adequate public facilities to support any such phase or phases independent of the overall development plan. In approving phases the Administrator may require that additional streets, water and sewer facilities or other required public facilities be constructed as part of the phase or phases in order to ensure that sufficient public facilities will be in place to support such phase, or phases, independent of any future development.
- E. Funds in Lieu of Construction:** At the option of the developer and with the consent of the Board of Commissioners, a developer may, in lieu of the construction of the portion of a street which crosses over a water course located at the boundary of the development, deposit with the Town the sum sufficient (in the Town's determination) to construct such portion of the street. This option shall not be available when such street connects to an existing street at the boundary of the development or serves as a necessary means of access to a lot within the new development. Funds may be paid in lieu of construction of improvements for minor developments upon approval of the Board of Commissioners.

## 17.2 Street Improvements

- A.** All proposed streets shall be improved with a pavement width and storm drainage section as required for the particular classification of street specified in Chapter 9.
- B.** All grading, pavement and curb and gutter shall be designed and installed in accordance with Town standards and the approved construction plan.
- C.** Where bridges are required, such shall be installed to fit the cross-section of the street classification.
- D.** In addition, street paving and curb and gutter and storm drainage, in accordance with the above conditions, shall be installed in the following situations:
- I.** Any existing street segment that has not been accepted for maintenance by either the Town or the North Carolina Department of Transportation, and that is to serve one or more lots created pursuant to these regulations, shall be improved and dedicated to the public, as provided for above, in such a way that the street segment meets the standards of these regulations for the particular classification of street, including right-of-way width. Such street segment shall be directly connected to the existing public street system by way of at least one public street accepted for maintenance by either the Town or

the North Carolina Department of Transportation. No development shall be permitted on any street that is an “island” not connected directly to the public street system.

2. Where a development fronts on any existing street segment maintained by either the Town or the North Carolina Department of Transportation and the street does not meet the minimum standards of these regulations for the classification of street, the developer shall improve the portion of street adjoining the development to meet the minimum standards including construction and width. When the development adjoins only one side of an existing street, one-half of the minimum right-of-way shall be provided, measured from the centerline of the street.
  3. The Administrator may require pavement and widening or pavement and widening and curb and gutter and storm drainage for turning lanes along any street that forms a significant entrance to a proposed development where in the opinion of the Administrator such improvements are necessary in order to provide for safe vehicular movement into and out of the proposed development.
  4. Required pavement and widening, curb and gutter and storm drainage for turning lanes and entrances to new construction along any major thoroughfare shall be installed in accordance with NCDOT standards.
  5. Where a street is stubbed into adjoining property for future extension and such street serves as the frontage for one or more lots which are not corner lots, the Administrator may require the pavement of a temporary turn-around in a form similar to a cul-de-sac on such street where in the Administrator’s opinion such turn-around is necessary for the public convenience, safety and service.
  6. Streets and sidewalks shall be extended within existing rights-of-way as needed to provide publicly maintained street frontage to all newly created lots; however, construction standards may be modified to coincide with an existing publicly maintained street stub, if applicable.
- E. Street Names:** Proposed streets which are obviously in alignment with other existing streets shall bear the assigned name of the existing street. In no case shall the name for proposed streets duplicate or be phonetically similar to existing street names, irrespective of the use of the suffixes for street, avenue, boulevard, driveway, place, or court. The number of characters for street names shall not exceed 18 characters including the suffix abbreviation and the compass direction abbreviation, if any. Proposed streets names are subject to the approval of the Town prior to being forwarded to Wake County for approval.

**F. Connection to State Streets**

- I. North Carolina General Statutes 136-102.6 “Compliance of Development Streets with Minimum Standards of the Board of Transportation Required of Developers” requires that new public streets outside the Town limits and changes to existing streets inside the Town limits that are the responsibility of NCDOT be in accordance with the *Minimum Right-of-Way and Construction Standards* established by the Board of Transportation for acceptance on the State highway system. It is the intent of the UDO standards and requirements, as set forth, to complement and not to conflict with the requirements of NCDOT as stated in NCGS 136-102.6. In all cases the most restrictive limitation or requirement or the requirement causing the highest standard of improvement shall govern. An approved permit is required to connect to any existing state system street.
2. NCDOT’s *Traditional Neighborhood Development Guidelines* may be used in lieu of the State’s “Development Roads Minimum Construction Standards” for developments in the Town’s ETJ that meet the *Guideline’s* standards for applicability.

**17.3 Street Name Signs**

- A. Standard street name signs will be installed by the Town at all intersections in accordance with Town Standards. Prior to the installation of such signs, the developer shall pay the costs of such signs, posts and installation.
- B. Custom or decorative markers or signposts proposed by the developer are subject to approval by the Administrator prior to installation. The developer is responsible for all costs associated with the use of custom or decorative materials.

**17.4 Traffic Control Signs, Signals, and Markings**

For streets to be maintained by the Town, traffic control signs, signals, and markings will be installed by the Town in accordance with Town standards and specifications. Prior to the installation of such facilities, the developer shall pay the Town for the costs of such items and installation. For streets to be maintained by NCDOT, the developer shall be responsible for installing such facilities in accordance with NCDOT standards and specifications.

### 17.5 Street Lights

- A. The developer shall install underground wiring for street lights and shall install lights at the developer's cost prior to final plat approval. The Town will notify Progress Energy when the lights should become operational for each block within the applicable phase.
- B. **Decorative Street Lights:** Custom or decorative street lighting proposed by the developer is subject to approval by the Town prior to installation. The developer is responsible for all costs associated with the use of custom or decorative materials, to include the difference in the costs associated with the town's standard pole versus the upgraded lighting for a period of 20 years.

### 17.6 Sidewalks

Any sidewalks required by preliminary development approval shall be constructed to Town standards. See Chapter 9 for information on sidewalk requirements.

### 17.7 Storm Drainage in Public Streets

Storm drainage in public streets shall be designed as required in Chapter 9.

### 17.8 Storm Drainage Not in Public Streets

- A. The developer shall install storm drainage facilities to handle storm drainage not in public streets as are required below and as shown on the approved Construction Plan.
- B. Storm drainage systems and facilities shall be designed in accordance with the requirements of this Section and the Town's *Standard Specifications and Details*. The design of storm drainage systems and plans, including calculations, shall clearly indicate the easements and dedicated areas required for the construction and maintenance of the drainage system. The property owner shall be responsible for the maintenance for all storm drainage systems and easements except those dedicated and accepted as dedicated floodplain and open space in accordance with Section 17.8.E.
- C. All watercourses which would carry a flow of 5 cubic feet or more during a 10-year storm and all blue-line streams shown on the latest USGS maps, which are not situated within a street right-of-way, shall be treated in one or more of the three ways set forth in Sections D, E, and F below. Open drainage requirements shall be based upon a 100-year storm and enclosed systems shall be designed based upon a 10-year storm.

**D. Enclosed Subsurface Drains**

1. Profiles and enclosure standards shall be in accordance with the Town's *Standard Specifications and Details*.
2. A utility easement shall be placed on a recorded plat which shall state the right of the Town to enter the utility easement for enclosure maintenance purposes when determined to be a public necessity by the Town Manager. The required utility easement shall be centered on the enclosure when practical, but in no case shall the outside wall of the enclosure be located closer than 5 feet to the utility easement line. The utility easement shall be of a width determined necessary for maintenance purposes by the Administrator based upon enclosure depth, topography and location of existing and proposed improvements, but no less than 20 feet.
3. The utility easement shall be kept free and clear of any buildings or other improvements which would interfere with the proper maintenance of the underground enclosures. The Town shall not be liable for damages to any improvement located within the utility easement area caused by maintenance of any utilities located therein. Furthermore, utility easements may be used for future installation of any underground utility, provided that:
  - a. Any underground utility to be installed by any utility provider other than the Town shall be subject to approval by the Administrator.
  - b. Any private company installing additional underground lines after development has been completed by the owner of the property shall be responsible for the replacement of all fencing, pavement and grassed area disturbed by such installation.
  - c. The Town shall not be responsible for damages caused by installation of additional lines by any private utility company.
  - d. The Administrator may require that in order to reduce the rate of flow of discharge from any enclosed subsurface drain that an open channel with rip-rap material or other such performance standard be provided as part of the overall system.

**E. Open Channel In Dedicated Floodplain and Open Space Area.**

1. The floodplain and open space area shall be dedicated by a recorded plat and shall be labeled "Dedicated to the Town of Wendell for Floodplain and Open Space." If a portion of the floodplain and open space lies within a proposed thoroughfare shown on the thoroughfare plan, it shall be labeled "Dedicated to the Town of Wendell for Floodplain and Open Space or Thoroughfare."
2. The dedicated floodplain and open space area shall include the natural 100-year flood contour as determined by the Administrator, provided that the minimum width shall be no less than 100 feet total or 50 feet from top of bank in each direction.
3. In case of severe topography, additional width may be required to assure reasonable ease of maintenance.
4. The minimum length of street frontage at each location where floodplain and open space abuts public street right-of-way shall be 60 feet. The maximum distance, measured by straight lines on either side of the floodplain and open space, between points at which the floodplain and open space abuts street right-of-way shall be 1,000 feet.
5. Adjoining development shall be designed to provide for economical and efficient maintenance of the drainage channel and surrounding open area. The centerline of the required drainage channel shall be located no less than 50 feet from any street or property line provided that the dimensions of the drainage area conform to all other requirements of this section.
6. The open area to be dedicated as floodplain and open space shall be left in its natural condition or graded to a section approved by the Administrator which will allow economical and efficient maintenance and shall be stabilized with permanent vegetative cover.

**F. Open Channel On Private Property Within Drainage Maintenance and Utility Easement.**

1. This method shall not be utilized in any development of individual lots intended for single-family detached dwellings unless the Board of Commissioners determines that floodplain and open space dedication along the watercourse is not in the public interest; that an open channel would not become a missing segment in a system of stormwater piping; and that the open channel is well removed from all anticipated house locations. In such cases the homeowner or a homeowner's association shall be established with authority to provide for maintenance of the easement.
2. The drainage maintenance and utility easement shall include the required drainage channel and the land between the channel and the natural 100-year flood contour as determined by the Administrator; or, in some cases, it may be reduced by modifying the drainage maintenance and utility easement topography to a typical required drainage channel section as provided for in subsection 4. However, the minimum total width of a drainage maintenance and utility easement shall be no less than specified below.

Cubic feet per second in 100-year storm	Drainage maintenance and utility easement width
5 - 16	30 ft, centered
17 - 70	60 ft, centered
70+	100 ft, plus width of channel

The drainage maintenance and utility easement shall be centered on the typical required drainage channel section, unless the Administrator approves other drainage maintenance and utility easement alignments because of topographic conditions.

3. In case of severe topography, additional width may be required to assure reasonable ease of maintenance.
4. The drainage maintenance and utility easement topography may be modified. In such cases, the approved typical required drainage channel section shall include the necessary channel to accommodate a 100-year flood. The area outside of the required drainage channel may be filled; but any resulting slope shall be no steeper than 3:1, unless the slope is protected by masonry paving, rip rap, or other material which will meet Town specifications.



5. Where, in the opinion of the Administrator, suitable access to the drainage maintenance and utility easement is not otherwise provided, access shall be guaranteed by a suitably located access easement which shall be no less than 20 feet in width.
6. It shall be the responsibility of the owner to provide maintenance to all streams located on the property as shown on the plat. However, in the event the Board of Commissioners determines that it is in the public interest to alter the typical required drainage channel section and/or profile of the stream in order to improve flow, the Town may enter upon the property within the indicated access and/or drainage maintenance and utility easement and carry out the necessary work without any liability for damage to the property, or improvements thereon, located within the indicated access and/or drainage maintenance and utility easement.
7. Drainage maintenance and utility easements (excludes easements for water and sewer facilities owned, operated and maintained by CORPUD) may be utilized for any underground utility provided that:
  - a. Underground utility to be installed by any utility provider other than the Town shall be subject to approval by the Administrator.
  - b. A private company installing underground lines after development has been completed by the owner of the property shall be responsible for the replacement of all fencing, pavement and grassed areas disturbed by such installation.
  - c. The Town shall not be responsible for damages caused by installation of additional lines by any private utility company.
  - d. The Town shall not be liable for damages to any improvements located within the drainage maintenance and utility easement area caused by maintenance of utilities located therein.
8. No buildings shall be placed or constructed within the access or drainage maintenance and utility easement. All drives, parking areas, or other improvements shall be constructed no closer than 2 feet from the top of any back slope along any open watercourse.

### 17.9 Drinking Water and Sanitary Sewer Improvements

- A. Extension of public water and/or sewer systems shall conform to the City of Raleigh Code of Ordinances, as amended, pertaining to water, sewer and reuse utilities consistent with the City of Raleigh and the Town of Wendell's utility system merger dated October 2, 2006.
- B. **Private Water Distribution/Sewer Collection Systems:** Should private water and sewerage systems be allowed, such shall meet CORPUD requirements.

### 17.10 Open Space Dedication

Open Space shall be dedicated as required in Chapter 7.

### 17.11 Placement of Monuments and Markers

The developer shall install such property monuments and markers as are required by law and the standards of practice for land surveying in North Carolina. Prior to the approval of the final plat for any conventional development, permanent reference points shall have been placed in accordance with the following requirements:

- A. **Development corner tie:** At least one corner of the development shall be accurately tied to and coordinated with a horizontal control monument in accordance with the North Carolina Administrative Code, Standards and Practice for Land Surveying. The development corner tie may also serve as one of the control corners listed below.
- B. **Control corners:** At least three control corners shall be established in accordance with G.S. 39-32.1, 39-32.2 and 39-32.3, and clearly identified on the final plat. All monuments shall be constructed of concrete and shall be at least 4 inches in diameter or square and not less than 3 feet in length. Each monument shall have imbedded in and flush with its top to serve as the point a metal rod capable of being detected by standard surveying means. Such monuments shall be set at least 30 inches in the ground with 6 inches exposed above the ground unless this requirement is impractical because of traffic or other factors. The surveyor shall employ additional monuments if and when required.
- C. **Property markers:** A steel or wrought iron pipe or the equivalent not less than 1/2 inch in diameter and at least 24 inches in length shall be set at all corners, except those located by monuments. A marker shall also be set at a point of curve, point of intersection, property corner, point of tangency, reference point and tangent unless a monument has already been placed at

these points. Additional markers shall be placed at other points of importance if and when required.

- D. Accuracy:** Land surveys within the corporate limits shall meet the standards of Class A surveys, and beyond the corporate limits, Class B surveys, as defined by the North Carolina Administrative Code, Standards and Practice for Land Surveying.

### 17.12 Fire Hydrants

- A.** Placement of fire hydrants shall be placed per the City of Raleigh handbook and/or the Town of Wendell Fire Department standards pursuant to the City of Raleigh and the Town of Wendell's utility system merger dated October 2, 2006.

### 17.13 Other Utilities and Services

Electric power, telephone, cable television, natural gas lines and other utilities which are proposed to be installed in the development and which are required to be shown on construction plans are not "Required Improvements" within the context of this Chapter. Since the installation of such improvements are by agreement between the developer and the appropriate utility company, the execution of such agreements between the developer and the utility companies are deemed to satisfy the construction and installation requirements of these regulations as long as they are installed in the public right-of-way or easement in accordance with Town standards for such installations.

### 17.14 Utility Easements

- A.** All utilities and service lines shall be placed underground. The developer shall be responsible for incorporating the design of all utilities and services into the easement and Construction Plan design.
- B.** To provide for electric, telephone and gas service, community antenna television distribution systems, and other such facilities within the development, appropriate utility easements not less than 20 feet shall be provided on the final plat. Easements as they pertain to water, sewer, and reuse utilities shall be sized according to the CORPUD handbook. The locations of such easements shall be based upon the approved construction plans.

### **17.15 Development Entrance Markers and Landscaped Medians**

The Board of Commissioners may permit development entrance markers and landscaped medians within the public right-of-way subject to the following conditions and any additional conditions the Board of Commissioners may find to be appropriate in the individual circumstance:

- A.** The Town will not be responsible for maintenance.
- B.** An entity responsible for maintenance shall be created.
- C.** No such improvements shall interfere with sight distance or with normal maintenance requirements or otherwise pose a hazard to vehicular or pedestrian traffic.
- D.** In the event of loss, damage or lack of maintenance, the Town may remove all improvement and maintain the area in accordance with Town standards.
- E.** NCDOT must approve any such developments in streets to be maintained by NCDOT.

### **17.16 Construction in Public Right-of-Way and Easements**

The design and construction of any facilities, whether required or provided, within public right-of-way and easements shall be in accordance with Town's *Standard Specifications and Details*.

### **17.17 Guarantee of Required Improvements & Warranty Against Defects**

#### **A. Financial Guarantee in Lieu of Immediate Installation for Approval**

In lieu of requiring the completion, installation and inspection of all or any part of the required improvements as described in this Ordinance prior to Final Plat approval, the Town may approve a financial guarantee whereby the developer shall agree to complete all required improvements. Once said financial guarantee is approved by the Board of Commissioners and the security required herein is provided, the Final Plat may be approved if all other requirements of the Ordinance are met. To secure this agreement, the developer shall provide either of, or a combination of, the following guarantees to cover the costs of the proposed improvements:

1. **Cash or Equivalent Security:** The developer shall deposit cash, a certified check or an irrevocable letter of credit with the Town Manager. The use of any instrument other than cash shall be subject to the approval of the Town. The amount of deposit shall be equal to 125 percent of the estimated cost as approved by the Town Manager, of installing all required improvements. The initial cost estimate shall be the responsibility of the developer and certified by his engineer but the approval of the final cost estimate shall be made by the Town Manager.
2. **Governmental Guarantee:** In any case where a required improvement is to be provided by the State of North Carolina or any local government other than the Town, the developer may provide, in lieu of the types of financial guarantee as provided for above, a letter from the appropriate State or local government official guaranteeing the installation of the improvement in the required manner and within the time allotted. Provided, however, in any case where the cost of such improvement exceeds \$10,000 as determined by the Town, such governmental guarantee shall be in form of an approved Project Budget Ordinance where local government is to be the provider and an equivalent document where the State is to be the provider.

**B. Duration of Financial Guarantees**

1. The duration of a financial guarantee shall be of a reasonable period to allow for completion and acceptance of improvements. In no case shall the duration of the financial guarantee for improvements exceed 18 months unless extended by the Board of Commissioners.
2. All subdivisions whose public improvements are not completed and accepted at least 30 calendar days prior to the expiration of the financial guarantee shall be considered to be in default, unless said guarantee is extended with the consent of the Board of Commissioners to a future date certain not to exceed six months.

**C. Default**

1. Upon default, meaning failure on the part of the developer to complete the required improvements in a timely manner as specified in the financial agreement, the Town may expend said funds as deemed necessary to complete all or any portion of the required improvements.
2. Default on a project does not release the developer from liability/responsibility, financial or otherwise, for the completion of the improvements.

**D. Release of Guarantee Security**

- I. The Town Manager may release a portion or all of any security posted as the improvements are completed. Prior to such release the developer shall provide the Administrator with a set of 'as built' drawings certified by his engineer.

**E. Warranty Against Defects**

- I. Prior to the approval of the Final Plat or acceptance by the Town of any improvements in any subdivision, the developer shall furnish to the Town a written warranty against defects which shall guarantee the material and workmanship of required improvements for a period of not less than one year from the date of such acceptance. Such warranty shall be accompanied by a financial guarantee payable to the Town equal to at least 10 percent of the cost of the installation of such improvements as determined by the Town Manager. Such financial guarantee shall be in the form of financial guarantee as provided for in Section 17.17.A of this Chapter.

The financial guarantee will be renewable, in one year terms, until 50 percent of certificates of occupancy have been issued within the applicable phase. When 50 percent of certificates of occupancy have been issued in a particular phase, the developer may petition the town to take over ownership and maintenance of the streets and infrastructure within the phase.

2. Upon successful performance of the improvements, as determined by the Town Manager, the financial guarantee shall be returned to the developer. Upon the failure of an improvement to perform within the generally accepted standards for the type improvement as determined by the Town Manager, the developer shall be notified and given a reasonable period of time to correct the defects. Should the developer fail to act, fail to act in a timely manner, or otherwise fail to correct the defect(s), the Town Manager shall find the developer in default and proceed in the same manner as provided for in Section 17.17.C of this Chapter. Although other utilities and services as are set forth in Section 17.13 are not included in this warranty against defects, any grading, boring, cutting or other disturbances in public easements or rights-of-way associated with the installation or such facilities shall be restored prior to the release of this financial guarantee.