

TOWN OF KNIGHTDALE, NC

UNIFIED DEVELOPMENT ORDINANCE

ADOPTED JULY 21, 2021



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Chapter 1. Purpose and Applicability

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1.1. Title

This appendix of the Knightdale Code of Ordinances shall be known as and may be cited as the “Unified Development Ordinance (UDO) for the Town of Knightdale,” and may be referred to as the “Knightdale Development Ordinance” or “Knightdale UDO”.

1.2. Authority

The Knightdale UDO is hereby adopted under the authority and provisions in Chapter 160D; Part 6, Article 21 of Chapter 143; and Article 8 of Chapter 160A of the North Carolina General Statutes (N.C.G.S.); and Article 14, Section 5 of the Constitution of North Carolina.

Whenever any provision of this appendix refers to or cites a section of the N.C.G.S. and that section is later amended or superseded, the appendix shall be deemed amended to refer to the amended section or the section that most nearly corresponds to the superseded section.

1.3. Jurisdiction

The Knightdale UDO shall be effective throughout the Town of Knightdale and its extraterritorial planning jurisdiction (ETJ). The planning jurisdiction of the Town may be modified from time to time in accordance with §160D-103 of the N.C.G.S.

1.4. Intent

- A. **Declaration of Necessity.** In order to protect and promote the health, safety, and general welfare of the town and its ETJ, the Knightdale UDO is adopted by the Town Council to regulate and restrict by means of zoning and subdivision regulations the height and size of buildings and other structures; the appearance and design of developments; the percentage of lots that may be covered or occupied; the dimensions of setbacks; the size of open spaces; the density of population; the allocation of municipal water capacity; the construction and installation of infrastructure; and the location, use and design of landscaping, buildings, structures, and land for trade, industry, residence, and other purposes.
- B. **Purpose.** The purpose of the regulations set forth in the Knightdale UDO shall be to fulfill the goals and objectives of the Town's Comprehensive Plan, as may be amended from time to time.

1.5. Required Conformance to Knightdale UDO Provisions

- A. **Conformance in General.** Except as otherwise specifically provided in the Knightdale UDO, no land shall be subdivided; no land or structure shall hereafter be used or occupied; no excavation, removal of soil, clearing of a site, or placing of fill shall take place on lands contemplated for development; no infrastructure shall be constructed or installed; and no structure, or part thereof, shall be constructed, erected, altered, or moved, unless in compliance with all the applicable provisions of the Knightdale UDO.
- B. **Certain Farmland Exempt.** Any tract of land that meets all the following requirements shall be exempt from the provisions of this ordinance:
1. Is at least ten (10) acres in size under common ownership;
 2. Is used for dairying, the raising of agricultural products, the raising of horticultural products, timbering and silviculture, the raising of livestock or poultry; or houses facilities for the sale of onsite-produced products; and
 3. Has generated at least an average of \$1,000 in annual farm sales over the most recent three (3) year period.

Timbering and silviculture operations are not exempt from the provisions and potential penalties of Section 7.4(B)(5)(b).

This exemption does not apply to swine farms as defined in N.C.G.S. §106-802.

- C. **Alternate Means of Compliance.** As part of a Utility Allocation/Annexation Agreement (UAA) for a development project, the Town council may apply alternate means of compliance with otherwise applicable UDO design, connectivity, sign, landscaping, parking, lighting, or similar standards allowing the ultimate intent or spirit of the Ordinance to be maintained. Alternate means of compliance should reflect the spirit and intent of the ordinance and are not provided to circumvent the variance procedures. Further, the UAA shall be consistent with and include measures of the Water Allocation Policy. Alternate means of compliance shall only be approved if conditions are limited to impacts that are related to the development of the site and are intended to allow for voluntary alternate conditions to help further the goals and objectives of the Town Council not to alleviate hardships.

1.6. Conflict with Other Laws

When provisions of the Knightdale UDO impose higher standards than are required in any other statute or local ordinance or regulation, provisions of the Knightdale UDO shall govern. When the provisions of any other statute or local ordinance or regulation impose higher standards than are required by the provisions of the Knightdale UDO, the provisions of that statute or local ordinance or regulation shall govern.

1.7. Permit Choice and Vested Rights

- A. **Permit Choice.** If an application made in accordance with the adopted regulations of the Knightdale UDO is submitted for a development approval and a development regulation changes between the time the application was submitted and a decision is made, the applicant may choose which version of the development regulation will apply to the application. If the development permit applicant chooses the version of the rule or ordinance applicable at the time of the permit application, the development permit applicant shall be required to await the outcome of the amendment to the rule, map, or ordinance prior to acting on the development permit.
- B. **Process to Claim Vested Rights.** A person claiming statutory vested right may submit information to substantiate that claim to the Land Use Administrator who shall make an initial determination as to the existence of the vested right. The Land Use Administrator determination may be appealed under N.C.G.S. § 160D-108. On appeal, the existence of the vested right shall be reviewed de novo. In lieu of seeking such a determination, a person claiming a vested right may bring an original civil action as provided by N.C.G.S. § 160D-108.
- C. **Types and Duration of Statutory Vested Rights.** Except as provided by this Section and subject to subsection (B) of this section, amendments in local development regulations shall not be applicable or enforceable with regard to development that has been permitted or approved so long as the permit or approval remains valid and unexpired. Each type of vested right listed below is defined by and subject to the limitations provided in this Section and the cited sections of N.C.G.S. Vested rights established under this Section are not mutually exclusive. The establishment of a vested right under one subsection does not preclude the vesting under the other subsection.
1. **Site-Specific Vesting Plans.**
 - a. **Duration.** A vested right for a site-specific vesting plan shall remain vested for a period of two (2) years. This vesting shall not be extended by any amendments or modifications to a site-specific vesting plan unless expressly provided by the Town. The Town may provide those rights regarding a site-specific vesting plan shall be vested for a period exceeding two (2) years, but not exceeding five (5) years, in accordance with the process detailed in Section 12.2(G)(4), if warranted by the size and phasing of the development, the level of investment, the need for the development, economic cycles, market conditions, or other considerations. This determination shall be at the discretion of the Town Council.
 - b. **Relation to Building Permits.** A right vested as provided in this Section shall terminate at the end of the applicable vesting period with respect to buildings and uses for which no valid building permit applications have been filed. Upon issuance of a building permit, the provisions of N.C.G.S. 160D-1007 shall apply, except that the permit shall not expire or be revoked because of the running of time while a vested right under this Section exists.

2. **Other Local Development Approvals.** Pursuant to N.C.G.S. §160 D-1007, unless otherwise specified herein, all other development approvals expire one (1) year after issuance unless work has substantially commenced. Expiration of a development approval does not affect the duration of a vested right established as a site-specific vesting plan, a multiphase development plan, a development agreement, or a vested right established under common law.

1.8. Comprehensive Plan

It is the intention of the Council that the Knightdale UDO implements the planning policies adopted for the Town and its ETJ, as reflected in the Comprehensive Plan and other related planning documents. While the Council reaffirms its commitment that the Knightdale UDO and any amendment to it, be in conformity with adopted planning policies, the Council hereby expresses its intent that neither the Knightdale UDO nor any amendment to it may be challenged on the basis of any alleged non-conformity with any planning document.

1.9. Violations Continue

Any violation of provisions existing on the effective date of this ordinance shall continue to be a violation under this ordinance and be subject to penalties and enforcement under Chapter 14, unless the use, development, construction, or other activity complies with the provisions of this ordinance.

1.10. Effective Date

These regulations shall become effective on July 21, 2021. Upon adoption, these regulations shall supersede, repeal, and replace the Knightdale UDO, as made effective on November 16, 2005.

Many provisions herein are a restatement of provisions of the Knightdale UDO, adopted November 16, 2005, and are hereby continued without interruption. All other provisions of this Ordinance shall become effective July 21, 2021.

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Chapter 2. Establishment of Districts

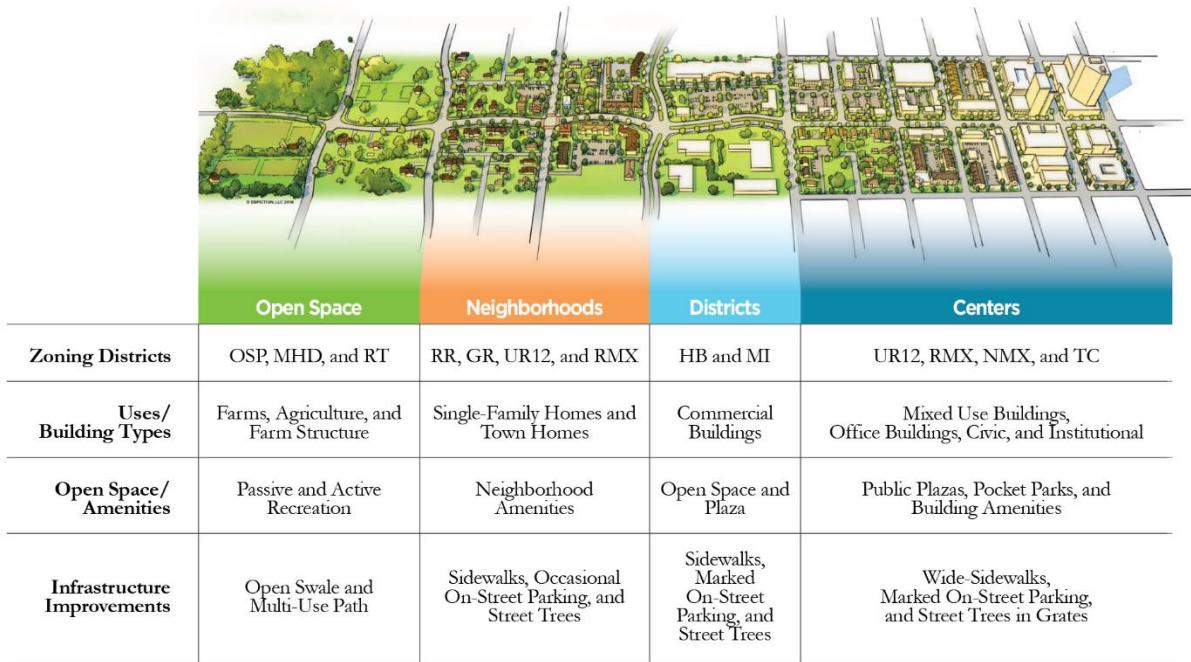
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2.1. Establishment of Districts

A. **Base Districts.** The Town of Knightdale, as indicated on the Official Zoning Map, is hereby divided into various districts that set forth uniform regulations for the development of land within each district. The purpose of these district regulations is to ensure the use of land and buildings in conditions of good health and safety and conditions of orderly community development. These regulations shall apply to all land and structures within the respective zoning district. The base districts are listed as follows:

1. Open Space Preserve (OSP)
2. Rural Transition (RT)
3. Rural Residential (RR1)
4. General Residential Low Density (GR3)
5. General Residential Medium Density (GR8)
6. Urban Residential (UR12)
7. Residential Mixed-Use (RMX)
8. Neighborhood Mixed-Use (NMX)
9. Town Center (TC)
10. Highway Business (HB)
11. Business Office (BO)
12. Manufacturing and Industrial (MI)
13. Mining and Quarrying (MQ)

Figure 2.1: Base District and Comprehensive Plan Place Type Transect



- B. **Conditional Districts.** Each Base District is permitted a corresponding Conditional District subject to the submission of a Master Plan as a prerequisite to any development. These districts are described more fully in Section 12.2 (G)(3)(f), and the process for establishing a Conditional District is detailed in Section 12.2 (G)(3)(f)
- C. **Overlay Districts.** The following overlay districts are established. These overlay districts impose additional requirements on properties within one (1) or more underlying base or conditional districts.
 1. Quarry Overlay (QOD)
 2. Special Highway Overlay (SHOD)
 3. Planned Unit Development Overlay (PUD)
 4. Manufactured Housing Overlay (MH)

2.2. Purpose and Intent of Base Districts

- A. **Open Space Preserve District.** The Open Space Preserve District is intended to protect areas that are permanently preserved as natural and/or environmentally significant lands. Such areas include rural parks, wetlands, and areas placed in a conservation easement.
- B. **Rural Transition District.** The Rural Transition District is intended to accommodate extremely low-density residential development and limited agricultural uses in areas that are currently rural in nature.
- C. **Rural Residential District.** The Rural Residential District is intended to accommodate very low-density, rural residential and agricultural uses; and protect natural vistas and landscape features that define the rural heritage of the Town of Knightdale.
- D. **General Residential Low-Density District.** The General Residential Low-Density District is intended to accommodate the Town's existing low-density, predominately residential neighborhoods as well as provide for new mixed-density residential development with a maximum density of three (3) dwelling units per acre.
- E. **General Residential Medium-Density District.** The General Residential Medium Density District is intended to accommodate the Town's existing medium-density, predominately residential neighborhoods as well as provide for new mixed-density residential development with a maximum density of eight (8) dwelling units per acre.
- F. **Urban Residential District.** The Urban Residential District is intended to accommodate high-density neighborhoods close to commercial centers such as the TC, NMX, and HB districts and provides for a variety of compatible housing types and a limited mix of uses within a walkable quarter (0.25) to half (0.5) mile context.
- G. **Residential Mixed-Use District.** The Residential Mixed-Use District is intended to accommodate mixed density neighborhoods within a walkable quarter (0.25) to half (0.5) mile distance to existing and planned commercial centers such as the TC, NMX, and HB districts. The intent is to create mixed-density residential areas that complement commercial districts with physical proximity and pedestrian connectivity. Different housing types and lot styles along with a limited mix of neighborhood-friendly uses are encouraged.
- H. **Neighborhood Mixed-Use District.** The Neighborhood Mixed-Use District is intended to accommodate pedestrian-scaled, higher-density residential homes, and opportunities for limited-scale commercial activities along existing mixed-use corridors, in areas of transition, and at the functional center of new neighborhoods. Development in this district should encourage pedestrian activity through construction of mixed-use buildings and connections to adjacent neighborhoods. Buildings in this district are typically small and detached.
- I. **Town Center District.** The Town Center District is intended for the traditional downtown area and the identified new town centers at future commuter rail stations. Individual buildings are encouraged to be multi-story with uses mixed vertically, with street-level commercial and upper-level office and residential. Higher density residential development is encouraged than in the other residential districts. It is the purpose of these regulations to encourage vitality by excluding certain activities which negatively affect the public realm through auto-dominated or non-pedestrian-oriented design or uses.

- J. **Highway Business District.** The Highway Business District is intended to provide and encourage the development of high-intensity offices, services, retailing of durable and convenience goods, facilitate convenient access, minimize traffic congestion, and reduce the visual impact of excessive signage and parking lots.
- K. **Business Office District.** The Business Office District is intended to accommodate both large-scale buildings with employees for one business and areas with one or more buildings for multiple businesses that support and serve one another.
- L. **Manufacturing and Industrial District.** The Manufacturing and Industrial District is intended to accommodate the development and operation of industrial and/or flex space uses that are typically too large in scale to fit within a neighborhood environment and should be buffered from surrounding neighborhood uses. In the interest of economic development, this District is reserved for non-residential uses only to preserve adequate opportunities for future relocation and expansion of employment-based uses.
- M. **Mining and Quarrying District.** The Mining and Quarrying District is intended to recognize the unique characteristics and predominant extractive nature of mines and quarries which do not fit the application of most development standards promulgated in a UDO. Due to this unique nature, however, it is important to establish specific provisions for the protection of the general welfare of adjacent properties and the community at large.


2.3. Purpose and Intent of Conditional Districts

Conditional Districts provide for orderly and flexible development under the spirit and intent of the general policies of the General District without the constraints of the principal structure dimensional standards. Conditional Districts are constructed in a comprehensive manner and, therefore, establish their own street, block, and lot pattern which may be unique from other surrounding blocks or neighborhoods. Conditional Districts may be self-imposed as detailed in Section 12.2 (G)(3)(f).

2.4. Purpose and Intent of Overlay Districts

- A. **Quarry Overlay District.** The Quarry Overlay District is established to acknowledge the unique land use impact of mining and quarrying on neighboring land uses, the need to notify the owners of the presence of the neighboring quarry, and to reduce potential negative impacts of the quarry on adjacent land uses. The Quarry Overlay District shall be located on parcels that otherwise allow residential development and are adjacent to the primary quarry parcel up to a maximum of one thousand (1,000) feet from the primary quarry parcel boundary as determined by the Town Council.
- B. **Special Highway Overlay District.** The Special Highway Overlay District is intended to promote the safe movement of traffic, to maintain and enhance the scenic beauty viewed by travelers on the highway, and to reduce potential negative impacts of the highway on adjacent land uses. The Special Highway Overlay District is established along Interstate 540, U.S. 64 Bypass / I-87, and any other such roadway classified on the Capital Area Metropolitan Planning Organization's (CAMPO) Comprehensive Transportation Plan as a freeway. The Special Highway Overlay District shall be located on both sides of a freeway and shall be fifty (50) feet wide in depth measured from the right-of-way line.
- C. **Planned Unit Development Overlay District.** The Planned Unit Development Overlay District is intended to visually represent areas of the community that are governed by Planned Unit Development Ordinances as detailed in Section 12.2 (G)(3)(g) of this Code. The Planned Unit Development process encourages creativity and innovation in the design of developments through a master planning process that allows for flexibility from underlying zoning as approved by the Town Council.
- D. **Manufactured Home Overlay District.** The Manufactured Home Overlay District is intended to provide for manufactured housing in an organized manner. To that end, the overlay district permits two (2) types of development beyond a single manufactured home on a qualifying lot in a RT or RR district, the Manufactured Home Neighborhood, and the Mobile Home Park, as detailed in Chapter 4.

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3.1. Use Matrices

- A. **Categories.** All uses permitted in this Code have been divided into ten (10) general categories as detailed in Chapter 15, Definitions and are generally defined as follows:
1. **Residential:** Premises available for long-term human habitation by means of ownership and rental but excluding short-term leasing or rental of less than a month’s duration.
 2. **Lodging:** Premises available for short-term human habitation, including daily and weekly rental.
 3. **Office/Service:** Premises available for the transaction of general business and the provision of services, but excluding retail sales and manufacturing, except as a minority component.
 4. **Retail/Restaurants:** Premises available for the commercial sale of merchandise, prepared foods, and food and drink consumption, but excluding manufacturing.
 5. **Entertainment/Recreation:** Premises available for the gathering of people for purposes such as arts and culture, amusement, and recreation.
 6. **Manufacturing/Wholesale/Storage:** Premises available for the creation, assemblage, storage, and repair of items including their wholesale or retail sale.
 7. **Civic/Institutional:** Premises available for organizations dedicated to religion, education, government, social service, health care, and other similar functions.
 8. **Infrastructure:** Uses and structures dedicated to transportation, communication, information, and utilities.
 9. **Accessory Uses.** Uses, buildings, and structures that are subordinate to and supportive of the principal building or principal use of a lot.

10. **Temporary Uses.** Uses established for a limited duration with the intent to discontinue such use upon the expiration of a specified time period.
- B. **Interpretation of Use Matrices.** The following key is to be used in the interpretation of the Use Matrices.
1. **Permitted Uses.** Uses listed as “P” in the matrices shall be allowed subject to all applicable regulations of this Code.
 2. **Special Uses.** Uses listed as “SU” in the matrices shall be allowed upon approval of a Special Use Permit as detailed in Section 12.2 (F)(4).
 3. **Conditional District Uses.** Uses listed as “CD” in the matrices shall be allowed upon approval of a Conditional District rezoning as detailed in Section 12.2 (G)(3)(f).
 4. **Prohibited Uses.** A blank space in the matrices indicates that use type is not allowed in the respective zoning district unless it is otherwise expressly allowed by other regulations of this Code.
 5. **Uses not Listed.** Any use not listed in the Use Matrices is prohibited unless the Land Use Administrator determines that it falls within the same class as a listed use as set forth in the Use Matrices.
 6. **Additional Regulation.** If a use has use-specific standards they are referenced in this column. Use-specific standards shall apply to permitted and special uses.

C. Use Matrices

1. Residential Uses.

1. RESIDENTIAL USES		ADDITIONAL REGULATION	BASE DISTRICT											
			OSP	RT	RR	GR3 & GR8	UR12	RMX	NMX	TC	HB	BO	MI	MQ
a	Dwelling-Duplex					CD	CD	CD	CD					
b	Dwelling-Multifamily, above ground floor as a part of mixed use						CD	CD	CD	CD				
c	Dwelling-Multifamily, 4 units / bldg or less	5.2(A)					CD	CD	CD	CD				
d	Dwelling-Multifamily, more than 4 units / bldg	5.2(A)					CD	CD	CD	CD				
e	Dwelling-Single Family			P	P	P	P	P	P					
f	Family Care Home (6 or Less residents)	5.2(B)		P	P	P	P	P	P	P				
g	Housing Service for the Elderly	5.2(C)				P	P	P	P	P				
h	Live-Work Units	5.2(D)					P	P	P	P		P		
i	Manufactured Housing	5.2(E)		P	P									
j	Townhouse, 4 units or less						CD	CD	CD	CD				
k	Townhouse, more than 4 units						CD	CD	CD	CD				

2. Lodging Uses.

2. LODGING USES		ADDITIONAL REGULATION	BASE DISTRICT											
			OSP	RT	RR	GR3 & GR8	UR12	RMX	NMX	TC	HB	BO	MI	MQ
a	Bed and Breakfast Inns	5.3(A)		P	P	P	P	P	P	P	P			
b	Hotels								CD	CD	CD	CD		

P = Permitted Use
 SU = Special Use
 CD = Conditional District Use

3. Office / Service Uses.

3. OFFICE / SERVICE USES		ADDITIONAL REGULATION	BASE DISTRICT											
			OSP	RT	RR	GR3 & GR8	UR12	RMX	NMX	TC	HB	BO	MI	MQ
a	Animal Services, Boarding	5.4(A)		SU	SU					SU	SU	SU	SU	SU
b	Animal Services, Nonboarding	5.4(B)		SU	SU					P	P	P	P	P
c	Banks, Credit Unions, Financial Services	5.4(C)								CD	CD	CD	CD	CD
d	Business Support Services	5.4(D)								P	P	P	P	P
e	Child/Adult Day Care Home (Fewer than 6 people)	5.4(E)		P	P	P	P	P	P	P				
f	Child/Adult Day Care Center (6 or more people)	5.4(F)			P		P	P	P	P				
g	Community Service Organization			P	P		P	P	P	P	P			
h	Contractor Office	5.4(G)								P		P		P
i	Corporate Campus	5.4(H)										CD	CD	
j	Cremation Facilities										SU		SU	
k	Equipment Rental	5.4(I)								P	CD		P	
l	Funeral Homes								P	P	P			
m	Government Services		P	P	P	P	P	P	P	P	P	P	P	P
n	Medical Services							P	P	P	P	P	P	P
o	Outdoor Animal Boarding/Equestrian Facilities	5.4(J)		SU	SU								SU	
p	Personal Services	5.4(K)						P	P	P	P	P	P	P
q	Post Office							P	P	P		P	P	
r	Professional Services							P	P	P	P	P	P	
s	Studio – Art, dance, martial arts, music							P	P	P	P			
t	Tattoo Shop	5.4(L)									P		P	
u	Vehicle Services – Maintenance/Body Work/Repair	5.4(M)									CD		P	

P = Permitted Use
 SU = Special Use
 CD = Conditional District Use

4. Retail / Restaurant Uses.

4. RETAIL / RESTAURANT USES		ADDITIONAL REGULATION	BASE DISTRICT												
			OSP	RT	RR	GR3 & GR8	UR12	RMX	NMX	TC	HB	BO	MI	MQ	
a	Auto Parts Sales	5.5(A)								CD		CD		CD	
b	Bar/Tavern/Microbrewery									P	P	P			
c	Gas Station with Convenience Store	5.5(B)								CD		CD			
d	General Retail – 10,000 sf or less	5.5(E)								P	P	P	P		
e	General Retail – 10,001 sf – 50,000 sf										P	P			
f	General Retail – Greater than 50,000 sf										CD	CD			
g	Medical Cannabis Center*	5.5(C)										P*		P*	
h	Neighborhood Retail/Restaurant – 2,000 sf or less	5.5(E)						P	P	P	P	P			
i	Nightclub									CD	CD	CD			
j	Restaurant									P	P	P			
k	Shopping Center – Community Center											CD	CD	CD	
l	Shopping Center – Neighborhood Center											CD			
m	Sweepstakes Center	5.5(D)													SU
n	Tasting Room									P	P	P			P
o	Vehicle/Heavy Equipment Sales	5.5(F)										CD			P

P = Permitted Use
 SU = Special Use
 CD = Conditional District Use
 P* = Permitted Use subject to Senate Bill 3 becoming effective.

5. Entertainment / Recreation Uses.

5. ENTERTAINMENT / RECREATION USES		ADDITIONAL REGULATION	BASE DISTRICT											
			OSP	RT	RR	GR3 & GR8	UR12	RMX	NMX	TC	HB	BO	MI	MQ
a	Adult Establishment	5.6(A)											SU	
b	Amusements, Indoor – 5,000 sf or less				SU	SU	SU	SU	P	P	P	P	P	
c	Amusements, Indoor – 5,001 sf – 20,000 sf							SU	SU	SU	P	P	P	
d	Amusements, Indoor – Greater than 20,000 sf										P	P	P	
e	Amusements, Outdoor	5.6(B)		SU	SU	SU	SU	P	P	P	P			
f	Cultural or Community Facility		SU	SU	SU	SU	SU	P	P	P	P	P	P	
g	Meeting Facilities		SU	SU	SU			P	P	P		P		
h	Recreation Facilities, Indoor	5.6(C)		P	P	P	P	P	P	P	P	P	P	
i	Recreation Facilities, Outdoor		P	SU	P	P	P	P	P	P	P			
k	Theater, Live Performance								CD	CD	CD	CD		
l	Theater, Movie								CD	CD	CD		CD	

P = Permitted Use
 SU = Special Use
 CD = Conditional District Use

6. Manufacturing / Wholesaling / Storage Uses.

6. MANUFACTURING / WHOLESALING / STORAGE USES		ADDITIONAL REGULATION	BASE DISTRICT											
			OSP	RT	RR	GR3 & GR8	UR12	RMX	NMX	TC	HB	BO	MI	MQ
a	Agribusiness, Outdoor	5.7(A)	P	P	P								P	
b	Agribusiness, Indoor												P	
c	Brewery / Winery / Distillery										CD		P	
d	Laboratory - medical, analytical, research & development										CD	P	P	
e	Manufacturing, Light	5.7(B)											P	
f	Manufacturing, Neighborhood	5.7(C)							P	P	CD	P	P	
g	Manufacturing, Heavy												P	
h	Media Production								P	CD	P	P		
i	Metal Products Fabrication, machine or welding shop											P	P	
j	Mini-Warehouses	5.7(D)											CD	
k	Quarrying and Stone Cutting	5.7(I)											SU	P
l	Research and Development	5.7(E)										P	P	
m	Storage - Outdoor storage yard as a primary use	5.7(F)											P	
n	Storage - Warehouse, indoor storage	5.7(G)											P	
o	Wholesaling and Distribution	5.7(H)											P	

P = Permitted Use
 SU = Special Use
 CD = Conditional District Use

7. Civic / Institutional Uses.

7. CIVIC / INSTITUTIONAL USES		ADDITIONAL REGULATION	BASE DISTRICT											
			OSP	RT	RR	GR3 & GR8	UR12	RMX	NMX	TC	HB	BO	MI	MQ
a	Campground		SU		SU								P	
b	Cemeteries	5.8(A)	P						P	P	P			
c	Colleges/Universities							CD	CD	CD		CD		
d	Group Care Facility (More than 6 residents)	5.8(B)			SU				SU	SU				
e	Hospital								CD	CD	CD	CD		
f	Public Safety Facility		P		P	P	P	P	P	P	P		P	
g	Religious Institutions				P	P	P	P	P	P	P			
h	Schools – Elementary & Secondary				SU	SU	CD	CD	CD	CD				
i	Schools – Vocational/Technical							CD	CD	CD	CD	CD	CD	

8. Infrastructure Uses.

8. INFRASTRUCTURE USES		ADDITIONAL REGULATION	BASE DISTRICT											
			OSP	RT	RR	GR3 & GR8	UR12	RMX	NMX	TC	HB	BO	MI	MQ
a	Airport	5.9(A)		SU	SU								SU	
b	Transit, Road & Ground Passenger Services	5.9(B)							P	P			P	
c	Wireless Telecommunication Facility-Stealth	5.9(C)				P	P	P	P	P	P	P	P	
d	Wireless Telecommunication Facility-Tower	5.9(D)			SU								P	
e	Wireless Telecommunication Facility – Small Wireless Facilities inside Right-of-Way	5.9(E)		P	P	P	P	P	P	P	P	P	P	
f	Wireless Telecommunication Facility – Small Wireless Facilities outside Right-of-Way	5.9(F)							P	P	P	P	P	
g	Utilities-Class 1 & 2		P	P	P	P	P	P	P	P	P	P	P	
h	Utilities-Class 3			SU	SU						SU	SU	P	

P = Permitted Use
 SU = Special Use
 CD = Conditional District Use

9. Accessory Uses.

9. ACCESSORY USES		ADDITIONAL REGULATION	BASE DISTRICT											
			OSP	RT	RR	GR3 & GR8	UR12	RMX	NMX	TC	HB	BO	MI	MQ
a	Accessory Building / Structure	5.10(A)		P	P	P	P	P	P	P	P	P	P	P
b	Cluster Mail Box Unit	5.10(B)	P	P	P	P	P	P	P	P	P	P	P	P
c	Drive-Thru Service	5.10(C)							CD		CD	CD	CD	
d	Drive-Thru Retail/Restaurants	5.10(C)							CD		CD			
e	Dwelling Unit, Accessory	5.10(D)		P	P	P	P	P	P	P				
f	Home Occupation	5.10(E)		P	P	P	P	P	P	P				
g	Solar Energy Collection, Ground Mounted	5.10(F)	P	P	P	P	P	P	P	P	P	P	P	P
h	Solar Energy Collection, Roof/Building Mounted	5.10(G)	P	P	P	P	P	P	P	P	P	P	P	P
i	Grid-Scale Battery Storage Facilities	5.10(H)											P	

P = Permitted Use
 SU = Special Use
 CD = Conditional District Use

10. Temporary Uses. Unless otherwise noted, temporary uses may be approved by obtaining a zoning compliance permit per Section 12.2 (D)(2) from the Land Use Administrator subject to the following:

a. General Requirements

- i. The Land Use Administrator may attach any conditions needed to protect public health, safety, and welfare.
- ii. The use is clearly of a temporary nature, not exceeding fourteen (14) calendar days unless otherwise allowed in subsection (b) below.
- iii. Associated structures including but not limited to greenhouses, tents, and mobile units shall be removed from the lot no later than the temporary use's zoning compliance permit expiration date.
- iv. Any building permits and fire inspections as required by the North Carolina Building Code for general construction or commercial use shall be obtained.

b. Specific Requirements

- i. **Carnival or Circus.** A carnival or circus may be permitted for a period not to exceed twenty-one (21) calendar days.
- ii. **Seasonal Sales.** Holiday tree, fireworks, and other seasonal sales in open lots may be permitted for a period not to exceed forty-five (45) calendar days within the NMX, TC, HB, and MI districts. Holiday tree sales may also be permitted for a period not to exceed forty-five (45) days on a portion of a lot primarily used for agribusiness purposes.
- iii. **Contractor's Office or Equipment Shed.** A contractor's office or equipment shed is permitted in any district for a period covering the construction phase of the project not to exceed one (1) year, provided that such office be placed on the property to which it is appurtenant.
- iv. **Food Trucks.** Food trucks may be permitted on a parcel with an existing retail/restaurant, office/service, or entertainment/recreation use subject to the following requirements:
 - a) The maximum number of food trucks allowed per commercial parcel are as follows:
 - (i) Two (2) food trucks shall be allowed on parcels less than 1 acre in size
 - (ii) Three (3) food trucks shall be allowed on parcels between 1 and 2 acres in size
 - (iii) Four (4) food trucks shall be allowed on parcels greater than 2 acres in size
 - (iv) Additional food trucks may be allowed at special events with prior permission
 - b) Food trucks shall be located at least one hundred (100) feet from the customer entrance of an existing restaurant.
 - c) A food truck shall locate:

- (i) Fifteen (15) feet from any fire hydrant.
- (ii) Five (5) feet from any driveway, sidewalk, utility box or vault, accessible ramp, emergency call box, or building entrance/exit.
- d) The operator must provide a waste receptacle for customer use within fifteen (15) feet of the food truck. The operator shall remove all trash at the end of its operating hours.
- e) Town of Knightdale trash receptacles may not be used to dispose trash or waste generated by a food truck.
- f) Grease or other liquid waste shall not be disposed of in tree pits, storm drains, the sanitary sewer system, or public streets.
- g) Temporary connections to potable water sources shall be prohibited.
- h) At least one (1) fire extinguisher shall be located on board the food truck during operation.
- i) Hours of operation shall be limited to between 7:00 am - 10:00 pm, unless otherwise posted.
- j) The operator shall provide appropriate on-site lighting in compliance with any applicable standards of Section 7.7 if operating after sunset.
- k) One (1) Sandwich Board sign shall be allowed subject to the requirements of Section 8.4 (F).
- l) Food trucks shall not use audio amplification devices.
- m) Food trucks shall not operate a drive-thru service window or door.
- n) Food trucks are subject to the town-wide noise ordinance.
- o) A Town issued permit is required for all food truck operators and shall be valid for the twelve (12) month period beginning January 1 and ending December 31.
- v. **Other Uses.** The Land Use Administrator may issue other temporary uses and activities, or special events including specific time limits, if it is determined that such uses are clearly of a temporary nature, and will not jeopardize the health, safety, or general welfare, or be injurious or detrimental to properties adjacent to, or in the vicinity of, the proposed location of the activity.
- c. **Extensions.** A zoning compliance permit for a temporary use may be extended by the Land Use Administrator, provided the combined periods of the original permit and extension do not exceed the maximum period lengths previously specified in subsections (a) and (b), and provided that the temporary use has not been found in violation of any Town code or ordinance.

3.2. Lot and Yard Requirements

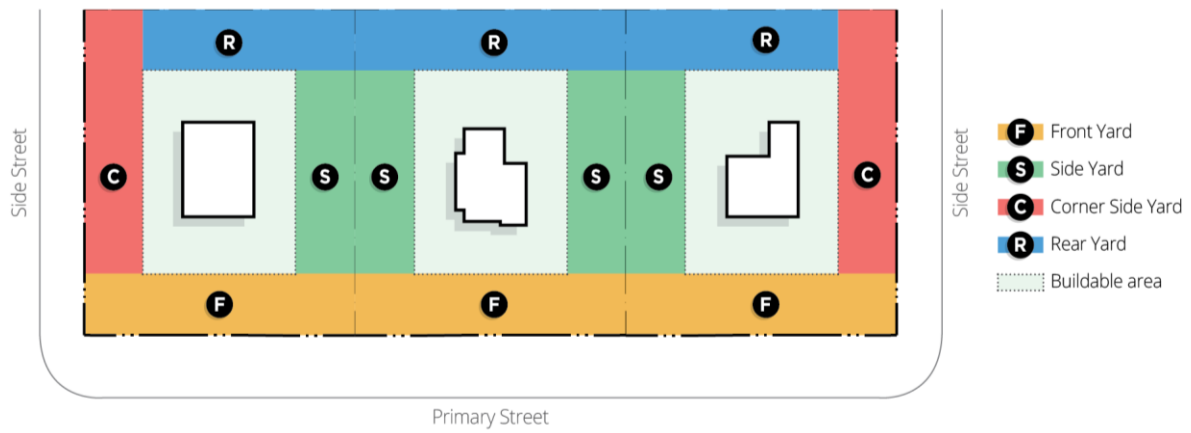
- A. **All Lots to Front on Public Street or Public Space.** All lots shall front upon a public street. With the provision of rear lane or alley access, lots may front upon a close or a square, but access shall be of sufficient design to allow for the provision of emergency services, as approved by the Knightdale Fire Department.
- B. **May Not Reduce/Create Lot(s) Below Minimum Requirements.** No yard or lot existing upon adoption of this Ordinance shall be reduced in size or area below the minimum requirements of the district. Yards or lots created after the effective date of this Ordinance shall meet the minimum requirements established by this Ordinance. This prohibition shall not be construed to prevent the required dedication, purchase, or condemnation of narrow strips of land or parcels for public utilities, substations, street right-of-way, or similar purposes.
- C. **One Principal Building Per Lot.** Only one (1) principal building and its customary accessory building(s) shall be located on any lot, except in appropriate districts that permit a lot to contain multiple residential and/or non-residential uses in one or more principal structures or within the same structure.
- D. **Rights-of-Way Not Considered in Yard Requirements.** Areas within street and railroad rights-of-way or easements shall not be considered part of a lot, count towards recreational open space requirements, or be used for the purpose of meeting front, side, or rear yard requirements.
- E. **Irregular Lot Setbacks.** The location of required front, side, and rear yards setbacks on irregularly shaped lots shall be determined by the Land Use Administrator. The determination will be based on the spirit and intent of this Ordinance to achieve an appropriate spacing and location of buildings and structures on individual lots. Lots that do not have an obvious visual relationship with the fronting street, such as flag lots, shall be evaluated on the basis of having one setback from neighboring properties, which shall be equal to the minimum rear setback for the district.
- F. **Corner Lots.** Corner lots shall have a single front yard designated along the street associated with the primary façade of the corner lot's principal structure. Remaining corner lot yards that abut other streets shall be considered corner side yards.
- G. **Double Frontage Lots.** Excluding corner lots, lots having frontage on two (2) streets shall observe a front yard setback along each street in accordance with the provisions of this ordinance.
- H. **Minimum Length.** The minimum length of the street right-of-way frontage of a lot shall be eighty (80) percent of the minimum lot width required for the zoning lot with the exception of flag lots which shall be twenty-two (22) feet or as otherwise provided in this Ordinance.

3.3. Calculating Dimensions

A. Yards.

1. A required yard shall be measured as the shortest distance between the building and the associated lot line.

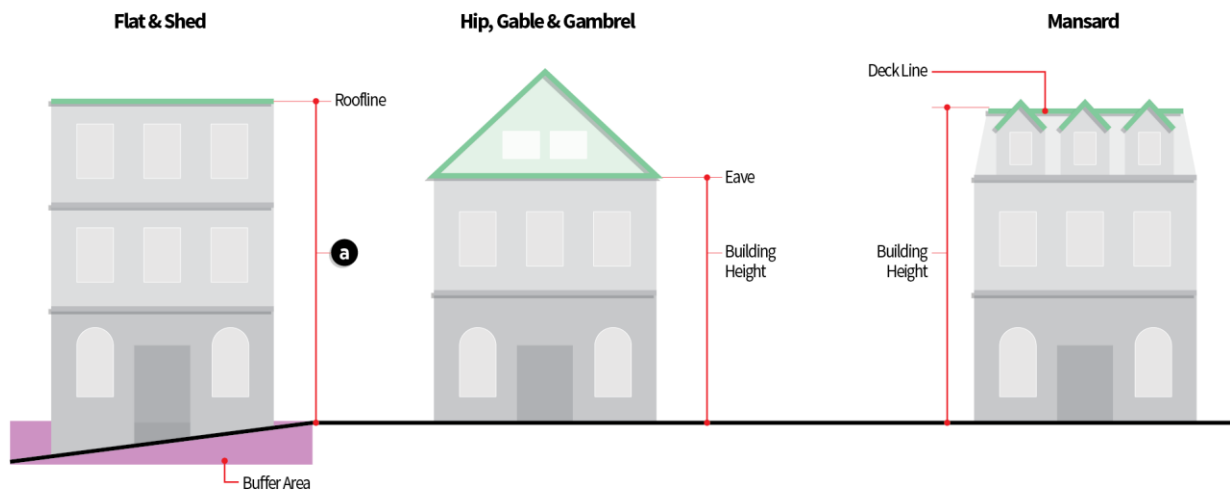
Figure 3.1: Calculating Dimensions - Yards



B. Height.

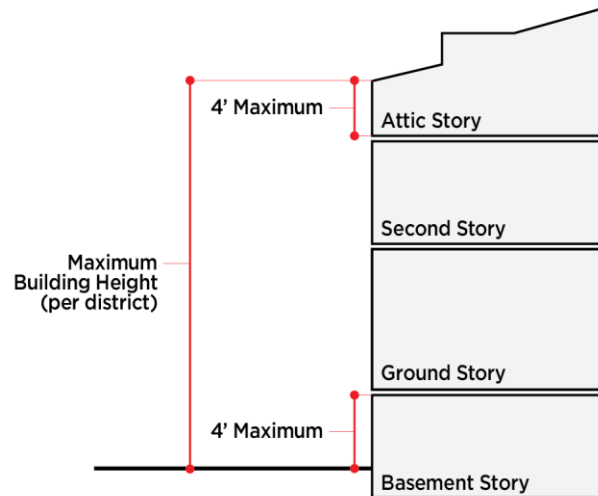
1. **Computation of Height.** “Building Height” is measured as the vertical distance from a reference elevation to one of the following: the base of parapet or roof line of a flat roof, the eave of a pitched roof (gable, hip or gambrel), or the deck line of a mansard roof. The reference elevation shall be established by examining the elevation of all sidewalks and ground surface areas within a buffer area extending five (5) feet from all exterior building walls.
 - a. When the elevation differential within the buffer area is ten (10) feet or less, the reference elevation shall be the elevation of the highest point within the buffer area.
 - b. When the elevation differential within the buffer area exceeds ten (10) feet, the reference elevation shall be set ten (10) feet higher than the lowest point within the buffer area.

Figure 3.2: Calculating Dimensions - Height



2. **Computation of Story(ies).** A single story shall consist of the habitable level of a building of no more than fourteen (14) feet in height from finished floor to finished floor. When the height from finished floor to finished floor exceeds fourteen (14) feet, another story shall be added to the calculation for additional height in fourteen-foot (14-ft) increments (14.1 to 28.0 feet equals two [2] stories, 28.1 to 42.0 feet equals three [3] stories, etc.). Basements with a ceiling height of no more than four (4) feet above the reference elevation or attics whose finished floor is less than four (4) feet below the elevation of the eave shall not constitute a story.

Figure 3.3: Calculating Dimensions - Stories



3.4. Bulk and Dimensional Standards

Table 3.4: Bulk and Dimensional Standards													
Standards	All Buildings												
	OSP	RT	RR1	GR3	GR8	UR12	RMX	NMX	TC	HB	BO	MI	MQ
<i>Lot Standards (Minimum)</i>													
Lot Width / DU - Street Loaded (ft)	100	200	90	80	80	80	80	80	80	150	n/a	n/a	n/a
Lot Width / DU - Alley Loaded (ft)	n/a	n/a	n/a	30	30	30	30	30	30	n/a	n/a	n/a	n/a
<i>Yard Setbacks (Minimum unless otherwise stated)</i>													
Front (ft)	30	50	35	As detailed per building type in Chapter 6: Building Type Standards									100
Side (ft)	10	20	10										100
Rear (ft)	20	50	30										100
<i>Building Standards (Maximum)</i>													
Height (ft)	35	35	35	42	42	42	42	56	70	70	70	70	35
Height (stories)	n/a	n/a	n/a	3	3	3	3	4	5	5	5	5	n/a
<i>Site Standards</i>													
Minimum Residential Driveway Length (ft)	--	--	--	35	35	35	35	35	--	--	--	--	--

3.5. Infill Development Standards

- A. On infill lots, the minimum lot width, front and side setbacks shall be equal to the median lot width, average as-built front setback and average as-built side setback dimension, respectively, of lots on the same block face and the opposite block face within three-hundred (300) feet or one (1) block length, whichever is greater. In situations where no block face exists (*no houses facing the street*) for purposes of making average calculations, a Special Use Permit shall be required.

3.6. Permitted Bulk and Dimensional Standard Exceptions and Encroachments

A. **Permitted Exceptions to Right-of-Way Frontage Length Requirements.**

1. **Corner Lots.** Where a zoning lot fronts on two (2) or more streets, minimum right-of-way frontage length requirements shall be considered met if the frontage along any one (1) of such streets meets the minimum right-of-way frontage length requirements.
2. **Lots Along a Tight Street Radius.** Where a zoning lot fronts on a turning circle of a cul-de-sac or at a point of a street where the radius of the curvature of the right-of-way is less than ninety (90) feet, the minimum right-of-way frontage length requirement shall be thirty-five (35) feet.
3. **Flag Lot Width at Building Line.** Flag lots shall reach the minimum lot width at a point not to exceed two-hundred (200) feet from the street right-of-way.

B. **Permitted Exceptions to Yard Setback Requirements.** The following features shall not be subject to the required minimum setback requirements:

1. Wall, projecting and under-awning signs, provided such signs comply with the standards established in Chapter 8;
2. Fences and walls not exceeding heights specified in Section 7.6;
3. Flagpoles;
4. Bridges;
5. Utility transmission poles, towers, and cables; and
6. Any satellite dish measuring eighteen (18) inches or less in diameter.

C. **Permitted Exceptions to Height Requirements.** Provided such building or structure will not interfere with any airport zones or flight patterns; the height limitations of this Section shall not apply to church spires, belfries, cupolas, and domes not intended for human occupancy, as well as monuments, water towers, observation towers, transmission towers, chimneys, smokestacks, conveyors, flagpoles, masts, and antennas.

D. **Permitted Encroachments into Required Yards.** Based on the Bulk and Dimensional Standards of this Chapter, certain architectural features are permitted to encroach into the front yard setback. The following standards shall be established for such encroachments:

1. **Front Yard Setback Encroachments.**

- a. **Arcades.** Arcades or covered walkways should be designed to avoid the swing of car doors parked parallel to the arcade. In addition, the sidewalk within the arcade should be sufficient to accommodate the intended uses (i.e. outdoor seating) while providing suitable clearances per the American with Disabilities Act Accessibilities Guidelines (ADAAG).
- b. **Awnings.** Awnings shall be supported by means of a frame attached directly to the structure receiving beneficial use of the awning. In no case shall awnings be supported by a frame attached to a sidewalk or other public right-of-way.
- c. **Bay Windows.** Bay Windows shall not exceed a maximum projection of two (2) feet from the primary wall. By their definition, bay windows are suspended projections and do not contain habitable floor space but may provide seating as an integral element of the interior space.
- d. **Balconies, Open Porches, Stoops, and Raised Doorways.** Only balconies, open porches, stoops, and raised doorways not exceeding an average finished height above grade of thirty-six (36) inches are permitted as encroachments. To the extent possible, these features are to remain visually permeable so that the front door can be easily seen from the street or sidewalk. While railings required by the building code are permitted, the screening of these features constitutes an enclosure that may not encroach into the front yard setback.
- e. **Handicapped Ramps.** A ramp installed on a residential structure to provide access for a disabled resident may encroach into the front yard setback unless a less obtrusive means of access can be provided at another entry point (i.e. the back door).

2. **Side and Rear Yard Setback Encroachments.** Open decks, porches, patios, and other similar structures not exceeding an average finished height above grade of thirty-six (36) inches may encroach into the side and rear yard setbacks to within five (5) feet of the property line. When an opaque wall or fence of a minimum six (6) feet in height is provided in accordance with the provisions of Section 7.6, an at-grade patio may be constructed to the property line. Roofs over such structures are not permitted to encroach into either the side or rear setbacks.

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Chapter 4. Overlay District Specific Standards

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4.1. Quarry Overlay District

- A. **Location.** The QOD shall be located on parcels that otherwise allow residential development and are adjacent to the primary quarry parcel up to a maximum of one-thousand (1,000) feet from the primary quarry parcel boundary as determined by the Town Council.
- B. **Uses Permitted.** The district restricts any form of residential development to a minimum lot size of one (1) acre and a maximum density of one (1) dwelling unit per acre. All other uses in the underlying Base, Planned Development, or Conditional District are not restricted and permitted according to the Use Matrix (Section 3.1 (C)). Land utilized as open space shall be restricted to passive open space only.
- C. **Full Disclosure Statement.** For all residential and/or non-residential structures constructed within the QOD, the owner shall disclose in writing to all prospective purchasers that they are located within an area that may be impacted by mining/quarry operations and blasting. Such notification will be accomplished by inclusion of the preceding disclosure in all sales contracts, brochures, and promotional documents, including any illustrative site plans on display within any sales related office(s), as well as in homeowners association documents, and displayed on all subdivision and site plans, and within all deeds of conveyance.

4.2. Special Highway Overlay District

- A. **Location.** The Town hereby establishes a SHOD along Interstate 540, U.S. 64 Bypass/I-87, and any other such roadway classified on the Capital Area Metropolitan Planning Organization's (CAMPO) Comprehensive Transportation Plan as a freeway. The intent of the district is to promote the safe movement of traffic, to maintain and enhance the scenic beauty viewed by travelers on the highway, and to reduce potential negative impacts of the highway on adjacent land uses. SHODs shall be located on both sides of a highway and shall be fifty (50) feet wide in depth measured from the right-of-way line.
- B. **Uses Permitted.** The overlay district does not replace or restrict the range of uses permitted in the underlying Base, Planned Development, or Conditional District. The overlay district includes additional development requirements that shall be met by any development within the district.
- C. **Lot and Dimensional Specifications.**
1. **Building Setback from Highway Right-of-Way.** Fifty (50) feet for all structures.
 2. **Minimum Buffer Adjacent to Highway** (*Type "D"*). Fifty (50) feet for all structures.

4.3. Manufactured Home Overlay District

A. Manufactured Housing.

1. In the RR and RT Districts, the minimum lot size for manufactured homes shall be one (1) acre.
2. All setback requirements shall match those of the underlying zoning district.
3. Unless located in a mobile home park (Section 4.3 (C)), the minimum width (the width being the narrower of the two (2) overall dimensions) of the main body of the manufactured home shall be at least twenty-two (22) feet for a distance extending along the length (the length being the longer of the two (2) overall dimensions) of at least forty (40) feet. In general terms, this only permits double-wide or multi-section manufactured housing.
4. Unless located in a mobile home park (Section 4.3 (C), or exempt under §160D-190, a continuous, permanent brick, or stone foundation, constructed in accordance with standards of the North Carolina Residential Building Code, shall be installed under the perimeter of the manufactured home. The foundation shall be un-pierced except for required ventilation and access.
5. Unless located in a mobile home park (Section 4.3 (C), windows shall be set to the inside wall face.
6. Unless located in a mobile home park (Section 4.3 (C), a covered front porch or covered front stoop shall be provided at the entrance and should project from the primary façade a minimum of four (4) feet and be no less than four (4) feet in width.
7. The manufactured home shall front on a street such that the principal entrance is aligned to the street.
8. All towing apparatus, wheels, axles, and transporting lights shall be removed.
9. Manufactured homes may be used for residential purposes and home occupation uses only.
10. A manufactured home must bear a seal certifying that it was built to the standards adopted on July 1, 1976 that meets or exceeds the construction standards promulgated by the US Department of Housing and Urban Development that were in effect at the time of construction.
11. In the RR District, the minimum lot width for manufactured homes shall be one hundred (100) feet.

B. **Manufactured Home Neighborhood.**

1. **Maximum Development Density.** The maximum density of any Manufactured Home Neighborhood shall not exceed the maximum density of the underlying district up to a maximum of six (6) units per acre.
2. **Minimum Area Required.** Three (3) acres.
3. **Maximum Area Allowed.** Forty (40) acres.
4. **Front, Side, Rear, and Accessory Structure Side/Rear Setbacks.**
 - a. **Up to one (1) unit per acre.** Setbacks, as established in Section 3.4 of the RR District shall apply.
 - b. **More than one (1) unit per acre up to six (6) units per acre.** Setbacks, as established in Chapter 6, per building type shall apply.
5. Individual homes shall be placed upon separately platted lots.
6. The manufactured home shall have the tow assembly and wheels removed and be mounted on and anchored to a permanent, continuous masonry (brick) foundation.

C. **Mobile Home Park.**

1. **Maximum Development Density.** The maximum density of any Mobile Home Park shall not exceed the maximum density of the underlying district up to a maximum of six (6) units per acre.
2. **Minimum Area Required.** Three (3) acres.
3. **Maximum Area Allowed.** Forty (40) acres.
4. **Lot and Dimensional Specifications.**
 - a. **Property Line Setback.** Fifty (50) feet.
 - b. **Minimum Manufactured Home Space Area.** Five thousand (5,000) square feet.
 - c. **Minimum Distance between Manufactured Home Units.** Twenty-five (25) feet.
5. **General Requirements.** The following standards shall be considered the minimum requirements for all new Mobile Home Parks:
 - a. Within a Mobile Home Park, there shall be an administrative office.
 - b. The owner and/or operator of a Mobile Home Park shall not sell manufactured homes on or within a Mobile Home Park unless the manufactured home unit for sale shall be placed individually and separately upon an existing manufactured home space where all design standards and utilities have been completed as specified by this ordinance. This does not prohibit the Mobile Home Park owner and/or operator from owning or operating a retail sales business on adjoining property if zoning permits.
 - c. Any Mobile Home Park with greater than fifty (50) units shall construct a community center, which shall serve the needs of their residents for gatherings and emergency shelter.
 - d. Streets within the Mobile Home Park shall be private and constructed to the standards that would be required of a new Local Street inside the RR District, except that the total width of pavement with binder curb may be reduced to twenty (20) feet.

6. **Recreational Vehicles (RVs).** Although RVs are not considered suitable as permanent dwelling units, the Town Council has found that a limited number of RVs, otherwise restricted to placement within outdoor recreation facilities, for temporary residents (i.e. military personnel, college students, or persons on temporary business assignments) within a Mobile Home Park will not essentially change the character of the Park as long as the following conditions are met:
 - a. **Number.** No more than eighteen (18) percent of the manufactured home spaces in any Mobile Home Park may be used for the parking of RVs. In the calculation of allowed spaces, any fractional component of the resulting number shall be disregarded.
 - b. **Type.** RVs must be self-sufficient (contain a full bathroom, kitchen, and sleeping quarters).
 - c. **Placement.** RVs shall be parked within an assigned manufactured home space, located no closer than three-hundred (300) feet to any public right-of-way unless screened from the public right-of-way by a Type "B" buffer yard, upon arrival and shall not be moved until the time of departure.
 - d. **Utility Hook-Ups.** RVs must be connected to electric, water, and sewer hook-ups for the entire duration of the resident's stay.
 - e. **Duration of Stay.** As living quarters for a temporary resident, the permitted continuous period of stay for any RV within a Mobile Home Park shall be at least one (1) month, but no more than four (4) years.
 - f. **Annual Submittal of Register.** Each Mobile Home Park engaged in the rental of Mobile Home Park spaces to RVs as specified in this section shall file a copy of their register with the Land Use Administrator at least once every twelve (12) months.
7. **Manufactured Home Space.**
 - a. Each manufactured home space shall be clearly defined by means of concrete or iron pipe markers placed at all corners.
 - b. Each manufactured home space shall be located on the ground not susceptible to flooding and graded so as to prevent any water from ponding or accumulating on the premises and not located in "A Zones" as identified on FIRMs.
 - c. The manufactured home space shall be provided with anchors and tiedowns such as cast-in-place concrete "dead men" eyelets embedded in concrete foundations or runways, screen augers, arrowhead anchors, or other devices securing the stability of the manufactured home. Each manufactured home space shall comply with the above standards or similar standards whichever are higher. Each manufactured homeowner shall be responsible for securing their individual manufactured home to anchors provided by the Mobile Home Park operator.
 - d. Each manufactured home space shall be serially numbered for mailing address purposes. These numbers shall be displayed on a free-standing post on each manufactured home space.

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Chapter 5. Use Specific Standards

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5.1. Purpose, Intent, and Applicability of Use Specific Standards

- A. **Purpose.** The conditions set forth in this Chapter ensure compatibility among building and use types so that different uses may be located in proximity to one another without adverse effects to either. Special regulation of these establishments is necessary to ensure that these adverse effects will not contribute to a downgrading or blighting of surrounding residential districts or neighborhoods unless otherwise determined by this Section.
- B. **Intent.** The intent of this Chapter is to allow for the construction, continuation, and/or expansion of certain uses provided that they meet certain mitigating conditions specific to their design and/or operation. Each use shall be permitted upon compliance with all conditions listed for the use in this Chapter. Certain uses are classified in Section 3.1(C) as Special Uses and require a Special Use (SU) Permit and Town Council approval in accordance with Section 12.2 (F)(4). Certain uses are classified in Section 3.1(C) as requiring Conditional District (CD) rezoning and Town Council approval in accordance with Section 12.2 (G)(3)(f).
- C. **Applicability.** This Chapter specifies those requirements that must be met by uses in the Use Matrix Section 3.1 (C) where Use-Specific Standards are referenced in the Additional Regulations column.

5.2. Residential Use Standards

A. Dwelling – Multifamily, 4 unit/bldg. or less & Dwelling – Multifamily, more than 4 units/bldg.

1. Must be located in a growth activity center or priority investment area around activity centers as designated in the *Knightdale Next 2035 Comprehensive Plan*.
2. Developments must contain a mixture of uses, including but not limited to restaurants, retail, or services on the ground level and residences above. One hundred (100) square feet of nonresidential space shall be provided per every multifamily unit.
3. The roof or roof structures are flat or have a combination of roof types that give a predominantly flat appearance.

B. Family Care Home.

1. No portion of the lot for a family care home shall be located within a one-half (0.5) mile radius of the property line of another family care home.
2. If State licensure is required, the applicant shall provide proof that such licensure has been approved to the Land Use Administrator within ninety (90) days of receipt of a Zoning Compliance Permit, or else the Zoning Compliance Permit will be revoked. With good cause, the Land Use Administrator may extend this term for an agreed-upon amount of time.

C. Housing Service for the Elderly.

1. **Housing Services Required.** Housing services, such as but not limited to the provision of meals, monitoring of medication, personal care including bathing and dressing, housekeeping, laundry, medical services, social and recreation activities, shall be required.
2. **Service Areas.** All service areas shall be located in the rear yard and shall be screened from any residence or off-site view from a public street by a Type-B buffer yard (Section 7.4(I)(3)).
3. **Access.** Any development shall front on a collector or arterial street, and the point of primary ingress and egress shall be provided directly onto the fronting collector or arterial.
4. **Sufficient Design.** Housing Service for the Elderly should create an easily recognizable visual anchor for the community.
5. **Accessory Structures.** Such structures shall be set back a minimum of twenty (20) feet from the primary facade of the principal structure; and if more than one (1) accessory structure, shall be arranged to create secondary gathering spaces within the lot.
6. **Building Walls.** Housing Service for the Elderly walls shall be clad in clapboard, stone, stucco, cementitious fiber board, brick, or marble. Decorative concrete masonry units (CMU), and/or exterior insulation finishing systems (EIFS) may be used as a secondary element (less than fifty (50) percent of the façade area), or on facades not facing public rights-of-way.
7. **Roofs.** Flat roofs are allowed, but principal buildings adjacent to other residential uses are encouraged to have similar roofs and other architectural features to ensure compatibility.

- D. **Live-Work Units.** Live-Work units are unique in that they provide both residential and non-residential space which must each be constructed to different building code standards including, but not limited to, matters of ingress and egress, accessibility by the disabled, and fire-rated separation. In addition, the following standards shall be met:
1. **Access.** Vehicular access to Live-Work Unit shall be from a rear land or alley only.
 2. The maximum total area of a Live-Work unit shall be three-thousand (3,000) square feet.
 3. The maximum height of a Live-Work unit shall be three (3) stories.
 4. The work area shall occupy less than fifty (50) percent of the total unit.
 5. The same tenant must occupy the work area and living area.
 6. There shall be a maximum of five (5) non-resident workers/employees allowed in the Live-Work unit at any single time.
- E. **Manufactured Housing.**
1. In the RT and RR districts, the minimum lot size for manufactured homes shall be one (1) acre.
 2. In the RR district, the minimum lot width for manufactured homes shall be one hundred (100) feet.
 3. The front, side, and rear yard setback requirements shall match those of the underlying zoning district.
 4. Individual homes shall be placed upon separately platted lots.
 5. The manufactured home shall have the tow assembly and wheels removed and be mounted on and anchored to a permanent, continuous masonry (brick) foundation, unless exempt under NCGS §160D-910.
 6. Unless located in a mobile home park (Section 4.3 (C)), the minimum width (the width being the narrower of the two [2] overall dimensions) of the main body of the manufactured home shall be at least twenty-two (22) feet for a distance extending along the length (the length being the longer of the two [2] overall dimensions) of at least forty (40) feet. In general terms, this only permits double-wide or multi-section manufactured housing.

5.3. Lodging Use Standards

A. Bed and Breakfast.

1. Specific Requirements.

- a. **Useable Porches and Stoops.** Porches and stoops should be used as a primary architectural element of the design of Bed and Breakfast Inns and be located on the primary façade or other elevation fronting a public right-of-way. Useable porches and stoops are at least six (6) feet deep and extend more than fifty (50) percent of the facade.
- b. **Garages.**
 - i. Bed and Breakfast Inns located on lots less than eighty (80) feet wide may not have garage doors located on the primary façade.
 - ii. Where allowed (i.e. lots equal to or greater than eighty (80) feet wide), garages with loading bays on the primary facade or side loading bays that front a street shall form a building volume secondary to the House and shall:
 - a) Not exceed forty-five (45) percent of the corresponding façade’s total width;
 - b) Not utilize any single garage door(s) greater than twelve (12) feet in width;
 - c) Be set back a minimum of twenty-five (25) feet from the street right-of-way;
 - d) Utilize garage doors containing window inserts; and
 - e) Be recessed from the primary front façade of the house (not including porches, bay windows or other minor projections) a minimum of one (1) foot or be recessed from an adjacent useable front porch a minimum of eight (8) feet. Alternatively, the requirement of subsection “e.” may be satisfied by meeting all of the following substitute requirements:
 - (i) Utilize a carriage style or similarly stylistic garage door that is architecturally compatible with the housing style (paneled garage doors are not permitted);
 - (ii) Incorporate a trellis, eyebrow roof, columned projection, or other architectural elements as may be approved by the Land Use Administrator above the garage door(s) that is compatible with the housing style; and
 - (iii) The front wall of the garage shall project no more than twelve (12) feet in front of the remainder of the primary façade.
- c. **Foundations.** The crawlspace of buildings shall be enclosed with brick, stone, or stucco. Slabs shall be covered on all sides with brick or stone no less than the height equivalent of three (3) courses of brick (eight (8) inches) visible above grade. Areas under porches may be enclosed with lattice.
- d. **Wall Materials.** Bed and Breakfast Inn Building walls shall be clad in wood clapboard, cementitious fiber board, wood shingle, wood drop siding, primed board, wood board and batten, brick, stone, or stucco.

- e. **Roofs.**
 - i. **Materials.** Bed and Breakfast Inn roofs shall be clad in standing seam metal or wood, terne, slate, copper, or asphalt shingles.
 - ii. **Pitch.** Main roofs on Bed and Breakfast Inn buildings shall be symmetrical gables or hips with a pitch between 6:12 and 12:12. Monopitch (shed) roofs are allowed only if they are attached to the wall of the main building. No monopitch roof shall be less than 3:12.
- 2. In addition to meeting the requirements of Chapter 8, signs shall be limited to one (1) wall sign with a maximum sign area of four (4) square feet and one (1) non-illuminated monument sign with a maximum sign area of two (2) square feet.

5.4. Office / Service Use Standards

A. Animal Services, Boarding.

1. Except where a requirement of Section 7.4 (I) is more restrictive, an opaque wall or fence, six (6) feet in height and no closer than ten (10) feet to a property line shall otherwise be required for the outdoor exercise area.
2. Outdoor exercise areas shall not be located within three-hundred (300) feet of a residentially zoned property.
3. Hours of operation for the outdoor exercise area shall be permitted only from 7:00 am until 9:00 pm.
4. All litter and waste must be contained and controlled on site by having appropriate flushing drains and other physical elements to properly dispose of cleaning waste from the boarding area.
5. The boarding area must be air-conditioned and heated so that any windows, doors, or other openings can be closed at all times, with the exception of ingress and egress into the area.

B. Animal Services, Nonboarding.

1. Except where a requirement of Section 7.4 (I) is more restrictive, an opaque wall or fence, six (6) feet in height and no closer than ten (10) feet to a property line shall otherwise be required for the outdoor exercise area.
2. Hours of operation for the outdoor exercise area shall be permitted only from 7:00 am until 9:00 pm.
3. No more than thirty (30) percent of the gross floor area of the principal structure is permitted for use of boarding animals.

C. Banks, Credit Unions, Financial Services.

1. Banks, credit unions, and financial services uses shall be located in the Mixed-Use Building Type as detailed in Section 6.8.
2. In the NMX and TC zoning districts only indoor transactions shall be permitted with no night drop boxes permitted.

D. Business Support Services.

1. Only indoor transactions shall be permitted with no night drop boxes permitted.

E. Child / Adult Day Care Home (fewer than 6 people).

1. Rear yards shall be fenced or walled. In addition to meeting the requirements of Section 7.4, the minimum height for such walls or fences shall be six (6) feet.
2. All equipment shall be stored in the rear yard. Front yards shall not be used as playground areas.
3. Hours of operation shall be permitted only from 6:00 am until 9:00 pm.

F. Child / Adult Day Care Center (6 or more people).

1. In addition to meeting the requirements of Section 7.6, fencing enclosing any required recreation space shall be a minimum of four (4) feet in height and constructed with gates in such a manner that maximum safety to the person is ensured.
2. Day care centers shall be located on lots that provide ample outdoor play area. A fenced recreation area of a minimum of two-thousand two-hundred fifty (2,250) square feet shall be provided in the rear or side yard. Required buffer yards may not be counted towards this requirement.
3. Hours of operation shall be permitted only from 6:00 am until 9:00 pm.

G. Contractor Office

1. Outdoor storage of goods, materials, or equipment is not permitted in the NMX or HB zoning districts.
2. Outdoor storage of goods, materials, or equipment is permitted in the MI zoning district if the outdoor storage area is located in the rear yard and is enclosed by an opaque fence or wall that meets the requirements of Section 7.6.

H. Corporate Campus.

1. Buildings shall be arranged, and site circulation shall be designed to frame and define open spaces, street frontages, and amenities.
2. Buildings and other site improvements shall be clustered to maximize stormwater absorption.
3. Building orientation shall reinforce site circulation patterns, open space patterns, and connections to other buildings on site.
4. Parking shall be integrated into the overall site design to minimize the visual impact, reduce the loss of trees, and to be visually concealed from rights-of-way.
5. Curb cuts and site vehicular access shall be minimized in frequency and width and shall not dominate the site plan or the property and street frontage.
6. Service areas, dumpsters, utilities, and the required screening thereof shall not be visible from a right-of-way.
7. Pedestrian access shall be provided to the building entries and parking areas connecting to the sidewalk at the street frontage.
8. Exterior building materials shall be time- and weather-tested materials and techniques such as but not limited to masonry, stone veneer systems, stucco, precast panels with inlaid or stamped brick texture.
9. Buildings, parking lots, drive aisles, and other site improvements shall be sited to preserve natural site features and to integrate outdoor amenities and gathering places.

I. Equipment Rental.

1. Equipment rental uses shall be located in the Mixed-Use Building Type as detailed in Section 6.8.

J. Outdoor Animal Boarding / Equestrian Facilities.

1. All open exercise, boarding, training, and similar areas shall be enclosed by a perimeter fence or wall no less than four (4) feet in height and screened from any pre-existing adjacent residential dwelling (other than the owner's) by a Type-A buffer yard (Section 7.4 (I)(2)).
2. No outdoor kennel and/or run shall be located within a five-hundred (500) foot radius of the footprint of any adjacent residential dwelling (other than the owner's).
3. All accessory structures other than outdoor kennels and/or runs related to the care of animals shall not be located within a two-hundred (200) foot radius of the footprint of any pre-existing adjacent residential dwelling (other than the owner's).

K. Personal Services.

1. Hours of operation shall be permitted only from 6:00 am until 11:00 pm.

L. Tattoo Shop.

1. Hours of operation shall be permitted only from 6:00 am until 11:00 pm.
2. A tattoo shop's exterior customer entrance(s) shall not be situated within a one-thousand (1,000) foot radius of another tattoo shop's exterior customer entrance(s).

M. Vehicle Services –Maintenance / Repair / Body Work.

1. Vehicle services - maintenance, repair, and/or body work uses shall be located in the Mixed-Use Building Type as detailed in Section 6.8.
2. All vehicles, materials, or equipment shall be stored within an enclosed building, or within an outdoor storage area enclosed by an opaque fence or wall that meets the requirements of Section 7.6 and shall be restricted to the rear yard..
3. Any operation which results in the creation of noxious vibrations, odors, dust, glare, or sound is prohibited.
4. No vehicle may be kept or used for parts for other vehicles.
5. No vehicle may be stored in an unrepaired state for more than thirty (30) calendar days.

5.5. Retail / Restaurant Use Standards.

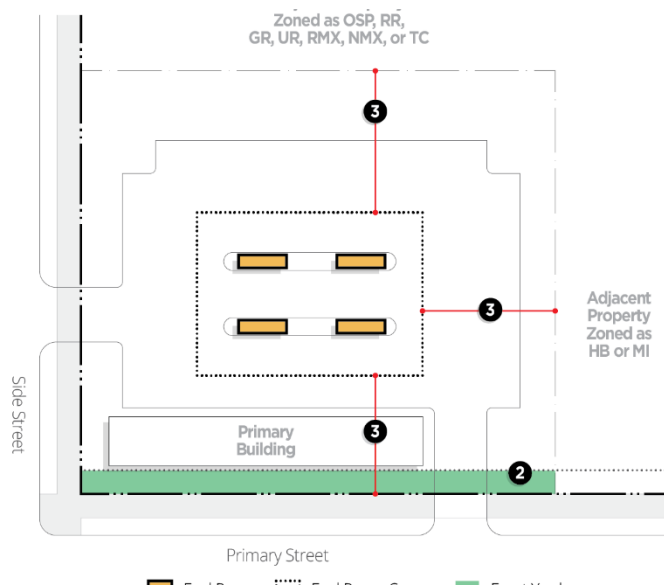
A. Auto Parts Sales.

1. Auto parts sales uses shall be located in the Mixed-Use Building Type as detailed in Section 6.8.

B. Gas Station with Convenience Store.

1. Convenience store uses shall be located in the Mixed-Use Building Type as detailed in Section 6.8.
2. Pumps, canopies, and associated service areas are prohibited in any front yard.
3. All canopies shall be set back a minimum of ten (10) feet from any adjoining public right-of-way or HB or MI zoned property and twenty (20) feet from any adjoining OSP, RR, GR, UR, RMX, NMX or TC zoned property.
4. All canopies shall:
 - a. Maintain a uniform and consistent roof line with the convenience store building;
 - b. Have columns, solid walls, or semi-solid walls placed so that they are similar in their relation to the roof as that of the exterior walls of the convenience store building; and
 - c. Be finished with materials consistent with the primary convenience store building façade.
5. All vehicle storage areas shall be considered parking lots and must comply with the provisions of Chapter 7. These areas shall also be enclosed by an opaque fence or wall that meets the requirements of Section 7.4 (I) and restricted to the rear yard. No overnight vehicle storage shall be permitted in the NMX or TC Districts.
6. The outdoor service area of a car wash shall be restricted to the rear yard and screened from off-site view from a public right-of-way by a Type-A buffer yard (Section 7.4 (I)(2)).
7. No outdoor public address system shall be permitted which can be heard beyond the boundaries of the property.

Figure 5.1: Gas Station with Convenience Store Standards



C. Medical Cannabis Center.

1. The selling of cannabis or cannabis-infused products shall not take place between 7:00 pm and 7:00 am.
2. No portion of the lot for a medical cannabis center shall be located within a one-thousand (1,000) foot radius of the property line of another medical cannabis center, religious institution, public or private school or university, or childcare facility.

D. Sweepstakes Center.

1. Hours of operation shall be permitted only from 6:00 am until 11:00 pm.
2. A maximum of twenty (20) machines/terminals/computers for sweepstakes operations are permitted per licensed location.
3. No portion of the lot for a sweepstakes center shall be located within a five-hundred (500) foot radius of the property line of another sweepstakes center, existing residential dwelling unit, group care facility, day care center, religious institution, or school.

E. Vape, Tobacco, & CBD Store.

1. No portion of the lot for a vape, tobacco, & CBD store shall be located within a one-thousand (1,000) foot radius of the property line of another vape, tobacco, & CBD store, public or private school, or park.

F. Vehicle / Heavy Equipment Sales.

1. Vehicle/heavy equipment sales uses shall be located in the Mixed-Use Building Type as detailed in Section 6.8.
2. No equipment for sale or rent may be displayed in any front yard, nor shall such displays be permitted to encroach on any required landscaping areas or buffer yards.
3. Vehicle display areas shall conform to the dimensional, design, and landscaping standards set forth for parking areas in Chapter 7.
4. All vehicles shall be operable, suitable for driving, and ready for sale. Any vehicle not meeting this criterion shall be removed within seven (7) calendar days. Any visibly damaged vehicle or vehicle with missing parts must be removed within three (3) calendar days.
5. No outdoor public address system shall be permitted which can be heard beyond the boundaries of the property.

5.6. Entertainment / Recreation Use Standards.

- A. **Adult Establishments.** Because of their very nature, adult establishments are recognized as having serious objectionable operational characteristics, particularly when they are located near a residential zoning district or certain existing land uses. The purpose of these additional standards shall be to permit the location of adult establishments within the industrial district of the Town provided the proposed business adheres to the guidelines established herein.

1. **Location Standards.** No portion of a lot for an adult establishment may be located within a one-thousand (1,000) foot radius (determined by a straight line and not street distance) of the property line of any religious institution, elementary or secondary school, vocational or technical school, college or university, day care home or center, indoor or outdoor recreation center, cultural or community facility, group care facility, hospital, residential dwelling, family care home, live-work unit, manufactured home, housing service for the elderly, any establishment with an on-premise ABC license, or any zoning district in which residential uses are permitted. Furthermore, no portion of the lot on which the adult establishment is located shall be situated within a two thousand (2,000) foot radius of the property line of another adult establishment.
2. **General Standards.**
 - a. The owner/operator and employees must disclose any criminal record and consent to a criminal records check. Persons with a record of sex offenses will be denied a business license or employment.
 - b. There shall be no more than one (1) adult establishment business in the same building, structure, or portion thereof. No other principal or accessory use may occupy the same building, structure, property, or portion thereof with any adult establishment business.
 - c. Hours of operation shall be permitted only from 12:00 noon until 2:00 am Monday through Saturday.
 - d. If dancers are employed as a feature of the adult establishment, the performing areas for such dancers shall be separated from patrons.
 - e. If viewing booths are provided, such booths are to be designed so that the viewing occupant is completely visible from a location on the premises that is open and available to the public.
 - f. No printed material, video, photograph, written text, live show, or other visual presentation format shall be visible to the public from outside the walls of the establishment, nor shall any live or recorded voices, music, or sounds be heard from outside the walls of the establishment.

B. Amusement, Outdoor.

1. All buildings associated with Outdoor Amusement Uses shall comply with all standards set forth in Section 6.8.
2. No outdoor public address system shall be permitted which can be heard beyond the boundaries of the property.
3. Hours of operation shall be permitted only from 9:00 am until 11:00 pm.

C. Recreation Facilities, Indoor.

1. Indoor Recreation Facilities Buildings shall comply with all standards set forth in Section 6.8.
2. Indoor recreation facilities shall not be located within a two-hundred-fifty (250) foot radius of the property line of any school or church.

5.7. Manufacturing / Wholesale / Storage Use Standards.

- A. **Agribusiness, Outdoor.** Agribusiness uses not meeting exemption requirements for certain farmland as outlined in Section 1.5 (B) must conform to the following additional standards:
1. Accessory buildings permitted under Section 5.10 (A) and areas used for sales, storage, the keeping of materials, or the care of animals shall not be located within a two-hundred (200) foot radius of the footprint of any pre-existing adjacent residential dwelling (other than the owner's).
 2. Accessory buildings permitted under Section 5.10 (A) and areas used for storage or keeping of materials and/or animals shall have adequate means of ventilation and shall not create objectionable fumes, odor, or dust to the surrounding area.
- B. **Manufacturing, Light.**
1. All materials or equipment shall be stored within an enclosed building or stored within an outdoor storage area that complies with all regulations set forth in Section 5.10 and is restricted to the rear yard.
 2. Any operation which results in the creation of noxious vibrations, odors, dust, glare, or sound is prohibited.
- C. **Manufacturing, Neighborhood.**
1. All materials or equipment shall be stored within an enclosed building.
 2. Any operation which results in the creation of noxious vibrations, odors, dust, glare, or sound is prohibited.
- D. **Mini-Warehouse.**
1. All areas shall be screened from any adjacent residence or off-site view from a public street by a Type-A buffer yard (Section 7.4 (I)(2)).
 2. Metal siding is prohibited. All exterior walls shall be brick, stone, or decorative masonry.
 3. No outdoor storage of goods or materials shall be permitted.
- E. **Research and Development.**
1. All materials or equipment shall be stored within an enclosed building or stored within an outdoor storage area that complies with all regulations set forth in Section 5.10 and is restricted to the rear yard.
 2. Any operation which results in the creation of noxious vibrations, odors, dust, glare or sound is prohibited.
- F. **Storage – Outdoor Storage Yard as a Principal Use.**
1. Outdoor storage areas shall be enclosed by an opaque fence or wall, restricted to the rear yard, and screened from off-site view from a public right-of-way with a Type-B buffer yard (Section 7.4 (I)(3)).

G. Storage – Warehouse, Indoor Storage.

1. Outdoor storage is not permitted.

H. Wholesaling and Distribution.

1. All vehicle storage areas shall be enclosed by an opaque fence or wall, restricted to the rear yard, and screened from off-site view of a public right-of-way by a Type-A buffer yard (Section 7.4 (I)(2)).
2. No outdoor public address system shall be permitted which can be heard beyond the boundaries of the property.

I. Quarrying and Stone Cutting. Quarrying and Stone Cutting within the MQ District is exempt from the provisions of Chapters 6 through 11, but must conform to the following additional standards:

1. Buffer Yard: Apart from adjacent parcels and tracts of land used for mine or quarry administrative services, a buffer yard meeting the following specifications shall be maintained around the perimeter of the MQ District to screen mines and quarries against public rights-of-way and private property in surrounding districts:
 - a. Minimum Yard Width: 100 feet
 - b. Performance Standard: A planted buffer which is 50 feet in width and contains screening materials which at maturity provides opacity from the ground to a height of 30 feet. Vegetative screening materials within opaque areas shall contain no horizontal openings upon the plants' maturity.
2. Permitted Buffer Yard Encroachments:
 - a. Access Drives: Access drives are permitted so long as any break in the buffer for said drives does not exceed 60 feet in width.
 - b. Lighting: Lighting associated with access drives and meeting the standards of Section 7.7 is permitted within the buffer yard.
 - c. Signs: Subject to the standards of Chapter 8, signs are permitted to be located within the buffer yard.

5.8. Civic / Institutional Use Standards.

A. Cemeteries.

1. Private family cemeteries or cemeteries in the yards of religious institutions are considered accessory uses and exempt from these additional standards.
2. Cremation facilities (principal or accessory use) are not permitted except where permitted by right (Section 3.1 (D)(3)).
3. In addition to meeting the requirements of Section 7.6, decorative walls shall be limited to four (4) feet in height and shall be brick or stone.
4. In addition to meeting the requirements of Section 7.6, fences shall be limited to six (6) feet in height and shall be wood, wrought iron, or cast aluminum.
5. All decorative walls and grave plots shall be set back from all street rights-of-way and adjacent properties a minimum of ten (10) feet.
6. Any internal road system shall be circuitous and at a minimum meet the design standards for alleys as specified in Section 10.1 (D)(1)(a)(i).
7. A Type-A buffer (Section 7.4 (I)(2)) shall be provided along any side or rear property line adjoining a residential district.

B. Group Care Facility (more than 6 residents). Group care facilities are classified as institutional buildings and should reflect the character and appearance of surrounding building types. In addition to meeting the design requirements of Section 6.13, the following additional standards apply:

1. The facility shall be screened from any residential use (Section 3.1 (A)) by a Type-B buffer yard (Section 7.4(3)(I)).
2. The total indoor common area heated square footage must equal or exceed twenty-five (25) square feet per permitted resident excluding bathrooms, hallways, and other similar areas unsuitable as leisure space.
3. Outdoor recreation space must be at least five-hundred (500) square feet per person, one-hundred (100) square feet of which shall be in a well-drained lawn area (as opposed to woodlands) and shall be located in rear or side yards and enclosed with a fence or wall that meets the standards of Section 7.6.
4. The total lot area shall exceed seven-hundred fifty (750) square feet per resident permitted.
5. No portion of the lot for a group care facility shall be located within a one-half (0.5) mile radius of the property line of another group care facility.

5.9. Infrastructure Use Standards.

A. Airport.

1. Hangars or open storage areas shall be screened from off-site view by a Type-C buffer yard (Section 7.4 (I)(4)).
2. No outdoor public address system shall be permitted which can be heard beyond the boundaries of the property.
3. Hours of operation shall be permitted only from 6:00 am until 11:00 pm.

B. Transit, Road, and Ground Passenger Services.

1. Outdoor storage areas shall be enclosed by an opaque fence or wall, restricted to the rear yard, and screened from off-site view from a public right-of-way with a Type-B buffer yard (7.4 (I)(3)). No outdoor storage is allowed in the TC District.
2. Temporary fleet vehicle storage areas shall conform to the dimensional, design, and landscaping standards set forth for parking areas in Chapter 7.
3. Maintenance of fleet vehicles, related materials, and equipment is restricted to the rear yard and shall be within an enclosed building or outdoor storage area enclosed by an opaque fence or wall.
4. All vehicles shall be operable and suitable for driving. Any vehicle not meeting this criterion shall be removed within seven (7) calendar days. Any visibly damaged vehicle or vehicle with missing parts must be removed within three (3) calendar days.
5. Any operation which results in the creation of noxious vibrations, odors, dust, glare, or sound is prohibited.

C. Wireless Telecommunication Facility – Stealth/Camouflage.

1. All antennas and related mechanical equipment placed on structures other than towers (a stealth/camouflage facility) shall be concealed. Antennas located on top of buildings or other structures shall not exceed thirty (30) percent of the building height. In no event shall an antenna extend beyond the structure in any direction greater than twenty-five (25) feet.
2. Stealth facilities, including antenna and supporting electrical and mechanical equipment, shall be designed to blend in with the existing structure or buildings with similar colors or other techniques as appropriate so as to make the antenna and related equipment as visually unobtrusive as possible.
3. Applications for co-locations on existing towers shall be classified as “stealth” so long as they do not constitute a substantial modification as defined by N.C.G.S. 160D-931 (19).

D. Wireless Telecommunications Facility – Towers. In recognition of the Telecommunications Act of 1996, it is the intent of the Town of Knightdale to allow Wireless Telecommunication providers the opportunity to locate towers and related facilities within its jurisdiction in order to provide an adequate level of service to its customers while protecting the health, safety, and welfare of the citizens of Knightdale. Wireless Telecommunication Facilities may be considered undesirable with other types of uses, most notably residential, and therefore, special regulations are necessary to ensure that any adverse effects to existing and future development are mitigated.

1. Radio, television, or similar reception for adjoining properties shall not be disturbed or diminished.
2. No telecommunication tower shall exceed two hundred (200) feet in height.
3. Towers shall be sited to contain all on-site icefall or debris from tower failure. The minimum distance from the tower's base to the property line shall be equal to the tower's fall radius.
4. Towers must be set back from any residential district a minimum of two hundred (200) feet.
5. Towers shall be monopole construction.
6. Tower lighting shall not exceed the minimum standards established by the FAA in Advisory Circular No. 70/7460-1J dated November 29, 1995, and as may be amended from time to time. All towers that require lighting by the FAA shall utilize a dual system consisting of red lights for nighttime hours and high or medium intensity flashing white lights for daytime and twilight hours.
7. A property identification sign shall be displayed in a visible location near the tower. The purpose of the sign is for use by law enforcement departments to contact the company operating the equipment in the event of an emergency. The sign shall contain a number to be assigned to the company and a telephone number for twenty-four (24) hour emergency contact. No other signs shall be permitted on the facility.
8. The base of the tower along with any individual guy wires shall be enclosed by a commercial-grade fence of a minimum of eight (8) feet in height.
9. A vegetative screen consisting of two (2) staggered rows of evergreen trees shall surround the perimeter of the property containing the base of the tower and related equipment. Evergreen vegetation shall be of sufficient density to serve the purpose of an opaque screen to keep the tower area itself from being visible from any public right-of-way or adjacent property.
10. If the tower equals or exceeds one-hundred (100) feet in height but is less than one-hundred-fifty (150) feet in height, the tower shall be engineered and constructed to accommodate a minimum of two (2) telecommunication users. If the tower equals or exceeds one-hundred fifty (150) feet in height but is less than one-hundred eighty (180) feet in height, the tower shall be engineered and constructed to accommodate a minimum of three (3) telecommunication users. If the tower equals or exceeds one-hundred eighty (180) feet in height but is less than two-hundred (200) feet in height, the tower shall be engineered and constructed to accommodate a minimum of four (4) telecommunication users. For each potential user, there shall be a minimum of six hundred (600) square feet reserved on the approved plans for associated buildings and equipment unless the applicant provides evidence that less space is necessary.
11. If the new tower is approved, the owner shall provide written authorization to the Land Use Administrator that the tower and its accessories may be shared by other telecommunication antenna(s). The owner shall record in the register of deeds' office a letter of intent prior to the issuance of the building permit. This letter shall bind all subsequent owners of the approved tower.
12. If the town determines that the proposed tower will be situated in a location that will enhance the town's telecommunication system, the permit applicant shall agree to allow the town to co-locate its telecommunication equipment at fair market value prior to the issuance of the building permit.

13. The output power from the tower shall not exceed federally approved levels for exposure to electronic magnetic force (EMF).
 14. Towers shall either maintain a galvanized steel finish or, subject to any applicable standards of the FAA, be painted a neutral color to reduce visual obtrusiveness. The design of the tower and related structures shall to the extent possible use materials, colors, textures, screening, and landscaping that will blend the tower facilities to the natural setting and built environment.
 15. The antenna and supporting electrical and mechanical equipment must be of a neutral color that is identical to, or closely compatible with, the color of the supporting structure to make the antenna and related equipment as visually unobtrusive as possible.
 16. No antenna shall extend above the highest point of the tower.
 17. Evidence must be presented to the Land Use Administrator that the proposal complies with all applicable FAA and FCC regulations.
 18. The Applicant and the owner of record of any proposed Wireless Telecommunications Facilities property site shall, at its cost and expense, be jointly required to execute and file with the Town a bond, or other form of security acceptable to the Town as a type of security and the form and manner of execution, in an amount of at least \$75,000.00 for a tower and with such sureties as are deemed sufficient by the Town to assure the faithful performance of the terms and requirements of the UDO and conditions of any Special Use Permit issued pursuant to this UDO. The full amount of the bond or security shall remain in full force and effect throughout the term of the Special Use Permit and/or until any necessary site restoration is completed to restore the site to a condition comparable to that, which existed prior to the issuance of the original Special Use Permit.
 19. Each calendar year, the antenna owner shall provide the town with a copy of any FCC and FAA license issued.
 20. Any wireless telecommunications tower that ceases to be used for a period of at least three-hundred sixty-five (365) consecutive days shall be removed at the expense of the property owner or Special Use Permit holder within thirty (30) days of notification by the Land Use Administrator. Failure to remove the tower within the specified thirty (30) day period shall constitute a violation of this ordinance, subject to the provisions of Chapter 14.
- E. **Wireless Telecommunications Facility – Small Wireless Facilities inside of Right-of-Way.** In recognition of NCGS Chapter 160D, and particularly NCGS §160D 9-35 “Collocation of small wireless facilities”, the following regulations are created to minimize the impacts of new small wireless facilities, encourage the co-location on existing structures to minimize new visual, aesthetic, and public safety impacts, and to reduce the need for additional antenna supporting structures. Further, the Town recognizes the need for small wireless facilities and encourages the practical location of co-located facilities, while minimizing the need for additional antenna supporting structures.
1. The placement of new poles is prohibited by the Town’s undergrounding requirements in section 11.3.
 2. Co-location on existing utility poles or light poles is permitted with the issuance of a Zoning Compliance Permit.
 3. All antenna and accessory equipment must be shrouded or otherwise concealed.

4. Any cost for pole modification shall be the responsibility of the applicant.
 5. Any pole modification or replacement shall not exceed fifty (50) feet above ground level in non-residential areas and forty (40) feet above ground level in residential areas.
 6. Co-location on existing poles is preferred over modification or replacement and the applicant is required to prove that co-location is not reasonably feasible prior to the issuance of a permit for replacement or modification.
 7. The applicant is required to provide plans that include any siting, electrical, elevations, and other pertinent information including proving that access by other utilities is not impeded by the installation or co-location of small wireless facilities.
- F. **Wireless Telecommunications Facility – Small Wireless Facilities outside of Right-of-Way.** In recognition of NCGS Chapter 160A, Part 3E and particularly NCGS §160D-9-35 “Collocation of small wireless facilities”, the following regulations are created to minimize the impacts of small wireless facilities, encourage the co-location on existing structures to minimize new visual, aesthetic, and public safety impacts, and to reduce the need for additional antenna supporting structures. Further, the Town recognizes the need for small wireless facilities and encourages the practical location of co-located facilities, while minimizing the need for additional antenna supporting structures.
1. The placement of new poles is prohibited by the Town’s undergrounding requirements in UDO Section 11.3.
 2. Any new small wireless facility shall be co-located on an existing utility pole or wireless support structures.
 3. A new small wireless facility shall not extend more than ten (10) feet above the utility pole or wireless support structure on which it is co-located
 4. All antenna and accessory equipment must be shrouded or otherwise concealed.

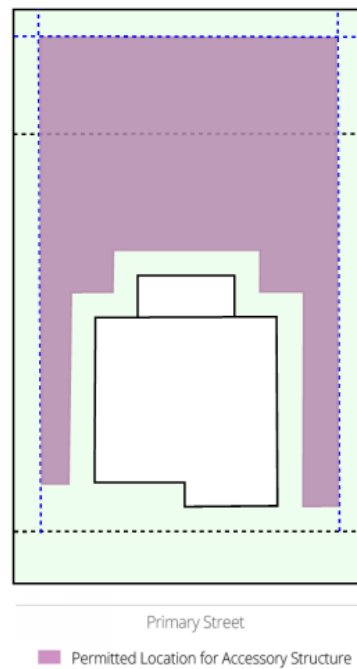
5.10. Accessory Use Standards.

A. Accessory Building / Structure.

1. **Principal Building Required.** The construction of an accessory building or structure is not permitted unless a principal building is located on the lot. Accessory buildings or structures and principal buildings may be constructed concurrently.
2. **General Requirements.**
 - a. **Maximum Allowance.**
 - i. **Districts Permitting Residential Uses:** Accessory buildings or structures on a single lot in a district permitting a residential use (Section 3.1(C)) shall not:
 - a) Collectively:
 - (i) exceed more than three (3) accessory buildings,
 - (ii) cover more than twenty (20) percent of the total combined area of the lot's rear and side yards; nor
 - b) Individually:
 - (i) exceed one thousand (1,000) square feet in area,
 - (ii) exceed the height of the principal building (Section 3.3 (B)).
 - ii. **Districts Not Permitting Residential Uses:** Accessory buildings or structures on a single lot in a district not permitting a residential use (Section 3.1 (D)) shall not:
 - a) collectively cover more than thirty (30) percent of the total combined area of the lot's rear and side yards; nor
 - b) individually exceed the height of the principal building (Section 3.3 (B)).
 - iii. **Exceptions.** The following are not subject to the maximum allowance restrictions stated herein:
 - a) Property located in the OSP (Open Space Preservation), RR-1 (Rural Residential), or RT (Rural Transition) districts along with certain farmland meeting the exemption requirements of Section 1.5 (B).
 - b) CBU Shelters.

- b. **Location.** Unless otherwise specified, accessory buildings or structures are restricted to the side or rear yards and shall be located:
- i. A minimum of five (5) feet from side and rear property lines
 - ii. As permitted in Section 3.6 Permitted Bulk and Dimensional Standards Exceptions and Encroachments.

Figure 5.2: Accessory Building/Structure Allowed Location



- c. **Separation.** To ensure proper maintenance of building exteriors, accessory buildings shall be located, if otherwise permitted, a minimum of five (5) feet from any principal building or other accessory building.
3. **Specific Requirements for Certain Animal Shelters.**
- a. **Dog House.** All dog houses shall be located in the rear yard.
 - b. **Chicken Coop.** The keeping of chickens (hens only) is permitted as an accessory use in conjunction with single-family dwellings in the GR3, GR8, UR12, RMX, NMX, and TC Districts subject to the regulations stated herein.
 - c. **Permit Required.** An application for a Livestock, Chicken and Other Domestic Fowl Permit must be filed and approved by the Administrator prior to the keeping of chickens in any area authorized by this subsection. Said permit application shall require the submission of a plot plan showing coop (hen house and pen) location, dimensions and distances from property lines.
 - d. **Number and Type of Chickens.** Up to five (5) female domesticated chickens (no roosters, peafowl, guinea fowl or other domestic fowl are permitted) are allowed per lot.

- e. **Coop Design.** Each single-family lot permitted and engaged in the keeping of domestic chickens shall:
 - i. Provide an enclosed chicken coop of sufficient size to allow for adequate exercise (minimum ten [10] square feet per chicken) and room for nesting (minimum four [4] square feet per chicken) and all covered by a roof;
 - ii. Construct a coop from permitted materials (see Section 6.4(F)), including hardware cloth (chicken wire not permitted) with adequate ventilation; and
 - iii. Construct a coop designed to prevent the entry of rodents and predators including an elevated hen house or hen house placed on a hard surface such as concrete slab or patio block.
 - f. **Location.** Coops shall be located in the rear yard only and setback at least five (5) feet from the rear property line. The minimum side setback for coops shall be fifteen (15) feet or the existing setback of the principal building on the lot, whichever is less. However, under no circumstance shall any coop be located closer than five (5) feet to any side property line.
 - g. **Maximum Size.** Coops shall not exceed one hundred (100) square feet in area or twelve (12) feet in any dimension.
 - h. **Rear Yard Fence Required.** The rear yard in which a coop is located shall be enclosed by an opaque wall or fence. In addition to meeting the requirements of Section 5.10(A), the wall or fence shall be a minimum of six (6) feet tall.
 - i. **Chickens Secured.** Chickens shall be secured within the coop at all times and within the hen house from dusk until dawn.
 - j. **Commercial Sale Prohibited.** All products resulting from the keeping of domestic chickens (chicks, eggs, manure, compost, etc.) are for personal use only.
 - k. **Maintenance.** All areas within the coop shall be kept in a neat and sanitary condition at all times so as to preclude offensive odor and other nuisance violations.
4. **Swimming Pools.** A swimming pool is a leisure activity space that includes all structures, as well as cement, stone or wood walks and patio areas, at or above grade, built for, and used in conjunction with the pool.
- a. **Location.** Swimming pools, as defined above, whether above-ground or in-ground, are restricted to the rear yard and shall meet the district-specific setback requirements as specified in Section 3.4, or as required per building type in Chapter 6. Any at-grade patio component meeting the opaque fence or wall requirement of Section 3.6(D)(2), has no setback requirements from rear and side lot lines.
 - b. **Barrier.** Swimming pools, as defined above, shall be enclosed by a barrier meeting the requirements of the North Carolina Building Code.

B. **Cluster Mail Box Unit (CBU).** A shelter for any United States Postal Service (USPS)-required CBUs in districts permitting residential units is required and shall meet the following additional requirements:

1. **Type and Size.** Be a principal or accessory building (open-air or enclosed) that extends shelter to a minimum of five (5) feet beyond the CBUs’ collective footprint.
2. **Location.** Be located on a lot deeded to a homeowners’ association and be no more than fifty (50) feet from an off-street motorized vehicle parking lot as measured from curb to open-air building footprint or enclosed building entrance.
3. **Parking.** In addition to satisfying the minimum and maximum off-street Motorized Vehicle Parking space requirements for other uses on the lot, the following minimum and maximum off-street short-term (marked and signed for 10-minute maximum) motorized vehicle parking space requirements must also be met:

Number of Mailboxes	Minimum Short-Term Parking Spaces	Maximum Short-Term Parking Spaces
<i>48 or fewer</i>	3	3
<i>49 - 304</i>	3 or ½ maximum, whichever is greater	3 plus 1 for each additional 32 mailboxes or portion thereof above 48 mailboxes
<i>305 or more</i>	½ maximum	11 plus 1 for each additional 48 mailboxes or portion thereof above 304 mailboxes

C. **Drive-Thru Service & Drive-Thru Retail / Restaurant.**

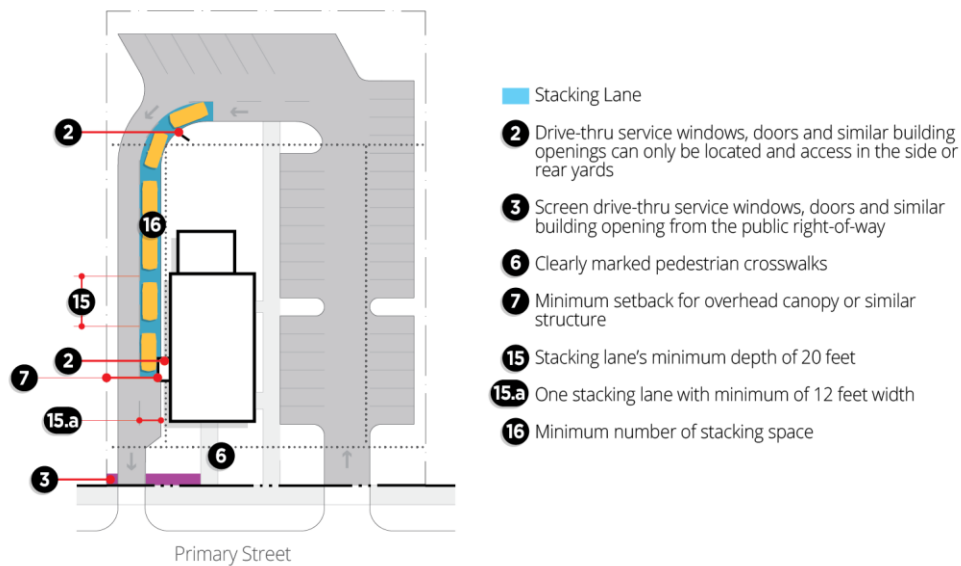
1. No drive-thru facility, defined as the footprint of associated vehicle accommodation lanes and canopies, shall be located within a 200-foot radius of the property line of any residential use (Section 2.3 (C)(1)).
2. Drive-thru service windows, doors, and similar building openings may be located and accessed only in the side or rear yards.
3. Drive-thru service windows, doors, and similar building openings located and accessed in the side yard shall be limited to one (1) lane in the NMX district and shall be screened from off-site view from a public right-of-way by a Type-A buffer (Section 7.3 (I)(2)). In the HB and MI districts, drive-thru service windows, doors and similar building openings located and accessed in the side yard may be multi-lane but shall be screened from off-site view from a public right-of-way by a Type-B buffer (Section 7.3 (I)(3)).
4. In addition to meeting the requirements of Section 7.1, vehicle accommodation lanes for drive-thru uses shall be located outside of and physically separated from the right-of-way of any street. These lanes shall not interfere with the efficient internal circulation of the site, adjacent property, or adjacent street right-of-way.

5. In the HB & NMX zoning district Drive-Thru Retail/Restaurants & Drive-Thru Services shall be located in structures that meet the building type: Mixed-Use as defined in Section 6.8.
6. Clearly marked pedestrian crosswalks shall be provided for each walk-in customer access to the facility adjacent to the drive-thru lane(s).
7. The setback of any overhead canopy or similar structure shall be a minimum of ten (10) feet from all street rights-of-way lines, a minimum of twenty (20) feet from all residentially-zoned property lines and shall be a minimum of five (5) feet from all other property lines.
8. The total height of any overhead canopy or similar structure shall not exceed twenty (20) feet as measured from the base of the structure to the highest part of the structure.
9. Any overhead canopy or similar structure shall maintain a uniform and consistent roof-line with the building to which the drive-thru facility is a part.
10. Any overhead canopy or similar structure shall have columns, solid walls, or semi-solid walls placed so that they are similar in their relation to the roof as that of the exterior walls of the building to which the drive-thru facility is a part.
11. Any overhead canopy or similar structure shall be finished with materials consistent with the primary building façade.
12. All vehicular areas of the facility shall provide a surface paved with concrete or bituminous material which is designed to meet the requirements of a minimum four (4) ton axle load.
13. Interior curbs shall be used to separate driving areas from exterior fixtures such as fuel pumps, vacuums, menu boards, canopy supports, and landscaped islands. Said curbs shall be a minimum of six (6) inches high and be of a nonmountable design. No curb protecting an exterior fixture shall be located closer than twenty-five (25) feet to all property lines.
14. Drive-thru facilities shall be permitted a maximum of two (2) menu boards with a combined maximum area of eighty (80) square feet. Each menu board shall not exceed sixty (60) square feet in area and ten (10) feet in height. Menu boards may utilize electronic message boards for one hundred (100) percent of the permitted menu board area.
15. Stacking lanes shall have a minimum depth of twenty (20) feet per stacking space and the following minimum lane widths:
 - a. One (1) lane: twelve (12) feet,
 - b. Two (2) or more lanes: ten (10) feet per lane.

16. Drive-thru facilities shall be required to provide a minimum number of stacking spaces as detailed in the table below.

Use	Minimum Stack	Measure From
<i>Bank Teller Lane</i>	2 per lane	teller or window
<i>Restaurant</i>	6 per order box	order box ¹
<i>Carwash Stall, Automatic</i>	5 per stall	stall entrance
<i>Carwash Stall, Manual</i>	2 per stall	stall entrance
<i>Oil Change Shop</i>	2 per service bay	service bay entrance
<i>Pharmacy</i>	4 per lane	machine or window
<i>Other</i>	at the discretion of the Land Use Administrator	
1. 4 of the required stacking spaces are to be located between the order-box and pick-up window, including the stacking space at the order box.		

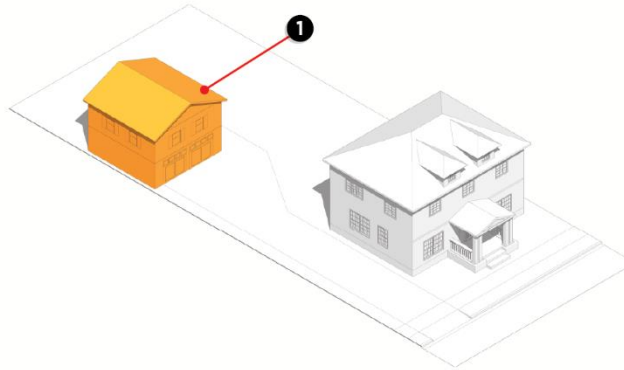
Figure 5.3: Drive-Thru Facility Standards



D. **Accessory Dwelling Unit.** – Accessory dwelling units within single-family houses or on single-family lots shall be encouraged and designed to meet housing needs and shall comply with the following additional standards:

1. An accessory dwelling unit may only be an accessory use located on a lot with a single-family dwelling.
2. Not more than one (1) secondary dwelling unit may be permitted per lot.
3. A secondary dwelling shall be subordinate to the primary dwelling unit. It may not exceed one-thousand (1,000) square feet or the square footage of the primary dwelling unit, whichever is less.
4. An accessory building housing a secondary dwelling unit shall meet the accessory building maximum number, location and separation requirements of Section 5.10.
5. An accessory building housing a secondary dwelling unit shall not exceed two (2) stories in height or the height of the principal building, whichever is less (see Section 3.6).
6. A minimum of one (1) additional parking space shall be provided for the secondary dwelling unit, unless the number of spaces for the principal structure and secondary dwelling is satisfied per Chapter 7
7. A secondary dwelling unit shall have an architectural style substantially similar to and compatible with that of the primary dwelling.

Figure 5.4: Secondary Dwelling Standards

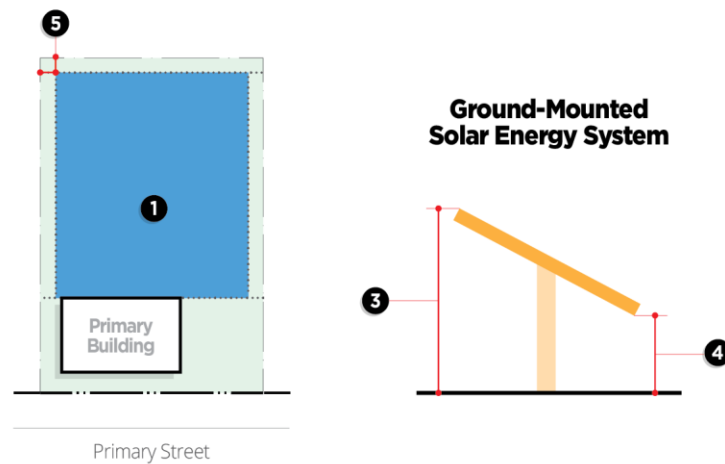


- E. **Home Occupation.** A home occupation is permitted as accessory to any dwelling unit in accordance with the following requirements:
1. The home occupation must be clearly incidental to the residential use of the dwelling, may be conducted in a permitted accessory building, and must not change the essential residential character of the dwelling and/or lot.
 2. The home occupation shall employ no more than one (1) person who is not a resident of the dwelling.
 3. Hours of operation shall be permitted only from 7:00 am until 9:00 pm.
 4. There shall be no visible outside display of stock in trade that is sold on the premises.
 5. There shall be no outdoor storage or visible evidence of equipment or materials used in the home occupation, excepting equipment or materials of a type and quantity that could reasonably be associated with the principal residential use.
 6. Operation of the home occupation shall not be visible from any residence on an adjacent lot, nor off-site view from a public street.
 7. Only non-commercial vehicles will be permitted on the subject site in connection with the conduct of the home occupation.
 8. The home occupation shall not utilize mechanical, electrical, or other equipment which produces noise, electrical or magnetic interference, vibration, heat, glare, or other nuisances outside the dwelling or accessory structure.
 9. Permitted home occupations may include, but are not limited to: professional services, workshops, sewing, music instruction, or similar uses which do not draw clients to the dwelling on a regular basis.
 10. Prohibited home occupations include, but are not limited to: vehicle repair, service or sales, animal services, theaters, massage, storage, manufacturing, or fabrication.
 11. In addition to meeting the requirements of Chapter 8, signs shall be limited to one (1) wall sign with a maximum sign area of two (2) square feet.

F. Solar Energy Collection, Ground-Mounted.

1. Ground-mounted solar energy collection systems shall be permitted in the rear yard only.
2. Ground-mounted solar energy collection systems shall not be located within the area set off by a line running across the façade of the structure extending to the property boundaries on either side of the façade, and those areas of common or public access faced by the structure.
3. The maximum height of ground-mounted solar energy collection systems shall be eight (8) feet in height, measured from the grade at the base of the pole to the highest edge of the system.
4. The minimum clearance between the lowest point of the system and the surface on which the system is mounted is twelve (12) inches.
5. All parts of the freestanding system shall be set back ten (10) feet from the side and rear lot lines and shall not be located in a public utility easement.

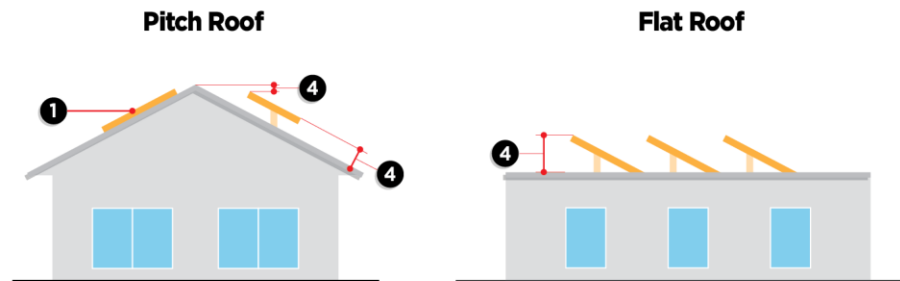
Figure 5.5: Solar Energy Collection, Ground Mounted Standards



G. Solar Energy Collection, Roof/Building-Mounted.

1. Roof-mounted solar energy collection systems may be located on any roof face of principal or accessory buildings.
2. Building-mounted solar energy collection systems may be located on any façade with the exception of a façade that faces areas open to common or public access.
3. Systems should be flush mounted when possible.
4. Systems on residential structures shall not extend beyond twelve (12) inches parallel to the roof surface of a pitched roof or flat roof. Systems on nonresidential structures shall not extend beyond thirty-six (36) inches parallel to the roof surface of a pitched roof or flat roof. Systems on all structures shall not extend above the highest peak of a pitched roof.
 - a. Height is measured from the roof surface on which the system is mounted to the highest edge of the system.
5. All materials used for racking, mounts, mounting clamps, and flashings shall be of a color consistent with the color of the roof surface to minimize visibility.

Figure 5.6: Solar Energy Collection, Roof/Building Mounted Standards



H. Grid-Scale Battery Storage Facilities.

1. No grid-scale battery storage facility shall be located within a one hundred (100) foot radius of the footprint of any pre-existing adjacent residential dwelling.
2. Grid-scale battery storage facilities shall only be permitted when co-located on a site with a substation facility.
3. A Type D Buffer Yard shall be required on all sides of a grid-scale battery storage facility adjacent to a residential zoning district. All other required Buffer Yards shall be consistent with Section 7.4 (I)(1).
4. All sides of a grid-scale battery storage facility shall be screened from off-site view by use of a fence or masonry wall. The materials of the fence or masonry wall shall be consistent with those listed in Section 7.6 (C). The height of any fence or masonry wall shall be consistent with the height of the energy storage container. The maximum height of such fence or masonry wall shall not exceed 8 feet in height regardless of the height of the energy storage container.

5. The grid-scale battery storage facility shall have at least one entrance of sufficient design to allow for the provision of emergency services, as approved by the Knightdale Fire Department.
6. Prior to Construction Drawing approval, a Third-Party Noise Analysis shall be submitted establishing that the grid-scale battery storage facility as designed will not exceed noise level limits at the property line(s) set forth in the applicable noise ordinance.
7. The noise level limits applicable to the grid-scale battery storage facility shall be determined by the location of the facility. If the facility is located in Town Limits, the noise level limits set forth in the Town's Code of Ordinances (Knightdale Noise Ordinance) shall apply. If the facility is located outside of Town Limits but within the Town's extra-territorial jurisdiction, the noise level limits set forth in Wake County's Code of Ordinances shall apply.
8. An additional Noise Analysis shall be required if the facility exceeds the applicable noise level limits. If warranted by the Noise Analysis, noise dampening measures shall be installed in any area that produces excessive noise.

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Chapter 6. Building Type Standards

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6.1. Purpose and Intent

The architectural vocabulary of the Town represents a wide variety of traditional forms that avoid a perception of monotony. This UDO has established regulations specific to these forms. Consequently, buildings that are stylized in an attempt to use the building itself as advertising are discouraged, particularly where the proposed architecture is the result of a “corporate” or “franchise” design. The standards in this Chapter are intended to attach the same or greater level of importance to the overall building design as is placed on the use contained within. Buildings are expected to be added to the Town of Knightdale as long-term additions to the architectural vibrancy of the community.

6.2. Applicability

The following building type provisions and architectural standards shall apply, regardless of the underlying zoning district provisions, unless otherwise noted.

6.3. Exceptions

- A. **Innovative Planning and Design.** While it is expected that some new building types will be introduced to the Town, these variations should be based upon the predominant types listed in this Chapter. Subject to approval through the Planned Unit Development process, innovative planning or design ideas for development may be approved in any district.
- B. **One- and Two-Family Dwelling Units.** One and Two-Family Dwellings subject to regulation under the North Carolina Residential Code are exempted from meeting “building design elements” as defined in NCGS 160D-702. This exemption is for one and two-family dwellings constructed after June 10, 2015.
- C. **Utility Facilities.** Class 1 and Class 2 Utility Facilities that are not designed for human habitation shall not be subject to the building design requirements or building design standards contained in this Chapter.

6.4. General Building Design Requirements

- A. **Architectural Style.** The building design standards of this Chapter intentionally do not mandate a particular style and permit a wide variety of architectural expressions. However, when a design exhibits a known architectural style (i.e Colonial, Victorian, Classical Revival) the details shall be consistent with that style unless the local architectural vernacular in the region provides an alternate precedent for a detail.
- B. **Frontage.** All buildings shall share a frontage line (primary façade) with a street or square. (Exception: Buildings that are interior to a site that has buildings that otherwise meet the frontage requirement)
- C. **Termination of Vistas.** Important street vistas (such as along Town gateways and primary pedestrian streets) should terminate in a focal point, such as a building or other architectural or natural feature.
- D. **Compatibility.** Adjacent buildings should relate in similarity of scale, height, architectural style, and/or configuration. Exceptions to this rule include civic buildings such as churches and schools which through their massing and height serve as landmarks for the community.
- E. **Proportions.** Vertically proportioned windows (height exceeds width), doors, columns, eaves, parapets, and other building components shall be proportional to the overall scale of the building.

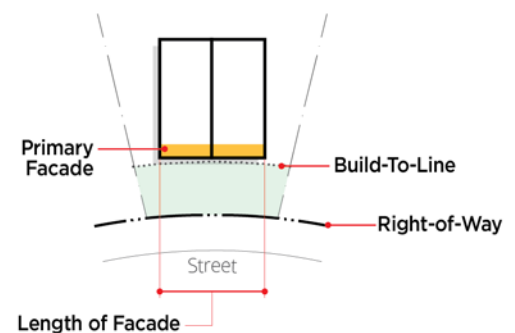


Figure 6.1. Frontage

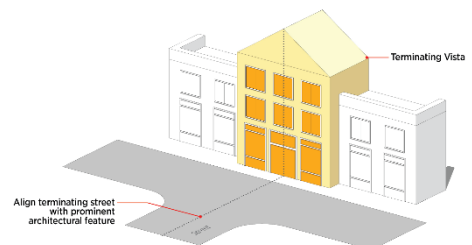


Figure 6.2. Termination of Vista

F. Wall Materials.

1. Buildings shall be designed in compliance with four-sided design standards, with visually interesting and compatible design on front, side and rear façades.
2. Walls of apartment, mixed-use, and nonresidential buildings shall be clad pursuant to the following regulations. Material percentages exclude windows, display windows, doors, roofing, fascia, and soffit materials.
 - a. **Primary Materials.** At least 50% of a building's facades shall be brick, stone (natural/cultured, limestone, marble, or granite), or a combination thereof.
 - b. **Secondary Materials.** Not more than 50% of a building's facades shall be clapboard, stucco, cementitious fiber board, glass, decorative concrete masonry units (CMU), or exterior insulation finishing systems (EIFS).
 - c. **Accent Materials.** Not more than 20% of a building's facades shall be wood shingle, wood drop siding, wood board and batten, or decorative metal panels.
3. When two or more materials are used on a façade, the heavier material (i.e. stone, brick) should be placed below the lighter material (i.e. siding, shakes) to give the sense of support and grounding.

G. **Façade Articulation.** Buildings shall not have long, monotonous, uninterrupted walls of twenty (20) feet or more on any floor of a façade clearly visible from a public right-of-way. Vertically- proportioned windows and spandrel glass, doors, stairwells, porches, pilasters (minimum twelve [12] inch width with minimum one to four (1:4) projection to width ratio), and other architectural elements as approved by the DRC will be used in order to: add architectural interest and variety; relieve the visual effect of a single, long wall; and subdivide a horizontal wall into human-scale vertical proportions.

H. **Underground Wiring.** To reduce the visual impact of overhead wiring, utility services shall be located underground.

I. **Type of Construction.** Except where expressly permitted by this Ordinance, manufactured, mobile, and metal units shall be prohibited.



Figure 6.3. Façade Articulation Example Photo Only

J. Roof Finishing.

1. Flat roofs and roof pitches less than three to twelve (3:12) will require a parapet wall along all sides visible from a public street.
2. All pitched roofs shall be profiled by eaves projecting a minimum of ten (10) inches from the building face which may include gutters.
3. Eaves may expose rafters.

K. Rooftop Equipment. All rooftop equipment shall be screened from view from any public right-of-way through the use of parapet walls and/or a central screened corral.

L. Physical Sculpture as Public Art. Sculptural free-standing public art, such as statues, fountains, and other site-specific art are encouraged and shall be permitted in any required front setback area (Section 3.5).

M. Satellite Dishes. No satellite dish larger than eighteen (18) inches shall be mounted to the front façade of a building or a roof slope facing the street on a gable, hip, gambrel, or mansard roof.

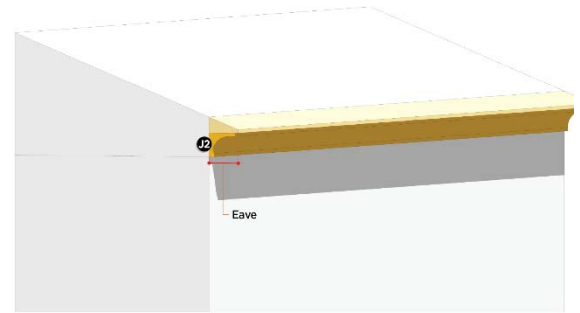


Figure 6.4. Roof Finishing

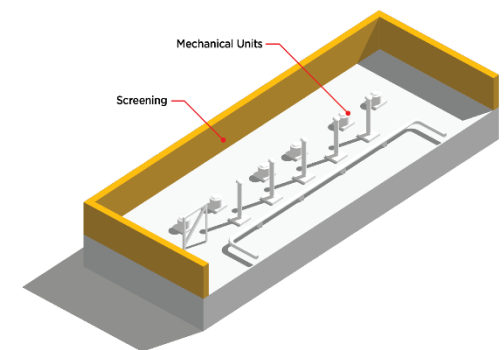


Figure 6.5. Rooftop Equipment - Parapet Wall or Central Corral

6.5. House Building Type Standards



Description and Applicability

Description

The House Building is the predominant building type found within the Town of Knightdale and typically has four (4) yards (front, two [2] sides, rear), although variations include setting the building a side property line to create a larger side yard on the opposite side (i.e. Charleston Single). In general, within a block, building types should be uniform in their use of driveways or rear lanes/alleys.

Applicability

The House Building primarily accommodates single family uses but may also be converted to commercial use.

Building Type by District

<input type="checkbox"/> OSP	<input checked="" type="checkbox"/> NMX
<input checked="" type="checkbox"/> RT	<input type="checkbox"/> TC
<input checked="" type="checkbox"/> RR	<input type="checkbox"/> HB
<input checked="" type="checkbox"/> GR3 / GR8	<input type="checkbox"/> BO
<input checked="" type="checkbox"/> UR12	<input type="checkbox"/> MI
<input checked="" type="checkbox"/> RMX	<input type="checkbox"/> MQ

Yard Setbacks

Front Minimum	10 ft
Front Maximum	n/a
Corner Side Minimum	10 ft
Side Minimum	20% lot width*
Rear Minimum	25 ft

*Side setback shall be calculated as an aggregate. Lots greater than or equal to 60 feet in width shall have minimum setback of 5 feet. Lots less than 60 feet in width shall have a minimum setback of 3 feet. Side yards of corner lots shall be a minimum of 10 feet.

**Refer to Section 3.4 for the bulk and dimensional standards applicable to the RT and RR1 Districts.

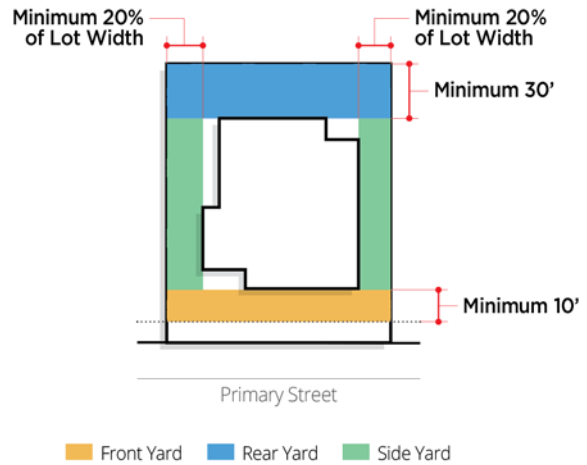


Figure 6.6. House Building Type Yard Setbacks

6.6. Townhouse Building Type Standards



A. Description and Applicability

1. Description

The Townhouse Building is a building with two (2) or more units on individual lots that are located side-by-side and accessed from a rear lane or alley. As a result, the Townhouse typically only has one (1) yard in the rear, although variations may include a small front setback to provide for landscaping, while the bulk, scale and architectural design of the building(s) reflects that of the surrounding neighborhood or planned development, as may apply.

2. Applicability

The Townhouse Building may accommodate two family uses as defined by NCGS §160D.

B. Building Type by District

<input type="checkbox"/> OSP	<input checked="" type="checkbox"/> NMX
<input type="checkbox"/> RT	<input type="checkbox"/> TC
<input type="checkbox"/> RR	<input type="checkbox"/> HB
<input checked="" type="checkbox"/> GR3 / GR8	<input type="checkbox"/> BO
<input checked="" type="checkbox"/> UR12	<input type="checkbox"/> MI
<input checked="" type="checkbox"/> RMX	<input type="checkbox"/> MQ

Yard Setbacks

Front Minimum	0 ft
Front Maximum	25 ft
Side Minimum	10 ft*
Rear Minimum	15 ft

*If partiwall exists, 0 foot side yard minimum

Multi-Building Developments

- 1 The primary entrance and front façade of individual buildings within a multi-building development shall be oriented towards the following (listed in priority order):
 - a. Perimeter streets;
 - b. Primary internal streets;
 - c. Parks or other common open space;
 - d. Secondary internal streets.
- 2 Primary entrances or facades shall not be oriented towards off-street parking lots, garages, or carports.

Siting

- 1 To the maximum extent practicable buildings shall be clustered in order to define street edges, entry points, and public gathering spaces. A maximum of six townhomes may be clustered. The even dispersal of buildings in a widely spaced pattern along streets is prohibited.

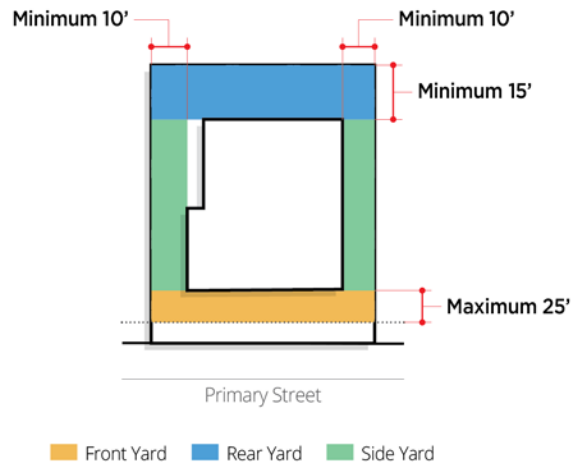


Figure 6.4. Townhome Building Type Yard Setbacks

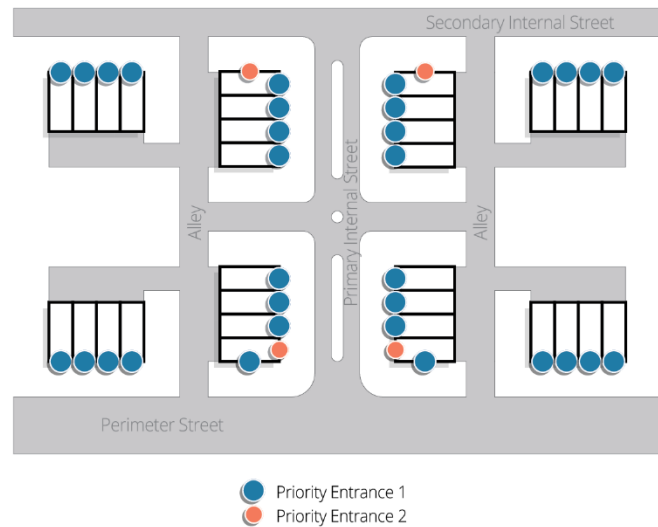


Figure 6.5. Townhome Building Type Multi-Building Developments

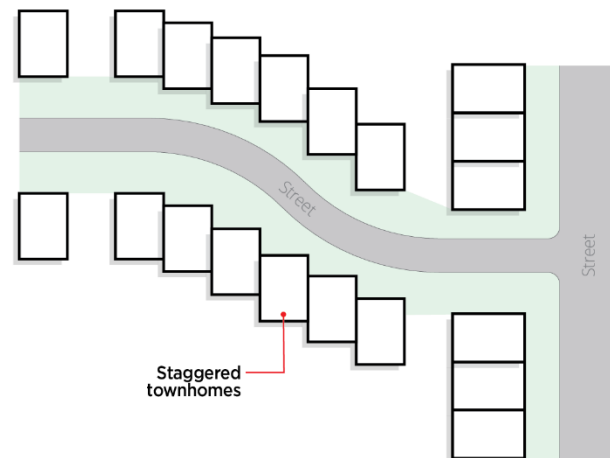


Figure 6.6. Townhome Building Type Siting

6.7. Apartment Building Type Standards



Description and Applicability

Description

The Apartment Building is a multi-unit building with units vertically arranged (generally) and with parking located below or behind the building. These buildings typically have one (1) yard in the rear, though variations include a small front setback to provide some landscaping. Units may be rented or sold (condominium ownership), or they may be designed as continuing care facilities.

Applicability

Apartment buildings are suitable for a number of uses including residential dwelling units either for sale or rent, professional offices and some commercial/retail uses. Specific uses permitted within the Apartment Building are determined by the District in which it is located.

Building Type by District

<input type="checkbox"/> OSP	<input checked="" type="checkbox"/> NMX
<input type="checkbox"/> RT	<input checked="" type="checkbox"/> TC
<input type="checkbox"/> RR	<input type="checkbox"/> HB
<input type="checkbox"/> GR3 / GR8	<input type="checkbox"/> BO
<input checked="" type="checkbox"/> UR12	<input type="checkbox"/> MI
<input checked="" type="checkbox"/> RMX	<input type="checkbox"/> MQ

Yard Setbacks

Front Minimum	0 ft
Front Maximum	10 ft
Side Minimum	10 ft*
Rear Minimum	15 ft

*If partwall exists, 0 foot side yard minimum

Parking Location

Permitted Yard

- a. Front Yard: prohibited
- b. Side Yard: permitted
- c. Rear Yard: permitted

Required Setback

- a. Front Yard: not applicable
- b. Side Yard: 0 feet
- c. Rear Yard: 5 feet

Garages

- a. Garage doors are not permitted on the primary façade of any Apartment Building.

Material Colors

- 1 Facade colors shall be of low reflectance earth tone, muted, subtle, or neutral colors. Building trim may feature brighter colors as an accent material. The use of high-intensity, metallic, fluorescent, day glow, or neon colors shall be prohibited. Variations in color schemes are encouraged in order to articulate entry ways and public amenities so as to give greater recognition to these features.

Roofs

Pitch

- a. Roofs shall be flat and screened from view by parapet walls.

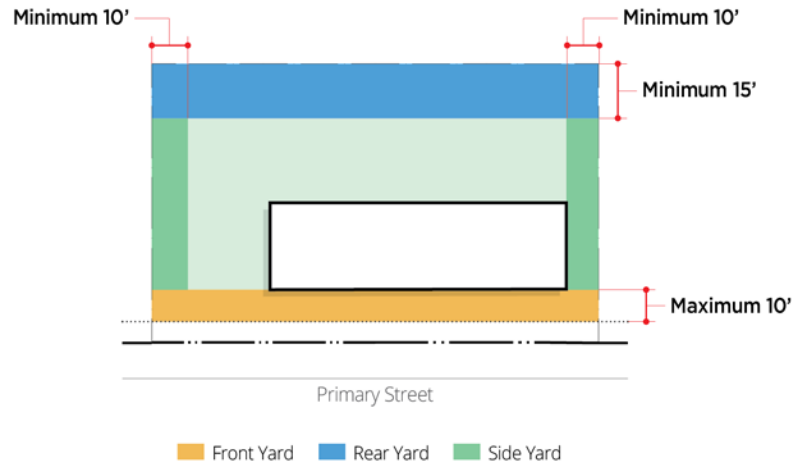


Figure 6.7. Apartment Building Type Yard Setbacks

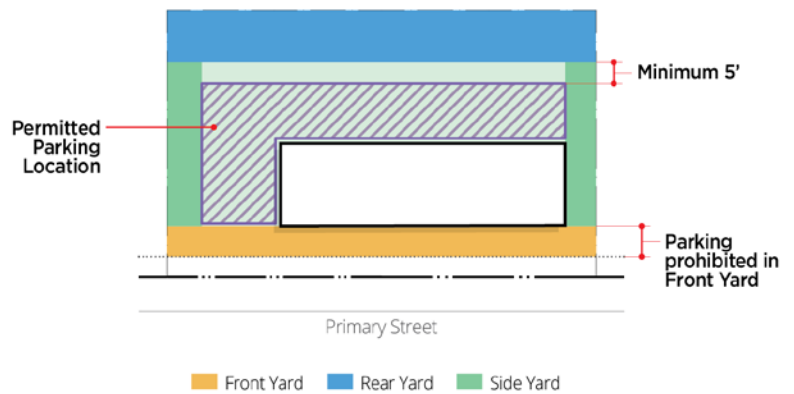


Figure 6.8. Apartment Building Type Parking Location

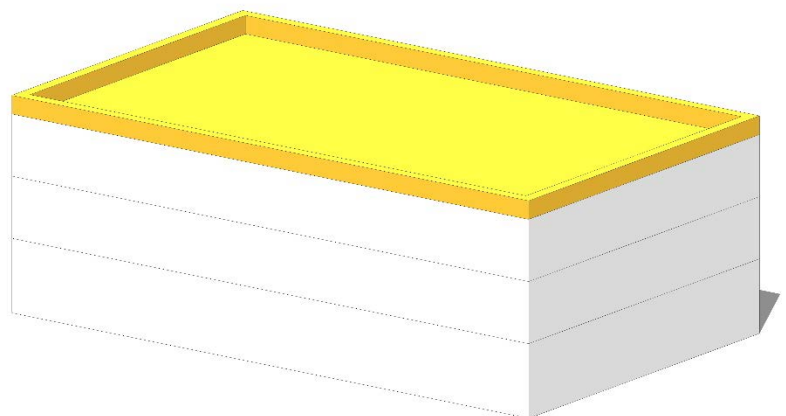


Figure 6.9. Apartment Building Type Roof

Façade

Articulation

- All building elevations visible from the street shall provide doors, useable porches and stoops, balconies, and/or windows.
- A minimum of 60% of front elevations, and a minimum of 30% of side and rear building elevations, as applicable, shall meet this standard.
- Useable porches and stoops should form a predominate motif of the building design and be located on the front and/or side of the building. Useable front porches are at least 6 feet deep and extend more than 30% of the facade.

Façade Design Details*

- Bay window
- Balcony
- Window trim (4" min width)
- Patterned finish (scales, shakes, wainscoting, etc.)

Building Off-Set Design Details*

- Façade off-set (16" min)
- Roof Line off-set (16" min)

Transparency

- Ground floor transparency shall not be required.

*Detailed design shall be provided by using at least one (1) of the architectural features listed on all facades as appropriate for the proposed architectural style.



Figure 6.13. Apartment Building Type Articulation



Figure 6.14. Apartment Building Type Façade Design Details



Figure 6.15. Apartment Building Type Building Off-Set Design Details

Building Entrance

Primary Façade Entrance

- a. Front entrances shall be located on the façade of the building facing the primary street to which it abuts.
- b. Front entrances shall be common for the building, entrances to individual units shall be internal to the building.

Entrance Design Details*

- a. Recessed Entry with 6" min. width Door Trim
- b. Covered Porch with 6" min. width Pillars/Posts/Columns

Other Entrances

- c. Additional entrances may be oriented toward side or rear parking lots.

Service Entrance

- d. Entrances for shipping and receiving shall not be visible from a public right-of-way with the exception of a rear alley.

*Detailed design shall be provided by using at least one (1) of the architectural features listed on all facades as appropriate for the proposed architectural style.

Multi-Building Developments

- 1 The primary entrance and front façade of individual buildings within a multi-building development shall be oriented towards the following (listed in priority order):
 - a. Perimeter streets;
 - b. Primary internal streets;
 - c. Parks or other common open space;
 - d. Secondary internal streets.
- 2 Primary entrances or facades shall not be oriented towards off-street parking lots, garages, or carports.

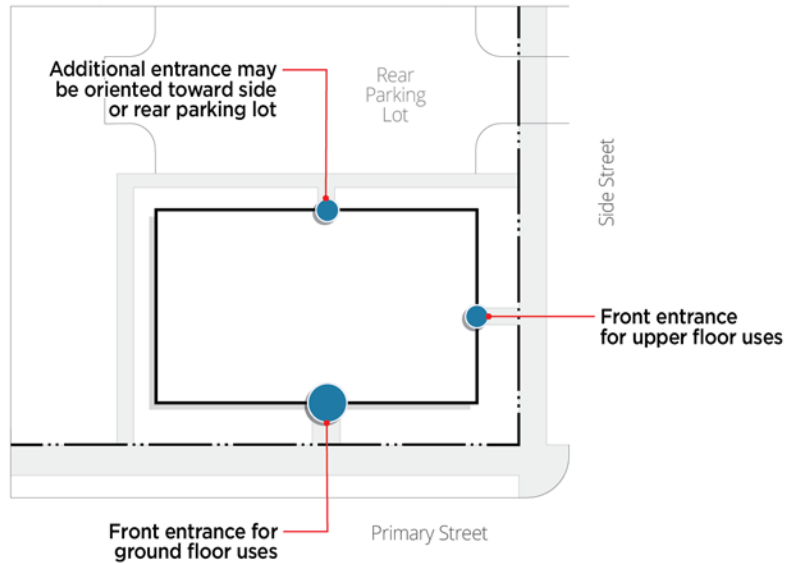


Figure 6.16. Apartment Building Type Building Entrance

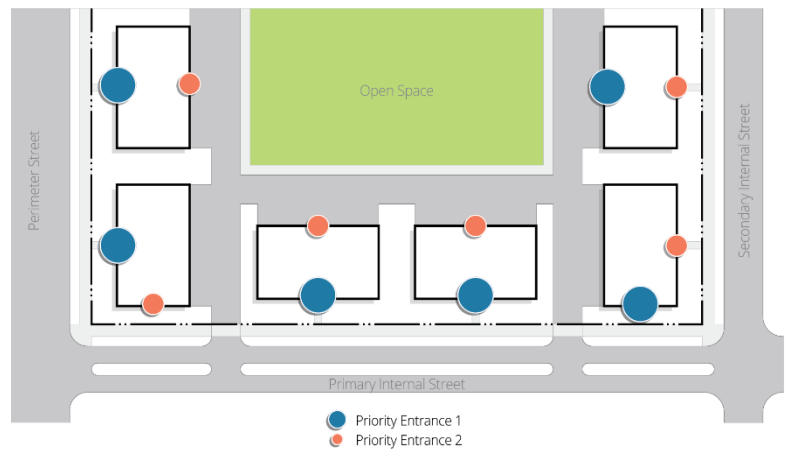


Figure 6.17. Apartment Building Type Multi-Building Developments

6.8. Mixed Use Building Type Standards



Description and Applicability

Description

A Mixed-Use Building is a multi-story small scale structure which can accommodate a variety of uses. The Mixed-Use Building typically has one (1) yard in the rear, though some buildings may include a small front plaza or courtyard to provide public space for outdoor seating while others may completely cover a lot where parking is handled in a manner other than on-site surface parking.

Applicability

Individual Mixed-Use Buildings may be used to provide some commercial service, such as a neighborhood store in close proximity to homes, while a group of Mixed-Use Buildings may be combined to form a mixed-use neighborhood center. Specific uses permitted within the Mixed Use Building are determined by the District in which it is located.

Building Type by District

<input type="checkbox"/> OSP	<input checked="" type="checkbox"/> NMX
<input type="checkbox"/> RT	<input checked="" type="checkbox"/> TC
<input type="checkbox"/> RR	<input checked="" type="checkbox"/> HB
<input type="checkbox"/> GR3 / GR8	<input checked="" type="checkbox"/> BO
<input type="checkbox"/> UR12	<input type="checkbox"/> MI
<input checked="" type="checkbox"/> RMX	<input type="checkbox"/> MQ

Yard Setbacks

Front Minimum	0 ft
Front Maximum	10 ft
Side Minimum	10 ft*
Rear Minimum	0 ft

*If partwall exists, 0 foot side yard minimum

Parking Location

Permitted Yard

a. Front Yard:	prohibited
b. Side Yard:	permitted
c. Rear Yard:	permitted

Required Setback

a. Front Yard:	not applicable
b. Side Yard:	0 feet
c. Rear Yard:	5 feet

Material Colors

- 1 Facade colors shall be of low reflectance earth tone, muted, subtle, or neutral colors. Building trim may feature brighter colors as an accent material. The use of high-intensity, metallic, fluorescent, day glow, or neon colors shall be prohibited. Variations in color schemes are encouraged in order to articulate entry ways and public amenities so as to give greater recognition to these features.

Roofs

Pitch

- a. Roofs shall be flat and screened from view by parapet walls.

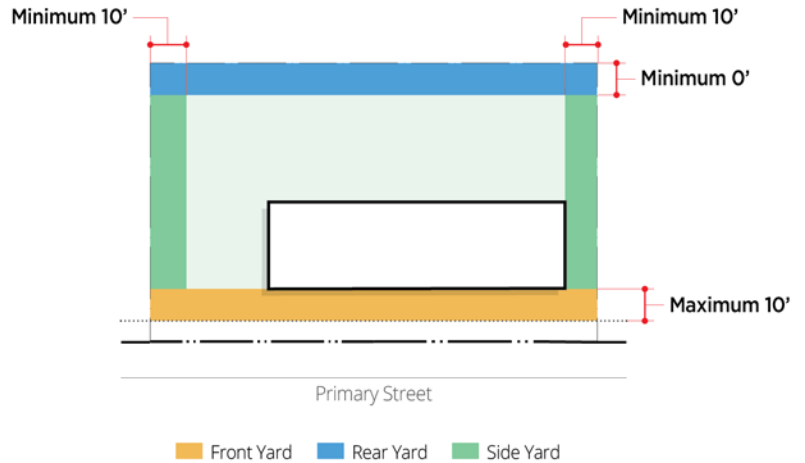


Figure 6.18. Mixed Use Building Type Yard Setbacks

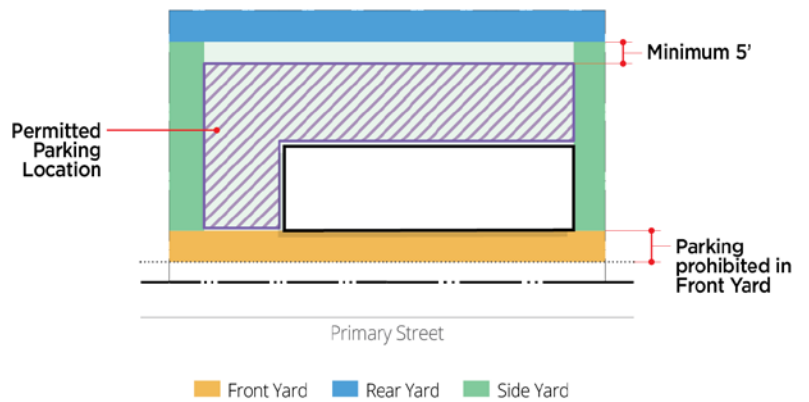


Figure 6.19. Mixed Use Building Type Parking Location

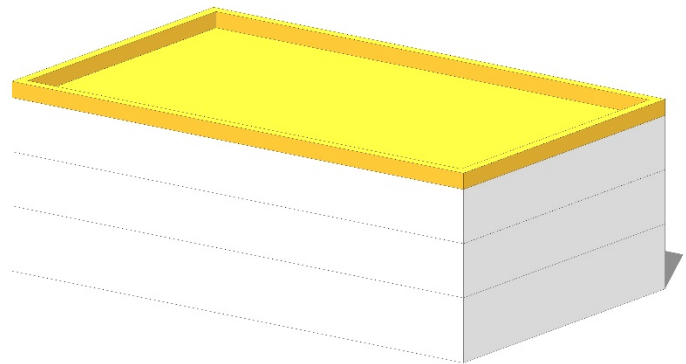


Figure 6.20. Mixed Use Building Type Roofs

Façade

Articulation

- a. Architectural details such as bulk heads, masonry piers, transoms, cornices, window hoods, and other similar details shall be used to provide horizontal and vertical façade articulation.
- b. The ground floor shall be distinguished from upper floors through the use of elements that provide horizontal articulation such as storefront cornices.
- c. Upper floors containing residential uses shall adhere to the Apartment Building Type façade articulation standards.

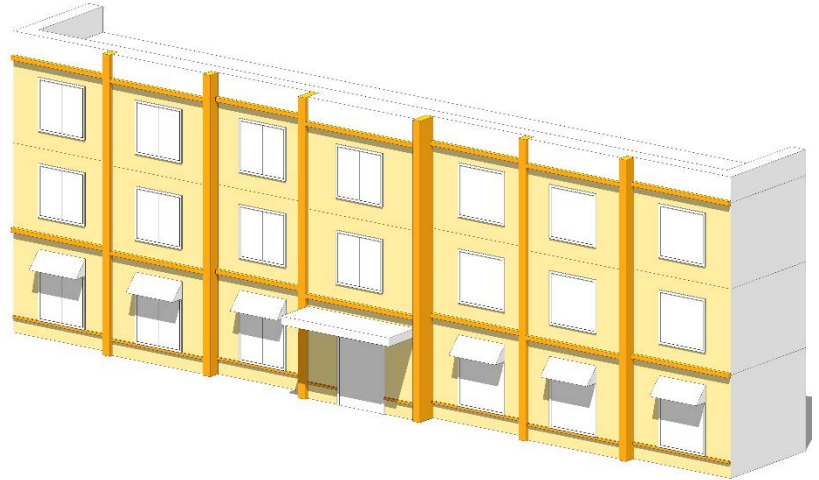


Figure 6.21. Mixed Use Building Type Articulation

Awnings

- a. A building canopy, awning, or similar weather protection, if provided, shall project a minimum of three (3) to five (5) feet from the façade.



Figure 6.22. Mixed Use Building Type Awnings

Transparency

- a. The ground level of the building must offer pedestrian interest along sidewalks and paths. Therefore, the first floor of the primary façade as well as the façades of buildings internal to a site containing a pedestrian entrance shall include transparent windows and doors arranged so that the uses inside are visible from and/or accessible to the street on at least 40% of the length of the first floor building elevation.

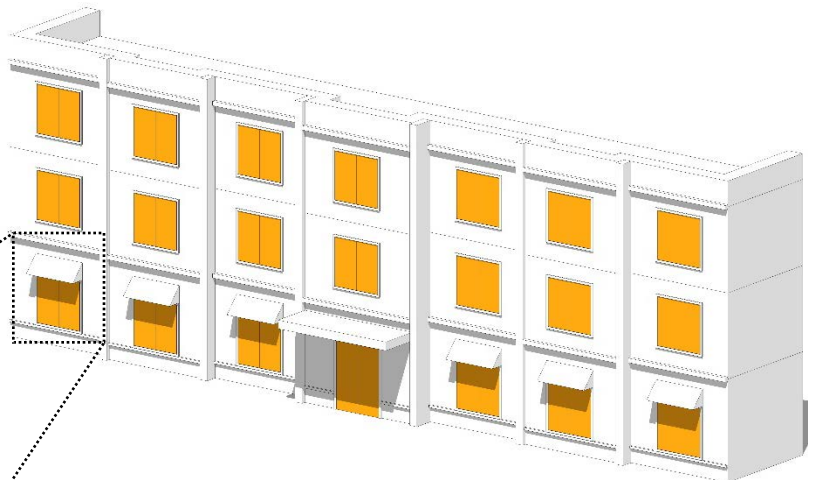


Figure 6.23. Mixed Use Building Type Transparency

Window Dimensions

- a. Maximum Sill Height (1st Story): 42 inches*
- b. Minimum Area: 16 sq ft
- c. Minimum Width: 3 feet
- d. Minimum Height: 4 feet

*As measured from the finished floor elevation.

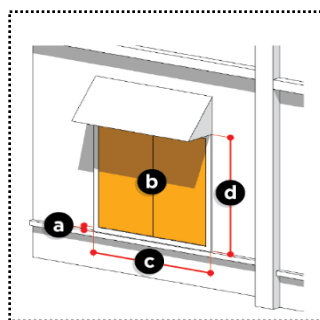


Figure 6.24. Mixed Use Building Type Window Dimensions

Building Entrance

Primary Façade Entrance

- a. Front entrances for ground floor uses shall be located on the façade of the building facing the primary street to which it abuts.
- a. Front entrances for upper floor uses shall be located on side or rear façades.

Other Entrances

- b. Additional entrances may be oriented toward side or rear parking lots.

Service Entrance

- c. Entrances for shipping and receiving shall not be visible from a public right-of-way with the exception of a rear alley.

Multi-Building Developments

- 1 The primary entrance and front façade of individual buildings within a multi-building development shall be oriented towards the following (listed in priority order):
 - a. Perimeter streets;
 - b. Primary internal streets;
 - c. Parks or other common open space;
 - d. Secondary internal streets.
- 2 Primary entrances or facades shall not be oriented towards off-street parking lots, garages, or carports.

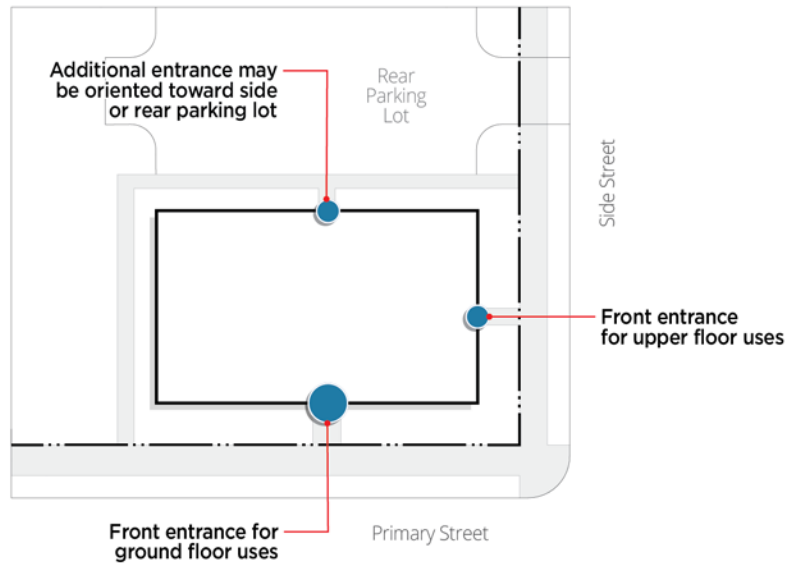


Figure 6.10. Mixed Use Building Type Building Entrance

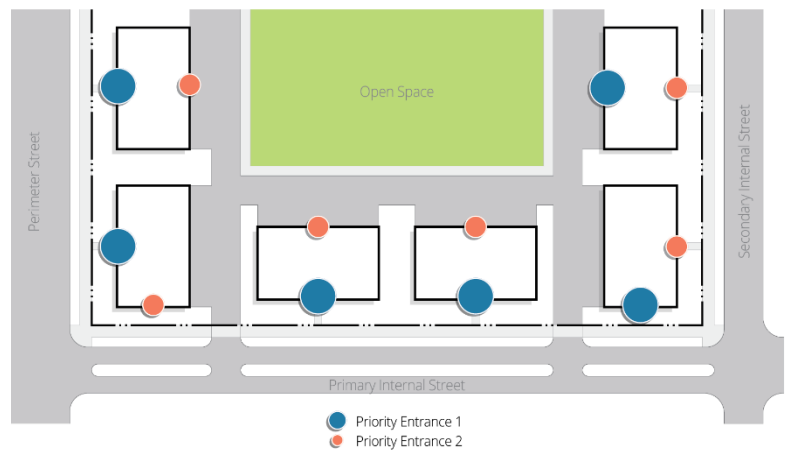


Figure 6.11. Mixed Use Building Type Multi-Building Development

Public Improvements

Public Gathering Space Design

- 1 A minimum of 1 square foot per every 25 square feet of gross floor area or 500 square feet, whichever is less, of public gathering space shall be provided.
- 2 Public gathering spaces shall be integrated into the overall site design and be framed or defined by the building(s).

Public Gathering Space Activation

- 3 Public gathering space shall have direct access to a public sidewalk and internal pedestrian walkway network and shall provide at least three (3) of the following features:
 - a. Moveable tables and chairs
 - b. Fountain or other water feature
 - c. Sculptures or other public art features
 - d. Benches, seat walls, or amphitheaters
 - e. Raised landscape planters
 - f. Shade trees lining the gathering space
 - g. Pedestrian scale and celebratory lighting
 - h. Other features as approved by the administrator

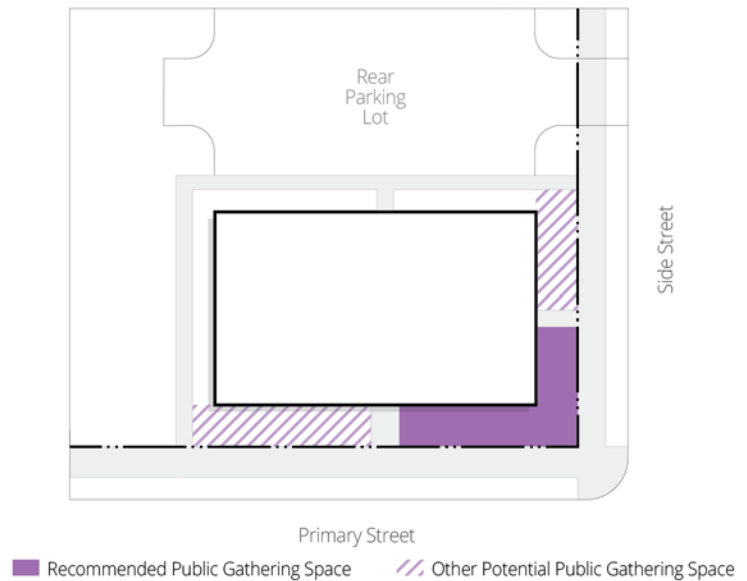


Figure 6.27. Mixed Use Building Type Public Improvement

6.9. Commercial Building Type Standards



Description and Applicability

Description

The Commercial Building provides convenient automobile access from the fronting thoroughfare, while minimizing the negative impacts of parking lots on an active pedestrian realm. The Commercial Building typically has one (1) yard in the rear, though some buildings may include a small front plaza or courtyard to provide public space for outdoor seating, while others may completely cover a lot where parking is handled in a manner other than on-site surface parking.

Applicability

Typically, a single or multi-story mid size structure which accommodates automobile-oriented uses found along major thoroughfares. Specific uses permitted within the Commercial Building are determined by the District in which it is located.

Building Type by District

<input type="checkbox"/> OSP	<input type="checkbox"/> NMX
<input type="checkbox"/> RT	<input type="checkbox"/> TC
<input type="checkbox"/> RR	<input checked="" type="checkbox"/> HB
<input type="checkbox"/> GR3 / GR8	<input type="checkbox"/> BO
<input type="checkbox"/> UR12	<input type="checkbox"/> MI
<input type="checkbox"/> RMX	<input type="checkbox"/> MQ

Yard Setbacks

Front Minimum	10 ft
Front Maximum	30 ft
Side Minimum	6 ft
Rear Minimum	0 ft

Parking Location

Permitted Yard

- a. Front Yard: prohibited
- b. Side Yard: permitted
- c. Rear Yard: permitted

Required Setback

- a. Front Yard: not applicable
- b. Side Yard: 0 feet
- c. Rear Yard: 5 feet

Material Colors

- 1 Facade colors shall be of low reflectance earth tone, muted, subtle, or neutral colors. Building trim may feature brighter colors as an accent material. The use of high-intensity, metallic, fluorescent, day glow, or neon colors shall be prohibited. Variations in color schemes are encouraged in order to articulate entry ways and public amenities so as to give greater recognition to these features.

Roofs

Materials

- a. Pitched roofs shall be clad in wood shingles, standing seam metal, corrugated metal, slate, copper, or asphalt shingles.

Relief

- a. Roofs shall avoid long, monotonous, uninterrupted horizontal roof planes of 50 feet or more by utilizing roofline offsets that are five (5) feet or more in height, building wall offsets and matching roof lines that are two (2) feet or more in depth, pitched or raised parapets, towers, etc. that lend architectural interest and variety.

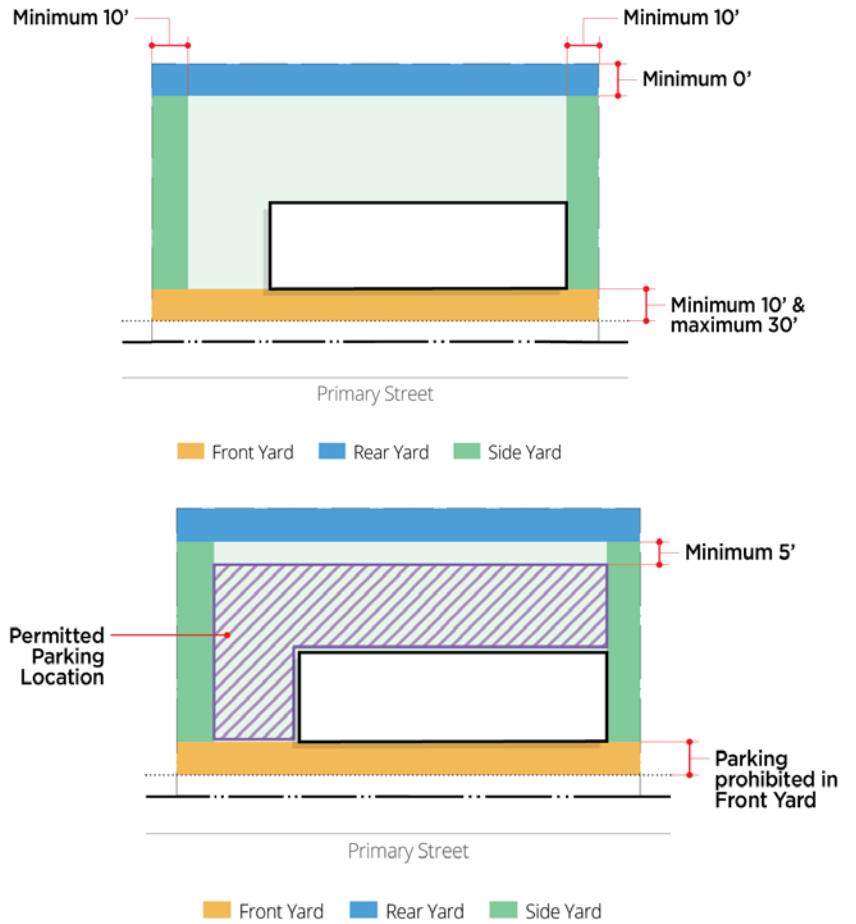


Figure 6.28. Commercial Building Type Parking Location

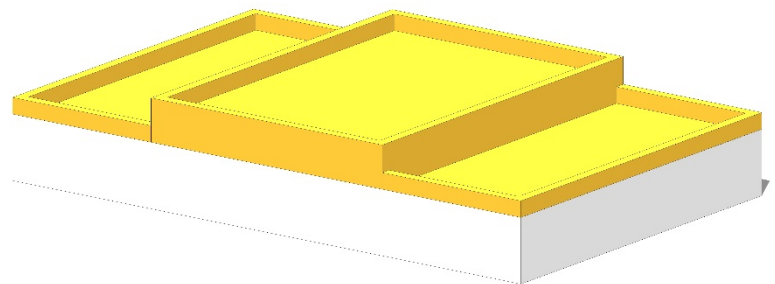


Figure 6.29. Commercial Building Type Roofs

Façade

Articulation

- a. No blank, uninterrupted wall shall extend for a length greater than or equal to 20 feet.
- b. Blank walls shall be avoided by the addition of windows, piers, building recesses, pilasters, arches, columns, or significant changes in the texture or pattern of building materials.
- c. Changes in façade articulation shall occur at intervals which create an interesting visual rhythm.

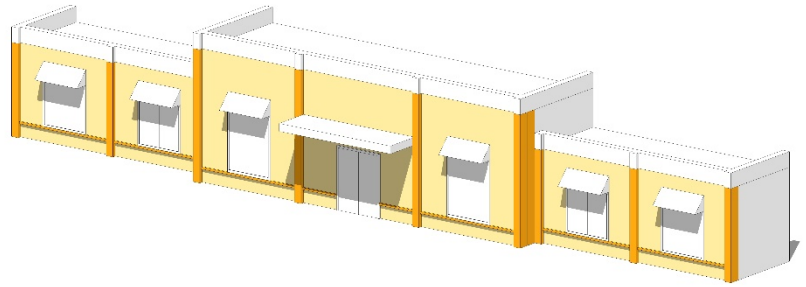


Figure 6.30. Commercial Building Type Articulation

Awnings

- a. A building canopy, awning, or similar weather protection, if provided, shall project a minimum of three (3) to five (5) feet from the façade.
- b. A building canopy, awning, or similar weather protection, if provided, shall be placed over first floor windows or entrances only.

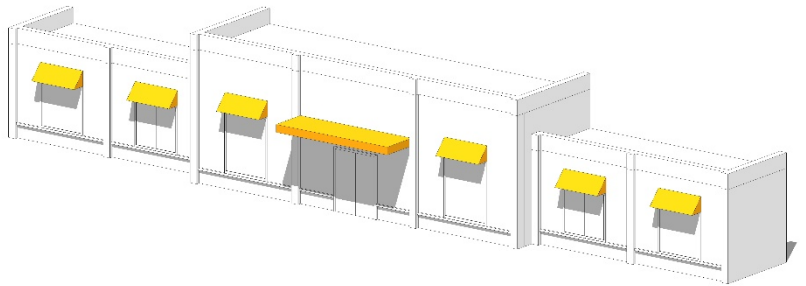


Figure 6.31. Commercial Building Type Awnings

Transparency

- a. The ground level of the building must offer pedestrian interest along sidewalks and paths. Therefore, the first floor of the primary façade as well as the façades of buildings internal to a site containing a pedestrian entrance shall include transparent windows and doors arranged so that the uses inside are visible from and/or accessible to the street on at least 40% of the length of the first floor building elevation.

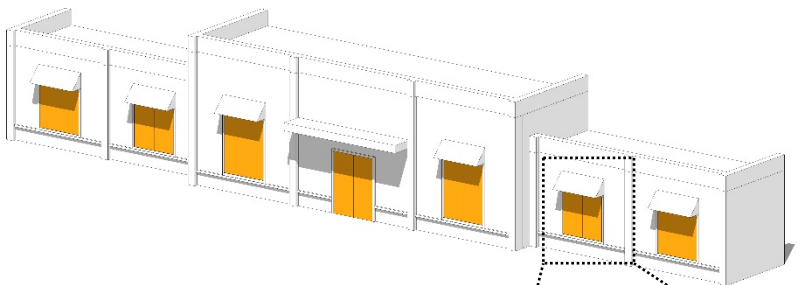


Figure 6.15. Commercial Building Type Transparency

Window Dimensions

a. Maximum Sill Height (1st Story):	42 inches*
b. Minimum Area:	16 sq ft
c. Minimum Width:	3 feet
d. Minimum Height:	4 feet

*As measured from the finished floor elevation.

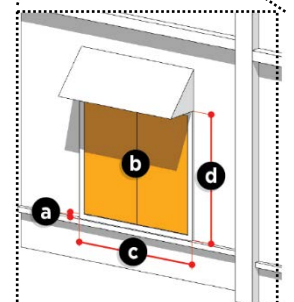


Figure 6.14. Commercial Building Type Window Dimensions

Building Entrance

Primary Façade Entrance

- a. Front entrances shall be located on the façade of the building facing the primary street to which it abuts.
- b. Front entrances shall be designed for the pedestrian and shall be distinguishable from the rest of the building through the use of elements such as but not limited to a landscape forecourt, a wide pedestrian path from the sidewalk with special paving, access and pathway lighting, special plantings and landscape, and / or a prominent roof form.

Other Entrances

- b. Additional entrances may be oriented toward side or rear parking lots.

Service Entrance

- c. Entrances for shipping and receiving shall not be visible from a public right-of-way with the exception of a rear alley.

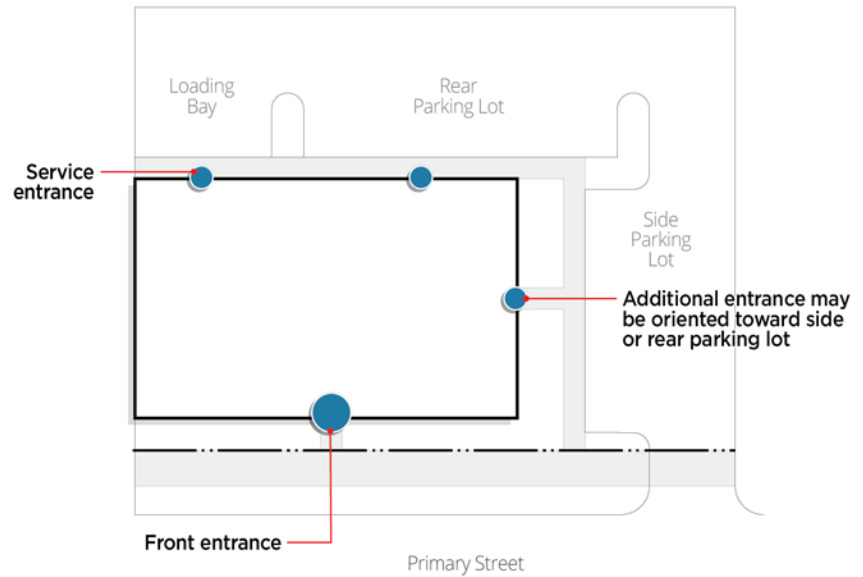


Figure 6.33. Commercial Building Type Building Entrance

Public Improvements

Public Gathering Space Design

- 1 A minimum of 1 square foot per every 25 square feet of gross floor area or 500 square feet, whichever is less, of public gathering space shall be provided.
- 2 Public gathering spaces shall be integrated into the overall site design and be framed or defined by the building(s).

Public Gathering Space Activation

- 3 Public gathering space shall have direct access to a public sidewalk and internal pedestrian walkway network and shall provide at least three (3) of the following features:
 - a. Moveable tables and chairs
 - b. Fountain or other water feature
 - c. Sculptures or other public art features
 - d. Benches, seat walls, or amphitheaters
 - e. Raised landscape planters
 - f. Shade trees lining the gathering space
 - g. Pedestrian scale and celebratory lighting
 - h. Other features as approved by the administrator

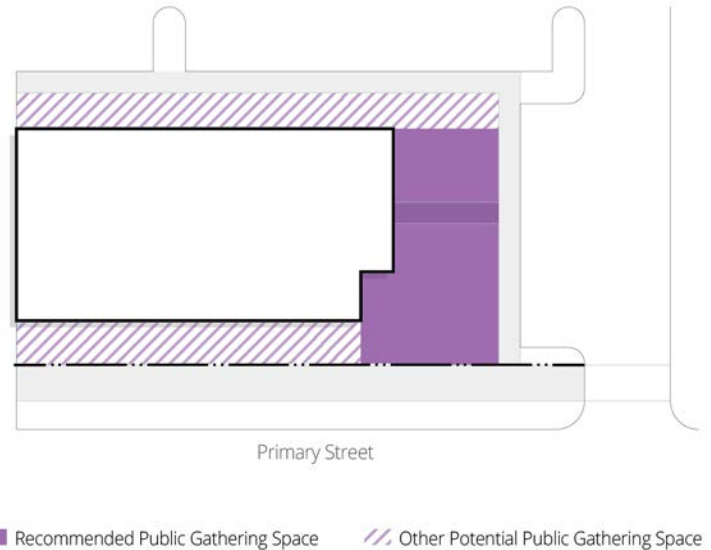


Figure 6.34. Commercial Building Type Public Improvements

6.10. Outlot / Liner Commercial Building Type Standards



Description and Applicability

Description

The Outlot/Liner Commercial Building is a shallow structure, typically 60 feet deep, placed close to the street frontage to conceal surface or structured parking or Large Lot Commercial Buildings.

Applicability

A structure with multiple stories or the appearance of multiple stories utilized to improve the pedestrian environment in automobile-oriented corridors found along major thoroughfares. Specific uses permitted within the Outlot/Liner Commercial Building are determined by the District in which it is located.

Building Type by District

<input type="checkbox"/> OSP	<input type="checkbox"/> NMX
<input type="checkbox"/> RT	<input type="checkbox"/> TC
<input type="checkbox"/> RR	<input checked="" type="checkbox"/> HB
<input type="checkbox"/> GR3 / GR8	<input checked="" type="checkbox"/> BO
<input type="checkbox"/> UR12	<input checked="" type="checkbox"/> MI
<input type="checkbox"/> RMX	<input type="checkbox"/> MQ

Yard Setbacks

Front Minimum	0 ft
Front Maximum	10 ft
Side Minimum	6 ft*
Rear Minimum	10 ft

*If partiwall exists, 0 foot side yard minimum

Parking Location

Permitted Yard

- a. Front Yard: prohibited
- b. Side Yard: prohibited
- c. Rear Yard: permitted

Required Setback

- a. Front Yard: not applicable
- b. Side Yard: 0 feet
- c. Rear Yard: 5 feet

Siting

- 1 To the maximum extent practicable buildings shall be clustered in order to define street edges, entry points, and public gathering spaces. The even dispersal of buildings in a widely spaced pattern along streets is prohibited.

Material Colors

- 1 Facade colors shall be of low reflectance earth tone, muted, subtle, or neutral colors. Building trim may feature brighter colors as an accent material. The use of high-intensity, metallic, fluorescent, day glow, or neon colors shall be prohibited. Variations in color schemes are encouraged in order to articulate entry ways and public amenities so as to give greater recognition to these features.

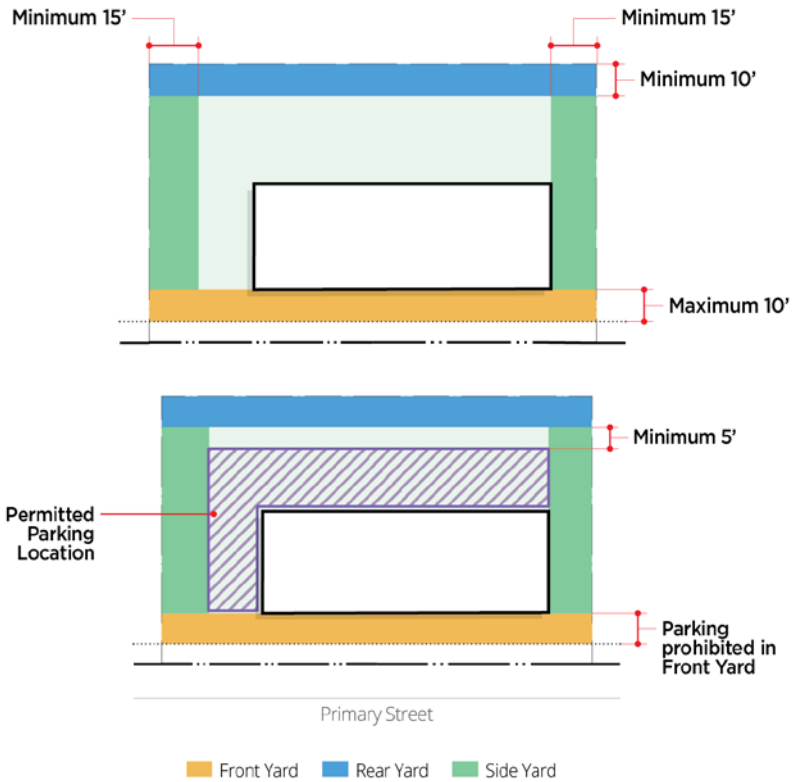


Figure 6.35. Outlot/Liner Commercial Building Type Parking Location

Roofs

Materials

- Pitched roofs shall be clad in wood shingles, standing seam metal, corrugated metal, slate, copper, or asphalt shingles.

Relief

- Roofs shall avoid long, monotonous, uninterrupted horizontal roof planes of 50 feet or more by utilizing roofline offsets that are five (5) feet or more in height, building wall offsets and matching roof lines that are two (2) feet or more in depth, pitched or raised parapets, towers, etc. that lend architectural interest and variety.

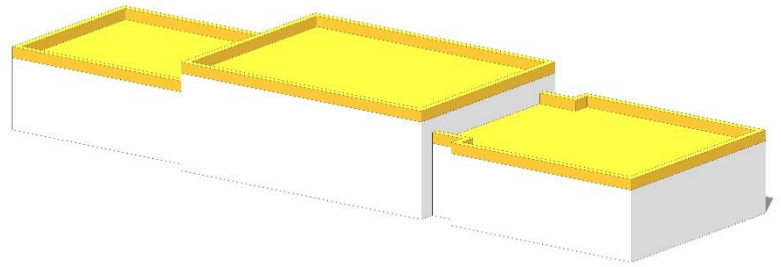


Figure 6.36. Outlot/Liner Commercial Building Type Roof

Building Entrance

Primary Façade Entrance

- Front entrances shall be located on the façade of the building facing the primary street to which it abuts.

Other Entrances

- Additional entrances may be oriented toward side and rear parking lots.

Service Entrance

- Entrances for shipping and receiving shall be integrated into the architecture of the building and shall not be visible from a public right-of-way, parking lot, or public gathering space.

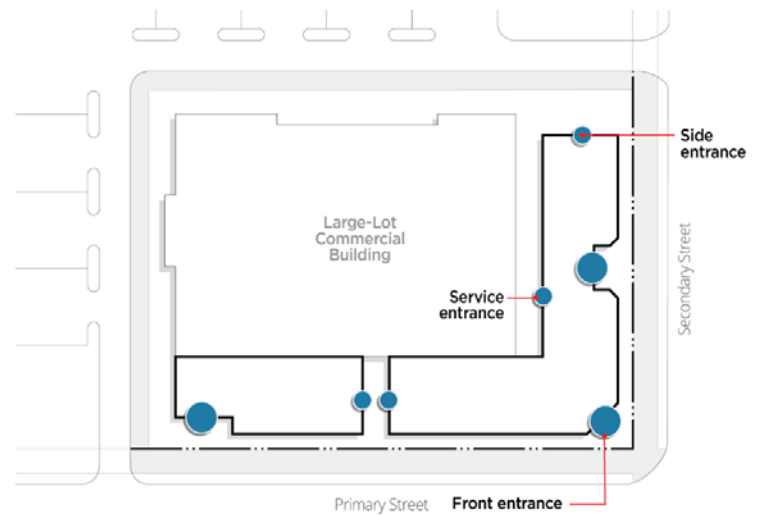


Figure 6.37. Attached Outlot/Liner Commercial Building Type Building Entrance

Façade

Articulation

- a. No blank, uninterrupted wall shall extend for a length greater than or equal to 20 feet.
- b. Blank walls shall be avoided by the addition of windows, piers, building recesses, pilasters, arches, columns, or significant changes in the texture or pattern of building materials.
- c. Changes in façade articulation shall occur at intervals which create an interesting visual rhythm.

Awnings

- a. A building canopy, awning, or similar weather protection, if provided, shall project a minimum of three (3) to five (5) feet from the façade.
- b. A building canopy, awning, or similar weather protection, if provided, shall be placed over first floor windows or entrances only.

Transparency

- a. The ground level of the building must offer pedestrian interest along sidewalks and paths. Therefore, the first floor of the primary façade as well as the façades of buildings internal to a site containing a pedestrian entrance shall include transparent windows and doors arranged so that the uses inside are visible from and/or accessible to the street on at least 40% of the length of the first floor building elevation.

Window Dimensions

a. Maximum Sill Height (1st Story):	42 inches*
b. Minimum Area:	16 sq ft
c. Minimum Width:	3 feet
d. Minimum Height:	4 feet

*As measured from the finished floor elevation.

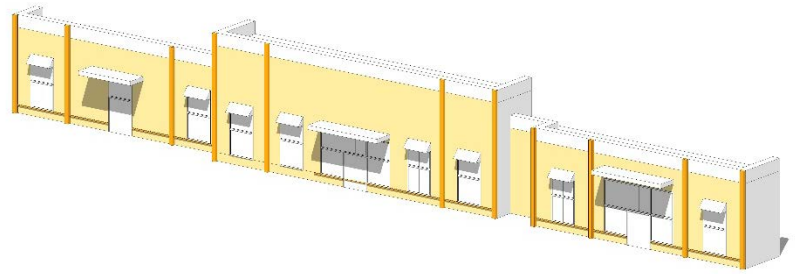


Figure 6.38. Outlot/Liner Commercial Building Type Articulation

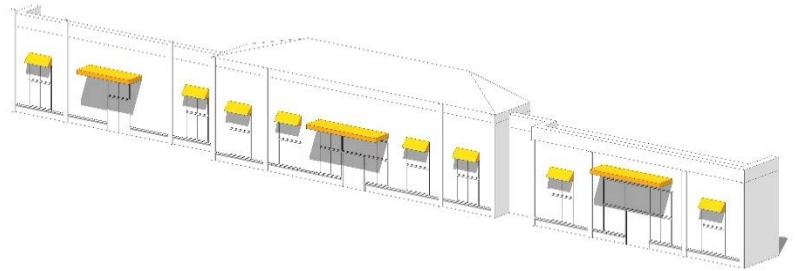


Figure 6.39. Outlot/Liner Commercial Building Type Awnings

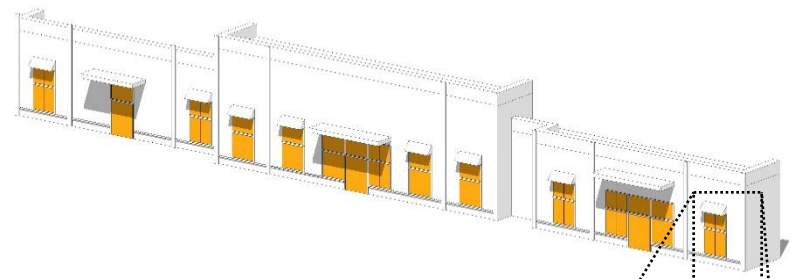


Figure 6.40. Outlot/Liner Commercial Building Type Transparency

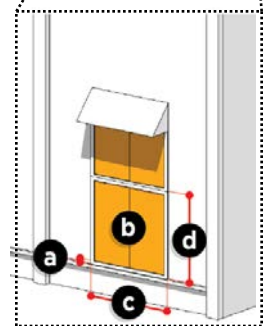


Figure 6.41. Outlot/Liner Commercial Building Type Window Dimensions

Public Improvements

Public Gathering Space Design

- 1 A minimum of 1 square foot per every 25 square feet of gross floor area or 500 square feet per building, whichever is less, of public gathering space shall be provided.
- 2 Public gathering spaces shall be provided in the spaces between outlot / liner commercial buildings and be integrated into the overall site design and be framed or defined by the building(s).
- 3 Shared public gathering spaces, serving more than one building are encouraged.

Public Gathering Space Activation

- 4 Public gathering space shall have direct access to a public sidewalk and internal pedestrian walkway network and shall provide at least three (3) of the following features:
 - a. Moveable tables and chairs
 - b. Fountain or other water feature
 - c. Sculptures or other public art features
 - d. Benches, seat walls, or amphitheaters
 - e. Raised landscape planters
 - f. Shade trees lining the gathering space
 - g. Pedestrian scale and celebratory lighting
 - h. Other features as approved by the administrator

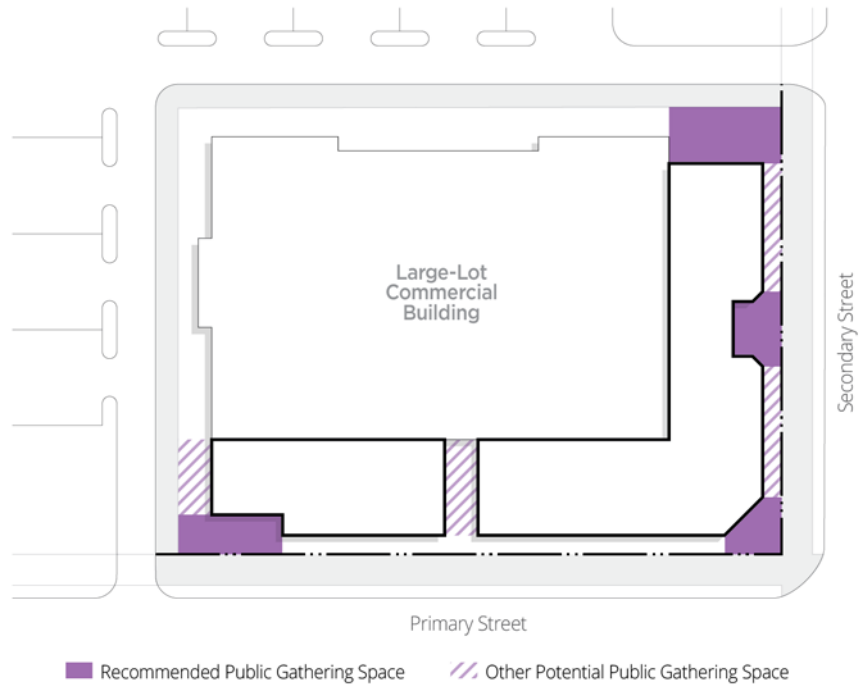


Figure 6.42. Attached Outlot/Liner Commercial Building Type Potential Public Gathering Space Locations

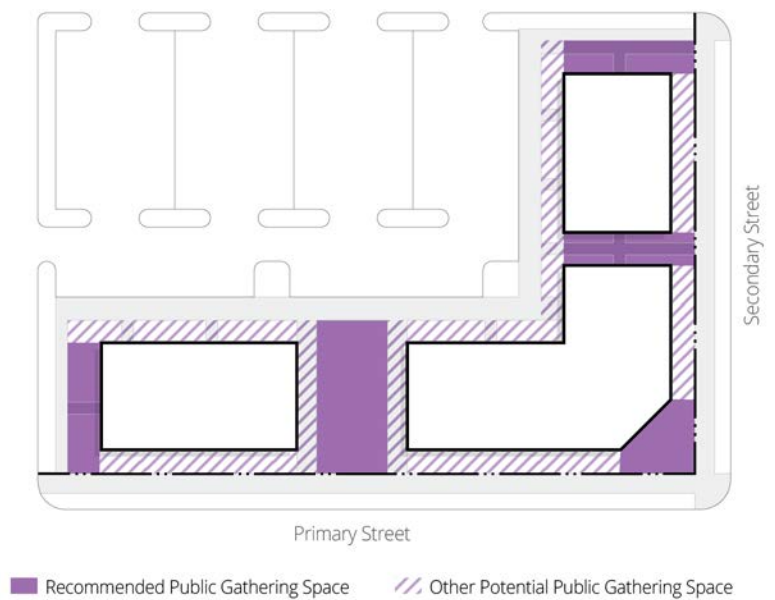


Figure 6.43. Detached Outlot/Liner Commercial Building Type Potential Public Gathering Space Locations

6.11. Large Lot Commercial Building Type Standards



Description and Applicability

Description

The Large Lot Commercial Building has a footprint greater than 25,000 square feet and is often used by big-box national retailers. To minimize the negative impacts of this building type on the pedestrian realm, the Large Lot Commercial Building shall be screened with either detached or attached Outlot/Liner Commercial Buildings.

Applicability

Typically, a single or multi-story large size structure which accommodates automobile-oriented uses found along major thoroughfares. Specific uses permitted within the Large Lot Commercial Building are determined by the District in which it is located.

Building Type by District

<input type="checkbox"/> OSP	<input type="checkbox"/> NMX
<input type="checkbox"/> RT	<input type="checkbox"/> TC
<input type="checkbox"/> RR	<input checked="" type="checkbox"/> HB
<input type="checkbox"/> GR3 / GR8	<input type="checkbox"/> BO
<input type="checkbox"/> UR12	<input checked="" type="checkbox"/> MI
<input type="checkbox"/> RMX	<input type="checkbox"/> MQ

Yard Setbacks	
Front Minimum	0 ft
Front Maximum	n/a
Side Minimum	10 ft
Rear Minimum	30 ft

Parking Location

Permitted Yard

- a. Front Yard: permitted*
- b. Side Yard: permitted
- c. Rear Yard: permitted

Required Setback

- a. Front Yard: 5 feet**
- b. Side Yard: 0 feet
- c. Rear Yard: 5 feet

* Permitted only if screened from ROW by detached Outlot/Liner Commercial Building(s)
 ** 5 foot setback from detached Outlot/Liner Commercial Building(s)

Roofs

Materials

- a. Pitched roofs shall be clad in wood shingles, standing seam metal, corrugated metal, slate, copper, or asphalt shingles.

Relief

- a. Roofs shall avoid long, monotonous, uninterrupted horizontal roof planes of 50 feet or more by utilizing roofline offsets that are five (5) feet or more in height, building wall offsets and matching roof lines that are two (2) feet or more in depth, pitched or raised parapets, towers, etc. that lend architectural interest and variety.

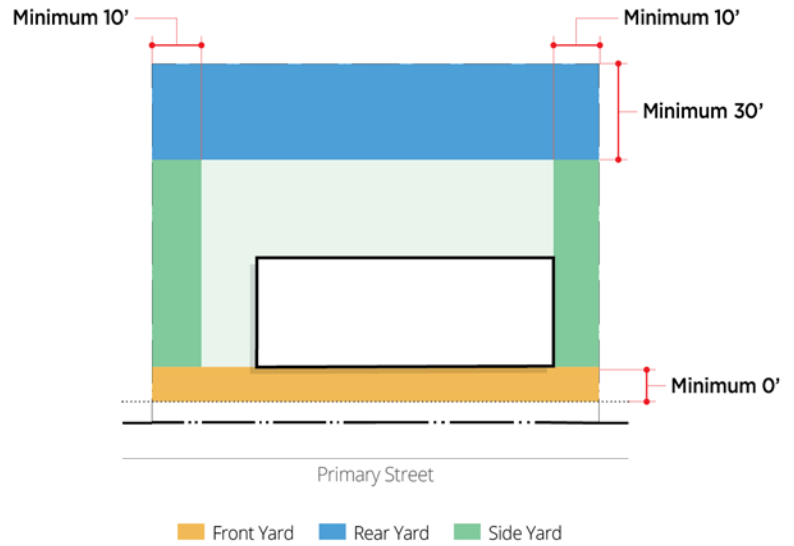


Figure 6.44. Large Lot Commercial Building Type Yard Setbacks

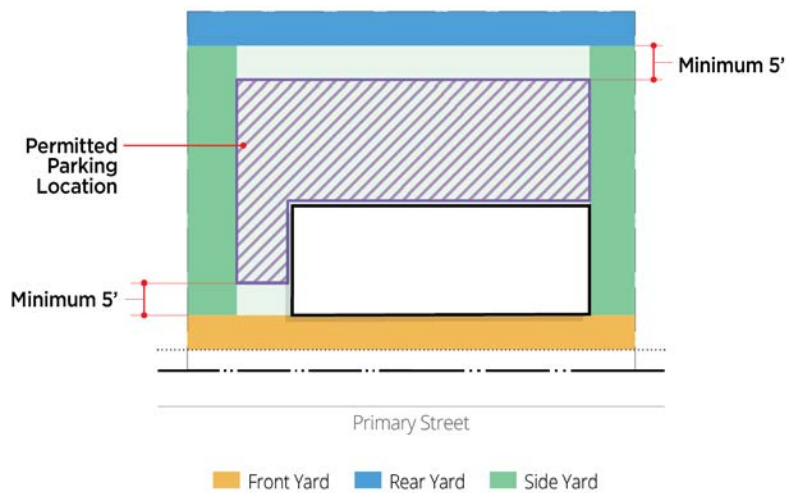


Figure 6.45. Large Lot Commercial Building Type Parking Location

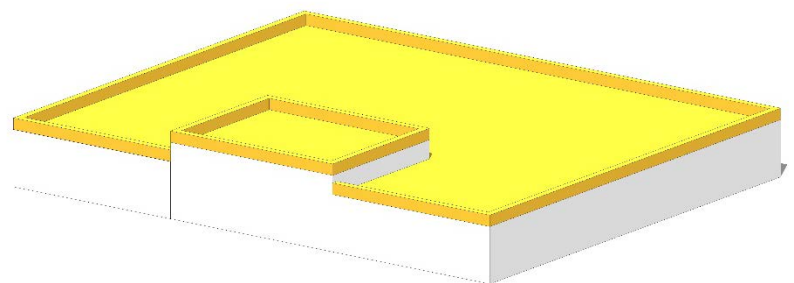


Figure 6.46. Large-Lot Commercial Building Type Roofs

Façade

Articulation

- a. No blank, uninterrupted wall shall extend for a length greater than or equal to 30 feet.
- b. Blank walls shall be avoided by the addition of windows, piers, building recesses, pilasters, arches, columns, or significant changes in the texture or pattern of building materials.
- c. Changes in façade articulation shall occur at intervals which create an interesting visual rhythm.

Awnings

- a. A building canopy, awning, or similar weather protection, if provided, shall project a minimum of three (3) to five (5) feet from the façade.
- b. A building canopy, awning, or similar weather protection, if provided, shall be placed over first floor windows or entrances only.

Transparency

- a. The ground level of the building must offer pedestrian interest along sidewalks and paths. Therefore, the first floor of the primary façade as well as the façades of buildings internal to a site containing a pedestrian entrance shall include transparent windows and doors arranged so that the uses inside are visible from and/or accessible to the street on at least 40% of the length of the first floor building elevation.

Window Dimensions

- | | |
|-------------------------------------|------------|
| a. Maximum Sill Height (1st Story): | 42 inches* |
| b. Minimum Area: | 16 sq ft |
| c. Minimum Width: | 3 feet |
| d. Minimum Height: | 4 feet |

*As measured from the finished floor elevation.

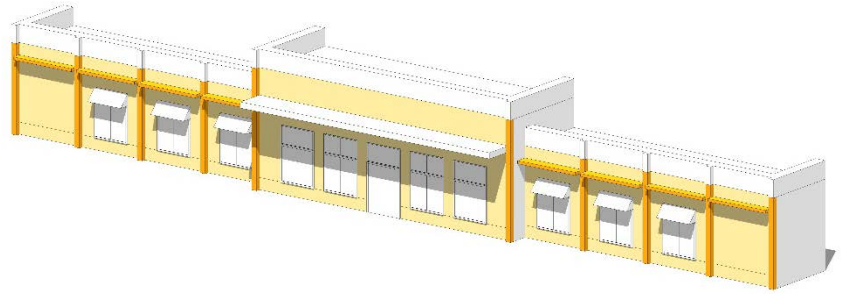


Figure 6.47. Large-Lot Commercial Building Type Articulation

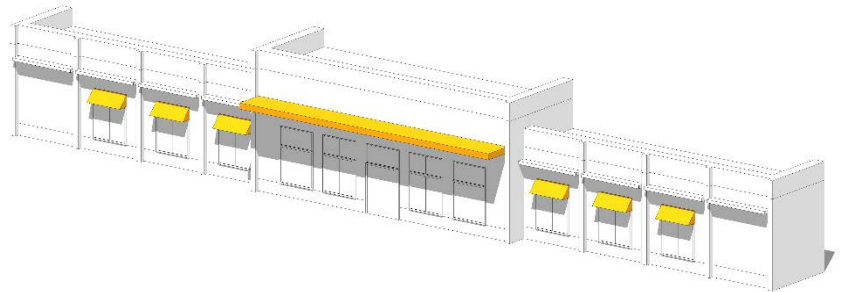


Figure 6.48. Large-Lot Commercial Building Type Awnings

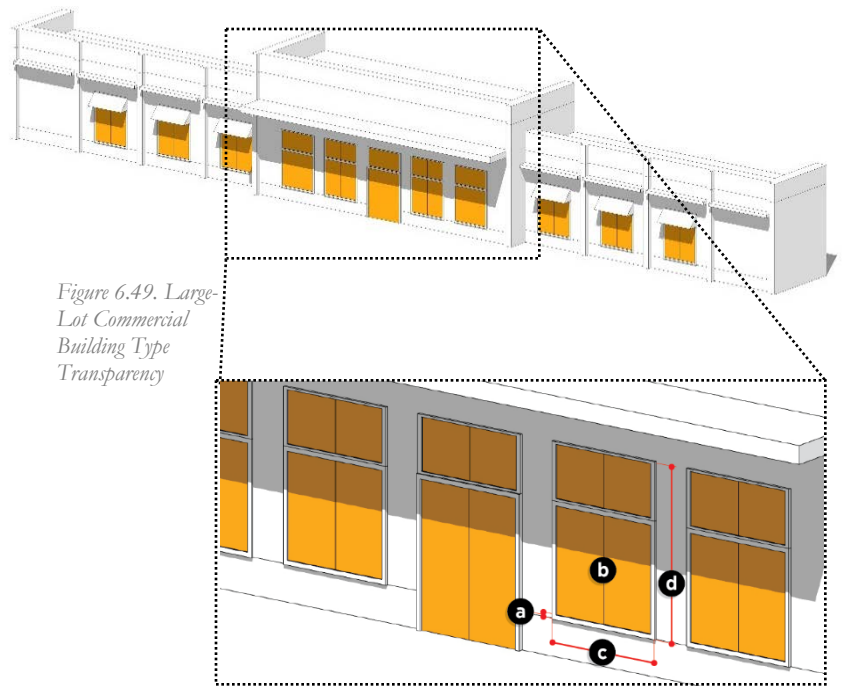


Figure 6.49. Large-Lot Commercial Building Type Transparency

Figure 6.50. Large-Lot Commercial Building Type Window Dimensions

Building Entrance

Primary Façade Entrance

- a. Front entrances shall be located on the façade of the building facing the primary street to which it abuts or the façade of the building facing the parking lot. If an attached outlot / liner commercial building(s) is located between the large lot commercial building and the primary street, nose entrances shall be required and incorporated into the design of the storefronts.
- b. Front entrances shall be designed for the pedestrian and shall be distinguishable from the rest of the building through the use of elements such as but not limited to a landscape forecourt, a wide pedestrian path from the sidewalk with special paving, access and pathway lighting, special plantings and landscape, and / or a prominent roof form.

Other Entrances

- b. Additional entrances may be oriented toward side or rear parking lots.

Service Entrance

- c. Entrances for shipping and receiving shall not be visible from a public right-of-way with the exception of a rear alley.

Material Colors

- 1 Facade colors shall be of low reflectance earth tone, muted, subtle, or neutral colors. Building trim may feature brighter colors as an accent material. The use of high-intensity, metallic, fluorescent, day glow, or neon colors shall be prohibited. Variations in color schemes are encouraged in order to articulate entry ways and public amenities so as to give greater recognition to these features.

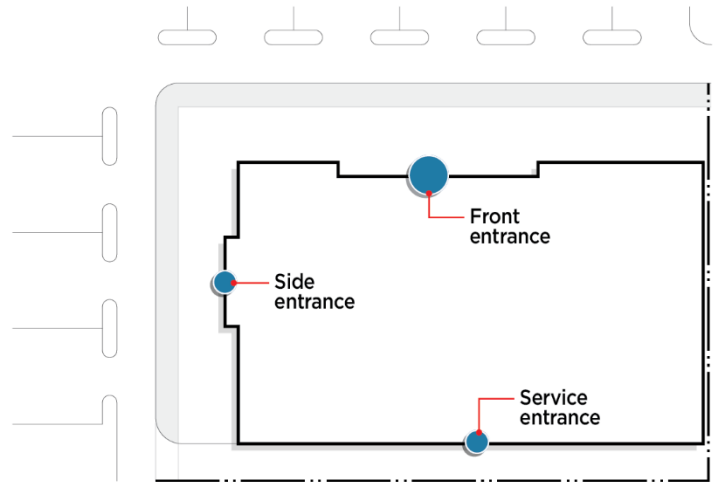


Figure 6.51. Large Lot Commercial Building Type with Detached Outlot/Liner Commercial Building Type Building Entrance

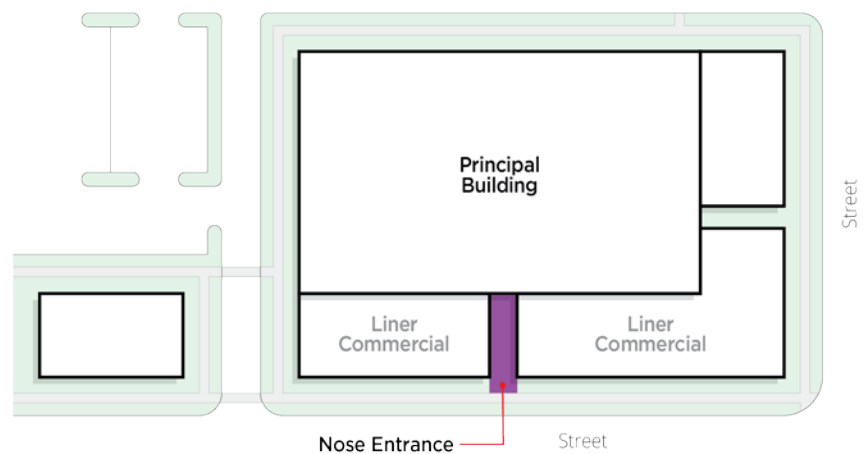


Figure 6.52. Large Lot Commercial Building Type with Attached Outlot/Liner Commercial Building Type and Nose Entrance

Public Improvements

Public Gathering Space Design

- 1 A minimum of 1 square foot per every 25 square feet of gross floor area or 500 square feet, whichever is less, of public gathering space shall be provided.
- 2 Public gathering spaces shall be integrated into the overall site design and be framed or defined by the building(s).

Public Gathering Space Activation

- 3 Public gathering space shall have direct access to a public sidewalk and internal pedestrian walkway network and shall provide at least three (3) of the following features:
 - a. Moveable tables and chairs
 - b. Fountain or other water feature
 - c. Sculptures or other public art features
 - d. Benches, seat walls, or amphitheaters
 - e. Raised landscape planters
 - f. Shade trees lining the gathering space
 - g. Pedestrian scale and celebratory lighting
 - h. Other features as approved by the administrator

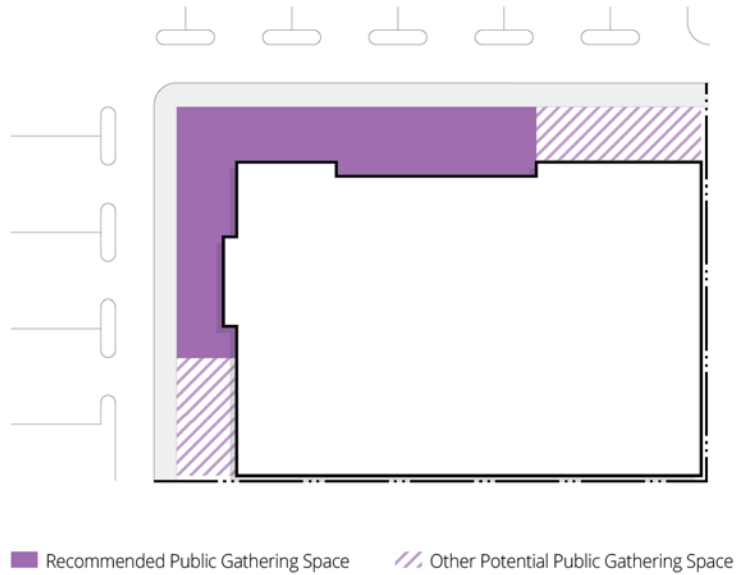


Figure 6.53. Large Lot Commercial Building Type with Detached Outlot/Liner Commercial Building Type Public Improvements

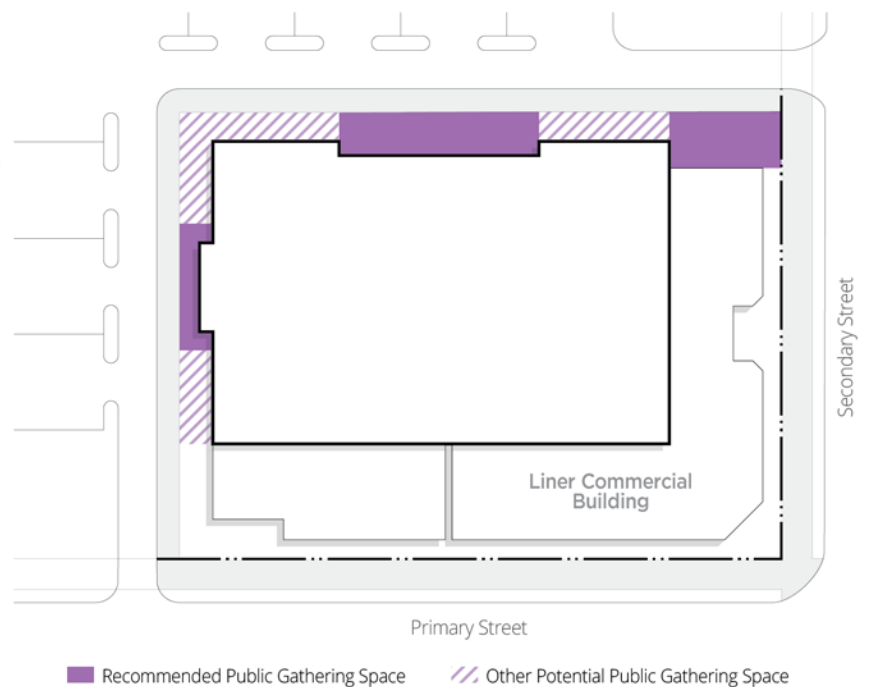


Figure 6.54. Large Lot Commercial Building Type with Attached Outlot/Liner Commercial Building Type Public Improvements

6.12. Manufacturing Building Type Standards



Description and Applicability

Description

The Manufacturing Building is intended for flexible employment-related uses. The form of the building is typically established based on the function of the uses taking place within it.

Applicability

Typically a one-story, large scale structure which accommodates manufacturing, storage, distribution, industrial, technology based uses, although a group of manufacturing buildings may be combined to form an industrial park. Specific uses permitted within the Manufacturing Building are determined by the District in which it is located.

Building Type by District

<input type="checkbox"/> OSP	<input type="checkbox"/> NMX
<input type="checkbox"/> RT	<input type="checkbox"/> TC
<input type="checkbox"/> RR	<input type="checkbox"/> HB
<input type="checkbox"/> GR3 / GR8	<input type="checkbox"/> BO
<input type="checkbox"/> UR12	<input checked="" type="checkbox"/> MI
<input type="checkbox"/> RMX	<input type="checkbox"/> MQ

Yard Setbacks

Front Minimum	50 ft*
Front Maximum	n/a
Side Minimum	50 ft*
Rear Minimum	50 ft*

*If adjacent to residential district, 100 ft.

Parking Location

Permitted Yard

a. Front Yard:	permitted*
b. Side Yard:	permitted
c. Rear Yard:	permitted

Required Setback

a. Front Yard:	5 feet**
b. Side Yard:	0 feet
c. Rear Yard:	5 feet

* Permitted only if screened from ROW by Outlot/Liner Commercial Building(s)

** 5 foot setback from Outlot/Liner Commercial Building(s)

Material Colors

- 1 Facade colors shall be of low reflectance earth tone, muted, subtle, or neutral colors. Building trim may feature brighter colors as an accent material. The use of high-intensity, metallic, fluorescent, day glow, or neon colors shall be prohibited. Variations in color schemes are encouraged in order to articulate entry ways and public amenities so as to give greater recognition to these features.

Roofs

Form

- a. Roofs shall include prominent roof forms that incorporate elements such as but not limited to, upturned eaves or projections, slopes, roof extensions beyond the building elevation to create deep overhangs, architectural elements such as braces, brackets, or saw tooth clerestory windows.

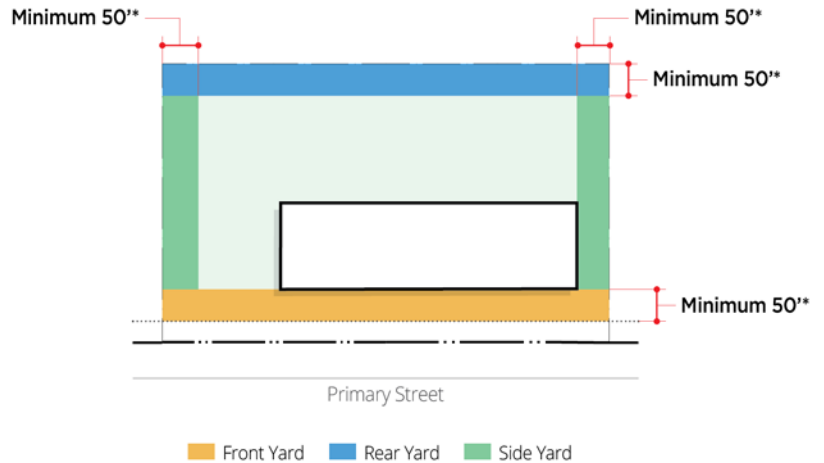


Figure 6.55. Manufacturing Building Type Yard Setbacks

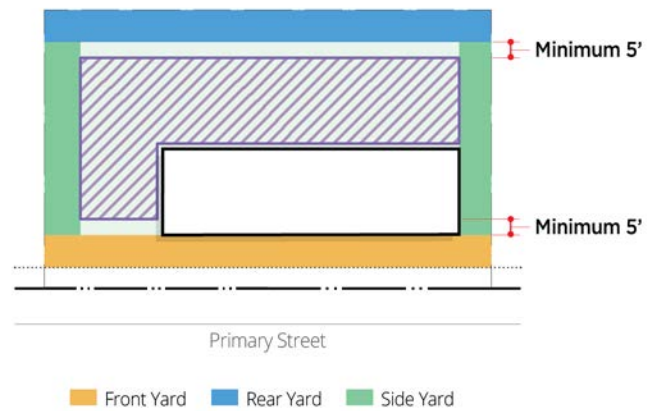


Figure 6.56. Manufacturing Building Type Parking Location

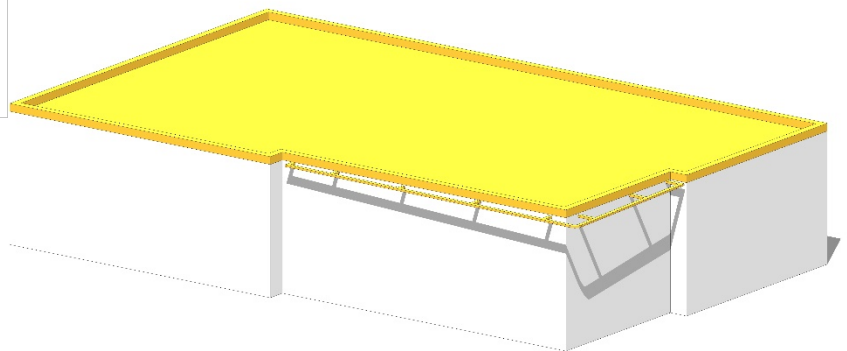


Figure 6.57. Manufacturing Building Type Roofs

Façade

Articulation

- a. Facades shall be articulated with a sense of depth by including design elements that create shadow lines, change color or materials, or incorporate other details that together with required landscaping (Section 7.4) breakdown large expanses of flat, unembellished surfaces.

Awnings

- a. A building canopy, awning, or similar weather protection, if provided, shall project a minimum of three (3) to five (5) feet from the façade.
- b. A building canopy, awning, or similar weather protection, if provided, shall be placed over first floor windows or entrances only.

Transparency

- a. The front entrance must offer pedestrian interest along sidewalks and paths. Therefore, 10% of the first floor of the primary façade on either side of the front entrance shall include transparent windows and doors arranged so that the uses inside are visible from and/or accessible to the street on at least 40% of the required length of the building elevation.

Window Dimensions

- a. Windows should respect the pedestrian scale and be consistent with the grade of pedestrian walkways.



Figure 6.58. Manufacturing Building Type Articulation



Figure 6.59. Manufacturing Building Type Awnings



Figure 6.60. Manufacturing Building Type Transparency

Figure 6.61. Manufacturing Building Type Window Dimensions

Building Entrance

Primary Façade Entrance

- a. Front entrances shall be located on the façade of the building facing the primary street to which it abuts.
- b. Front entrances shall be designed for the pedestrian and shall be distinguishable from the rest of the building through the use of elements such as but not limited to a landscape forecourt, a wide pedestrian path from the sidewalk with special paving, access and pathway lighting, special plantings and landscape, and / or a prominent roof form.

Other Entrances

- c. Additional entrances may be oriented toward side or rear parking lots.

Service Entrance

- d. Entrances for shipping and receiving shall not be visible from a public right-of-way with the exception of a rear alley.

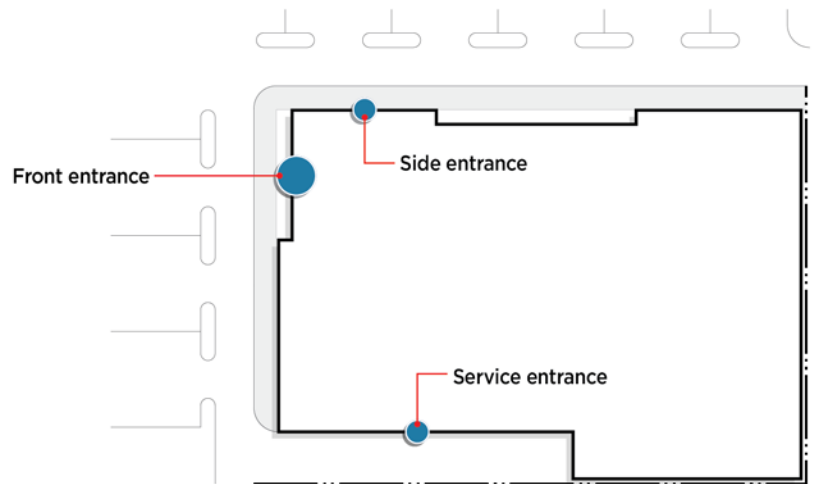


Figure 6.62. Manufacturing Building Type Building Entrance

Public Improvements

Public Gathering Space Design

- 1 A minimum of 1 square foot per every 100 square feet of gross floor area or 500 square feet, whichever is less, of public gathering space shall be provided.
- 2 Public gathering spaces shall be integrated into the overall site design and be framed or defined by the building(s).

Public Gathering Space Activation

- 2 Public gathering space shall have direct access to a public sidewalk and internal pedestrian walkway network and shall provide at least two (2) of the following features:
 - a. Moveable tables and chairs
 - b. Fountain or other water feature
 - c. Sculptures or other public art features
 - d. Benches, seat walls, or amphitheaters
 - e. Raised landscape planters
 - f. Shade trees lining the gathering space
 - g. Pedestrian scale and celebratory lighting
 - h. Other features as approved by the administrator

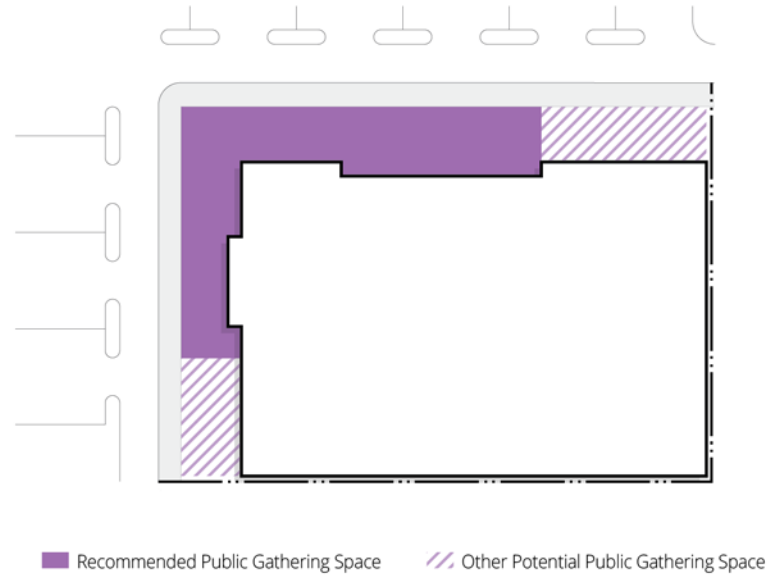


Figure 6.63. Manufacturing Building Type Public Improvements

6.13. Institutional Building Type Standards



Description and Applicability

Description

Institutional Buildings often serve as landmarks and public gathering places. They also should be constructed as permanent additions to the long-term vibrancy of the Town and should serve to exemplify the very best architectural designs and building practices. However, because most Institutional Buildings house specialized populations (i.e. children, elderly, college students, or the infirmed) they have unique characteristics that require design control.

Applicability

The Institutional Building type includes, but is not limited to: governmental offices, schools, hospitals and long-term care facilities, post offices, and non-profit or charitable clubs and organizations.

Building Type by District

<input type="checkbox"/> OSP	<input type="checkbox"/> NMX
<input type="checkbox"/> RT	<input type="checkbox"/> TC
<input type="checkbox"/> RR	<input type="checkbox"/> HB
<input type="checkbox"/> GR3 / GR8	<input type="checkbox"/> BO
<input type="checkbox"/> UR12	<input type="checkbox"/> MI
<input type="checkbox"/> RMX	<input type="checkbox"/> MQ

Yard Setbacks	
Front Minimum	10 ft
Front Maximum	n/a
Side Minimum	10 ft*
Rear Minimum	30 ft

*If partwall exists, 0 foot side yard minimum

Roofs

Flat roofs are allowed, but principal buildings adjacent to residential structures are encouraged to have similar roofs and other architectural features to ensure compatibility.

Material Colors

- 1 Facade colors shall be of low reflectance earth tone, muted, subtle, or neutral colors. Building trim may feature brighter colors as an accent material. The use of high-intensity, metallic, fluorescent, day glow, or neon colors shall be prohibited. Variations in color schemes are encouraged in order to articulate entry ways and public amenities so as to give greater recognition to these features.

Specific Requirements

- a. Institutional Buildings should create an easily recognizable visual anchor for the community.
- b. Accessory structures shall be set back a minimum of 20 ft from the primary facade of the principal structure; and if more than one (1) accessory structure, shall be arranged to create secondary gathering spaces within the lot.

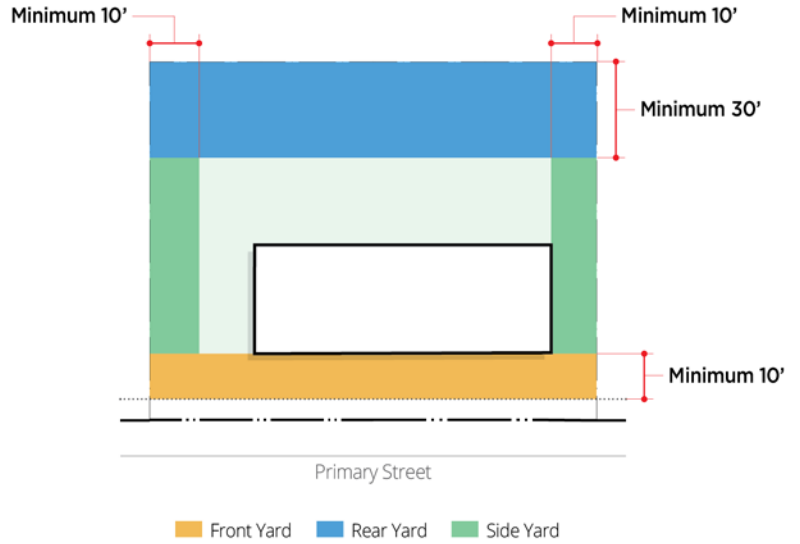


Figure 6.64. Institutional Building Type Yard Setbacks

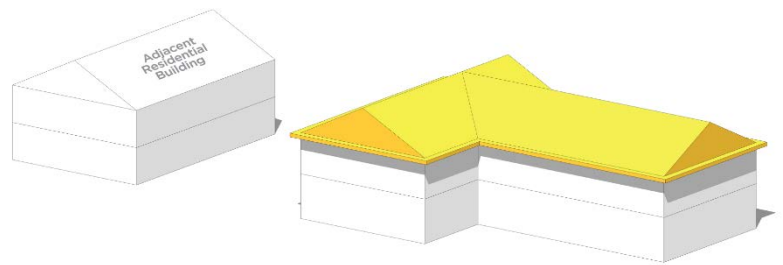


Figure 6.65. Institutional Building Type Roofs

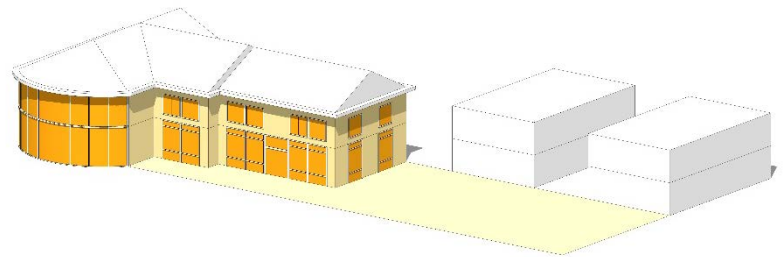


Figure 6.66. Institutional Building Type Specific Requirements

Public Improvements

Public Gathering Space Design

- 1 A minimum of 1 square foot per every 25 square feet of gross floor area or 500 square feet, whichever is less, of public gathering space shall be provided.
- 2 Public gathering spaces shall be integrated into the overall site design and be framed or defined by the building(s).

Public Gathering Space Activation

- 3 Public gathering space shall have direct access to a public sidewalk and internal pedestrian walkway network and shall provide at least three (3) of the following features:
 - a. Moveable tables and chairs
 - b. Fountain or other water feature
 - c. Sculptures or other public art features
 - d. Benches, seat walls, or amphitheaters
 - e. Raised landscape planters
 - f. Shade trees lining the gathering space
 - g. Pedestrian scale and celebratory lighting
 - h. Other features as approved by the administrator

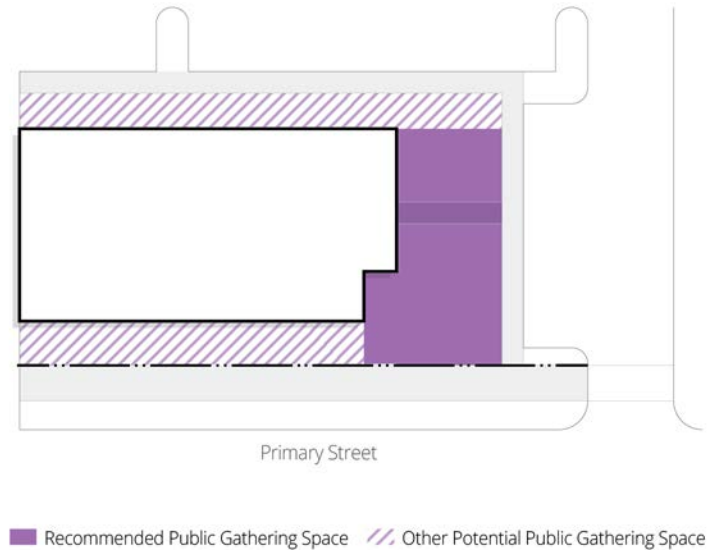


Figure 6.67. Institutional Building Type Public Improvements

6.14. Civic Building Type Standards



Description and Applicability

Description

The Civic Building serves as a landmark and a public gathering place. Such buildings should be constructed as permanent additions to the long-term vibrancy of the Town and should serve to exemplify the very best architectural designs and building practices.

Applicability

The Civic Building type covers a range of public and private buildings that includes, but is not limited to: Town halls and libraries, museums and observatories, churches and synagogues.

Building Type by District

<input type="checkbox"/> OSP	<input type="checkbox"/> NMX
<input type="checkbox"/> RT	<input type="checkbox"/> TC
<input type="checkbox"/> RR	<input type="checkbox"/> HB
<input type="checkbox"/> GR3 / GR8	<input type="checkbox"/> BO
<input type="checkbox"/> UR12	<input type="checkbox"/> MI
<input type="checkbox"/> RMX	<input type="checkbox"/> MQ

Yard Setbacks

Front Minimum	10 ft
Front Maximum	n/a
Side Minimum	10 ft*
Rear Minimum	30 ft

*If partiwall exists, 0 foot side yard minimum

Roofs

Flat roofs are allowed, but principal buildings adjacent to residential structures are encouraged to have similar roofs and other architectural features to ensure compatibility.

Material Colors

- 1 Facade colors shall be of low reflectance earth tone, muted, subtle, or neutral colors. Building trim may feature brighter colors as an accent material. The use of high-intensity, metallic, fluorescent, day glow, or neon colors shall be prohibited. Variations in color schemes are encouraged in order to articulate entry ways and public amenities so as to give greater recognition to these features.

Specific Requirements

- a. Civic Buildings should be built so that they terminate a street vista whenever possible.
- b. Civic Buildings should be of sufficient design to create an easily recognizable visual anchor for the community.

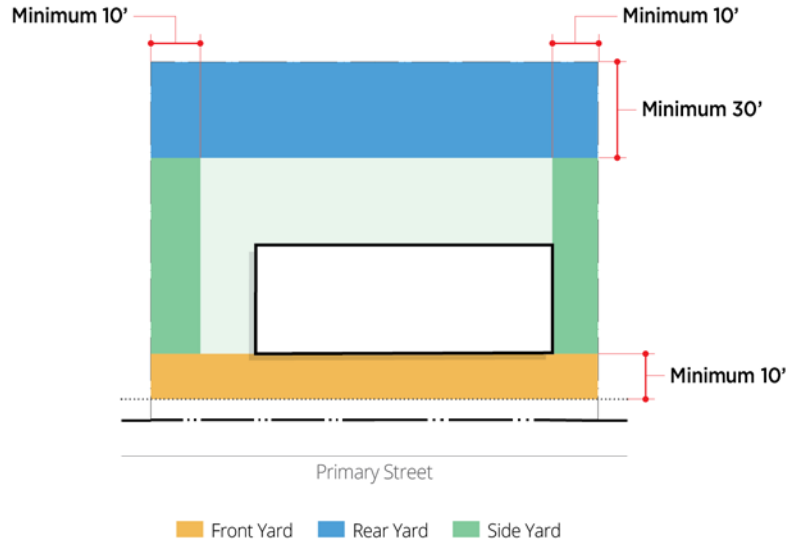


Figure 6.68. Civic Building Type Yard Setbacks

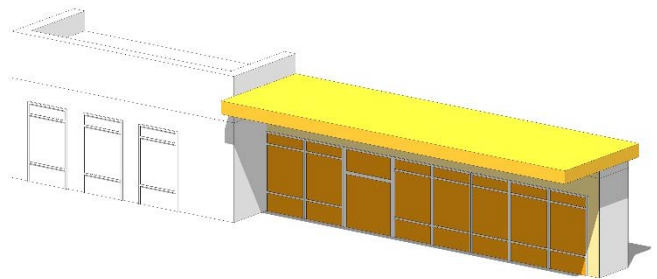


Figure 6.69. Civic Building Type Specific Requirements

Public Improvements

Public Gathering Space Design

- 1 A minimum of 1 square foot per every 25 square feet of gross floor area or 500 square feet, whichever is less, of public gathering space shall be provided.
- 2 Public gathering spaces shall be integrated into the overall site design and be framed or defined by the building(s).

Public Gathering Space Activation

- 3 Public gathering space shall have direct access to a public sidewalk and internal pedestrian walkway network and shall provide at least three (3) of the following features:
 - a. Moveable tables and chairs
 - b. Fountain or other water feature
 - c. Sculptures or other public art features
 - d. Benches, seat walls, or amphitheaters
 - e. Raised landscape planters
 - f. Shade trees lining the gathering space
 - g. Pedestrian scale and celebratory lighting
 - h. Other features as approved by the administrator

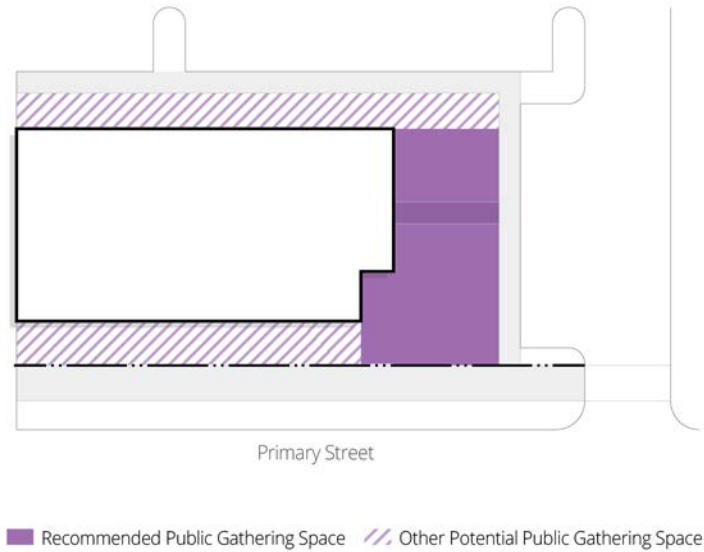



Figure 6.70. Civic Building Type Public Improvements

*Click a Chapter Section
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Chapter 7. Development Standards

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7.1. Parking

- A. **Purpose and Intent.** Vehicle accommodation areas such as parking lots, loading areas, and circulation drives are necessary elements in the urban environment. However, these areas are known to increase stormwater volume and velocity, increase the levels of surface pollutants, increase surface-level heat and glare, reduce the efficiency of the connecting street system, and increase the number of potential conflict points with the surrounding pedestrian network. This chapter regulates the construction, expansion, and renovation of vehicle accommodation areas in a manner that seeks to minimize and mitigate these known impacts.
- B. **Applicability.** The standards of this Section are applicable across all zoning districts, except as described in this section.
1. **Town Center (TC) District.**
 - a. Developments which do not involve an increase of more than twenty-five (25) percent in the building floor area are exempt from the standards of this Section;
 - b. Developments which involve only a change of use and which will not increase the number of parking spaces required under this chapter by more than ten (10) percent are exempt from the standards of this Section; and
 - c. Required loading areas must still be provided but may be designated on-street and/or within public alleys.
 2. **Central Business District.** For uses located within the Central Business District, compliance with parking requirements may be achieved by making payments in accordance with the Town of Knightdale Fee Schedule adopted by the Town Council to the Fund 70 Capital Reserve account. The payment shall be based upon a dollar amount per parking space, and all parking payment moneys shall be used to acquire, maintain, administer, and/or improve public parking.
- C. **Loading Areas.**
1. Off-street loading space available for the loading and unloading of vehicles shall be provided for all retail, wholesale and industrial uses, as well as for any expansion of such uses or change in use requiring the regular delivery or shipment of goods, merchandise or equipment to the site.

2. Loading areas may not otherwise be used for conducting the operations and activities of the permitted use, including, but not limited to, the display or storage of vehicles or materials.
 3. Loading areas shall be located on the private lot and shall not be located within, or so as to interfere with, any public right-of-way, off-street parking area, or pedestrian circulation area.
 4. No loading dock or overhead doors shall face upon a street right-of-way except in cases where no practical alternative exists, as determined by the Land Use Administrator.
 5. Adequate space for standing, turning, loading, and unloading services shall be provided in a manner that does not interfere with required off-street parking areas, pedestrian circulation areas, and the public use of streets or alleys.
 6. Each loading berth shall be located so as to facilitate access to a public street or alley and shall not interfere with other vehicular or pedestrian traffic and shall not interfere with the function of parking areas. In no instance shall loading areas rely on backing movements into public rights-of-way.
 7. All required loading areas shall be paved and maintained in a dust-free condition at all times. Said surface shall be marked in a manner that clearly indicates required loading areas.
 8. Loading areas shall not be considered for meeting the requirements of Section 7.1 (E), (F), or (G).
- D. **Cross Access.** All developments featuring on-site parking lots shall be designed to allow for cross-access to adjacent properties to encourage shared parking (Section 7.1 (J)(3)). Each parking lot that features cross access with a parking lot on an adjacent property may reduce their minimum parking requirement by five (5) percent. When cross access is deemed impractical by the Land Use Administrator on the basis of severe topography, environmental constraints, or vehicular safety factors, the requirement may be deviated from, provided that appropriate bicycle and pedestrian connections are provided between adjacent developments or land uses. Development plans shall provide cross-access easement and complete the connection if completing the link can derive an immediate benefit. If no immediate benefit can be derived, development plans shall provide cross access and construction easements and arrange the site design so when the adjoining property owner extends the connection to the property line, the link will be completed. If the link is to be completed in the future, the grade of the connection, parking, landscaping, and other improvements must be set to allow for extension into the adjacent property.
- E. **Park and Ride / Transit Accommodations.**
1. Shopping centers that provide one-hundred (100) or more motorized vehicle parking spaces shall designate at least five (5) percent of the required spaces as “Park and Ride” spaces; however, no more than one-hundred (100) spaces shall be required.
 2. A sign or signs shall be used to designate that the spaces are reserved for park and ride use during non-holiday weekdays between 6AM and 6PM.
 3. Park and ride spaces should be located adjacent to one another in a cohesive manner.
 4. Bus shelters, transit easements, or other transit-oriented accommodations may be required to be installed by the developer in the vicinity of the Park and Ride area or existing or proposed transit stop if the Land Use Administrator determines that GoWake Access, Go Triangle, GoRaleigh, or another publicly-sponsored transit provider would benefit from the improvements.
- F. **Bicycle Parking.**
1. Multi-family residential uses shall provide bicycle parking at a rate of one (1) bicycle parking space for every twenty (20) motorized vehicle spaces; however, no more than one-hundred (100) total bicycle parking spaces shall be required for any single development.
 2. Nonresidential uses with off-street parking for motorized vehicles of at least fifteen (15) spaces and not more than forty (40) spaces shall provide a minimum of two (2) bicycle parking spaces.

3. Nonresidential uses with off-street parking for motorized vehicles of more than forty (40) spaces shall provide bicycle parking at a rate of one (1) bicycle parking space for every ten (10) motorized vehicle spaces; however, no more than one-hundred (100) total bicycle parking spaces shall be required for any single development.

G. Motorized Vehicle Parking.

1. Calculations.

- a. **Multiple Uses.** In developments involving the establishment or addition of two (2) or more uses on one (1) lot or parcel, the cumulative number of spaces required for each use shall determine the total number of spaces required.
- b. **Fractions.** When measurements of the number of required spaces result in a fractional number, any fraction of less than one-half (0.5) is rounded down to the next lower whole number, and any fraction of one-half (0.5) or more is rounded up to the next higher whole number.
- c. **Abbreviations and Symbols.** The following abbreviations and symbols shall be interpreted as detailed below.
 - i. ksf: one-thousand (1,000) square feet,
 - ii. GFA: gross floor area,
 - iii. GLA: gross leasable area,
 - iv. *: To be determined by a parking study specific to the use.
- d. **Occupancy or Capacity-Based Standards.** For the purpose of computing parking requirements based on employees, students, residents, or occupants, calculations must be based on the largest number of persons working on any single shift, the maximum enrollment, or the maximum fire-rated capacity, whichever is applicable as determined by the Land Use Administrator and as approved by the Fire Department.
- e. **Unlisted Uses.** In the case of uses not specified in Section 7.1(G)(2), the Land Use Administrator shall determine the closest similar use. If no similar use exists, required parking shall be determined by a parking study specific to the use.

2. Parking for motorized vehicles shall be provided according to the following table of ratios:

a. Residential		Minimum Parking Spaces	Maximum Parking Spaces
i	Dwelling-Duplex	1.0 per bedroom up to 2.0 per unit	n/a
ii	Dwelling-Multifamily, above ground floor as a part of mixed-use	1.0 per bedroom up to 2.0 per unit	1.5 per bedroom up to 3.0 per unit
iii	Dwelling-Multifamily, 4 units / bldg or less	1.0 per bedroom up to 2.0 per unit	1.5 per bedroom up to 3.0 per unit
iv	Dwelling-Multifamily, more than 4 units / bldg	1.0 per bedroom up to 2.0 per unit	1.5 per bedroom up to 3.0 per unit
v	Dwelling-Single Family	1.0 per bedroom up to 2.0 per unit	n/a
vi	Family Care Home (6 or Less residents)	1.0 per bedroom up to 2.0 per unit	n/a
vii	Housing Service for the Elderly	1/2 max	0.5 per unit
viii	Live-Work Units	1.0 per bedroom up to 2.0 per unit, plus 1/2 max	1.0 per bedroom or 2.0 per unit, plus 3.5 per ksf work space GFA
ix	Manufactured Housing	1.0 per bedroom up to 2.0 per unit	n/a
x	Townhouse, 4 units or less	1.0 per bedroom up to 2.0 per unit	n/a
xi	Townhouse, more than 4 units	1.0 per bedroom up to 2.0 per unit	n/a

b. Lodging		Minimum Parking Spaces	Maximum Parking Spaces
i	Bed and Breakfast Inns	1/2 maximum	1.25 per guest room + 10 per ksf restaurant/lounge + 25 per ksf conference room
ii	Hotels		

c. Office / Service		Minimum Parking Spaces	Maximum Parking Spaces
i	Animal Services, Boarding	1/2 maximum	6.0 per ksf GFA
ii	Animal Services, Nonboarding	1/2 maximum	6.0 per ksf GFA
iii	Banks, Credit Unions, Financial Services	1/2 maximum	5.5 per ksf GFA
iv	Business Support Services	1/2 maximum	4.0 per ksf GFA
v	Child/Adult Day Care Home (Fewer than 6 people)	1.0 per bedroom up to 2.0 per unit	n/a
vi	Child/Adult Day Care Center (6 or more people)	1/2 maximum	0.35 per person licensed cap.
vii	Community Service Organization	1/2 maximum	4.0 per ksf GFA
viii	Contractor Office	1/2 maximum	2.0 per ksf GFA
ix	Corporate Campus	1/2 maximum	6.0 per ksf GFA
x	Cremation Facilities	1/2 maximum	4.0 per ksf GFA
xi	Equipment Rental	1/2 maximum	2.0 per ksf GFA
xii	Funeral Homes	1/2 maximum	0.25 per person permitted cap.
xiii	Government Services	*	*
xiv	Medical Services	1/2 maximum	5.5 per ksf GFA
xv	Outdoor Animal Boarding/Equestrian Facilities	1/2 maximum	0.5 per run/stable
xvi	Personal Services	1/2 maximum	2.0 per station or 4.3 per ksf GFA whichever greater
xvii	Post Office	1/2 maximum	4.0 per ksf GFA
xviii	Professional Services	1/2 maximum	4.0 per ksf GFA

xviii	Studio – Art, dance, martial arts, music	½ maximum	4.0 per ksf GFA
xix	Tattoo Shop	½ maximum	2.0 per station or 4.3 ksf GFA whichever greater
xx	Vehicle Services – Maintenance/Body Work/Repair	½ maximum	2.7 per ksf GFA sales area, plus 2.0 per service bay, plus 1.5 per ksf balance of GFA

d. Retail / Restaurant		Minimum Parking Spaces	Maximum Parking Spaces
i	Auto Parts Sales	½ maximum	2.7 per ksf GFA sales area, plus 2.0 per service bay, plus 1.5 per ksf balance of GFA
ii	Bar/Tavern/Microbrewery	½ maximum	18 per ksf GFA
iii	Gas Station with Convenience Store	½ maximum	3.5 per ksf GFA
iv	General Retail – 10,000 sf or less	½ maximum	3.5 per ksf GFA
v	General Retail – 10,001 sf – 50,000 sf	½ maximum	6.0 per ksf GFA
vi	General Retail – Greater than 50,000 sf	½ maximum	6.0 per ksf GFA
vii	Neighborhood Retail/Restaurant – 2,000 sf or less	½ maximum	3.5 per ksf GFA retail; 16.0 per ksf GFA restaurant
viii	Nightclub	½ maximum	18 per ksf GFA
ix	Restaurant	½ maximum	22.5 per ksf GFA
x	Shopping Center – Community Center	½ maximum	4.5 per ksf GLA
xi	Shopping Center – Neighborhood Center	½ maximum	4.0 per ksf GLA
xii	Sweepstakes Center	½ maximum	2.0 per machine
xiii	Tasting Room	½ maximum	18 per ksf GFA
xiv	Vehicle/Heavy Equipment Sales	½ maximum	2.7 per ksf GFA sales area, plus 2.0 per service bay, plus 1.5 per ksf balance of GFA

e. Entertainment / Recreation		Minimum Parking Spaces	Maximum Parking Spaces
i	Adult Establishment	½ maximum	1.0 per 3 persons permitted cap.
ii	Amusements, Indoor – 5,000 sf or less	½ maximum	1.0 per 3 persons permitted cap.
iii	Amusements, Indoor – 5,001 sf – 20,000 sf	½ maximum	1.0 per 3 persons permitted cap.
iv	Amusements, Indoor – Greater than 20,000 sf	½ maximum	1.0 per 3 persons permitted cap.
v	Amusements, Outdoor	½ maximum	1.0 per 3 persons permitted cap.
vi	Cultural or Community Facility	½ maximum	1.0 per 3 persons permitted cap.
vii	Meeting Facilities	½ maximum	0.25 per person permitted cap.
viii	Recreation Facilities, Indoor	½ maximum	1.0 per 3 persons permitted cap.
ix	Recreation Facilities, Outdoor	½ maximum	1.0 per 3 persons permitted cap.
x	Theater, Live Performance	½ maximum	0.4 per seat
xi	Theater, Movie	½ maximum	Single screen; 0.5 per seat,
			2-5 screens: 0.33 per seat,
			6 -10 screens: 0.3 per seat,
			Over 10 screens: 0.27 per seat

f. Manufacturing / Wholesale / Storage		Minimum Parking Spaces	Maximum Parking Spaces
i	Agribusiness, Outdoor	½ maximum	2.0 per ksf GFA
ii	Agribusiness, Indoor	½ maximum	2.0 per ksf GFA
iii	Brewery / Winery / Distillery	½ maximum	1.5 per ksf GFA
iv	Laboratory - medical, analytical, research & development	½ maximum	1.5 per ksf GFA
v	Manufacturing, Light	½ maximum	1.5 per ksf GFA
vi	Manufacturing, Neighborhood	½ maximum	1.5 per ksf GFA
vii	Manufacturing, Heavy	½ maximum	2.0 per ksf GFA
viii	Media Production	½ maximum	1.5 per ksf GFA
ix	Metal Products Fabrication, machine or welding shop	½ maximum	2.0 per ksf GFA
x	Mini-Warehouses	½ maximum	0.25 per ksf GFA
xi	Quarrying and Stone Cutting	½ maximum	2.0 per ksf GFA
xii	Research and Development	½ maximum	1.5 per ksf GFA
xiii	Storage - Outdoor storage yard as a primary use	½ maximum	2.0 per ksf GFA
xiv	Storage - Warehouse, indoor storage	½ maximum	1 per ksf GFA
xv	Wholesaling and Distribution	½ maximum	2.0 per ksf GFA

g. Civic / Institutional		Minimum Parking Spaces	Maximum Parking Spaces
i	Campground	1.0 per campsite	n/a
ii	Cemeteries	½ maximum	4.0 per ksf GFA
iii	Colleges/Universities	*	*
iv	Group Care Facility (More than 6 residents)	½ maximum	1.0 per room
v	Hospital	*	*
vi	Public Safety Facility	*	*
vii	Religious Institutions	½ maximum	0.5 per seat
viii	Schools – Elementary & Secondary	½ maximum	0.35 per student
ix	Schools – Vocational/Technical	*	*

h. Infrastructure		Minimum Parking Spaces	Maximum Parking Spaces
i	Airport	*	*
ii	Transit, Road & Ground Passenger Services	½ maximum	4.0 per ksf GFA
iii	Wireless Telecommunication Facility-Stealth	n/a	n/a
iv	Wireless Telecommunication Facility-Tower	n/a	n/a
v	Utilities-Class 1 & 2	n/a	n/a
vi	Utilities-Class 3	n/a	n/a

H. Adjustments to Motorized Vehicle Parking Ratios.

1. Adjustments to Parking Ratio Minimums.

- a. **Tree Preservation.** The minimum number of spaces required by Section 7.1 (G)(2) may be adjusted by the Land Use Administrator when it has been determined that the reductions are necessary to preserve a tree or trees with a twelve (12) inch or greater DBH from being damaged or removed, and where the site plan provides for the retention of said tree or trees.
 - b. **Transit.** The minimum number of spaces required by 7.1 (G)(2) may be adjusted by up to ten (10) percent by the Land Use Administrator when the subject lot is located within nine-hundred (900) feet of a public transit stop.
 - c. **Pedestrian Access.** The minimum number of spaces required by 7.1 (G)(2) for non-residential uses may be adjusted by up to ten (10) percent by the Land Use Administrator when the Land Use Administrator deems the use to be neighborhood-serving and when the subject lot is accessible to residents within one-thousand three-hundred and twenty (1,320) feet by a continuous sidewalk network.
 - d. **Public Parking Lots.** The minimum number of spaces required by 7.1 (G)(2) for non-residential uses may be adjusted by up to ten (10) percent by the Land Use Administrator when the subject lot is within nine-hundred (900) feet of a parking lot that is available for use by the public without charge.
 - e. **On-Street Parking.** The minimum number of spaces required by 7.1 (G)(2) may be adjusted by the Land Use Administrator as detailed below. Where a partial space straddles an extension of a side property line, the space may be counted by the abutting property owner in front of whose property fifty (50) percent or more of the space is located.
 - i. **One- and Two-Family Uses.** One (1) legal on-street parking space may be substituted for every required off-street parking space, provided the on-street space is located on a public right-of-way immediately abutting the property or tenant space seeking the adjustment.
 - ii. **Multifamily, Mixed Use, and Nonresidential Uses.** One (1) legal on-street parking space may be substituted for one (1) of a required off-street parking space, provided the on-street space is located on a public right-of-way immediately abutting the property or tenant space seeking the adjustment.
2. **Exceeding Parking Ratio Maximums.** To minimize the negative impacts associated with excess parking surfaces, the stated parking ratio maximums in 7.1 (G)(2) may only be exceeded if all parking is provided in a below or above-ground parking structure.

I. Additional Standards for Motorized Vehicle Parking.

1. **Disabled Parking.** Parking for the disabled shall be provided in accordance with the North Carolina State Accessibility Code.
2. **Electric Vehicle Parking.** Parking stalls with electric vehicle charging stations shall be centrally located and clustered within parking lots and shall be provided at the ratio detailed below.
 - a. Multi-family residential uses with five (5) or more dwelling units shall provide electric vehicle charging stations at a rate of one (1) electric vehicle charging station for every forty (40) motorized vehicle spaces; however, no fewer than two (2) and no more than ten (10) total electric vehicle charging stations shall be required for any single development.

- b. Nonresidential uses with off-street parking for motorized vehicles of more than forty (40) spaces shall provide electric vehicle charging stations at a rate of one (1) electric vehicle charging station for every forty (40) motorized vehicle spaces; however, no fewer than two (2) and no more than fifteen (15) total electric vehicle charging stations shall be required for any single development.
3. **Use of Parking Areas.** Required parking areas shall be available for the parking of operable vehicles of residents, customers, and employees, and shall not be used for the storage of vehicles or materials, or for the parking of vehicles used for loading or unloading, or in conducting the use.
- J. **Alternatives to Provision of On-Site Parking.** In lieu of actual on-site construction of off-street parking spaces, all or any portion of the off-street parking required by sections 7.1 (F) or (G) may be provided as follows:
- 1. **Remote Parking.** Remote parking (a dedicated off-site satellite parking lot) may be permitted, subject to certification by the Land Use Administrator that the following requirements have been met:
 - a. The use being served by the remote parking shall be a permitted principal use, as established in Section 3.1, in the zoning districts within which the lot containing such parking is located;
 - b. A safe, direct, paved, lighted, and convenient pedestrian route shall exist or be provided between the remote parking and the use being served;
 - c. At least one (1) parking space within each remote parking lot shall be within six hundred sixty (660) feet or one-eighth (1/8) mile of a public entrance to the structure housing the use being served (or to the lot housing the use being served in cases where no structure exists) as measured along the route provided in accordance with subsection (b); and
 - d. The continued availability of remote parking spaces necessary to meet the requirements of this section shall be ensured by an appropriate condition that the continued validity of the zoning compliance or special use permit shall be dependent upon the permit holder's continued ability to provide the requisite number of parking spaces.
 - 2. **Combined Parking.** Up to one-half (0.5) of the parking spaces required for one (1) use may be used to satisfy the parking requirements for a second use on the same zoning lot, subject to certification by the Land Use Administrator that such joint usage of the combined parking complies with either:
 - a. The peak usage of the parking facility by one use will be at night or on Sundays (such as with theaters, assembly halls, or places of worship), and the peak usage of the parking facility by the second use will be at other times; or
 - b. The second use is an accessory use to the first use, such as restaurants and meeting rooms to hotels and motels.
 - 3. **Shared Parking.** Up to one-half (0.5) of the parking spaces required for one (1) use may be used to satisfy the parking requirements for a second use on an adjacent lot, subject to certification by the Land Use Administrator that such joint usage of the shared parking complies with both:
 - a. The peak usage of the parking facility by one (1) use will be at night or on Sundays (such as with theaters, assembly halls, or places of worship), and the peak usage of the parking facility by the second use will be at other times; and
 - b. The joint use of shared off-street parking between two (2) uses is made by contract between two (2) or more applicable property owners.

K. General Off-Street Vehicle Accommodation Design Standards.

1. **Location.** No off-street vehicle accommodation area is permitted within any required setback, except that driveways providing access to the area may be installed across said setback. It is the intent that these driveways be as nearly perpendicular to the street right-of-way as possible.
2. **Surfacing and Curbing.** All vehicle accommodation area surfacing shall be constructed in accordance with the Knightdale Standard Specifications & Construction Details.
 - a. **Required Surfacing.** All vehicle accommodation areas and drives connecting such areas with public rights-of-way shall be surfaced with a prepared or permeable hard surface.
 - i. **Prepared Hard Surface.** Prepared hard surface treatment shall include but not be limited to asphalt, concrete, or unit pavers.
 - ii. **Permeable Hard Surface.** Permeable hard surface treatment shall include but not be limited to pervious concrete, porous asphalt, brick/stone pavers, or engineered turf pavers.
 - b. **Exemptions.** The following situations are exempted from the prepared hard pavement surfacing and curbing requirements of this section, except that they must comply with the requirements of Section 7.1 (K)(2)(d) for un-surfaced areas:
 - i. Single-family dwellings in the RR1 and RT districts.
 - ii. A parking lot used only for occasional use (Use that occurs on two (2) or fewer days per week) or is temporary in nature (not exceeding 24 months); and
 - iii. Whenever a proposed development involves only one (1) of the following:
 - a) An accessory structure; or
 - b) A change in use which will not increase the number of required parking spaces by more than ten (10) percent and the existing parking lot does not comply with the requirements of Section 7.1 (G).
 - iv. The Land Use Administrator may exempt up to seventy-five (75) percent of the required employee parking spaces in the MI District from the paving requirements of the Section. To qualify for the exemption, the parking spaces may not be visible, either by effective buffer screening or because of the grade of the site, from any public right-of-way or a residentially or commercially zoned property.
 - c. **Curbing Required.** All vehicle accommodation areas shall be curbed using standard curb and gutter with a minimum width of one-and-a-half (1.5) feet. Landscape islands, aisles, and areas shall be similarly curbed to protect vegetation except when approved by the Land Use Administrator for stormwater management purposes.

- d. **Un-surfaced Areas.** The following standards shall apply to un-surfaced areas except for single-family dwellings in the RR1 and RT districts.
 - i. Landscape aisles or spatial separations shall be provided to ensure that the parking spaces will be readily identifiable to the users;
 - ii. The area must be dust-free, and covered with a maintained pervious ground cover such as grass or mulch (no bare earth); and
 - iii. The perimeter of the vehicle accommodation area encompassing the parking spaces and the side of any un-surfaced drive or aisle leading to said spaces shall be edged with one (1) of the following materials, including but not limited to: brick, pressure treated timbers, or cast in place concrete. All such edge treatments shall be anchored into place and be a minimum dimension of six (6) inches square.
 3. **Screening.** Vehicle accommodation areas shall be screened in accordance with Section 7.5 (B).
 4. **Containment.** Off-street vehicle accommodation areas shall be designed so that parked vehicles do not encroach upon or extend onto public rights-of-way, sidewalks, or strike against or damage any wall, vegetation, utility, or other structure.
- L. **Specific Circulation Drive Design Standards.**
1. **Location.** A circulation drive may be permitted around the front of the building but may not encroach into the front setback or any required landscape area.
 2. **Width.** Circulation drives shall not exceed ten (10) feet in width, except that they may be up to twenty (20) feet wide when adjacent to an arterial and located in an MI, BO, or HB district or if on-street parking spaces are provided.
 3. **Paving Treatments.** Circulation drives shall be enhanced with alternative paving treatments such as unit pavers, stamped concrete, or stamped asphalt. At a minimum, two (2) ten (10) foot long treatments must be included at the beginning and the terminus of the drive as an indicator to the driver that they are entering and leaving a pedestrian area. Additional treatment locations will be required if and where pedestrian crossings of the circulation drive are anticipated.
- M. **Specific Motorized Vehicle Parking Area Design Standards.**
1. **Location.** Parking areas are prohibited from being located in the front yard of a lot as well as from in front of a building's primary façade unless otherwise permitted in Chapter 6: Building Type Standards.
 2. **Landscaping.** Parking lots are to be treated as enclosures; therefore, parking lot landscaping (Section 7.4 (J)) and screening (Section 7.5(B)) shall be placed in a manner that breaks the lot into parking modules of not more than thirty-six (36) spaces.
 3. **Parking Space Dimensions.** Parking spaces should be dimensioned in accordance with Architectural Graphics Standards, latest edition.
 4. **Special Event Parking.** Off-street areas used for special event parking (to accommodate occasional overflow volumes) may be constructed of a dust-free, compacted, pervious ground cover such as grass or mulch. The owner of the property shall be responsible for the maintenance of such parking in a clean and dust-free condition.

N. Specific Bicycle Parking Design Standards.

1. Location.

- a. Bicycle parking shall be made available within fifty (50) feet of a building’s main entrance(s).
- b. Where there is more than one (1) building on the site, or parking is shared with an adjacent site, bicycle parking must be distributed equally to serve all buildings and main entrances.

- 2. **Conversion from Motorized Spaces.** During the site plan approval process, the DRC may allow a new or a pre-existing development to convert up to five (5) percent of its motorized vehicle spaces to non-required additional bicycle parking, as long as the spaces are conveniently located near a building entrance or park and ride reserved spaces as detailed in 7.1(E). Converted parking spaces shall yield at least four (4) bicycle parking spaces per motorized vehicle space.

7.2. Driveways

A. Number of Driveway Access Points.

1. Single-Family Residential Lots in General.

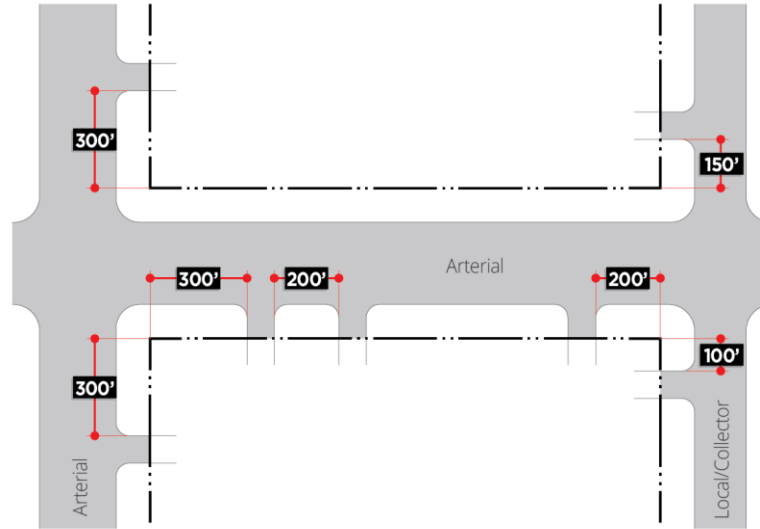
Parcel Frontage	Number of Access Points Allowed
<= 100 ft	1
> 100 ft	2

- 2. **Along Arterials and Collectors.** Developments should minimize or eliminate curb cuts along arterials and collectors. Single-family lots, attached or detached, shall not have access to a collector or arterial street, unless the collector is designed to the modified avenue section to include on-street parking on one side and a landscaped median divide. In this instance rear-loaded alley access is permitted on one side of the street section. Where possible, vehicular access drives should be shared with the adjacent properties and/or alleys should be utilized for access. All lots, parcels, or any other division of land adjacent to an arterial or collector may be allowed driveways or street connections in accordance with the following.

Parcel Frontage	Number of Access Points Allowed
< 500 ft	1
501 – 1200 ft	2
>1200 ft	3

B. Location of Driveway Access Points.

- 1. **In General.** Except for shared drives, all driveways shall be a minimum of three-and-a-half (3½) feet from the property line.
- 2. **Along Arterials.** Location guidelines for driveway access points along arterials are shown in the illustration below in relation to the direction of traffic flow. If access to a lot, parcel, or other lawful division of land is physically unobtainable under the provisions illustrated below, driveway access points shall be located the greatest distance possible from one another and from other streets.

Figure 7.1. Location of Driveway Access Points

- C. **Exemptions.** Public Safety Facilities are exempt from the location of driveway access points standard and width restrictions found in this section and the Knightdale Standard Specifications & Construction Details.

7.3. Sidewalks and Pedestrian Walkways

In order for walking to be a viable transportation choice for local trips, circulation routes must be safe, convenient, and highly connected. Pedestrian circulation and connectivity should primarily take place adjacent to planned streets within the right-of-way; however, a considerable amount of pedestrian activity also takes place on-site, where vehicle speeds are lower but the number of potential conflict points are higher. As such, the following standards shall be met when designing sidewalks and pedestrian walkways for all non-single family development:

- A. Sidewalks shall be provided along all sides of the lot that abut a public street, where the existing right-of-way permits.
- B. Existing development shall provide sidewalks along all sides of the lot that abut a public street, where the existing right-of-way permits, when substantial rehabilitation, as detailed in Section 11.2 (D)(2), is done to the existing building(s) or site.
- C. Pedestrian walkways at building foundations shall have a minimum width of ten (10) feet.
- D. Sidewalks and pedestrian walkways shall be constructed to have a minimum width equal to the width of existing or proposed abutting sidewalk or pedestrian walkway or of five (5) feet, whichever is greater. Sidepath and greenway widths shall be a minimum of ten (10) feet.
- E. All sidewalks and pedestrian walkways shall be designed to comply with the design standards outlined in Section 10.4.
- F. Pedestrian crossings shall be made safer for pedestrians whenever possible by shortening crosswalk distances with roadway designs including, but not limited to, curb extensions, reduced curb radii, and the elimination of free right-turn lanes. Traffic calming devices may only be installed according to the Town's "Traffic Calming Policy" as most recently adopted by the Town Council. Pedestrian crossings at mid-block or unsignalized locations shall be accompanied by Rectangular Rapid Flash Beacon (RRFP) signals. If a mid-block pedestrian crossing is not granted by NCDOT, the bicycle and pedestrian infrastructure shall be modified to account for a crossing at a bordering signalized intersection that is determined to be the most suitable by the entity or entities owning the intersection roadways.

- G. Pedestrian walkways shall form an on-site circulation system that minimizes the number of points of conflict (where pedestrian networks and bicycle/vehicle networks intersect) between pedestrians and vehicles, particularly where pedestrians access on-site parking and building entrances.
- H. Pedestrian walkways shall connect building entrances to one another and building entrances to public sidewalk connections and existing or planned transit stops.
- I. All developments that contain more than one (1) building shall provide walkways between the principal entrances of the buildings.
- J. In certain circumstances the Town may reserve the right to require the installation of additional safety structures such as fences, vegetative buffers, landscaping elements, or any combination of the three, where pedestrian sidewalks and walkways are adjacent to inadequate shoulders or steep slopes that present the potential for safety concerns.
- K. Trunk line greenways, as shown in Appendix B, shall be designed in a way that minimizes roadway and alley crossings to the maximum extent possible. Trunk line design shall adhere to natural features such as creeks, as shown in Appendix B, even if that entails providing creek and smaller tributary bridge crossings.
- L. Signage shall be provided where trunk line greenways intersect other greenways, and where trunk line greenways intersect bicycle and pedestrian destinations such as parks, open space, schools and activity centers. Signage shall adhere to any applicable Town Standard Specifications for greenway signage.
- M. If a development site includes public greenways on the Comprehensive Transportation Plan Appendix B Sidepaths & Greenways Plan, any private greenways on the development site shall directly connect to the public greenway network unless deemed not possible by the Land Use Administrator.
- N. Public and private greenways shall not overlap with Stormwater Control Measure (SCM) primary access easements, unless approved by the Stormwater Administrator. If the overlap is approved, the greenway shall be built to a standard that will accommodate maintenance vehicles.
- O. Amenities shall be placed incrementally along pedestrian corridors. Placement shall be approved with Construction Drawings by the Land Use Administrator.

7.4. Landscaping and Tree Protection

A. Purpose and Intent.

1. The protection of existing trees and the provision of landscaping are essential components of the built urban form of the Town. The purpose of this section is to regulate the protection, preservation, installation, and long-term management of vegetation within the Town of Knightdale. Landscaping requirements are intended to:
 - a. Minimize potential nuisances such as visual impacts from adjacent properties;
 - b. Minimize transmission, noise, dust, odor, litter, and glare of lights;
 - c. Provide for a separation of space and establish a sense of privacy;
 - d. Promote the preservation of open space; and
 - e. Mitigate adverse grade changes between adjacent properties.
2. The appropriate use of existing and supplemental landscaping improves the aesthetic appearance of new development, thereby enhancing the local business economy while preserving and protecting the identity and character of Knightdale. Furthermore, the use of native evergreen and deciduous plant materials blend new construction with the existing natural and built environments while maintaining the aesthetic character of the Town, and the installation of drought-tolerant plant materials promotes good soil management and water conservation.

B. Applicability.

1. **Expansions and Changes of Use.** These regulations shall apply to all newly developed properties as well as changes of use, expansions which increase the gross heated square footage of an existing building by more than twenty-five (25) percent, and expansions of vehicle accommodation areas by more than twenty-five (25) percent.
2. **Modification of Standards.** Where necessary to accommodate creativity in site design, or where topographic or physical site conditions are not feasible, the Land Use Administrator may modify these requirements, provided that the type and amount of landscaping or other features are equivalent in effectiveness.
3. **Enhanced Standards.** The Town may require additional landscape beyond the landscape required in this Section in areas identified as Gateways in the Knightdale Next Comprehensive Plan.
4. **Emergencies.** In the case of emergencies such as windstorms, ice storms, fire, or other disasters, the requirements of this Ordinance may be waived by the Town during the emergency period so that the requirements of this Ordinance will in no way hamper private or public work to restore order in the Town. This shall not be interpreted to be a general waiver of the intent of this Ordinance.
5. **Exemptions.**
 - a. **Lots Less Than Two (2) Acres.** Any lot less than two (2) acres shall be exempt from the tree protection provisions of this chapter. Subdivision of property to circumvent these requirements is not permitted.
 - b. **Timbering and Silviculture.** Normal forestry activity on forestland that is taxed on the basis of its present use value as forestland under Article 12 of Chapter 105 of the General Statutes or that is conducted in accordance with a forest management plan that is prepared or approved by a forester registered in accordance with Chapter 89B of the General Statutes shall be exempt from the tree protection provisions of this Chapter (Section 7.4).
 - i. If a forest landowner harvests timber and they will be developing the lot within the next three (3) to five (5) years, it is particularly important to maintain any buffers that might be required under current

zoning. The landowner should also be reminded in such instances that protected trees as listed in Section 7.4(H) or any canopy required under Section 7.4(M) will have to be accounted for. Timbering and silviculture may not be used to circumvent the requirements of this chapter for development. Forest land owners should keep a record of when the tract was harvested since that date may come into question should a development plan be submitted to the Town in the future.

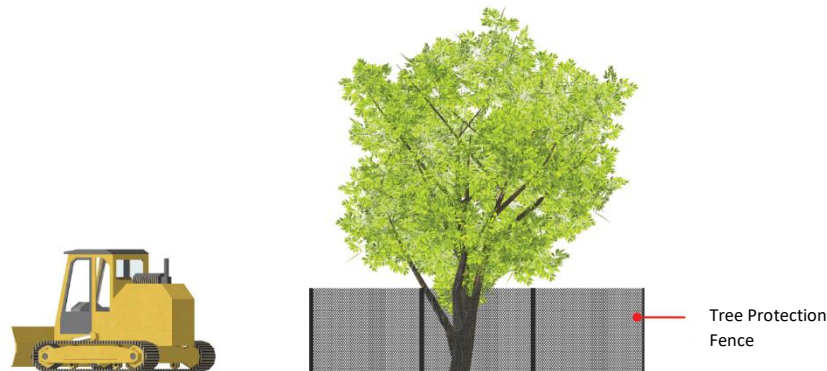
- ii. In cases where the harvest results in the removal of all or substantially all of the trees that fall within required buffers, or fails to account for protected trees under Town regulations governing development of the tract of land, the Land Use Administrator may deny a building permit or refuse to approve a site or subdivision plan for either a period of up to three (3) years if it was not a willful violation of the Town's regulations, or up to five (5) years if it was a willful violation of the Town's regulations.
- C. **Plant Classifications.** All measures of plant maturity shall be as defined by the most recently approved American Standard for Nursery Stock (ANSI Z60.1), published by the American National Standards Institute.
- 1. **Canopy Tree:** Any tree listed on the Town of Knightdale Approved Canopy Tree List or other species approved by the Land Use Administrator that is hardy to "Zone 8," has an expected mature height of thirty-five (35) feet or higher and has an expected mature width of at least thirty (30) feet or greater.
 - 2. **Understory Tree:** Any tree listed on the Town of Knightdale Approved Understory Tree List or other species approved by the Land Use Administrator that is hardy to "Zone 8" and has an expected mature height of ten (10) to fifteen (15) feet or higher.
 - 3. **Shrub:** Any shrub listed on the Town of Knightdale Approved Shrub List or other species approved by the Land Use Administrator that is hardy to "Zone 8" and has an expected mature height of two and a half (2.5) feet or higher.
 - 4. **Groundcover:** Mature groundcover plants are any shrub or grass species approved by the Land Use Administrator that is hardy to "Zone 8" and range from a few inches to no more than two and a half (2.5) feet in height.
- D. **General Provisions.**
- 1. **Landscape Plan.** Prior to any site disturbance, a Landscape Plan meeting the requirements of Section 12.3 (I) shall be submitted and approved.
 - 2. **Pre-Construction Conference.** Prior to the commencement of any activities requiring a building or Zoning Compliance Permit, an on-site pre-construction conference shall take place with the developer and the Land Use Administrator to review procedures for the protection and management of all landscape elements that are to remain as identified on the Landscape Plan (see Section 12.3 (I)).
 - 3. **Combustible Landscaping Materials Prohibited.** No pine straw or any other material with a fire rate of spread more than twenty-four (24) inches per minute as determined by the most recent study of the National Institute of Standards and Technology shall be placed, kept, or stored within ten (10) feet of buildings with any portion of the exterior wall covered with combustible material. Single-family residential homes are exempt from this prohibition.

4. Existing Landscaping.

a. Vegetation.

- i. **Use.** The use of existing trees or shrubs to satisfy the landscaping requirements of this Chapter is strongly encouraged. Existing significant vegetation within a landscaped area required by this Chapter shall be preserved unless otherwise approved by the Town of Knightdale at the time of Master Plan approval, and shall be credited toward the applicable standard.
- ii. **Protection.**
 - a) **Planning and Surveying.** Through the protection of trees and existing vegetation, the Town encourages new development to be creative in design and placement of buildings, structures, parking, and other impervious surfaces as to preserve natural features and to complement the existing topography when practical. No tree greater than twelve (12) inches in diameter at breast height (DBH: measured at 4.5 feet above grade) located on public property or within a required tree protection area (Section 7.4) shall be removed for the purpose of surveying without approval from the Land Use Administrator.
 - b) **During Construction.** Tree protection fences shall be placed around all protected trees designated to be saved prior to the start of development activities or grading in accordance with Standard 2.10 of the Town of Knightdale Standard Specifications and Details Manual. Tree protection fences shall remain in place until development activities are completed. To prevent unintended compaction of soil, the area within the protective barricade shall remain free of all building materials, dirt or other construction debris, construction traffic, storage of vehicles and materials, and mass grading.

Figure 7.2: Existing Landscaping, During Construction Standards

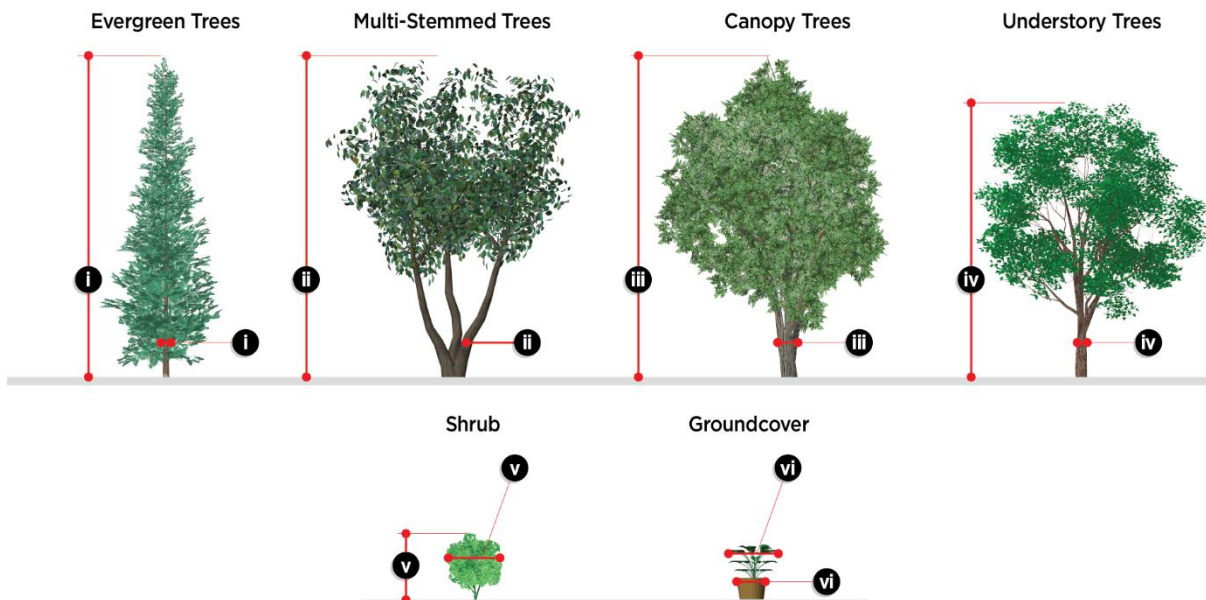


- c) Except for driveway access points, sidewalks, curb, and gutter; no paving with concrete or other impervious materials within five (5) feet of a tree drip line shall be allowed unless otherwise approved. Where grading within a tree dripline cannot be avoided, cut and fill shall be limited to one-quarter ($\frac{1}{4}$) to one-half ($\frac{1}{2}$) of the area within the dripline, and tree roots must be pruned with clean cuts at the edge of the disturbed area. No fill shall be placed within the dripline of a tree without venting to allow air and water to reach the roots.
 - b. **Fences, Walls, and Berms.** Existing walls or fences meeting the requirements of Section 5.10 and berms within a landscaped area required by this Chapter may be used to fulfill the standards for the type of buffer and screening required by Section 7.4 (I), provided that these elements are healthy and/or in a condition of good repair.
 - c. **Other Features.** Other existing site features within a landscaped area required by this Chapter which do not otherwise function to meet the standards for the required landscaping shall be screened from the view of other properties or removed, as determined during review and approval of the Master Plan.
- E. **Grading and Development in Required Landscaped Areas.**
- 1. **All Areas.** Landscaped areas required by this Chapter shall not contain any development, impervious surfaces, or site features that do not function to meet the applicable standards for that area or that require removal of existing significant vegetation.
 - 2. **Buffer Yards.** No grading, development, or land-disturbing activities shall occur within a buffer yard if forest canopy, specimen trees or significant vegetation exists within these areas, unless approved by the Land Use Administrator. If grading within a buffer yard is proposed, slopes of 1:3 or less are encouraged to ensure the proper transition of grades to the adjacent property and to facilitate landscaping and maintenance.
- F. **Use of Off-Site Landscape Easements.** Permanent off-site landscape easements may be used to meet required buffer yards provided that the size or shape of the parcel significantly restricts the ability to reasonably use the property and meet the buffer yard requirements. These easements must be recorded prior to or in conjunction with the approval of the site or subdivision plan.

G. Installation and Maintenance Standards.

1. **Installation of New Vegetation and Landscape Features.** In general, new plant material should complement existing vegetation native to the site. The use of drought-tolerant, indigenous, native and/or regionally grown species of trees, shrubs, and groundcover is encouraged in order to make planted areas compatible with existing native habitats and to reduce dependency on irrigation. In addition to the following requirements, all installations shall be in accordance with Town of Knightdale *Standard Specifications & Detail Manual*.
 - a. **Minimum Size.** Landscaping should be of sufficient size so that mature appearance will be achieved within three (3) years of installation for shrubs and within five (5) years of installation for trees. Where the following minimum size requirements overlap, the higher standard shall prevail:
 - i. **Evergreen trees** of any classification shall not be less than six (6) feet in height with a minimum two (2) inch caliper.
 - ii. **Multi-stemmed trees** of any classification shall have at least three (3) stalks and not be less than eight (8) feet in height.
 - iii. **Canopy trees** shall not be less than eight (8) feet in height with a minimum two (2) inch caliper.
 - iv. **Understory trees** shall be a minimum of one and a quarter (1¼) inch caliper and have a minimum height of six (6) feet.
 - v. **Shrubs** shall be at least three (3) gallons in container size, have a minimum height of eighteen (18) inches and have a minimum spread of twelve (12) to fifteen (15) inches.
 - vi. **Groundcovers** shall be a minimum of one-and-a-half (1½) to two-and-a-half (2½) inch pots with a minimum spread of four (4) inches.

Figure 7.3: New Vegetation and Landscape Features, Minimum Size



b. **Species Diversity Requirements.**

- i. At a minimum, the species of every other tree along the street frontage shall alternate in order to maximize diversity as deemed appropriate by the Land Use Administrator.
- ii. A minimum of fifty (50) percent of the landscape features utilized on a parcel that is less than one-half (0.5) acre shall be drought and salt-tolerant native species.
- iii. A minimum of sixty (60) percent of the landscape features utilized on a parcel that is between one-half (0.5) and five (5) acres shall be drought and salt-tolerant native species. Total landscape features, excluding turf, shall not be comprised of more than thirty (30) percent of any single species or fifty (50) percent of any genus.
- iv. A minimum of seventy-five (75) percent of the landscape features utilized on a parcel that is greater than five (5) acres shall be drought and salt-tolerant native species. Total landscape features, excluding turf, shall not be comprised of more than twenty (20) percent of any single species or twenty-five (25) percent of any genus.
- v. The percentage limits above may be varied in conjunction with approval of vegetated stormwater management areas.

c. **Planting Area.**

- i. **Canopy Trees.** Each canopy tree shall be provided with a minimum pervious ground area of three-hundred (300) square feet for root growth (exception: Street Trees) and should be planted on slopes not to exceed 1:4 vertical to horizontal distance.
 - ii. **Groundcover.** Groundcover must be planted with on-center spacing equivalent to the average mature spread for each particular species.
- d. **American Standard for Nursery Stock.** All new plant material shall be of good quality, free from disease, installed in a sound manner, mulched (3-4 inch layer), and meet the standards set forth in the American Standard for Nursery Stock by the American Nursery & Landscape Association (ANLA). The selection of plants, planting methods, minimum height, root ball and container size, number of branches, and width, shall conform to the American Standard for Nursery Stock published by the ANLA for that type of tree or shrub at the time of installation.
- e. **Guying and Staking.** All new trees shall be properly guyed and staked at the time of planting.
- f. **Mulch and Drainage.** Adequate drainage and mulching shall be provided in all cases, particularly for medians and islands.
- g. **Soil.** Installation practices shall be utilized which preserve and replace existing topsoil or amend the soil to reduce compaction.
- h. **Bare Earth Prohibited.** All portions of a landscaped area not planted with shrubs and trees or covered by a wall or other screening device shall be planted with ground cover and/or grass or covered with natural mulch with a minimum depth of two (2) inches.
- i. **Overhead Utility Lines.** Where a canopy tree is required and overhead utility lines exist, two (2) understory trees shall be substituted with the approval of the Land Use Administrator.
- j. **Easements & Right-of-Ways.** Nothing shall be planted or installed within an underground or overhead utility easement or a drainage easement without the consent of the Town and the easement holder at the time of Master Plan approval.

- k. **Warranty.** The contractor shall warrant all new plant material for one (1) year from the time of installation.
- l. **Certificates of Occupancy and Requests for Delay.** All landscaping, mulching, and seeding shall be installed in accordance with the approved site plan and the standards of this Section prior to issuance of a Certificate of Occupancy. Requests for a delay in complying with this requirement will be considered following a written request directed to the Land Use Administrator. Such request for a delay shall note the timeframe during which the planting shall be completed. Certificates of Occupancy will be issued with the approval of a request for planting delay if deemed reasonable. Reasonable requests may be granted due to:
 - i. Unusual environmental conditions such as drought, ice, over-saturated soil (deep mud), or inappropriate planting, provided that the developer or the property owner provide the Town with a surety bond in accordance with Section 10.1 ensuring the installation of the remaining landscape materials; or
 - ii. Circumstances beyond the developer's or property owner's control, such as incomplete construction or utility work to occur in a proposed landscaped area within thirty (30) days after expected site completion, provided that the developer or property owner submits a letter from the utility company to the Town stating the estimated installation date and provides a cash bond in accordance with Section 10.1 to ensure the installation of the required landscaping.
 - iii. In the former case, the Town may issue a Temporary Certificate of Occupancy for a period of thirty (30) to one-hundred eighty (180) days, relative to the next planting season; while in the latter case, the Town of Knightdale may issue a Temporary Certificate of Occupancy for a period not to exceed thirty (30) days.
- 2. **Maintenance.**
 - a. **General Responsibility.** The owners of property shall be responsible for all natural and physical features required by this Chapter and shall preserve and maintain these features in healthy growing conditions, replace them when necessary, and keep the areas around them free of refuse and debris in a manner that prevents refuse and debris from washing onto public rights-of-way.
 - b. **Irrigation.** The use of irrigation is permitted in all required landscaping areas as required by this Section and may connect to the public water system subject to the requirements of the Town's Standards Specifications and Details Manual and other applicable Town ordinances or policies. The use of moisture metering devices and automatic timers with any irrigation system is required. The use of xeriscape practices and drip irrigation is also encouraged unless otherwise required.
 - c. **Pruning.** All vegetation should be allowed to reach and be maintained at its mature size.
 - i. **Tree "Topping" Prohibited.** Tree "topping"—the removal of more than twenty-five (25) percent of a tree's canopy—is considered to be damage and disfigurement (Section 7.4 (G)(2)(e)) and shall be prohibited on all trees on public property, public rights-of-way, required tree save areas and parking lot landscaping areas unless otherwise approved by the LURB. Trees in locations where proper pruning practices are impractical may be exempted from this article at the determination of the Land Use Administrator.
 - ii. **Responsibilities Along Public Rights-of-Way.**
 - a) **Private Property Owners.** The owner of any tree or shrub on private property that overhangs any public right-of-way within the Town shall prune the branches so that such branches shall not obstruct the light from any streetlamp or obstruct the view of any street intersection and so that there shall be a clear space of eight (8) feet above the surface of the street or sidewalk.

- b) **Town of Knightdale.** The Town of Knightdale Public Works Director is authorized to prune trees and shrubs on public properties and in public rights-of-way.
 - c) **State of North Carolina.** The North Carolina Department of Transportation (NCDOT) is authorized to prune trees and shrubs in the public rights-of-way owned by the State of North Carolina.
- d. **Removal.**
- i. **Public Property and Rights-of-Way.** The removal by any entity of a tree or shrub that is dead, infected by disease, or determined to be a hazard to public safety and welfare and subsequent replacement may be approved by the Land Use Administrator. Trees removed must be replaced in accordance with the replacement provisions of this section.
 - ii. **Private Property.** Owners shall remove all dead, diseased, or hazardous trees and shrubs as well as any broken or decayed limbs which constitute a menace to the safety of the public. The Town shall have the right to cause the removal of any dead or diseased trees and shrubs on private property when such tree or shrub constitutes a hazard to life and property, or harbor insects or disease which constitutes a potential threat to other vegetation in the Town. The Land Use Administrator will notify property owner(s) of the requirement to remove such trees, shrubs, or limbs. Removal shall be done at the owner(s) expense within sixty (60) days after the date of service of written notice. Failure of the owner(s) to comply with such provisions shall constitute a violation of this ordinance and shall be subject to the applicable procedures and penalties of Chapter 13.
 - iii. **Stumps.** When removing trees and shrubs, stumps shall be removed or ground to a minimum depth of four (4) inches below ground level.
- e. **Disturbance, Damage, and Disfigurement.**
- i. **In General.** All disturbed, damaged or disfigured vegetation within tree protection and landscaping areas identified in this Section shall be replaced to meet the standards of this ordinance as well as the approved site plan.
 - ii. **Severe Weather and Natural Disasters.** In the event that any required vegetation is severely damaged due to an unusual weather occurrence or natural disaster, the owner shall have one (1) growing season to replace or replant following the event or following the issuance of a Certificate of Occupancy for any event-related site reconstruction, whichever is later.
- f. **Replacement.**
- i. **Responsibility.** Vegetation within a required tree protection or landscaped area that dies within one (1) year of construction completion shall be removed and replaced with new vegetation of equal or greater size by the contractor providing the warrant (Section 7.4 (G)(1)(k)). Should any vegetation required in a tree protection or landscaped area die after the expiration of the warranty, the property owner shall replace it within one-hundred eighty (180) days with vegetation of equal or greater size.
 - ii. **Plan Approval.** A plan denoting the proposed location and species of replacements shall be submitted to the Town of Knightdale for approval. The Land Use Administrator may elect to present the plan to the LURB for final approval.
 - iii. **Standards.**
 - a) **Canopy Trees Eight (8) Inch Caliper or Greater.** Any canopy tree with a caliper of at least eight (8) inches (measured along the trunk at 12 inches above grade) at the time of damage, disturbance, disfigurement, or removal shall be replaced with one (1) or more trees which have a

caliper of at least two and one half (2½) inches and a cumulative caliper equal to or greater than the original tree.

- b) **All Vegetation.** All vegetation shall be replaced in a manner that satisfies the applicable type, amount, and performance criteria required by this Chapter.
- g. **Inspections.** The Land Use Administrator may inspect the site once a year or on the basis of a complaint after the issuance of a Certificate of Occupancy in order to ensure compliance with the approved site plan and to ensure that the vegetation and landscaping is properly maintained. The Land Use Administrator may issue a Notice of Violation to comply with the provisions of this ordinance if warranted upon an inspection under the provisions of Chapter 13.

H. **Tree Protection.**

- 1. **Required Tree Save Areas.** Trees and existing vegetation shall be preserved in accordance with the table below.

Tree Save Area		Protection Measures
Priority Tier 1	Floodways Required Stream Buffers Required Buffer Yard Slope Areas Greater than 25% Wetlands	All Vegetation and Soil to Remain Undisturbed <i>In some cases, limited disturbance may occur within the areas to be protected provided all necessary approvals are obtained. Such activities include, but are not limited to the following:</i> <ol style="list-style-type: none"> 1. Mitigation of development activities. 2. Restoration of previously disturbed areas. 3. Utility installations and emergency public safety activities. 4. Construction of a trail or pedestrian walkway that will provide public access. 5. Required Street or Driveway connections.
Tier 2	100 Year Floodplains Front Setback Areas Street Tree Planting Strip Residential Landscaping Areas Required Open Space Slope Areas of 15-25%	All Trees Greater than 12” DBH to Remain Undisturbed, or Replacement trees shall be planted at a rate of 1 tree per 12” DBH, and should be incorporated into open space amenities wherever possible.**
Tier 3	All Other Locations	All Trees Greater than 24” DBH to Remain Undisturbed, or Replacement trees shall be planted at a rate of 1 tree per 12” DBH, and should be incorporated into open space amenities wherever possible.**
** Required street trees, parking lot landscaping, residential landscaping and buffer yard plantings may not be counted towards replacement requirements.		

2. **Credits for Preservation of Existing Trees in Parking Lots.** Trees that are saved in a parking lot landscaping area may be credited towards the requirements of Section 7.4 (J). Each tree preserved will require a minimum pervious area around its trunk equal to an area measuring five (5) feet beyond the drip line.

Size of Preserved Tree	Credit Toward Required Plantings
<i>Tree Measuring 6-12" DBH</i>	One (1) Required Parking Lot Tree
<i>Tree Measuring 13-24" DBH</i>	Two (2) Required Parking Lot Trees
<i>Tree Measuring 25" DBH or Greater</i>	Three (3) Required Parking Lot Trees

I. **Buffers.**

1. **Required Buffer Yards.** Required buffer yards are intended to give spatial separation and to decrease visual contact between incompatible uses. To further this intent, at least forty (40) percent but no more than sixty (60) percent each of canopy trees and understory trees, and at least eighty (80) percent of shrubs must be evergreen. Buffer yards shall be required in accordance with the table below when any use is being established on a property that abuts an existing developed lot or less intense zoning district.

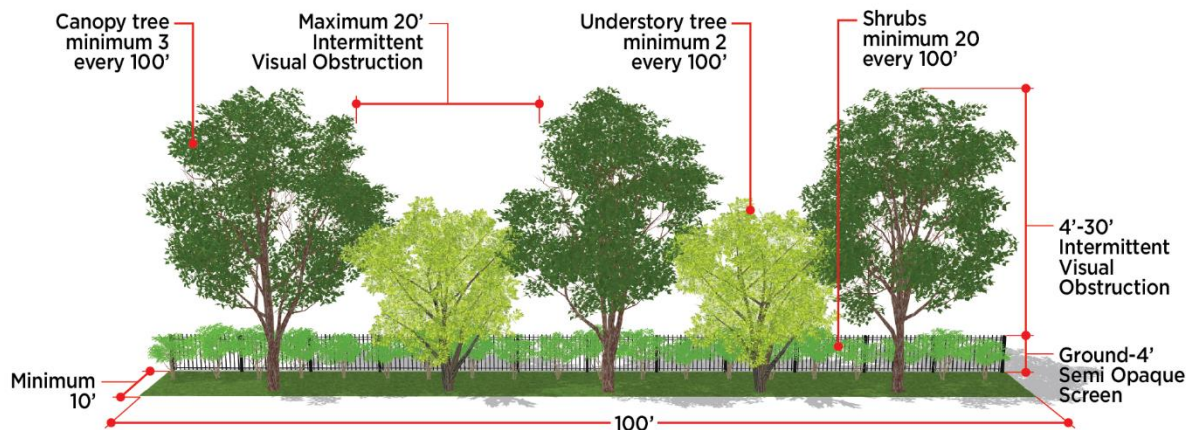
Base District of Proposed Development	Adjacent Base District				
	<i>OSP RT RR GR3 GR8</i>	<i>UR12 RMX</i>	<i>NMX TC</i>	<i>HB</i>	<i>MI</i>
<i>OSP RT RR GR3 GR8</i>					
<i>UR12 RMX</i>	B				
<i>NMX TC</i>	C	A			
<i>HB BO</i>	D	C	B		
<i>MI</i>	D	D	D	C	

Buffer yards are intended to be constructed along the perimeter of the property; however, when there is irregular topographic conditions such as the perimeter of the property is at a lower grade than the use being screened, the Land Use Administrator may require the relocation of the required buffer yard in order to better serve its purpose.

2. Type A Buffer Yard.

- a. **Minimum Width.** Ten (10) feet
- b. **Minimum Landscape Height and Opacity.**
 - i. Ground to Four (4) Feet. Semi-Opaque Screen
 - ii. Four (4) to Thirty (30) Feet. Intermittent Visual Obstruction
- c. **Maximum Landscape Horizontal Openings.**
 - i. Five (5) Feet. Semi-Opaque Screen
 - ii. Twenty (20) Feet. Intermittent Visual Obstruction
- d. **Performance Standard.** A buffer which is ten (10) feet in width and contains screening materials which at maturity provide semi-opacity from the ground to a height of four (4) feet as well as intermittent visual obstruction from a height of four (4) feet up to a height of 30 feet. Vegetative screening materials within intermittent visual obstruction areas shall contain horizontal openings no greater than twenty (20) feet in width upon the plants' maturity.
- e. **Required Plantings.** For every one-hundred (100) linear feet, there shall be at least three (3) Canopy Trees, two (2) Understory Trees, and twenty (20) shrubs. Depending on the species chosen, additional trees or shrubs may be necessary to meet the performance standard in subsection “d” above.

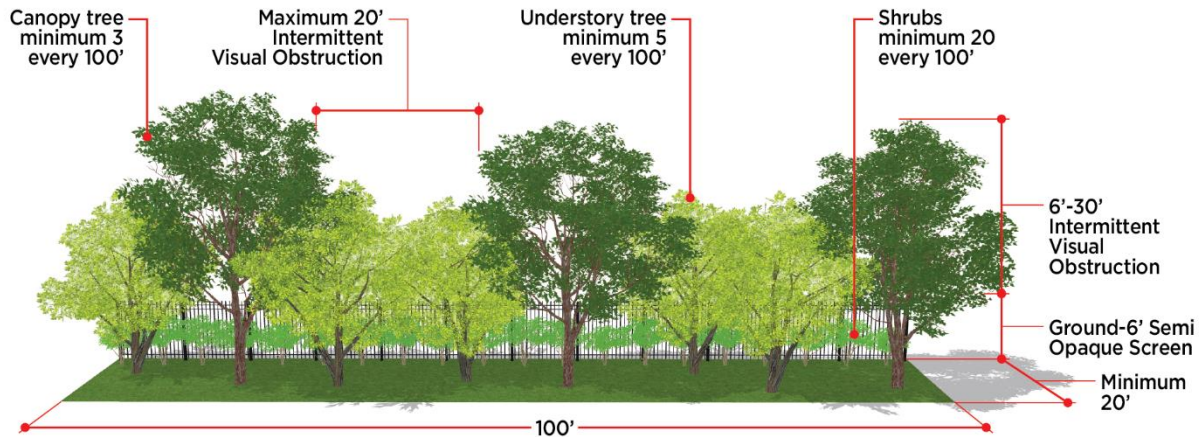
Figure 7.4: Type A Buffer Yard Standards



3. Type B Buffer Yard.

- a. **Minimum Width.** Twenty (20) feet
- b. **Minimum Landscape Height and Opacity.**
 - i. Ground to Six (6) Feet. Semi-Opaque Screen
 - ii. Six (6) to Thirty (30) Feet. Intermittent Visual Obstruction
- c. **Maximum Landscape Horizontal Openings.**
 - i. Five (5) Feet. Semi-Opaque Screen
 - ii. Twenty (20) Feet. Intermittent Visual Obstruction
- d. **Performance Standard.** A buffer which is twenty (20) feet in width and contains screening materials which at maturity provide semi-opacity from the ground to a height of six (6) feet, and intermittent visual obstruction from a height of six (6) feet up to a height of thirty (30) feet. Vegetative screening materials within intermittent visual obstruction areas shall contain horizontal openings no greater than twenty (20) feet in width, and vegetative screening materials within semi-opaque areas shall contain horizontal openings no greater than five (5) feet in width upon the plants' maturity.
- e. **Required Plantings.** For every one-hundred (100) linear feet, there shall be at least three (3) Canopy Trees, five (5) Understory Trees, and twenty (20) shrubs. Depending on the species chosen, additional trees or shrubs may be necessary to meet the performance standard in subsection “d” above.

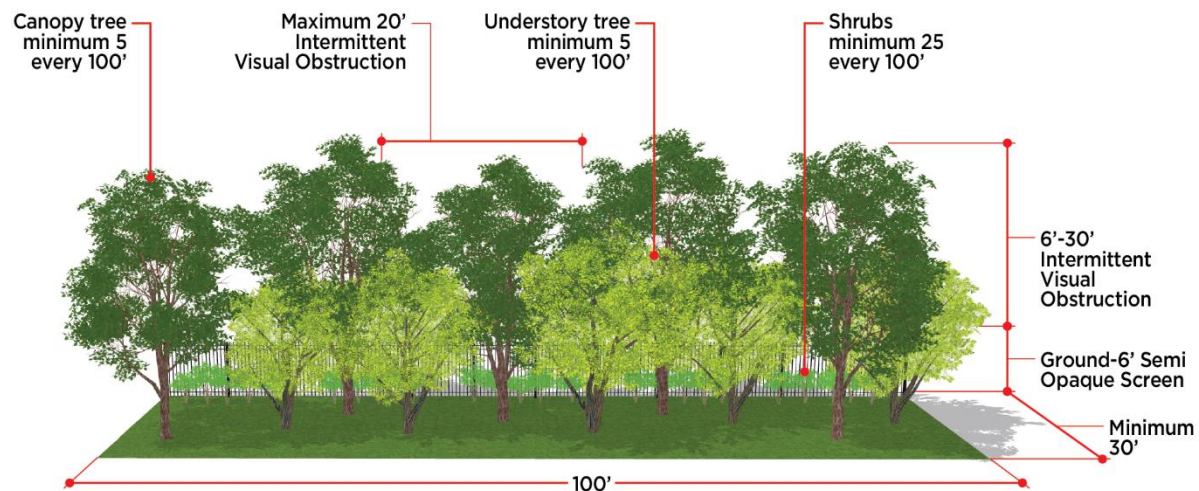
Figure 7.5: Type B Buffer Yard Standards



4. Type C Buffer Yard.

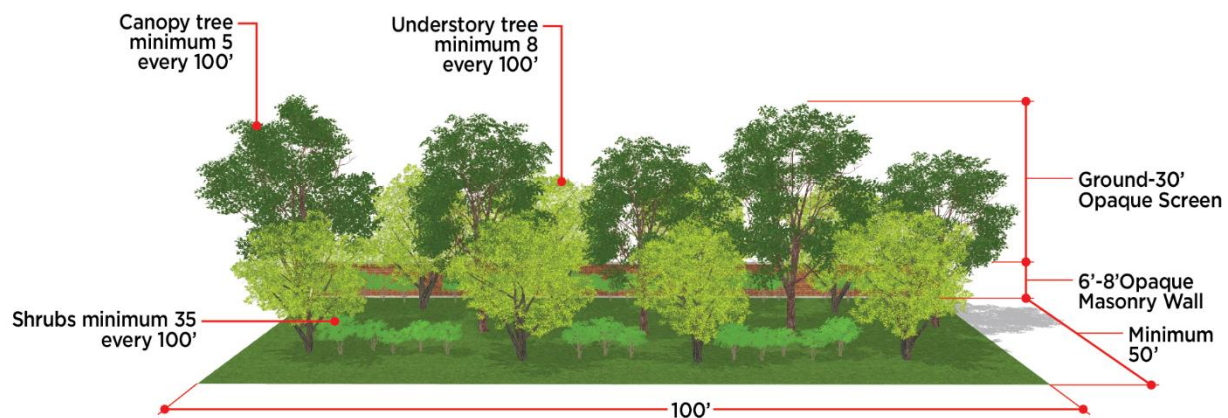
- a. **Minimum Width.** Thirty (30) feet
- b. **Minimum Landscape Height and Opacity.**
 - i. Ground to Six (6) Feet. Semi-Opaque Screen
 - ii. Six (6) to Thirty (30) Feet. Intermittent Visual Obstruction
- c. **Maximum Landscape Horizontal Openings.**
 - i. Five (5) Feet. Semi-Opaque Screen
 - ii. Twenty (20) Feet. Intermittent Visual Obstruction
- d. **Performance Standard.** A buffer which is thirty (30) feet in width and contains screening materials which at maturity provides semi-opacity from the ground to a height of six (6) feet, and intermittent visual obstruction from a height of six (6) height up to a height of thirty (30) feet. Vegetative screening materials within intermittent visual obstruction areas shall contain horizontal openings no greater than twenty (20) feet in width; vegetative screening materials within semi-opaque areas shall contain no horizontal openings greater than five (5) feet in width upon the plants' maturity.
- e. **Required Plantings.** For every one-hundred (100) linear feet, there shall be at least five (5) Canopy Trees, five (5) Understory Trees, and twenty-five (25) shrubs. Depending on the species chosen, additional trees or shrubs may be necessary to meet the performance standard in subsection "d" above.

Figure 7.6: Type D Buffer Yard Standards



5. **Type D Buffer Yard.**
 - a. **Minimum Width.** Fifty (50) feet
 - b. **Minimum Landscape Height and Opacity.**
 - i. Ground to Thirty (30) Feet. Opaque Screen
 - c. **Maximum Landscape Horizontal Openings.** None permitted.
 - d. **Minimum Wall Height and Opacity.** A fully opaque, masonry wall with a minimum height of six (6) feet and a maximum height of eight (8) feet shall be provided.
 - e. **Performance Standard.** A buffer which is fifty (50) feet in width and contains screening materials which at maturity provides opacity from the ground to a height of thirty (30) feet. Vegetative screening materials within opaque areas shall contain no horizontal openings upon the plants' maturity.
 - f. **Required Plantings.** For every one-hundred (100) linear feet, there shall be at least five (5) Canopy Trees, eight (8) Understory Trees, and thirty-five (35) shrubs. Depending on the species chosen, additional trees or shrubs may be necessary to meet the performance standard in subsection “d” above.

Figure 7.7: Type D Buffer Yard Standards



6. **Berms with a Fence or Wall.** Fences or walls with earthen berms may be substituted for half of the shrub requirement in all buffer yard types (Section 7.4 (I)) where a wall is not required. All berms shall not exceed:
 - a. a slope with a maximum rise of one (1) foot to a run of two (2) feet,
 - b. a maximum height of four (4) feet and
 - c. a maximum width of forty (40) percent of the required buffer width.

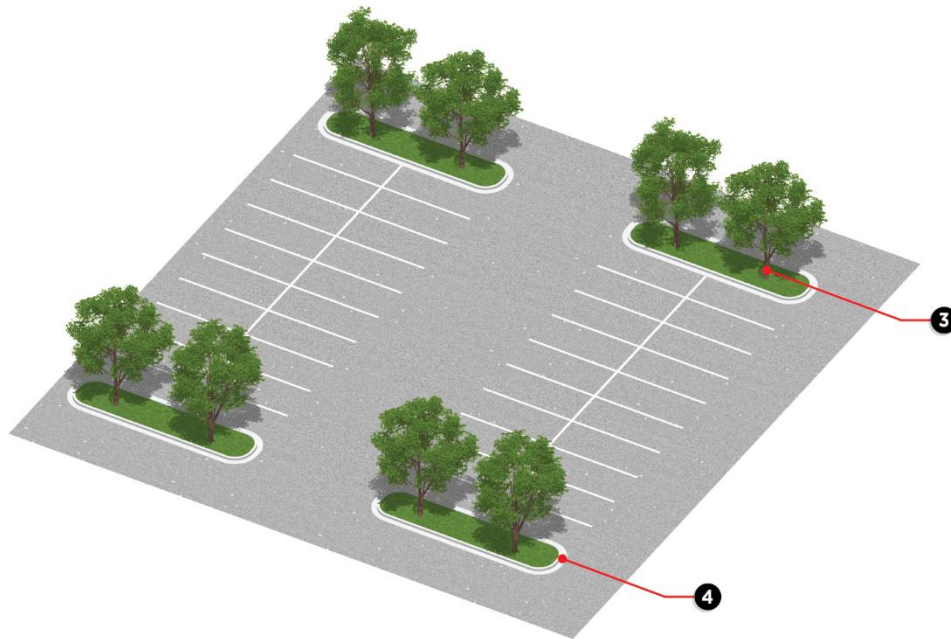
Berms shall be stabilized with a ground cover or other suitable vegetation or permanent slope retention device. Berms taller than four (4) feet shall be approved by the Land Use Administrator on a case by case basis, but shall conform to the slope and width restrictions as previously detailed.

7. **Special Highway Overlay District (SHOD).** The SHOD acts as a buffer yard around freeways within Knightdale's ETJ (Section 2.15B).

J. Interior Parking Lot Landscaping.

1. **Purpose.** Parking lot landscaping functions as a tree ceiling providing shelter from sun and rain and minimizing the impact of runoff by providing “green” surface area on which to collect.
2. **Applicability.** Parking lots with more than sixteen (16) parking spaces shall be landscaped. (Exception: Single-family Dwellings and Duplexes)
3. **Minimum Plantings.** No parking space shall be more than sixty (60) feet from the base of a deciduous canopy tree. In addition, landscape areas shall be provided at the end of each parking row and shall contain a deciduous canopy tree.
4. **Performance Standards.** Deciduous canopy trees shall be planted in a manner that provides shade for the entire parking lot at maturity. Each canopy tree shall be provided with a minimum pervious ground area of three-hundred (300) square feet for adequate root growth which shall be separated from parking spaces by an eighteen (18) inch standard curb and gutter designed to minimize damage by vehicles to plants within the landscaped area.

Figure 7.8: Interior Parking Lot Landscaping Standards



K. Residential Landscaping and Plat Notes.

The following paragraphs shall be noted on an approved Preliminary Plat and Final Plat:

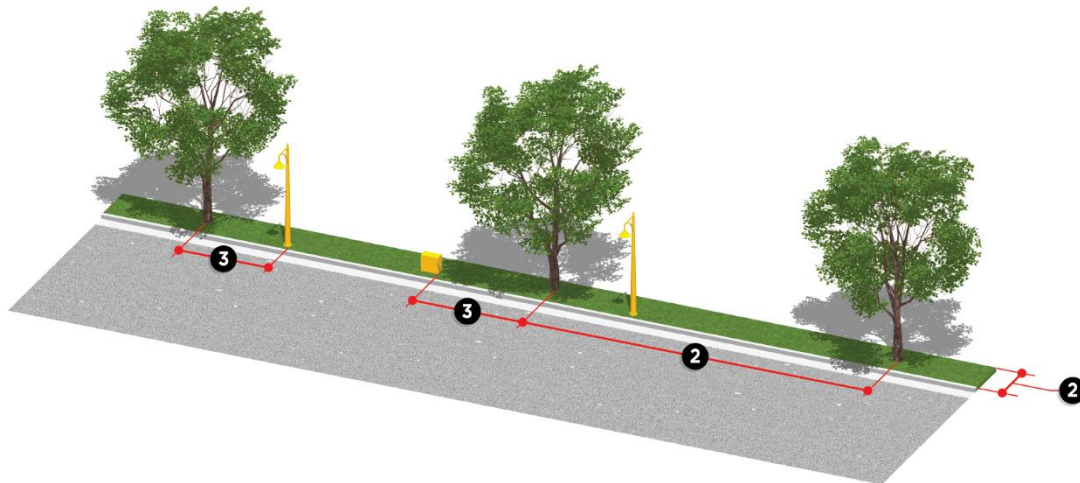
1. Each single-family or duplex lot shall contain a minimum of one (1) canopy tree for every two-thousand (2,000) square feet of lot area or fraction thereof up to twenty-thousand (20,000) square feet in lot area. Any portion of the residential lot occupied by a recorded utility easement shall not be included as part of the total lot area. The location of planting to account for physical conditions may be adjusted by the Land Use Administrator.
2. The use of existing trees meeting the following standards to satisfy this requirement is encouraged. Existing large shade trees measuring more than six (6) inches in DBH may be counted towards fulfilling this requirement.

3. Required street trees (Section 7.4 (L)) may not be counted towards the fulfillment of the residential landscaping requirement. Apart from required street trees, all other trees required under this Chapter shall be planted within the private lot.
4. Foundation plantings consisting of evergreen shrubs shall be installed along the entire foundation wall of the building. Plant installation shall be a minimum of two (2) feet in height planted at four (4) foot intervals.

L. Street Tree Plantings.

1. All development shall be required to have street trees along all public rights-of-way in accordance with the illustrations of Street Classification and Design found in Section 10.4 (A). Street trees are not required along public rights-of-way in the Open Space Preserve (OSP) zoning district.
2. The species of every other tree along a street frontage shall alternate in order to maximize species diversity.
3. Street trees shall be canopy trees and shall be installed at a minimum average distance of forty (40) feet on-center in a planting strip a minimum of five (5) feet in width. Where overhead utilities exist prior to development, understory trees may be substituted, as approved by the Land Use Administrator. The planting strip shall be located as detailed below.
 - a. **Town of Knightdale Roadways.** On roadways under Town of Knightdale jurisdiction, the planting strip shall be located between the sidewalk and roadway.
 - b. **North Carolina Department of Transportation (NCDOT) Roadways.** On roadways under NCDOT jurisdiction, the planting strip shall be located in accordance with applicable NCDOT specifications.
4. Street trees shall be placed at least ten (10) feet from light poles and twelve (12) feet from electrical transformers in order to allow these utilities to be safely serviced (understory trees may be placed within five (5) feet of such devices).
5. Street trees shall be deciduous hardwoods and shall meet the criteria set forth in section 7.4 (C).
6. **Street Tree Maintenance.** Street trees shall be maintained in good, trimmed, and neat condition, and at maturity should provide thirteen and one-half (13.5) feet of clearance to accommodate emergency response vehicles.

Figure 7.9: Street Tree Planting Standards



M. Overall Tree Canopy.

1. **Applicability.** To preserve and maintain appropriate undisturbed tree cover, and where needed, require the provision of replacement tree cover on development sites.
2. **Tree Cover Area.** All new development on lots or parcels over two (2) acres must meet the following tree cover requirement during the initial master plan process. A tree cover area equal to the perimeter of the development in feet multiplied by twenty (20) shall be maintained on-site up to a maximum tree cover area consisting of ten (10) percent of the entire site. Any required landscape buffer yards and Neuse River Basin Riparian Buffers (NRBs) may be credited toward this requirement. In the event that the required tree cover area cannot be met with the required landscape buffer yards and NRBs, additional space must be set aside. In this additional space, preference is given to preserving existing trees rather than utilizing new plantings.
3. **Performance Standards for Additional Space.**
 - a. **Mature Forest.** (100% of calculated additional space required). If not directly adjacent to NRBs or landscape buffer yards, each preserved tree cover area of mature forest must be at least two-thousand five-hundred (2,500) square feet with no dimension less than fifty (50) feet wide. To qualify, the average tree canopy height must exceed twenty-five (25) feet.
 - b. **Maturing Forest.** (110% of calculated additional space needed). If not directly adjacent to NRBs or landscape buffer yards, each preserved tree cover area of maturing forest must be at least two-thousand five-hundred (2,500) square feet with no dimension less than fifty (50) feet wide. To qualify, the average tree canopy height must exceed twelve (12) feet.
 - c. **Re-planted Areas.** (125% of calculated additional space needed) If not directly adjacent to NRBs or landscape buffer yards, each re-planted tree cover area must be at least two-thousand five-hundred (2,500) square feet with no dimension less than fifty (50) feet wide. To qualify, trees must meet the standards for new plantings as found in Section 7.4 (G), and the area must be vegetated with three (3) canopy trees and five (5) understory trees per five-hundred (500) square feet.

N. Replacement of Disturbed and Damaged Vegetation Pursuant to a Notice of Violation (Section 14.3). All disturbed (altered, removed, topped, excessively pruned, etc.) landscaped areas and vegetation shall be replanted to meet the standards of this section as well as the approved site or Master Plan. Existing vegetation required to be preserved (buffers, tree protection areas, etc.) that has been damaged or destroyed during the course of development activity shall be subject to civil penalty and replaced in accordance with the requirements of this section, taking into account any unique site conditions and significant vegetation remaining within the landscaped area.

1. **Plan Required.** A revegetation plan shall be submitted that takes into consideration the development condition of the site, significant vegetation remaining within landscaped areas, and the replacement plant materials. The Town of Knightdale may require equal amounts of new vegetation to be installed equal to the size of the vegetation removed. The Land Use Administrator may elect to present the replanting plan to the DRC for final approval.
2. **Replacement.** Replacement consists of one (1) or a combination of any of the following measures:
 - a. Replant according to the requirements of this Section.
 - b. Replace damaged or destroyed significant vegetation in both required landscaping and tree protection areas with an equal amount of new vegetation according to the size of vegetation removed. Any tree with a caliper of at least fifteen (15) inches that is damaged or removed shall be replaced with one (1) or more trees that have a caliper of at least two and one half (2½) inches and a cumulative caliper equal to or greater than the original tree. Trees damaged or destroyed less than fifteen (15) inches in diameter shall be replaced to satisfy the performance criteria of this section. Understory plantings may also be required to

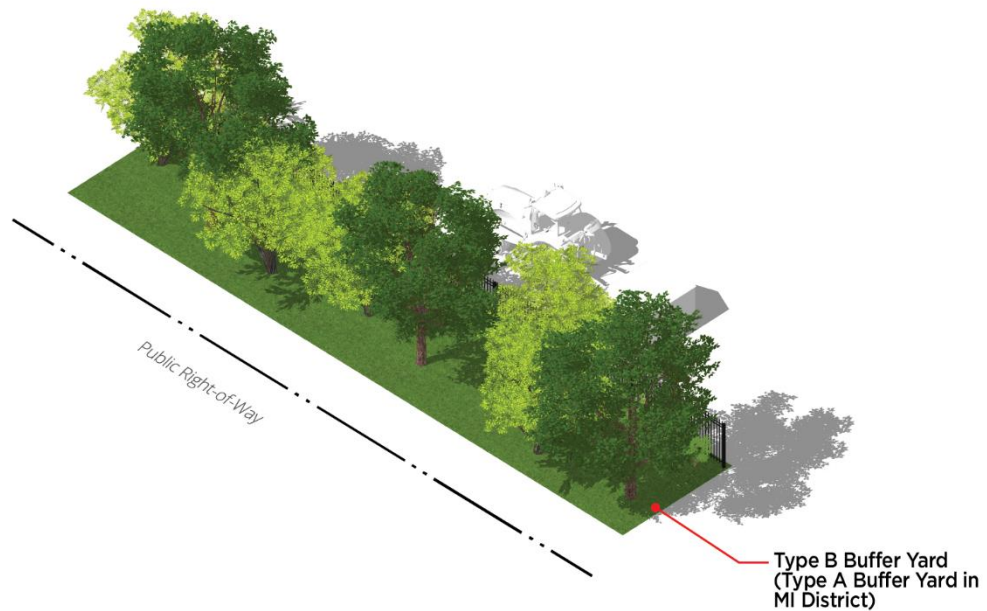
restore the buffer performance criteria for the disturbed area. These measures may be modified by the Land Use Administrator based upon site conditions.

- c. For all other cases where the existing vegetation is damaged or removed, the type and amount of replacement vegetation required shall be of the type and amount that is necessary to provide the type of required landscaping identified in the Notice of Violation or tree protection area identified on the approved landscape plan.
3. **Replanting Area.** Replanting should be located within the vicinity of the violation. If the area is too small for sufficient growth, a more suitable location on the site may be selected as permitted by the Land Use Administrator.

7.5. Screening

- A. **General Screening Requirements.** A buffer yard's vegetation requirements may also be used where specified as a screening device to mitigate the negative visual impacts of certain site amenities. Unlike buffer yards, screens are intended to be compact and constructed adjacent to the amenity for which the screen is required. A screen shall not exceed the minimum width specified for the buffer yard (thereby the minimum width now functions as a maximum width). Where irregular topographic conditions such as steep slopes exist, the Land Use Administrator may require the relocation of the screen in order to better serve its purpose. Effective screening devices may include solid decorative brick walls, or wood fences with an earthen berm or tight evergreen hedges which shall reach the required height within two (2) years of planting, or any combination of the above. Where sight triangles for drives or streets overlap, these requirements are waived and groundcover vegetation shall be used exclusively. Single-family and two-family dwellings are exempt from screening requirements.
- B. **Vehicle Accommodation Areas.** The sides of all vehicle accommodation areas (parking lots, loading docks, drive-thru facilities, circulation drives, etc.) fronting a public right-of-way and sides not otherwise protected by a buffer yard as determined by the Land Use Administrator shall be screened as follows to reduce the negative impacts of automobile headlights and glare on adjacent properties.
 - 1. **Parking Lots.** All sides of parking lots fronting street rights-of-way shall be screened with a Type A Buffer Yard (Section 7.4 (I)(2)). Sides adjacent to an arterial shall be screened with a Type B Buffer Yard (Section 7.4 (I)(3)).
 - 2. **Other Vehicle Accommodation Areas.** Other vehicle accommodation areas shall be screened from off-site view with a Type B Buffer Yard (Section 7.4 (I)(3)).
- C. **Open Storage.** In addition to meeting any fencing or wall requirements in Chapter 3 or Chapter 4 of this Ordinance, any open storage of merchandise, equipment, tractor trailers, materials, or goods other than those on display for retail sales shall be screened from view from any street right-of-way in accordance with the standards prescribed for Type B Buffer Yards in Section 7.4 (I)(3), except for in the MI District where such areas shall be screened from view from any internal street right-of-way with a Type A Buffer yard as prescribed in Section 7.4 (I)(2).

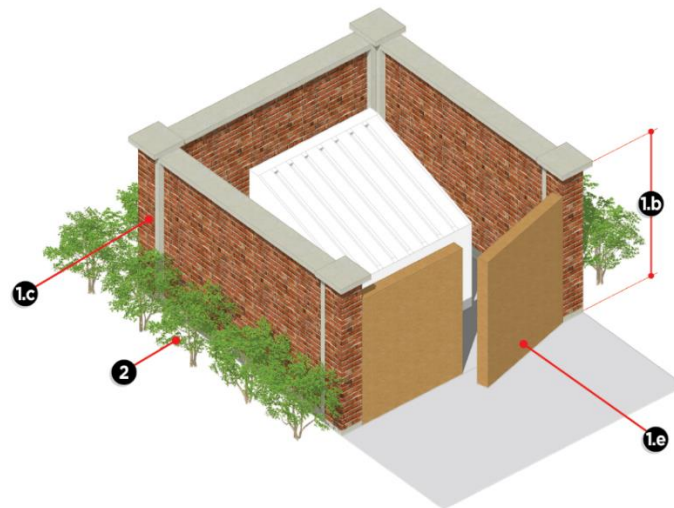
Figure 7.10: Open Storage Screening Standards



- D. **Above-Ground Utilities.** Above-ground utilities shall be screened by the elements of a Type B Buffer Yard (Section 7.4 (I)(3)) that pertain to Semi-Opaque Screens up to six (6) feet in height or the height of the utility, whichever is less.

- E. **Trash and Recycling Receptacles.** All containment areas for trash and recyclables, including devices such as compactors, dumpsters, and commercial roll-out bins, as well as locations for stacking cardboard, pallets, and similar items shall be restricted to side or rear yards only and screened from off-site view.
1. **Containment Areas.** All containment areas shall meet the following standards:
 - a. All containment areas shall be enclosed to contain windblown litter.
 - b. The height of the enclosure shall meet or exceed the highest point of any compactor, dumpster, or bin.
 - c. The enclosure shall be opaque and finished with masonry materials consistent with those of the principal structure.
 - d. All containment devices shall be placed on a concrete pad with a concrete apron that is large enough to provide adequate support, allow for positive drainage, and conform to the Wake County Health Department regulations governing compactor pads.
 - e. The enclosure shall feature opaque gates made from permitted fence materials (Section 7.6) to allow for access and security. Gates shall be closed at all times except for when the receptacle(s) is being accessed.
 - f. Property owners shall be responsible for ensuring trash and recycling receptacles are placed in the enclosure at all times other than when they are being emptied by a service vehicle.
 - g. All containment devices shall be located as far as possible from sidewalks and other pedestrian facilities and in a location that is accessible to service vehicles.
 2. **Landscape Screening.** All containment areas shall be screened by the elements of a Type B Buffer Yard (7.4 (I)(3)) that pertain to Semi-Opaque Screens up to six (6) feet in height or the height of the enclosure, whichever is less.

Figure 7.11: Trash and Recycling Receptacle Screening Standards



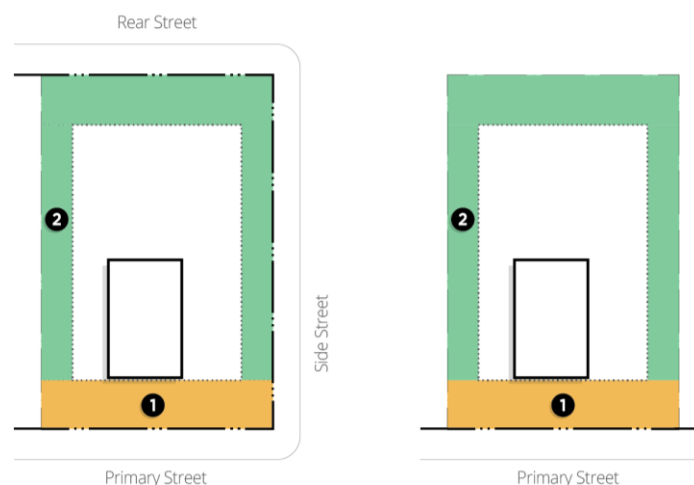
- F. **Wireless Telecommunication Facility – Tower.** See Section 5.9 (C) for specific information necessary to meet the required additional screening standards.

7.6. Fences and Walls

A. House and Townhouse Building Types.

1. **Front Yard Height.** Fences shall not exceed four (4) feet in height, and garden/decorative walls shall not exceed three (3) feet in height.
2. **Side/Rear Yard Height.** Fences or garden/decorative walls shall not exceed six (6) feet in height.
3. **Easements.** Fences are only permitted in easements as permitted via the Town of Knightdale Stormwater Manual and/or the City of Raleigh Public Utilities Handbook.
4. **Materials.**
 - a. Garden/decorative walls and fence piers shall be brick, or stone consistent with those materials of the principal building.
 - b. Retaining walls shall be wood, brick, stone, or decorative concrete masonry blocks.
 - c. Front yard fences shall be wood picket, wrought iron, or materials similar in appearance and durability with a maximum opacity of fifty (50) percent.
 - d. Side and rear yard fences not exceeding four (4) feet in height may be wood, wrought iron, or materials similar in appearance and durability.
 - e. Side and rear yard fences exceeding four (4) feet in height shall be wood or a material similar in appearance and durability.
 - f. No fence shall be constructed of chain link, wire mesh, woven wire, dangerous materials, materials that would constitute a nuisance, razor wire, barbed wire, or any material that conducts electricity.
5. **Exceptions.**
 - a. Engineered retaining walls necessitated by severe topography (slopes) are not subject to the height limitations of this section.
 - b. Vinyl wrapped chain link may be used for ball fields and sport courts, and shall not exceed ten (10) feet in height.

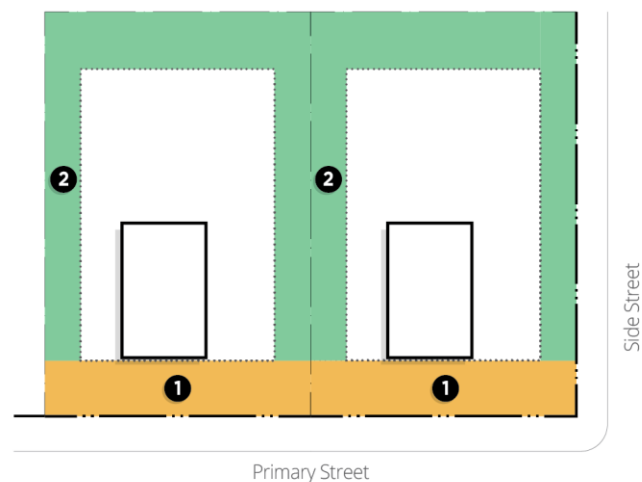
Figure 7.12: House and Townhouse Building Type Fence and Wall Standards



B. Apartment, Mixed-Use, Civic, Institutional, Commercial, Outlot/Liner Commercial, or Large Lot Commercial Building Types in All Districts Except MI.

1. **Front Yard.** Fences or garden/decorative walls in front yards shall not be permitted.
2. **Side/Rear Yard Height.** Fences or garden/decorative walls shall not exceed eight (8) feet in height.
3. **Materials.**
 - a. Garden/decorative walls and fence piers shall be brick, or stone consistent with those materials of the principal building.
 - b. Retaining walls shall be wood, brick, or stone.
 - c. All fences shall be wrought iron or a material similar in appearance and durability.
 - d. No fence shall be constructed of chain link, wire mesh, woven wire, dangerous materials, materials that would constitute a nuisance, razor wire, barbed wire, or any material that conducts electricity.
4. **Exceptions.**
 - a. Engineered retaining walls necessitated by severe topography (slopes) are not subject to the height limitations of this section.
 - b. Wireless Telecommunication Facility – Tower (Section 5.9 (C)) uses are not subject to the height limitations of this section.
 - c. Vinyl wrapped chain link may be used for ball fields and sport courts, and shall not exceed ten (10) feet in height.

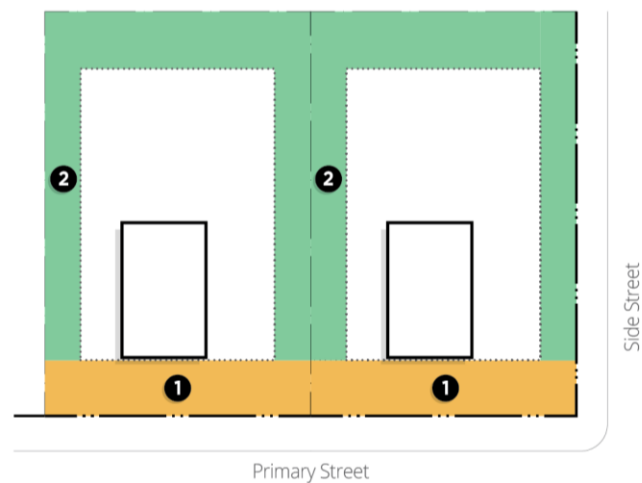
Figure 13: Apartment, Mixed Use, Civic, Institutional, Commercial, Outlot/Liner Commercial, or Large Lot Building Type Fence and Wall Standards



C. **Commercial or Manufacturing Building Types in MI District.**

1. **Front Yard Height.** Fences or garden/decorative walls shall not exceed six (6) feet in height.
2. **Side/Rear Yard Height.** Fences or garden/decorative walls shall not exceed eight (8) feet in height unless topographic conditions necessitate additional height. The Land Use Administrator may approve fences or walls not exceeding nine (9) feet in height. Requests for heights exceeding nine (9) feet are subject to approval from the Town Council.
3. **Materials.**
 - a. Retaining walls shall be wood, brick, or stone.
 - b. Barbed wire or chain link fences are restricted to the rear yard, shall not be visible from a street right-of-way, and shall not be adjacent to any lot in or zoned for residential use.
4. **Exceptions.**
 - a. Engineered retaining walls necessitated by severe topography (slopes) are not subject to the height limitations of this section.
 - b. Vinyl wrapped chain link may be used for ball fields and sport courts, and shall not exceed ten (10) feet in height.

Figure 7.14: Commercial or Manufacturing Building Type Fence and Wall Standards



7.7. Lighting

- A. **Purpose and Intent.** The purpose of this Chapter is to define practical and effective measures by which the obtrusive aspects of outdoor light usage may be reduced; while preserving safety, security, and the nighttime use and enjoyment of property. Poorly designed lighting contributes to excessive light trespass, strong glare, and poor color rendering that can adversely impact adjacent properties, neighboring areas, and motorists. These measures are intended to:
1. Curtail the degradation of the nighttime visual environment;
 2. reduce light trespass and glare by encouraging lighting practices that direct appropriate amounts of light where and when it is needed and prohibiting the use of poorly shielded or inappropriately directed lighting fixtures; and
 3. reduce energy waste by increasing the use of energy-efficient sources.
- B. **Applicability.** The standards of this Chapter are applicable for new development across all zoning districts, except as described below. Changes to existing non-conforming lighting are subject to the provisions of Section 13.8.
1. **Outdoor Recreational Lighting.** Because of their unique requirements for nighttime visibility and limited hours of operation, the lighting of active recreation areas, such as ball fields and tennis courts, are not considered in this Chapter. However, lighting fixtures for such uses shall be mounted and aimed so that the illumination falls within the primary playing area and immediate surroundings and so that no direct light illumination is directed off site. Under all circumstances, lighting used for active recreational purposes shall be extinguished no later than 11:00 p.m.
 2. **Flags.** Lighting of the United States of America or State of North Carolina flags.
 3. **Temporary Needs.** Circus, fair, carnival, or other similar civic/community event lighting; and construction and emergency lighting; provided said lighting is temporary and is discontinued immediately upon the end of the event, completion of construction work or abatement of the emergency necessitating said lighting.
 4. **Underwater.** Underwater lighting used for illumination of swimming pools and fountains.
 5. **Gas Lighting.** Ornamental gas lights and lanterns.
 6. **Holiday Displays.** Holiday lighting displays so long as said lighting does not produce light trespass.
 7. **Low-Voltage Landscape Lighting.** Low-voltage lighting systems so long as said lighting is shielded to not produce glare or light trespass.
- C. **Prohibited Lighting.** The following lighting is prohibited unless otherwise expressly permitted by this ordinance:
1. Flickering, rotating, blinking, flashing lights or lights that change in intensity or color.
 2. Search lights, laser lights, or any similar high-intensity lights.
 3. Unshielded accent, building-mounted luminous tubes. Shielded neon, argon, LED, fluorescent or similar luminous tubes shall not be used as a source of lighting except as provided for signs in Chapter 8.
 4. Light strings utilizing lamps greater than fifteen (15) lumens.
 5. Lighting that could be confused for a traffic control device, or any other fixture or device operated in such a manner as to constitute a hazard or danger to persons or safe vehicular operation.

6. Wall-mounted fixtures (e.g. wall packs) are generally prohibited as they are not intended to provide general building, parking area or site lighting; but they may be permissible as accent lighting (Section 7.7 (3)(E)) or security lighting (Section 7.7 (5)).
- D. **General Outdoor Lighting Standards.** Outdoor lighting shall meet the following general standards as well as any additional standards in Section 7.7 (E) as may apply.
1. **Plan Required.** Any person submitting a site plan or applying for a building, electrical, or sign permit to install outdoor lighting fixtures shall submit a lighting plan (Section 12.3 (I)(2)) providing evidence that the proposed lighting work will comply with the standards of this Section.
 2. **Fixture Classification.** Unless otherwise expressly permitted, all exterior lighting fixtures shall either have a fixture cutoff classification of “Full Cutoff” or be fully shielded (no light at or above horizontal).
 3. **LED Fixtures.** All street and site lighting utilizing an LED fixture shall:
 - a. **Color Rendering.** Be rated a minimum Color Rendering Index (CRI) value of seventy (70) or better.
 - b. **Color Temperature.** Have a ‘white light’ correlated color temperature not exceeding four-thousand (4,000) degrees Kelvin.
 4. **Pole Placement.** All pole-mounted outdoor lighting shall be located outside of utility easements, designed in coordination with the landscaping plan (Section 12.3 (I)(1)), located outside of landscaping islands, and located as far from large shade trees as the landscaping plan will allow.
 5. **Maximum Pole Height.** Unless otherwise restricted, all pole-mounted fixtures shall be mounted at heights no greater than thirty-seven (37) feet above grade.
 6. **Maximum Light Level at Property Line.** All outdoor lighting fixtures shall be designed and located such that the maximum light level shall be one-half (0.5) maintained foot candle at any property line unless otherwise permitted by this Section or where the required by the NC Building Code as a component of the minimum requirements for a means of egress system.
 7. **Severe Changes in Elevation.** In cases of elevated and non-elevated commercial sites that adjoin residential property where lighting installation causes offensive light trespass or glare, the Land Use Administrator may require the shielding of fixtures at the time of installation or at any point thereafter. If the installation of shields does not alleviate the offense, the Land Use Administrator may require additional mitigation measures including, but not limited to:
 - a. Changing the aim;
 - b. Re-locating perimeter light fixture(s) to the interior of the site;
 - c. Changing the mounting height;
 - d. Changing the light distribution pattern; or
 - e. Removing the pole and fixture from the site.

- E. **Additional Outdoor Lighting Standards for Specific Lighting Types.** In addition to meeting the general lighting standards in Section 7.7 (D), the following types of lighting shall also meet the additional specific standards listed below.
1. **Street Lighting.** Street lighting shall be placed on all streets by the developer to allow for the safe use of streets by cars, cyclists, and pedestrians. Developer placed lighting shall also include all improved frontages on local and NCDOT streets. Developers requesting upgrades from the Town’s minimum street light specification of a fiberglass pole with a fully-shielded, arm-mounted LED fixture shall pay the Town up front the difference in the costs of maintenance for the desired LED fixture and pole covering a period of ten (10) years. Developers interested in pursuing this option should consult with the Land Use Administrator concerning the Town’s “Premium Lighting Policy”. All street lighting shall conform to the specific standards for LED lighting in subsection ‘B’ as well as the following design standards:
 - a. **Average Spacing Maximums.** The following maximum average spacing requirements between streetlights shall apply to all local, collector, and arterial street classifications according to the use context of the adjacent land as listed below, except alleys (Section 10.4 (A)(1)(a)) which are exempt from said requirements.
 - i. **Local & Collector Streets.**
 - a) Residential at less than three (3) unit per acre – five hundred (500) feet.
 - b) Residential from three (3) to eight (8) units per acre – two-hundred fifty (250) feet.
 - c) Residential over eight (8) units per acre – one-hundred fifty (150) feet.
 - d) All other uses – three-hundred (300) feet.
 - ii. **Arterial Streets.** All uses – one-hundred fifty (150) feet.
 - b. **Minimum Initial Delivered Lumen Levels.**
 - i. Local Streets – four-thousand eight-hundred (4,800) lumens.
 - ii. Collector Streets in Residential Areas – twelve-thousand five-hundred (12,500) lumens.
 - iii. Collector Streets in Other Areas – twelve-thousand five-hundred (12,500) lumens.
 - iv. Arterial Streets – eighteen-thousand five-hundred (18,500) lumens.
 - c. **BUG Rating.** All streetlights shall be fully shielded (no light at or above horizontal) and shall not exceed the following BUG ratings established for each type of street:
 - i. Local Streets - B1, U1, G2
 - ii. Collector Streets in Residential Areas - B2, U2, G3
 - iii. Collector Streets in Other Areas - B3, U3, G3
 - iv. Arterial Streets - B3, U3, G4
 - d. **Placement.**
 - i. Although the primary purpose of street lighting is to provide adequate lighting for the roadway, street lighting should also promote pedestrian safety. Therefore, lighting should be placed in a manner to minimize the casting of shadows on sidewalks.
 - ii. Lighting shall be placed as far from street trees as the landscaping plan will allow.

- iii. Lights on newly constructed streets shall be alternately staggered on each side of the street wherever possible.
 - iv. Lighting shall be placed at all street intersections, in street curves, and at the end of any street or cul-de-sac.
2. **Post-Top Pedestrian Lighting.** Unless otherwise expressly permitted, decorative post-top fixtures may only be used for the lighting of pedestrian walkways and public gathering spaces and shall also meet the following standards:
- a. **Mounting Height.** Shall not be mounted at a height greater than eighteen (18) feet;
 - b. **BUG Rating:** LED or other BUG-rated fixtures shall not exceed a rating of B3, U1, G1;
 - c. **Lumens:** Shall not exceed seven-thousand two-hundred fifty (7,250) initial delivered lumens (LED) or nine-thousand (9,000) source lumens as may apply; and
 - d. **Permitted Locations.** Shall only be utilized in the following locations:
 - i. In commercial and mixed-use area street rights-of-way where sidewalk, utility, and planting strips have been combined (see Sections 10.1 (D)(1)(b)(i), (ii), (iii), and (c)(ii)A), or
 - ii. Along pedestrian facilities located outside the street right-of-way, or
 - iii. Along pedestrian facilities located more than twenty (20) feet from any vehicular accommodation area.
3. **Accent Lighting - Building, Landscaping and Signs.** All accent lighting, except for low-voltage lighting systems (Section 7.7(B)(7)) shall meet the following additional standards:
- a. **Lamp Output.** Accent lighting should be integrated with the architectural character of the building and shall use low-luminosity lamps (2,000 source lumens or less) unless otherwise justified.
 - b. **Maximum Vertical Illuminance.** The illumination on any vertical surface shall not exceed one-half (0.5) maintained foot candles and shall not spill over roof lines or building edges.
 - c. **Signs.** Light fixtures used to illuminate signs shall be mounted on the top of the sign structure whenever possible.
 - d. **Residential Post Lights.** All residential post top lights shall:
 - i. Not exceed eight (8) feet in height; and
 - ii. Have a translucent lens covering the light source.
4. **Vehicular Accommodation Area and General Site Lighting.** General site lighting and lighting for vehicular accommodation areas shall have an average horizontal illumination as specified in the tables in Section 7.7 (F) "Lighting Levels", and shall meet the following additional standards:
- a. **BUG Rating.** LED or other BUG-rated fixtures exceeding seven-thousand two-hundred fifty (7,250) initial delivered lumens or nine-thousand (9,000) source lumens as may apply, shall not exceed a rating of B3, U0, G4.
 - b. **Circumstances Requiring Forward Throw.** Parking area lighting fixtures within twenty-five (25) feet of any public street right-of-way or a commercial to residential/group care facility property line must be a forward throw fixture (type IV light distribution as defined by IESNA).

5. **Security Lighting.**
 - a. **Flood/Spotlights.** Spotlights shall not be used as general site lighting but may be permissible for added security provided the following standards are met.
 - i. Spotlights shall be aimed so that the main beam from the light source is not visible from a neighboring property.
 - ii. Spotlights shall be installed such that the fixture shall be aimed down at least 45 degrees from horizontal.
 - iii. Fixtures shall use low luminosity lamps (2,000 source lumens or lower).
 - iv. Shields shall be added as needed for conformity to this Section.
 - b. **Wall-Mounted Lights.** Wall-mounted fixtures are not intended to provide general building or site lighting but may be used at building entrances for added security. Wall-mounted fixtures shall:
 - i. Use low luminosity lamps (2,000 source lumens or lower) unless justified otherwise through the planning approval process.
 - c. **Dawn to Dusk Security Lights.**
 - i. Each lamp shall not exceed seven-thousand two-hundred fifty (7,250) initial delivered lumens (LED) or nine-thousand (9,000) source lumens as may apply.
 - ii. Each lamp shall be mounted at heights no greater than twenty-seven (27) feet above grade.
6. **Vehicular Canopies and Gas Station/Convenience Store Aprons.** Areas under a vehicular canopy and the approach to the canopy shall have an average horizontal illumination as specified in the table in Section 7.7 (F)(2) "Other Outdoor Areas", and shall meet the following additional standards:
 - a. Lighting under vehicular canopies shall be designed so as not to create glare off site. Acceptable methods include one or more of the following:
 - i. Recessed fixture incorporating a lens cover that is either recessed or flush with the bottom surface of the vehicular canopy; or
 - ii. Surface-mounted fixture incorporating a flat lens that provides a fully shielded light distribution.
 - b. Lights shall not be mounted on the top or sides (fascia) of the canopy, and the sides of the canopy shall not be externally illuminated.

- F. **Lighting Levels.** The following standards shall be required of all exterior lighting with the exception of public street lighting which is exempt. The number of fixtures to be provided shall be based upon the desired level of uniform illumination as established by the following table and current standards of the IESNA. Fixture locations should be chosen to minimize glare, trespass, and conflicts with the landscaping plan as stated in Section 7.7(B). If a lighting installation causes offensive light trespass or glare, the Land Use Administrator may require the shielding of fixtures at the time of installation or at any point thereafter. The level of illumination shall be based upon the primary activity in each area to be lighted as outlined below.
1. **Open Parking Facilities.** For lighted parking lots, the minimum light level shall be no less than 0.2 foot candles. All light levels are measured at ground level. The light level requirements for individual parking lots vary depending on the activity classification.

The specified minimum foot candle value above 0.2 foot candles as outlined in the following table means that the lowest light level point or location in the parking lot must not exceed the minimum stated foot candle value in the table (i.e. 0.9 foot candles for large shopping centers). An average to minimum uniformity ratio of 4:1 means that the average foot candle to minimum foot candle ratio cannot be worse (higher) than 4:1. See the following table:

Table 7.7(F)(1) Lighting Levels of Open Parking Facilities		
Activity	Maintained Footcandles	Uniformity Avg/Min
Parking, residential, multi-family - low to medium activity	0.5 FC Min	4:1
Parking, industrial/commercial/institutional/municipal - High activity, i.e. large shopping centers/ fast food facilities, major athletic/civic cultural events	0.9 FC Min	4:1
Parking, industrial/commercial/institutional/municipal - Medium/low activity, i.e. community shopping, office parks, hospitals, commuter lots, cultural/civic/ recreational events, residential neighborhood shopping, industrial employee parking, schools, churches	0.5 FC Min	4:1

2. **Other Outdoor Areas.**

Table 7.7(F)(2) Lighting Levels of Other Outdoor Areas	
Use	Maximum Illumination Allowed (Avg. Footcandles Maintained)
Service Stations: Approaches/Pump Islands	7/30
Outdoor Display Areas (i.e. car lots)	30
Tractor Trailer and Other Outdoor Storage Areas	20
Building Exteriors	3
Public Entrances	5
Employee and Other Entrances	3
Building Surroundings	2
Vital Locations or Structures	5

G. Measurement.

1. **Location.** Light level measurements shall be made at the property line of the property upon which the light to be measured is being generated. If measurement on private property is not possible or practical, light level measurements may be made at the boundary of the public street right-of-way that adjoins the property of the complainant or at any other location on the property of the complainant. Measurements shall be made at finished grade (ground level), with the sensor in the horizontal position and not mounted more than six (6) inches above ground level, and with the light-registering portion of the meter held parallel to the ground and pointing upward.
2. **Light Meter Specifications.** Lighting levels are to be measured in FCs with a direct-reading portable light meter. The meter shall:
 - a. have cosine and color correction;
 - b. have an accuracy tolerance of no greater than plus or minus five (5) percent; and
 - c. have been calibrated within the last two (2) years.

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Chapter 8. Sign Standards

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8.1. Purpose and Intent

A. It is the intent of this chapter to authorize the use of signs whose types, sizes, and arrangements are:

1. Compatible with their surroundings;
2. Preserve the natural beauty of the area;
3. Protect existing property values in both residential and non-residential areas;
4. Prevent the endangerment of public safety;
5. Express the identity of the community as a whole or individual properties or occupants;
6. Legible in the circumstances in which they are seen; and
7. Appropriate to traffic safety.

B. The following regulations are designed and intended to improve the overall aesthetic of the community by preventing over-concentration, improper placement, and excessive height, bulk, and area of signs.

8.2. Applicability

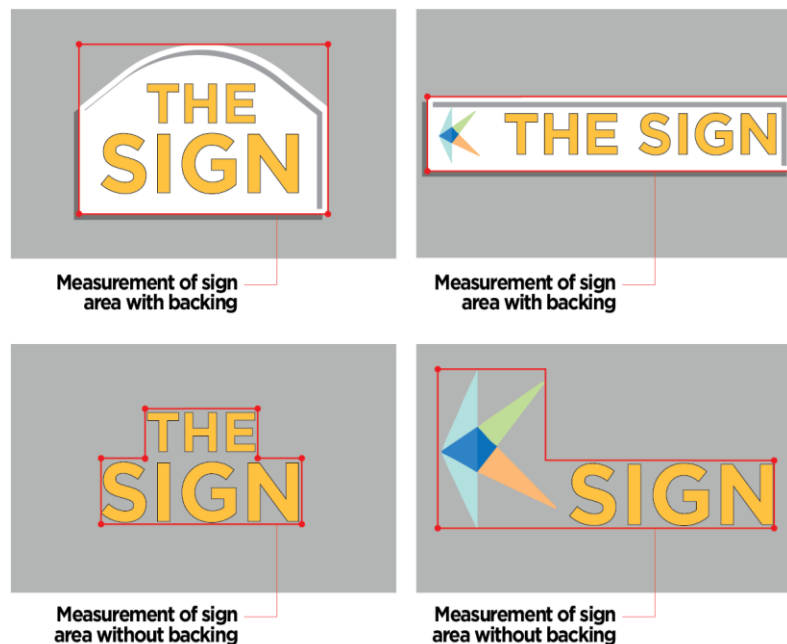
A. No sign shall be erected, altered, constructed, moved, converted, or enlarged except in accordance with the provisions of this chapter and pursuant to the issuance of a sign permit (Section 12.2 (D)(3)).

B. Notwithstanding sub-section “A” above, changing or replacing the permanent copy of an existing conforming sign shall not require a permit, provided the copy does not change the nature of the sign so as to render it in violation of this ordinance.

8.3. General Provisions

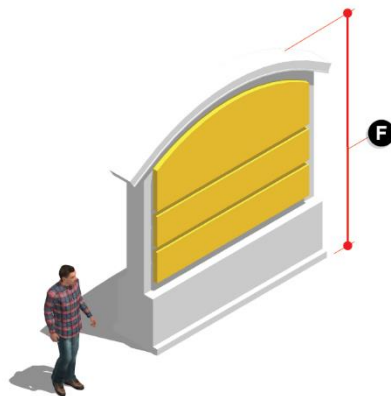
- A. **Scale.** The scale of the sign(s) shall be appropriate for the building on which they are placed. Signs should reflect the proportional and dimensional relationships of the structure. Signs near pedestrian walkways such as pedestrian entrances and arcades should be pedestrian in scale.
- B. **Placement.** Except for government-installed signs, all signs are prohibited from being placed in an easement or public right-of-way, and no sign shall be located within a sight triangle area or so as to impair traffic visibility.
- C. **Maintenance.** Any structurally unsafe sign that endangers public safety shall be immediately removed unless it is repaired and made otherwise to comply with the requirements of this Ordinance.
- D. **Lighting.** All wall or monument signs, if internally lit, must be covered with an opaque acrylic or similarly opaque surface. Exposed neon, argon, LED, or similarly sized tube lighting is allowed; however, each tube must be individually recessed within a channel not exceeding four (4) inches in width that fully cuts off the casting of glare on all sides.
- E. **Computation of Sign Area.**
1. **In General.** The area of a sign face (which is also the sign area of a wall sign or other sign) shall be computed by means of the smallest rectangle that will encompass the extreme limits of the writing, representation, emblem, other display, and any material or color forming an integral part of the background of the display or used to differentiate the sign from the backdrop or structure against which it is placed. Sign area shall include any supporting framework, base, bracing, or decorative fence or wall when such fence or wall otherwise meets the regulations of this Ordinance and is incidental to the display itself, as determined by the Land Use Administrator.

Figure 8.1: Computation of Sign Area



2. **Double-Faced Signs.** Where the two (2) faces of a double-faced sign are parallel or the interior angle formed by the faces is 60 degrees or less, only one (1) display face shall be measured in computing sign area. If the two (2) faces of a double-faced sign are of unequal area, the area of the sign shall be measured on the larger face.
 - a. The area of multi-faced signs is calculated based on the principle that all sign elements that can be seen at one (1) time or from one (1) vantage point should be considered in measuring that side of the sign. Consequently, where the interior angle formed by the two (2) faces exceeds 60 degrees, the areas of all faces of a multi-faced sign shall be added together to compute the area of the sign.
 3. **Three-Dimensional Signs.** Spherical, cylindrical, or other three-dimensional signs not having conventional sign faces shall be computed from the smallest shape or shapes which will best approximate the actual surface area of such faces.
- F. **Computation of Sign Height.** The maximum height shall be as measured from surrounding grade to the highest point of the sign, including all supporting framework, base, bracing, or decorative fence or wall.

Figure 8.2: Computation of Sign Height

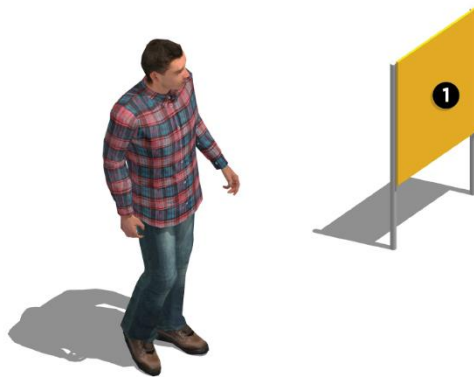


8.4. Signs Not Requiring a Zoning Compliance / Sign Permit

The following types of signs do not require a Zoning Compliance/Sign Permit as outlined in Section 12.2 (D)(3) and may be placed in any zoning district subject to the provisions of this Ordinance and, if required, the issuance of a building permit. There shall be no limit as to the number of such signs on any lot, except as prescribed in this Section. Signs (except government signs) are prohibited from being located within a public right-of-way unless permission has been otherwise granted by the Town of Knightdale, NCDOT, or the General Assembly of North Carolina, as may apply.

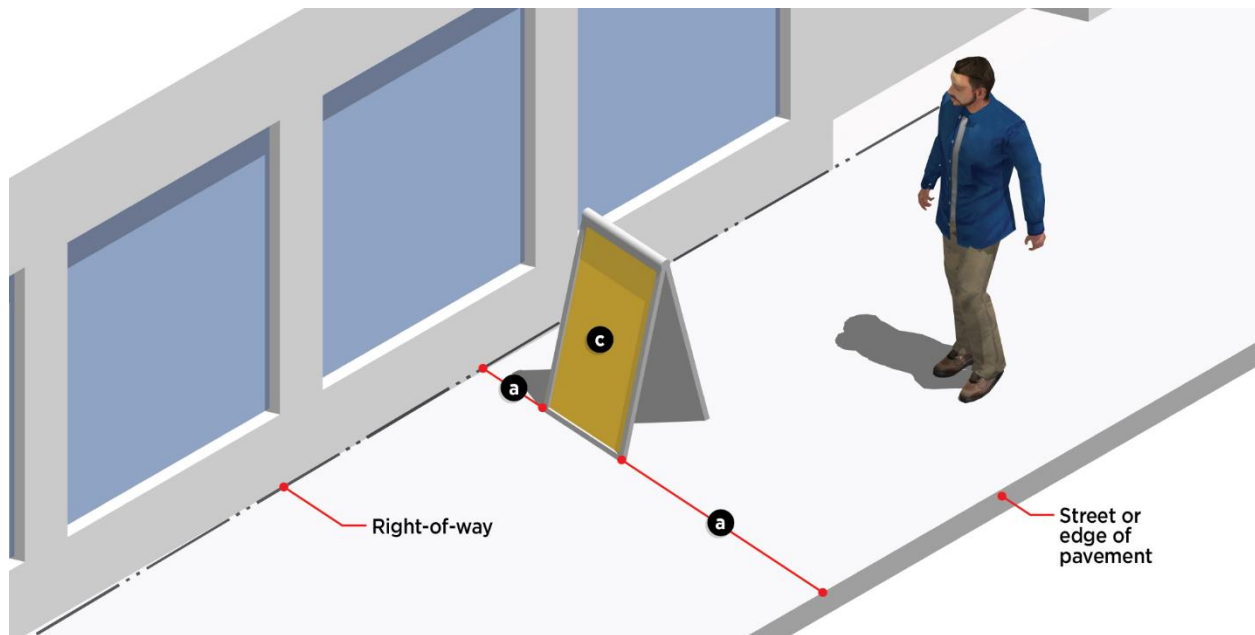
- A. **Ballpark Signage.** Signage within ballfields and sports stadiums that is directed within the facility including, but not limited to, banners, fixed placards, and scoreboards.
- B. **Flags.** Any flag not meeting the standards of this section shall be considered a banner and shall be subject to the regulations in Section 8.7.
1. **Pole Height.** Flags shall not be flown from a pole the top of which is more than forty (40) feet in height.
 2. **Number.** A total of three (3) flags may be flown per site.
 3. **Flags of the United States of America.** Flags shall be flown in accordance with protocol established by the Congress of the United States for the Stars and Stripes.
- C. **Government Signs.** Signs posted by various local, state, and federal agencies.
- D. **On-Site Traffic Directional Signs.** On non-residential lots, signs that are incidental to other signs on the site; are not internally or indirectly illuminated; and direct or guide on-site traffic (i.e. handicapped parking, drive-thrus), prohibit the parking of unauthorized vehicles or provide other incidental information that protects the health, safety, and welfare of the community; are subject to the following standards:
1. **Sign Area.** On-site traffic directional signs shall not exceed four (4) square feet.
 2. **Number of Signs.** A maximum of four (4) on-site traffic directional signs shall be permitted per lot.
 3. **Location.** On-site traffic directional signs shall be located in parking lots and drive aisles in a manner that does not interfere with pedestrian circulation or required landscape areas.
 4. **Signs on Buildings.** Signs up to three (3) square feet not otherwise regulated by this Ordinance are permitted. (Includes Home Occupations)
 5. **Exemptions.** On-site traffic directional signs not visible from a public street or neighboring residence.

Figure 8.3: On-Site Traffic Directional Sign



- E. **Street Address Signs.** Signs bearing only property identification numbers for first responders to locate the property to respond to any fire or public safety issue. The sign shall serve as a visible street address and identifier for the delivery of mail and official government notification.
1. **Illumination.** Property identification signs may not be illuminated.
 2. **Number.** One (1) sign is permitted per lot frontage.
 3. **Area.** The sign may not exceed two (2) square feet.
- F. **Sandwich Board Signs.** Portable A-frame sign constructed with two (2) faces back-to-back and resting on the ground at an angle to each other not exceeding forty-five (45) degrees.
1. **Districts.** Sandwich board signs are permitted along pedestrian ways in the Residential Mixed-Use (RMX), Neighborhood Mixed-Use (NMX), Town Center (TC), and Highway Business (HB) districts subject to the following standards:
 - a. **Location.** A sandwich board must be located within eight (8) feet of a doorway or under the roof line, and shall maintain a minimum five (5) foot wide pedestrian clearance zone along the pedestrian way.
 - b. **Hours.** Sandwich boards may only be displayed during the associated business' hours of operation.
 - c. **Area.** Neither face shall exceed three (3) feet in width or four (4) feet in height.
 - d. **Materials.** The sandwich board frame shall be constructed of a non-reflective material and/or color.

Figure 8.4: Sandwich Board Sign



- G. **Street Graphics.** Flags and banners attached to light poles or similar fixtures within public rights-of-way or public buildings and approved by the Public Works Director in accordance with the Town's adopted Street Graphics Policy. Similar graphics may be mounted on private property but may not exceed twelve (12) square feet each in area.

Figure 8.5: Street Graphics



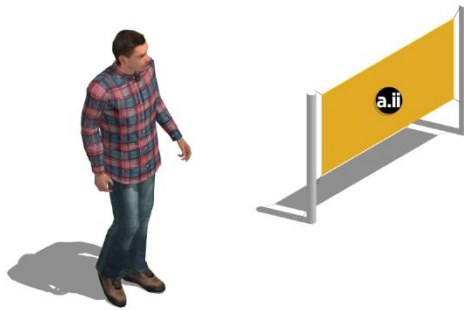
- H. **Temporary Signs.** To prevent the promulgation of temporary signs that are not designed to be long-term additions to the aesthetic environment and which often become unsightly and create visual clutter after exposure to weather and landscape maintenance, no temporary signs shall be located in any right-of-way or attached to structures in any right-of-way such as power poles and street signs, and shall be subject to the following specific provisions:

1. **Construction Site Signs.**

- a. Individual single-family or duplex construction site signs shall:
 - i. Not exceed one (1) sign per lot for which a building permit has been issued;
 - ii. Not exceed four (4) square feet in area;
 - iii. Not be erected prior to issuance of a building permit; and
 - iv. Be removed within thirty (30) days following the issuance of the CO.
- b. Major residential subdivisions, multifamily, mixed-use, or non-residential construction site signs shall:
 - i. Not exceed two (2) signs per construction site;
 - ii. Not exceed thirty-two (32) square feet in area per sign;
 - iii. Not be erected prior to issuance of a CIP; and
 - iv. Be removed within thirty (30) days following the issuance of the last CO.

- c. For purposes of this section only, “construction site” shall mean the following:
 - i. A major residential subdivision (inclusive of all lots and phases);
 - ii. A multi-family development approved as a single development (inclusive of all lots and phases);
 - iii. Mixed-use or non-residential development approved as a single development (inclusive of all lots and phases).

Figure 8.6: Construction Site Sign

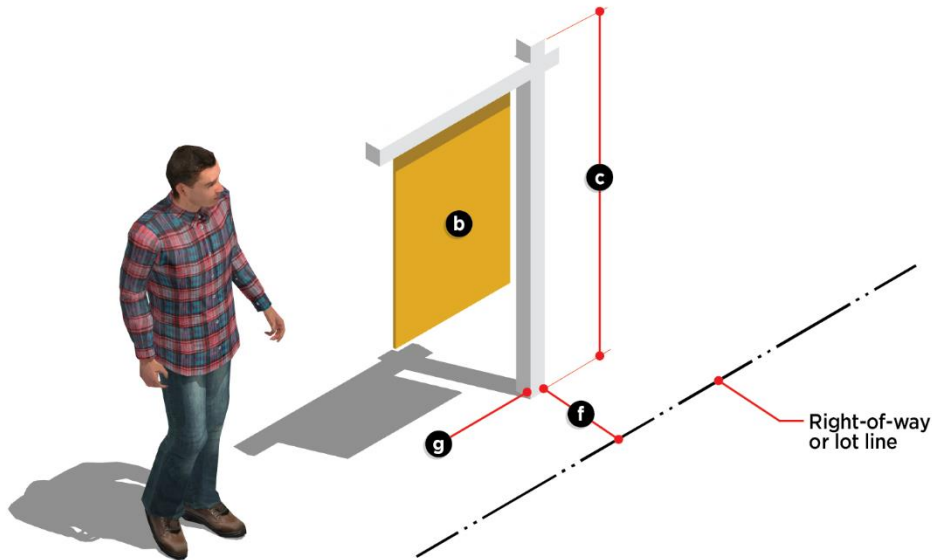


2. Temporary Suspended Shingle Post Signs.

- a. **Permitted Districts.** Temporary suspended shingle post signs shall be permitted in residential districts only.
- b. **Sign Area.** The maximum permitted sign area of a temporary suspended shingle post sign shall be six (6) square feet.
- c. **Height.** The maximum permitted height of a temporary suspended shingle post sign shall be six (6) feet.
- d. **Projection.** The maximum projection of the temporary suspended shingle post sign arm shall be three (3) feet.
- e. **Number of Signs.** A maximum of one (1) temporary suspended shingle post sign shall be permitted per lot frontage.
- f. **Location.** Temporary suspended shingle post signs shall be located a minimum of ten (10) feet from all property lines, rights-of-way, and utility easements; shall not block points of ingress or egress; or be placed in any sidewalk or pedestrian walkway.
- g. **Other Provisions.**
 - i. Post signs shall be securely anchored into the ground or secured in a portable base designed for such function.
 - ii. Post signs shall not be illuminated.

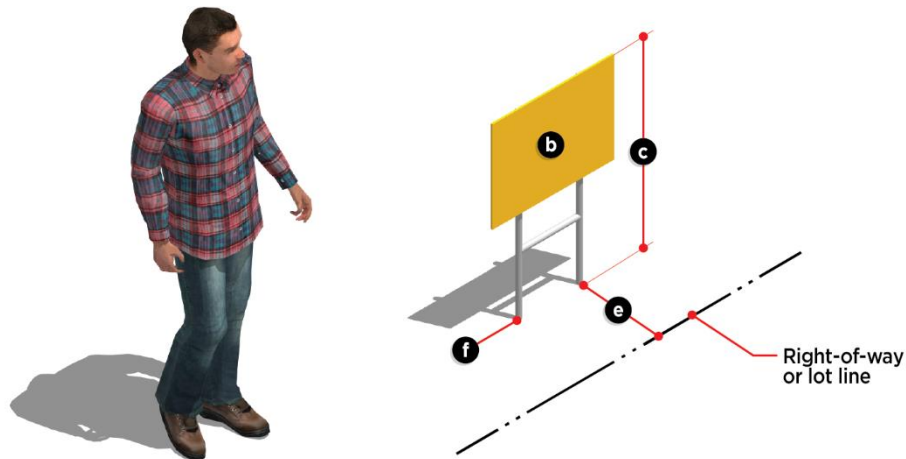
- iii. Post signs shall be maintained in good condition and shall not sag, lie on the ground, be torn, or otherwise kept in a disorderly state.
- h. **Duration of Display.** Post signs shall be displayed for a period not to exceed ninety (90) days in any calendar year.

Figure 8.7: Temporary Suspended Shingle Post Sign



3. **Yard Signs.** Yard signs shall:
 - a. **Permitted Districts.** Yard signs shall be permitted in residential districts only.
 - b. **Sign Area.** The maximum permitted sign area of a yard sign shall be three (3) square feet.
 - c. **Height.** The maximum permitted height of a yard sign shall be three (3) feet.
 - d. **Number of Signs.** A maximum of three (3) yard signs shall be permitted to be displayed concurrently.
 - e. **Location.** Yard signs shall be located a minimum of ten (10) feet from all property lines, rights-of-way, and utility easements; shall not block points of ingress or egress; or be placed in any sidewalk or pedestrian walkway.
 - f. **Other Provisions.**
 - i. Yard signs shall be securely anchored into the ground or secured in a portable base designed for such function.
 - ii. Yard signs shall not be illuminated.
 - iii. Yard signs shall be maintained in good condition and shall not sag, lie on the ground, be torn, or otherwise kept in a disorderly state.

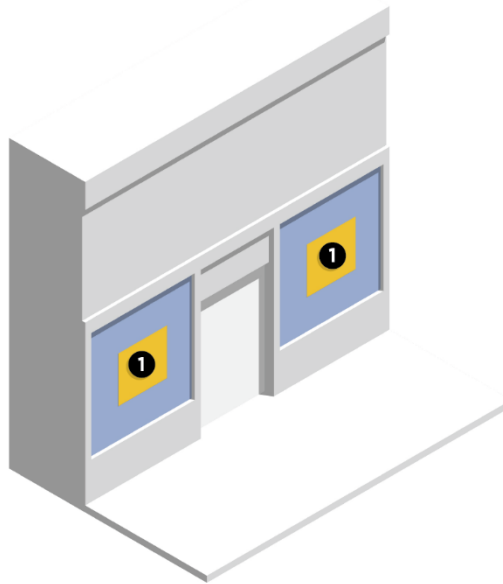
Figure 8.8: Yard Sign



I. Window Signs.

1. **In General.** Signs placed or painted on the interior or exterior of glass windows or doors shall not cover more than thirty (30) percent of the glass area of the window in which it is displayed. Window Signs that cover more than thirty (30) percent of the window in which it is displayed shall be considered as Wall Signs and shall meet requirements for Wall Signs as outlined in Section 8.5.
2. **Neon Tube Signs/LED Signs.** These signs may only be located on the inside of a window and shall be limited to two (2) per business and cover no more than ten (10) percent of the window in which it is displayed. The permitted sign area of neon tube signs/LED signs shall be counted in aggregate with window signs in general.

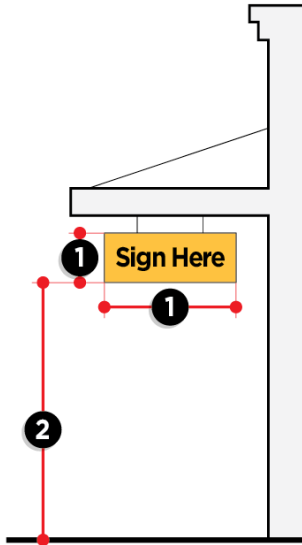
Figure 8.9: Window Sign



J. Under Awning Signs.

1. **Maximum Dimensions.** sixteen (16) inches high and forty (40) inches wide.
2. **Sign Clearance.** Eight (8) feet

Figure 8.10: Under Awning Sign



8.5. Signs Requiring a Permit by District

A. Primarily Residential Districts (OSP, RR, GR, UR)

Permitted Sign Type(s)	Specific Applicability	Maximum Area	Maximum Height	Maximum Number
Permanent Suspended Shingle Post	For Home Occupation Uses Only	6 sqft	5 ft	1
Monument	Neighborhood Gateways	16 sqft*	7 ft	2 per entrance
* Area limitation applies to the sign itself and does not include the structure.				

B. Mixed-Use Districts (RMX, NMX, TC,) and Civic/Institutional Uses (All Permitted Districts)

Permitted Sign Type(s)	Specific Applicability	Maximum Area	Maximum Height	Maximum Number
Monument	Neighborhood or Campus Gateways	16 sqft*	7 ft	2 per entrance
Monument	Lots less than 2 acres	25 sqft	4 ft	2**
Monument	Lots equal to or greater than 2 acres	50 sqft	7 ft	2**
Building Wall	Front facades	10% of wall	n/a	1***
Building Wall	All other facades	5% of wall	n/a	1***
* Area limitation applies to the sign itself and does not include the structure.				
** Only one monument sign allowed per lot per street frontage.				
*** A maximum of one wall sign shall be permitted per façade of a single-tenant building or per an individual unit of a multiple tenant building, with the exception of secondary wall signs as detailed in Section 8.6 (B).				

C. Primarily Commercial, Office, and Industrial Districts (HB, BO, MI)

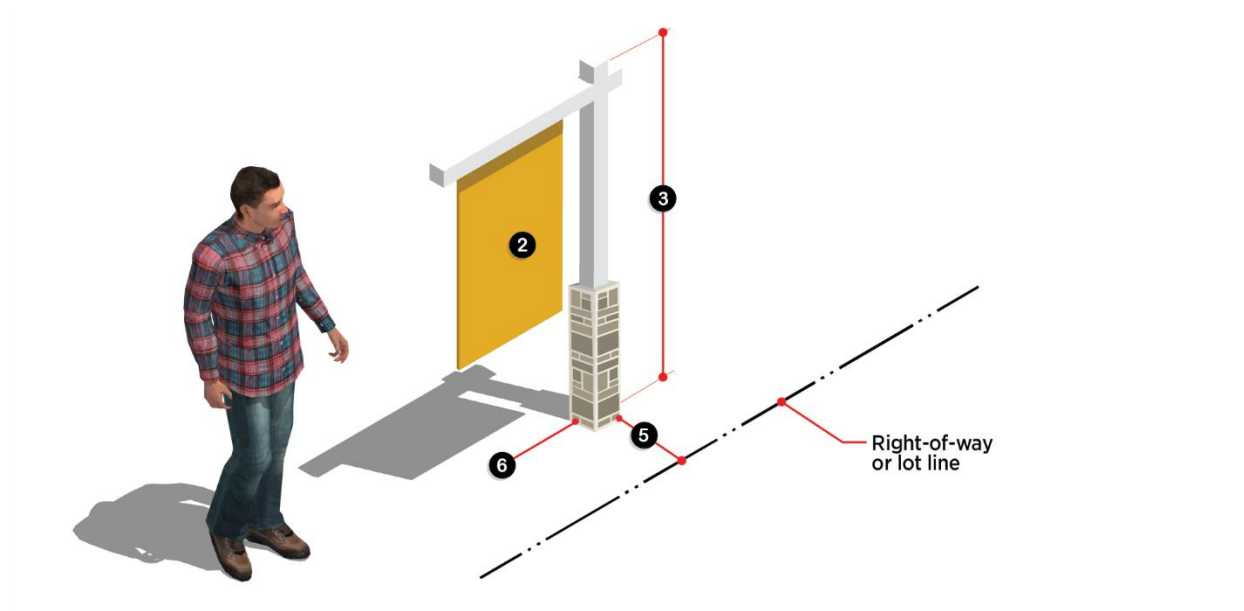
Permitted Sign Type(s)	Specific Applicability	Maximum Area	Maximum Height	Maximum Number
Monument	Lots less than 2 acres	50 sqft	6 ft	2*
Monument	Lots equal to or greater than 2 acres	70 sqft	7 ft	2*
Building Wall	Front facades	10% of wall	n/a	1**
Building Wall	All other facades	5% of wall	n/a	1**
* Only one monument sign allowed per lot per street frontage.				
** A maximum of one wall sign shall be permitted per façade of a single-tenant building or per an individual unit of a multiple tenant building, with the exception of secondary wall signs as detailed in Section 8.6 (B).				
*** No individual wall sign may exceed one hundred fifty (150) square feet if sign is within one hundred fifty (150) feet of a public right-of-way.				

8.6. Signage Types

A. Permanent Suspended Shingle Post Signs.

1. **Permitted Districts.** Permanent suspended shingle post signs shall be permitted in all districts that allow for monument signs.
2. **Sign Area.** The maximum permitted sign area of a permanent suspended shingle post sign shall be ten (10) square feet.
3. **Height.** The maximum permitted height of a permanent suspended shingle post sign shall be six (6) feet.
4. **Number of Signs.** A maximum of one (1) permanent suspended shingle post sign shall be permitted per lot frontage.
5. **Location.** All Permanent Suspended Shingle Post Signs shall be located a minimum of five (5) feet from all street rights-of-way, property lines, and utility easements; shall not block points of ingress or egress; or be placed in any sidewalk or pedestrian walkway.
6. Permanent Suspended Shingle Post Signs and their supporting posts shall be of a color and material which are similar or complementary to those of the structure housing the subject establishment. The base of the supporting post shall be constructed from masonry.
7. Permanent Suspended Shingle Post Signs shall not be internally illuminated.

Figure 8.11: Permanent Suspended Shingle Post Sign



- B. **Wall Signs.** Signs erected parallel to the façade of any building or yard wall (Section 7.6) to which it is attached and supported throughout its entire length by the building or yard wall face shall:

1. Preferably be located between the top of the first floor window and the sill of the second floor window, or on a sign frieze area;
2. Project no more than twelve (12) inches from the building wall;
3. Not obscure architectural features;
4. Be integrated with the design of the building;
5. Not cover any window or part of a window; and
6. Not extend above a parapet.
7. Not placed on a roof or mansard roof.
8. **Number of Signs.**
 - a. A maximum of one (1) primary wall sign shall be permitted per lot facade of a single-tenant building or unit of a multi-tenant building.
 - b. A maximum of three (3) secondary wall signs may be authorized for buildings with a façade width in excess of seventy-five (75) feet by the Land Use Administrator provided such additional signage is:
 - i. In keeping with the overall design and architecture of the building;
 - ii. A minimum of twenty (20) feet from the primary wall sign and other secondary wall signs;
 - iii. A maximum of fifty (50) percent of the size of the façade's primary wall sign;
 - iv. Accessory to the façade's primary wall sign; and
 - v. The total area of all primary and secondary wall signs does not exceed the maximum wall sign area as established in Section 8.5.

9. **Alternatives.** The following alternatives are considered as Wall Signs and shall be counted against a façade's maximum permitted area for Wall Signs (Section 8.5):
- a. **Window Signs.** The area of Window Signs (Section 8.4 (I)) that in aggregate exceed thirty (30) percent of the glass area on any building façade. At no time shall the opacity (visibility into the building) be less than fifty (50) percent of the total window area.
 - b. **Awning Signs.** Signs located on an awning are considered Wall Signs and shall be limited to no more than fifty (50) percent of the awning area.
 - c. **Projecting Signs.** A Projecting Sign is considered a Wall Sign, but it may not extend above the soffit, parapet, or eave line, as appropriate, of the building to which it is attached; and shall be limited by the following additional standards:
 - i. Minimum Width of Façade: Twenty (20) feet (not applicable in the TC District);
 - ii. Maximum Dimensions: Projecting signs may not exceed either eight (8) feet in height or three (3) feet in width.
 - iii. Maximum Area: Ten (10) square feet;
 - iv. Maximum Projection from Wall: Four (4) feet; and
 - v. Sign Clearance: Eight (8) feet.

Figure 8.12: Wall Sign

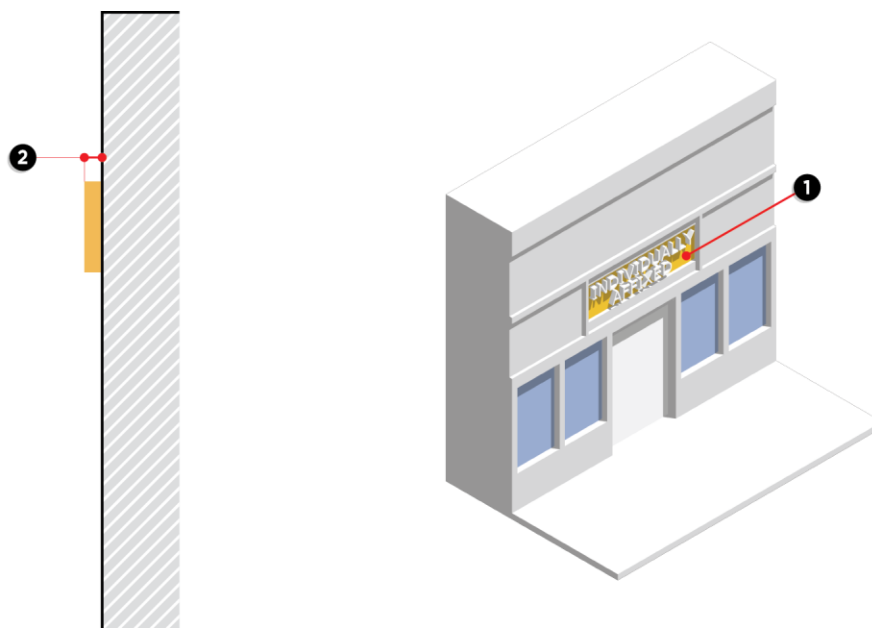
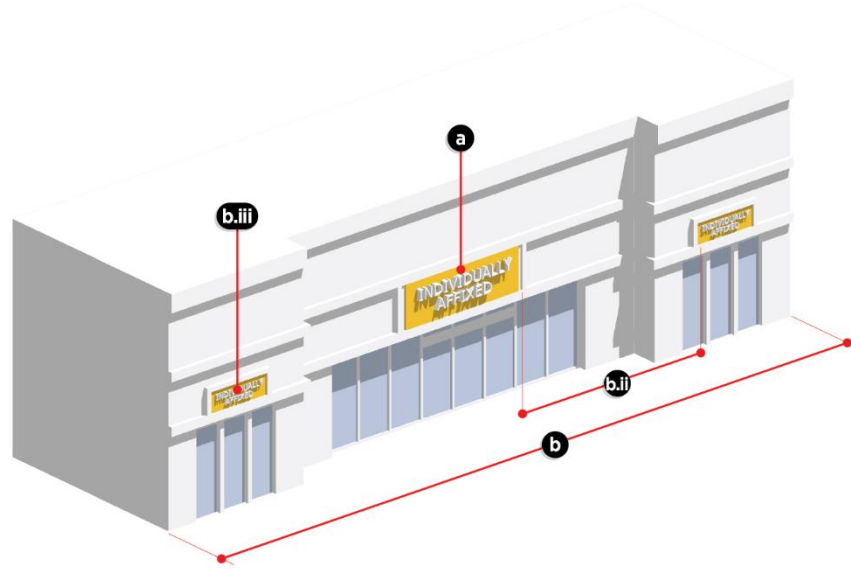
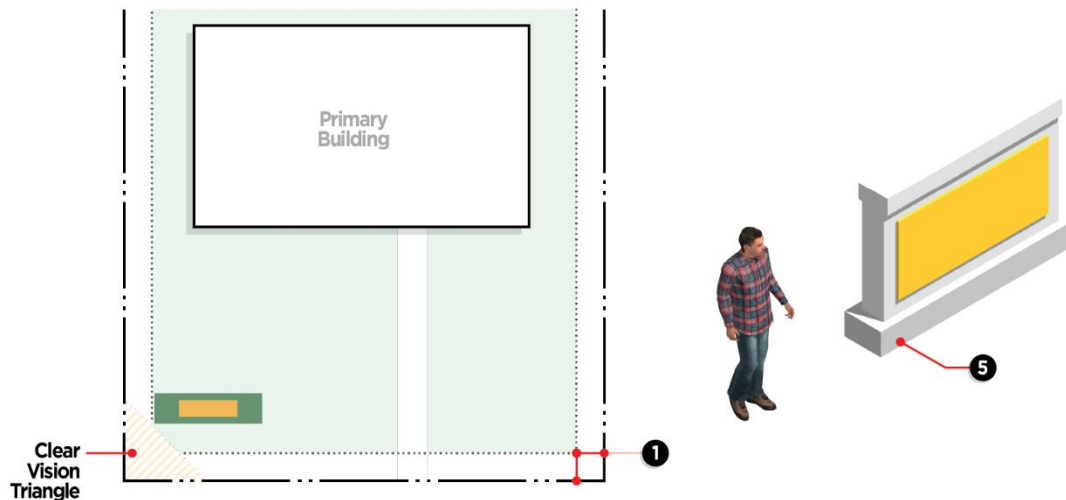


Figure 8.13: Secondary Wall Signs



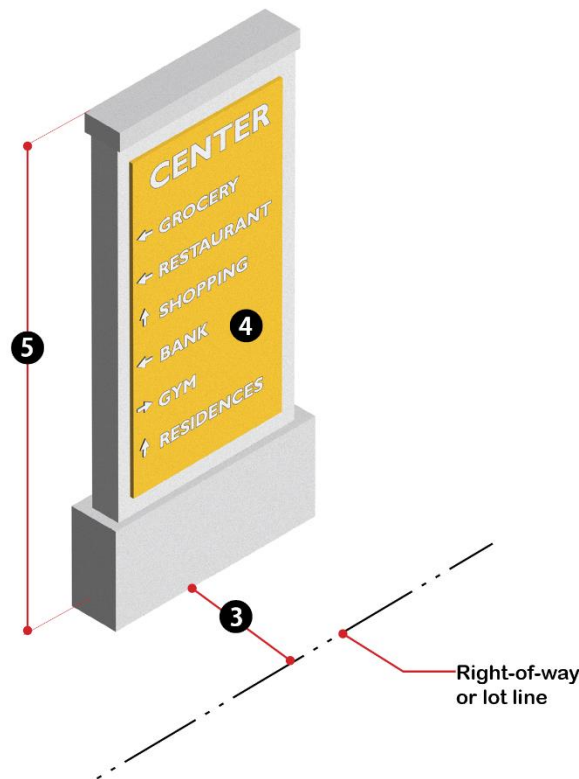
- C. **Monument Signs.** Monument Signs are monolithic structures in which the bottom (base) of the sign is flush with the ground. These signs shall:
1. Be located a minimum of ten (10) feet from all property lines, rights-of-way, and utility easements;
 2. Not block points of ingress or egress;
 3. Not be placed in any sidewalk or pedestrian walkway;
 4. Maintain a fifteen (15)-foot side yard setback if the side lot line abuts a residential district. This requirement does not apply to neighborhood gateway signs.
 5. Contain a base, including all structural components, that extends horizontally from the sign face a minimum of ten (10) percent and a maximum of twenty-five (25) percent of the width of the sign face. The base of monument signs shall be constructed from masonry. The masonry shall match the primary façade or be brick and/or stone when the primary façade is not constructed of a masonry material.
 6. **Alternatives.**
 - a. A Permanent Suspended Shingle Post Sign may be substituted for a Monument Sign in any district that allows for monument signs. Permanent Suspended Shingle Posts signs shall meet all requirements in Section 8.6.A.
 - b. A Multi-Tenant Off-Premise Monument sign may be substituted for individual parcel or tenant monument signs in any district that allows for monument signs. Multi-Tenant Off-Premise Monument signs shall meet all requirements in Section 8.6.D.
- D. **Multi-Tenant Off-Premise Monument.** When a unified development contains subdivided parcels with multiple owners, a consolidated multi-tenant monument sign may be permitted in lieu of individual tenant or parcel monument signs. These signs shall:
1. Be located at primary entrances to the unified development.
 2. Be located a minimum of ten (10) feet from all property lines, rights-of-way, and utility easements;
 3. Not block points of ingress or egress;
 4. Not be placed in any sidewalk or pedestrian walkway;
 5. Maintain a fifteen (15)-foot side yard setback if the side lot line abuts a residential district.
 6. Contain a base, including all structural components, that extends horizontally from the sign face a minimum of ten (10) percent and a maximum of twenty-five (25) percent of the width of the sign face. The base of monument signs shall be constructed from masonry. The masonry shall match the primary façade or be brick and/or stone when the primary façade is not constructed of masonry material.

Figure 8.14: Monument Sign



- E. **Wayfinding or Directory Signs.** These signs orient pedestrians and vehicular traffic to different sub-sections, areas, and tenants within a unified development.
1. **Permitted Areas.** These signs shall be located internal to a unified development, even if the property is subdivided and has multiple owners.
 2. **Number of Signs.** A maximum of five (5) wayfinding signs shall be permitted per development.
 3. **Location.** Signs shall not be located in site distance triangles, within any sidewalk or pedestrian walkway, within the public right-of-way, or where they will obstruct pedestrian or vehicular traffic.
 4. **Sign Area.** Maximum permitted sign area per side shall be 25 square feet.
 5. **Sign Height.** Maximum permitted height, including supports, shall be 7 feet.
 6. Signs shall not be internally illuminated.
 7. Sign design, color, and materials should be complementary and similar to the overall building materials and architecture within the unified development.
 8. All wayfinding or directory signs shall be under the maintenance responsibility of a single association or other legal entity.
 9. The sign may include the name of the overall development but shall not otherwise include commercial branding and logos.

Figure 8.15: Wayfinding or Directory Sign



F. **Neighborhood or Campus Gateway Signs.** These signs are located at major entrances and are meant to identify a campus or residential development.

1. Gateway signage may be designed to either the monument or suspended shingle post sign provisions set forth in this subsection.
 - a. Alternatively, gateway signage may be mounted on a fence or wall, so long as the sign itself does not exceed the size limitations set forth in this subsection and the sign must be only an incidental part of the wall or fence design.
2. A gateway sign may be located in the median of a vehicular entrance only if:
 - a. The sign is not placed within 10 feet of either end of the median.
 - b. There is sufficient distance between the edge of the median and monument sign to allow for maintenance.
 - c. Placement of the monument sign does not obstruct site distance and vehicular traffic.
 - d. The Town of Knightdale has issued an encroachment and maintenance agreement.

8.7. Banners

Banners may be permitted via the submission of a temporary banner permit form to the Land Use Administrator.

1. **Wall Mounted Banner Signs.** Temporary signs permitted in conjunction with any multifamily, mixed-use, or nonresidential use.
 - a. **Area.**
 - i. The maximum permitted sign area of wall-mounted banner signs in any residential district or the NMX or TC Districts shall not exceed two and one-half (2.5) percent of the total area of the face of the wall on which the sign is to be located.
 - ii. The maximum permitted sign area of wall-mounted banner signs in the HB, BO, MI, or MQ Districts shall not exceed five (5) percent of the total area of the face of the wall on which the sign is to be located.
 - b. **Height.** No wall-mounted banner sign shall protrude above the highest roofline or above the top of the parapet wall or mansard roof.
 - c. **Number of Signs.** A maximum of one (1) wall mounted banner sign shall be permitted per lot frontage of a single-tenant building or unit of a multi-tenant building.
 - d. **Location.** Wall-mounted banner signs shall be affixed to a building.
 - e. **Projection.** Wall-mounted banner signs shall be affixed flat against the building to which they are mounted.

Figure 8.16: Wall Mounted Banner



8.8. Prohibited Signs and Devices

- A. Animated Signs. Signs with flashing or reflective disks, and signs with flashing lights or lights of changing degree of intensity or color and animated, rotating, moving, or apparently moving signs, including electronic message boards.
- B. Billboards.
- C. Pole Signs.
- D. Portable Signs: (except Sandwich Board Signs as permitted in Section 8.4(F)), including any sign whose sign face was initially constructed and designed to be placed and/or transported on wheels, regardless if said sign face is removed from its base and placed on or in the ground so as to otherwise classify said sign as a "free-standing" sign as herein defined.
- E. Vehicular Signs, except signs painted on or permanently attached to commercial vehicles.
- F. Signs that extend above a parapet.
- G. Signs that are placed on a roof or mansard roof.
- H. Off-Premise Signs.
- I. Obstructive Signs.
 - 1. Any sign that obstructs the view of bicyclists or motorists using any street, approach to any street intersection, or which interferes with the effectiveness of or obscures any traffic sign, device, or signal.
 - 2. Any sign (other than a government sign), banner, or display placed on any curb, sidewalk, post, pole, hydrant, bridge, tree, or other surface located on, over, or across any public street or right-of-way.
 - 3. Any sign located in such a way as to intentionally deny an adjoining property owner visual access to an existing sign on their property.
- J. Specific Devices.
 - 1. Lighter-Than-Air. Sign devices consisting of balloons, blimps, or similar types of lighter-than-air objects, shall be prohibited, except those which are subject to Federal Aviation Administration (FAA) regulations.
 - 2. Windblown. Sign devices consisting of streamers, pennants, windblown propellers, strung light bulbs, flutter/feather flags, sun blades, and similar installations.
 - 3. Imitative. Signs which contain lights, rotating disks, words, or other devices not erected by a public authority which may be erroneously construed as government signs or emergency warning signs.
- K. Outline Lighting.
- L. All other signs not expressly permitted in this Ordinance.


8.9. Sign Illumination

- A. All lighting shall be in conformance with Chapter 7.
- B. All lighted signs shall have their lighting directed in such a manner as to illuminate only the face of the sign. Lighting fixtures used to illuminate an outdoor advertising sign either shall be by directed ground lighting or mounted on the top of the sign and shall comply with shielding requirements. All lighted signs shall meet all applicable Electrical Codes.
- C. No sign within one-hundred (100) linear feet of a pre-existing residential building footprint may be illuminated between the hours of 12:00 midnight and 6:00 a.m. A residence shall be deemed "pre-existing" for purposes of this Chapter if it has a valid building permit in effect for construction of said structure or if construction of said structure was complete on or prior to the effective date of this provision.

8.10. Safety, Maintenance, and Abandonment

- A. Every sign and all parts thereof, including framework, supports, background, anchors, and wiring systems shall be constructed and maintained in compliance with the North Carolina Building Codes.
- B. All signs, for which a permit is required, together with all supports, braces, guys, and anchors shall be kept in proper repair in accordance with the provisions of this Chapter. When not galvanized or constructed of approved corrosion resistive, noncombustible materials, signs shall be painted when necessary to prevent corrosion, rust, peeling paint, and excessive fading. Failure of owners to keep signs maintained in good mechanical and visual repair shall be deemed a violation of this Chapter.
- C. It shall be the duty and responsibility of the owner or lessee of every sign to maintain the immediate premises occupied by the sign in a clean condition, free of rubbish. Any landscaping surrounding the sign shall be kept trimmed and in good repair. If the landscaping installed at the time of sign approval dies, said landscaping shall be replaced within ninety (90) days.
- D. Every existing sign shall be subject to an inspection whenever the Land Use Administrator deems it necessary. In the event an inspection demonstrates that repairs, and/or maintenance is necessary, the sign owner shall be notified and required to complete said repairs and/or maintenance within thirty (30) days of notification. The Land Use Administrator is authorized to grant one thirty (30) day extension, if, upon written request, it is deemed necessary due to extenuating circumstances.
- E. If the Land Use Administrator shall find that any sign is unsafe or not secure, or is a threat to the public safety, or was, after the adoption of this Chapter constructed, erected, or maintained in violation of the provisions of this Chapter, they shall give written notice per the provisions of this UDO. Such notice shall specify the manner in which the sign is unsafe or in violation of this Chapter.
- F. If the Land Use Administrator finds a sign unsafe and an immediate peril to persons or property, they shall act to have the sign removed or altered summarily and without notice at the owner's expense. Such sign may be removed or altered by the Town and a lien placed on the property for the full cost of such action, including administration, legal, and overhead costs.
- G. Sign copy shall be removed and in the case of a wall sign, the building façade shall be repaired, by the owner or lessee of the premises upon which the sign is located when the use which the sign is associated is no longer conducted on the premises. The sign copy shall be removed within thirty (30) days of when the use ceases to operate. If the owner or lessee fails to remove the sign copy, the Land Use Administrator shall give the owner thirty (30) days written notice to remove it. Upon failure to comply with the notice, the Land Use Administrator may have the sign removed at the owner's expense.

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Chapter 9. Environmental Protection Standards

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9.1. Purpose and Intent

The purpose of this Section is to protect, maintain, and enhance public health, safety, environment, and general welfare by establishing minimum requirements and procedures to control adverse effects of sediment and erosion control, grading, post-construction stormwater runoff, illicit discharges, and flood damage. Proper management of stormwater runoff will minimize damage to public and private property and infrastructure; safeguard the public health, safety, and general welfare; and protect water and aquatic life.

9.2. Neuse River Basin Riparian Buffers (NRBs)

- A. Both the corporate limits and the Extra Territorial Jurisdiction (ETJ) of the Town of Knightdale fall completely within the Neuse River basin and are therefore subject to the riparian buffer rules as governed by North Carolina Administrative Code (NCAC), Title 15A, Chapter 2, Sub-Chapter B as amended.
- B. NRBs are a form of open space, and as such, may only be retained in private ownership if the necessary conservation easements are recorded with the Wake County Register of Deeds in a form approved by the Town. Otherwise, NRBs shall be separately deeded to a homeowner’s association, a non-profit land trust or conservancy, Wake County, or the Town of Knightdale (upon approval by the Town Council).
- C. NRBs cannot be located on any single-family residential building lot (detached or attached) within a major subdivision as defined in Section 12.2 (F)(6). In general terms, NRBs in major subdivisions must be platted as separate lots where the responsibility of maintaining (in a natural state) said riparian buffers in perpetuity is typically designated to a homeowner’s association or non-profit land conservation agency. Lots that have received Construction Drawing approval (Section 12.3 (G)) prior to March 1, 2010 shall be exempt from this requirement.

9.3. Sediment and Erosion Control

- A. **General Requirements.** All new development and redevelopment shall be required to take measures to minimize erosion during construction and after development. All new development and redevelopment shall comply with the provisions of the latest adopted amendment to Town of Knightdale Erosion and Sedimentation Control Ordinance. A land disturbance permit or exemption from the plan requirements of such regulations shall be submitted to the Stormwater Administrator prior to issuance of a construction improvement permit (CIP) for a subdivision, or part thereof. Furthermore, no infrastructure or individual lot grading shall commence prior to the completion or exemption from the requirements of the environmental survey as stated in Section 12.3 (B).
- B. **Residential Clearing and Grading.** In order to promote land development practices that minimize disturbance to vegetation and soils, limit alteration of the natural topography, minimize surface water and ground water runoff and diversion, minimize the need for additional storm drainage facilities, reduce sedimentation in surrounding waters and promote land development and site planning practices that are responsive to the town's scenic character without preventing the reasonable development of land; the initial clearing and grading of all residential major subdivisions shall be limited to dedicated public rights-of-way and easements for the installation of streets, utilities, and other infrastructure. All grading activities shall be done in accordance with all applicable federal, state and local laws, rules and regulations; including those pertaining to air and water pollution and noise control.
1. **Infrastructure.** Grading for infrastructure improvements (streets, sidewalks, curb, gutter, water, sewer, utilities, stormwater, spoil and borrow areas, etc.) shall be phased according to the Master Plan. Prior to proceeding to another phase, the developer shall stabilize the present phase with adequate ground cover sufficient to restrain erosion and have all infrastructure installed.
 2. **Lots.** Grading of individual lots within the major subdivision shall not begin without having first obtained a building permit from the Stormwater Administrator and shall be limited to those areas comprising the building footprint, driveway and a minimal area surrounding the building footprint to accommodate construction equipment.
 3. **Exemptions.** Exemptions to the requirements of Section 9.3 (B) are as follows:
 - a. Residential subdivisions with lots less than sixty (60) feet wide.
 - b. Grading and clearing in emergency situations involving immediate danger to life or property or substantial fire hazards.

9.4. Stormwater Management

A. General Provisions.

1. Findings.

- a. It is hereby determined that:
 - i. Development and redevelopment alter the hydrologic response of local watersheds and increases stormwater runoff rates and volumes, flooding, soil erosion, stream channel erosion, nonpoint and point source pollution, and sediment transport and deposition, as well as reducing groundwater recharge;
 - ii. These changes in stormwater runoff contribute to increased quantities of water-borne pollutants and alterations in hydrology that are harmful to public health and safety as well as to the natural environment; and
 - iii. These effects can be managed and minimized by applying proper design and well-planned controls to manage stormwater runoff from development and redevelopment sites.
- b. It is further determined that the Federal Water Pollution Control Act of 1972 (“Clean Water Act”) and federal Phase II Stormwater Rules promulgated under it, as well as rules of the North Carolina Environmental Management Commission promulgated in response to federal Phase II requirements, compel certain urbanized areas, including this jurisdiction, to adopt minimum stormwater controls such as those included in this Ordinance.
- c. Additionally, the North Carolina Environmental Management Commission has identified and has promulgated rules that have been amended and affirmed by the North Carolina General Assembly (Neuse River Nutrient Management Strategy) to reduce the average annual loads of nitrogen and phosphorus delivered to the Neuse River from all point and nonpoint sources of these nutrients located within its watershed, including stormwater from new development in this jurisdiction;
- d. Therefore, the Knightdale Town Council establishes this set of water quality and quantity regulations to meet the requirements of state and federal law regarding control of stormwater runoff and discharge for development and redevelopment.

2. Purpose.

- a. The purpose of this article is to protect, maintain and enhance the public health, safety, environment, and general welfare by establishing minimum requirements and procedures to control the adverse effects of: increased post-development stormwater runoff, nitrogen; phosphorus, and total suspended solids in stormwater runoff; nonpoint and point source pollution associated with new development and redevelopment; and illicit discharges into municipal stormwater systems. It has been determined that proper management of construction-related and post-development stormwater runoff will: minimize damage to public and private property and infrastructure; safeguard the public health, safety, and general welfare; and protect water and aquatic resources.
- b. This article seeks to meet its general purpose through the following specific objectives and means:
 - i. Establishing decision-making processes for development and redevelopment that protects the integrity of watersheds and preserves the health of water resources;
 - ii. Requiring that new development and redevelopment maintain the pre-development hydrologic response in their post-development state for the applicable design storm to

reduce flooding, streambank erosion, nonpoint and point source pollution, and increases in stream temperature, and to maintain the integrity of stream channels and aquatic habitats;

- iii. Establishing minimum post-development stormwater management standards and design criteria for the regulation and control of stormwater runoff quantity and quality;
 - iv. Establishing design and review criteria for the construction, function, and use of structural stormwater best management practices (BMPs) and Stormwater Control Devices (SCMs) that may be used to meet the minimum post-development stormwater management standards;
 - v. Encouraging the use of better management and site design practices, such as the use of vegetated conveyances for stormwater and the preservation of greenspace, riparian buffers, and other conservation areas to the maximum extent practicable;
 - vi. Establishing provisions for the long-term responsibility for and maintenance of structural and nonstructural stormwater BMPs and SCMs to ensure that they continue to function as designed, are maintained appropriately, and pose no threat to public safety;
 - vii. Establishing administrative procedures for the submission, review, approval, and disapproval of stormwater management plans, for the inspection of approved projects, and to assure appropriate long-term maintenance.
 - viii. Controlling illicit discharges into the municipal separate stormwater system.
3. **Authority.** The Knightdale Town Council is authorized to adopt this article pursuant to North Carolina law, including but not limited to Article 14, Section 5 of the Constitution of North Carolina; North Carolina General Statutes Chapter 143-214.7 and rules promulgated by the Environmental Management Commission thereunder; Chapter 143-215.6A; Session Laws 2009-216, 2009-484; Chapter 153A-454; Chapter 160A, § 174, 185, 459; NCAC 02B.0711; NCAC 02B.0731.
4. **Applicability and Jurisdiction.**
- a. **General.** Beginning with and subsequent to its effective date, this article shall be applicable to all development and redevelopment—including, but not limited to, applications for Site Plan Approval, Subdivision Approval, Construction Drawing Approval, and grading approval—unless exempt pursuant to this article.
 - b. **Exemptions.**
 - i. Single-family detached, duplex, and manufactured home dwellings and recreational development and redevelopment that cumulatively disturbs less than one (1) acre and are not part of a larger common plan of development or sale are exempt from the provisions of this article, unless deemed otherwise by the Stormwater Administrator.
 - ii. Development and redevelopment that disturbs less than the above threshold, is not exempt if such activities are part of a larger common plan of development or sale and the larger common plan exceeds the relevant threshold, even though multiple, separate, or distinct activities take place at different times on different schedules.
 - iii. Development or redevelopment that is exempt from permit requirements of Section 404 of the federal Clean Water Act as specified in 40 CFR 232 (primarily, ongoing farming and forestry activities) is exempt from the provisions of this article.
 - iv. Per the requirements of 15A NCAC 02B .0265, NCAC 02B .0711, NCAC 02B .0731 and the Town's Phase II Permit NCS000460, new development undertaken by a local government

solely as a public road project shall be deemed compliant with the purposes of this article if it meets the riparian buffer protection requirements of The Neuse River Buffer Rules and nutrient loading targets of the Neuse Nutrient Management Strategy. For these public road projects, the following shall be done to the maximum extent practicable (MEP):

- a) Meet the Neuse Nitrogen Target Rates of 3.6 lb/acre/year by providing onsite SCM or permanent offsite nutrient credits.
 - b) Minimize BUA;
 - c) Divert runoff away from surface waters; and
 - d) Implement BMPs and SCMs.
5. **No Development or Redevelopment until Compliance and Permit.** No development or redevelopment shall occur except in compliance with the provisions of this article or unless exempted. No development or redevelopment for which a permit is required pursuant to this article shall occur except in compliance with the provisions, conditions, and limitations of the permit.
6. **Map.**
- a. The provisions of this article shall apply within the areas designated on the map titled "Stormwater Map of Knightdale, North Carolina" ("the Stormwater Map"), which is adopted simultaneously herewith. The Stormwater Map and all explanatory matter contained thereon accompanies and is hereby made a part of this Ordinance.
 - b. The Stormwater Map shall be kept on file by the Stormwater Administrator and shall be dated to take into account changes in the land area covered by this Ordinance and the geographic location of all engineered stormwater controls permitted under this article. In the event of a dispute, the applicability of this article to a particular area of land or BMP/SCM shall be determined by reference to the North Carolina Statutes, the North Carolina Administrative Code, and local zoning and jurisdictional boundary ordinances.
7. **Erosion and Sediment Control.** Follow Town of Knightdale Erosion and Sedimentation Control Ordinance.
8. **Design Manual.**
- a. **Reference to Manual.**
 - i. The Stormwater Administrator shall use the policy, criteria, and information, including technical specifications and standards in the North Carolina Department of Environment Natural Resources' (NCDENR) most recent Stormwater Design Manual (hereinafter referred to simply as the Manual) as the basis for decisions about stormwater permits and about the design, implementation, and performance of structural and non-structural stormwater SCMs. The latest Manual information can be found here: [NC DEQ: Stormwater Design Manual](#).
 - ii. The current Design Manual, includes a list of acceptable stormwater treatment practices, including specific design criteria for each stormwater practice. Stormwater treatment practices that are designed, constructed, and maintained in accordance with these design and sizing criteria will be presumed to meet the minimum water quality performance standards of the Neuse Rules, Phase II and other applicable stormwater laws.
 - iii. In addition to the Design manual, the Town shall adopt its own "Stormwater Management Manual" to provide more specific information on its individual administrative standards and procedures. This manual will be kept on file by the Stormwater Administrator and be easily

accessible to the public.

- b. **Relationship of Manual to Other Laws and Regulations.** If the specifications or guidelines of the Design Manual are more restrictive or apply a higher standard than other laws or regulations, that fact shall not prevent application of the specifications or guidelines in the Design Manual.
- c. **Changes to Standards and Specifications.** If the standards, specifications, guidelines, policies, criteria, or other information in the Design Manual are amended subsequent to the submittal of an application for approval pursuant to this article, but prior to approval, the new information shall control and shall be utilized in reviewing the application and in implementing this article with regard to the application.
- d. **Amendments to Design Manual.**
 - i. The Design Manual may be updated and expanded periodically based on advancements in technology and engineering, improved knowledge of local conditions, or local monitoring or maintenance experience.
 - ii. Prior to amending or updating the Design Manual, proposed changes shall be generally publicized and made available for review, and an opportunity for comment by interested persons shall be provided.
- e. **Stormwater Management Plan.**
 - i. A stormwater management plan is required for all development and redevelopment unless exempt pursuant to the provisions of Section 9.4. Please refer to Section 12.3 (I)(5) for stormwater management plan requirements.

B. Administration and Procedures.

1. Stormwater Administrator.

- a. **Designation.** A Stormwater Administrator shall be designated by the town of Knightdale to administer and enforce this article.
- b. **Powers and Duties.** In addition to the powers and duties that may be conferred by other provisions of this Ordinance and other laws, the Stormwater Administrator shall have the following powers and duties under this article:
 - i. To review and approve, approve with conditions, or disapprove applications for approval of plans pursuant to this article.
 - ii. To make determinations and render interpretations of this article. Any person may request an interpretation by submitting a written request to the Stormwater Administrator, who shall respond in writing within thirty (30) days. The Stormwater Administrator shall keep on file a record of all written interpretations of this article.
 - iii. To establish application requirements and schedules for submittal and review of applications and appeals, to review and make recommendations to other Town staff and Town boards on applications for development or redevelopment approvals.
 - iv. To enforce the provisions of this article in accordance with its enforcement provisions.
 - v. To maintain records, maps, forms, and other official materials as they relate to the adoption, amendment, enforcement, and administration of this article.

- vi. To provide expertise and technical assistance to the Town, on request.
 - vii. To designate appropriate other person(s) who shall carry out the powers and duties of the Stormwater Administrator.
 - viii. To take any other action necessary to administer the provisions of this article.
2. **Review Procedures.**
- a. **Stormwater Management Permit Required; Must Apply for Permit.** A stormwater management permit is required for all development and redevelopment unless exempt pursuant to this article. A stormwater management permit may only be issued subsequent to a properly submitted and reviewed permit application, pursuant to this section.
 - b. **Effect of Permit.**
 - i. A stormwater management permit shall govern the design, installation, and construction of stormwater management and control practices on the site, including engineered stormwater controls and elements of site design for stormwater management other than engineered stormwater controls.
 - ii. The stormwater management permit is intended to provide a mechanism for the review, approval, and inspection of the approach to be used for the management and control of stormwater for the development or redevelopment site consistent with the requirements of this article, whether the approach consists of engineered stormwater controls or other techniques such as low-impact or low-density design. The permit does not continue in existence indefinitely after the completion of the project; rather, compliance after project construction is assured by the maintenance provisions of this article.
 - c. **Authority to File Applications.** All stormwater management permit applications required pursuant to this article shall be submitted to the Stormwater Administrator by the landowner or the landowner's duly authorized agent.
 - d. **Establishment of Application Requirements, Schedule, and Fees.**
 - i. **Application Contents and Form.** The Stormwater Administrator shall establish requirements for the content and form of all stormwater management permit applications and shall amend and update those requirements from time to time. At a minimum, the stormwater management permit application shall describe in detail how post-development stormwater runoff will be controlled and managed, the design of all stormwater facilities and practices, and how the proposed project will meet the requirements of this article.
 - ii. **Submission Schedule.** The Stormwater Administrator shall establish a submission schedule for stormwater management permit applications. The schedule shall establish deadlines by which complete applications must be submitted for the purpose of ensuring that there is adequate time to review applications, and that the various stages in the review process are accommodated.
 - iii. **Permit Review Fees.** The Town Council shall establish stormwater management permit review fees as well as policies regarding refund of any fees upon withdrawal of an application and may amend and update the fees and policies from time to time.
 - iv. **Stormwater Management Manual.** For stormwater management permit applications required under this Code, the Stormwater Administrator shall compile the application requirements, submission schedule, fee schedule, a copy of this article, and information on

how and where to obtain the Design Manual in a Stormwater Management Manual, which shall be made available to the public.

e. **Submittal of Complete Application.**

- i. Stormwater management permit applications shall be submitted to the Stormwater Administrator pursuant to the application submittal schedule, and in the form established by the Stormwater Administrator, along with the appropriate fee established pursuant to this section.
 - ii. A stormwater management permit application shall be considered as timely submitted only when it contains all elements of a complete application pursuant to this article, along with the appropriate fee. If the Stormwater Administrator finds that an application is incomplete, the applicant shall be notified of the deficient elements and shall be provided with an opportunity to submit a complete application. However, the submittal of an incomplete application shall not suffice to meet a deadline contained in the submission schedule established above.
- f. **Review.** Within the timeframe specified in the submission schedule after a complete stormwater management permit application is submitted, the Stormwater Administrator shall review the application and determine whether the application complies with the standards of this article.
- i. **Approval.** If the Stormwater Administrator finds that the Stormwater Management Permit application complies with the standards of this article and this Ordinance, the Stormwater Administrator shall approve the application. The Stormwater Administrator may impose conditions of approval as needed to ensure compliance with this article. The conditions shall be included as part of the approval.
- g. **Fails to Comply.** If the Stormwater Administrator finds that the stormwater management permit application fails to comply with the standards of this article, the Stormwater Administrator shall notify the applicant and shall indicate how the application fails to comply. The applicant shall have an opportunity to submit a revised application.
- h. **Revision and Subsequent Review.**
- i. A complete revised stormwater management permit application shall be reviewed by the Stormwater Administrator within the timeframe specified in the submission schedule after its resubmittal and shall be approved, approved with conditions, or disapproved.
 - ii. If a revised stormwater management permit application is not re-submitted within six months from the date the applicant was notified, the application shall be considered withdrawn, and a new submittal for the same or substantially the same project shall be required along with the appropriate fee for a new submittal.
 - iii. Two resubmittals of a revised stormwater management permit application may be submitted without payment of an additional permit review fee. Any resubmittal after the second resubmittal shall be accompanied by an additional permit review fee, as established pursuant to this Ordinance.

C. **Applications for Approval.**

1. **Concept Plan and Consultation Meeting.**

- a. **Consultation Meeting.** Before a stormwater management permit application is deemed complete, the Stormwater Administrator or developer may request a consultation on a concept plan for the post-construction stormwater management system to be utilized in the proposed development project. This consultation meeting should take place at the time of the preliminary plan of subdivision or other early step in the development process. The purpose of this meeting is to discuss the stormwater management measures necessary for the proposed project, as well

as to discuss and assess constraints, opportunities, and potential approaches to stormwater management designs before formal site design engineering is commenced. Local watershed plans, the Comprehensive Plan, and other relevant resource protection plans should be consulted in the discussion of the concept plan.

- b. **Concept Plan Contents.** To accomplish this goal, the following information should be included in the concept plan, which should be submitted in advance of the meeting:
 - i. **Existing Conditions/Proposed Site Plans.** Existing conditions and proposed site layout sketch plans, which illustrate at a minimum:
 - a) Existing and proposed topography;
 - b) Perennial and intermittent streams;
 - c) Mapping of predominant soils from soil surveys (if available);
 - d) Stream and other buffers and features used in designing buffers and meeting any applicable buffer requirements;
 - e) Boundaries of existing predominant vegetation;
 - f) Proposed limits of clearing and grading; and
 - g) Location of existing and proposed roads, buildings, parking areas, and other impervious surfaces.
 - ii. **Natural Resources Inventory.** A written or graphic inventory of natural resources at the site and surrounding area as it exists prior to the commencement of the project. This description should include a discussion of soil conditions, forest cover, geologic features, topography, wetlands, and native vegetative areas on the site, as well as the location and boundaries of other natural feature protection and conservation areas such as lakes, ponds, floodplains, stream buffers, and other setbacks (e.g., drinking water well setbacks, septic setbacks, etc.). Particular attention should be paid to environmentally sensitive features that provide particular opportunities or constraints for development and stormwater management.
 - iii. **Stormwater Management System Concept Plan.** A written or graphic concept plan of the proposed post-development stormwater management system including: preliminary selection and location of proposed engineered stormwater controls; low-impact design elements; location of existing and proposed conveyance systems such as grass channels, swales, and storm drains; flow paths; location of floodplain/floodway limits; relationship of site to upstream and downstream properties and drainages; and preliminary location of any proposed stream channel modifications, such as bridge or culvert crossings.

2. Stormwater Management Permit Application.

- a. The stormwater management permit application shall detail how post-development stormwater runoff will be controlled and managed and how the proposed project will meet the requirements of this article, including Section 9.4 (G), Standards. All such plans shall be prepared by a qualified licensed North Carolina Professional Engineer or registered surveyor, soil scientist, or landscape architect. The engineer, surveyor, soil scientist, or landscape architect shall perform services only in their area of competence and shall verify that the design of all stormwater management facilities and practices meets the submittal requirements for complete applications, that the designs and plans are sufficient to comply with applicable standards and policies found in the Design Manual, and that the designs and plans ensure compliance with this article.
- b. The submittal shall include all of the information required in the submittal checklist established by the Stormwater Administrator. Incomplete submittals shall be treated pursuant to Section 9.4

(B)(2)(e), Submittal of Complete Application.

3. **Sedimentation & Erosion Control Plan Approval and Grading Permit.** Within the corporate limits and extra territorial jurisdiction of the Town of Knightdale, the Stormwater Administrator is responsible for the administration and enforcement of the Town's erosion control program, including approval, issuance of permits related to, and enforcement of erosion and sedimentation control plans. Prior to land disturbing activities, a Sedimentation & Erosion Control Plan Approval and a grading permit shall be obtained directly from the Town. Sedimentation & Erosion Control Plans shall be prepared in accordance with Section 9.4 (A)(7) of this ordinance.
4. **Preconstruction Activities.**
 - a. Prior to site work, submittals shall be presented to the town outlining all materials used for public infrastructure i.e., precast structures, conveyance piping etc.
 - b. Once the submittals have been approved by the Stormwater Administrator, a pre-construction meeting shall be scheduled on site to review the stormwater management and erosion control plan.
5. **As-Built Plans and Final Approval.**
 - a. Upon completion of a project, and before a Certificate of Compliance/Occupancy shall be granted, the applicant shall certify that the completed project is in accordance with the approved stormwater management plans and designs and shall submit actual "as built" plans for all stormwater management facilities or practices after final construction is completed.
 - b. The plans shall show the final design specifications for all stormwater management facilities and practices and the field location, size, depth, and planted vegetation of all measures, controls, and devices, as installed. This shall also include any geotechnical surveys completed by an authorized representative, CCTV footage recorded, and Geographic Information System (GIS) files from all stormwater conveyances. The designer of the stormwater management measures and plans shall certify, under seal, that the as-built stormwater measures, controls, and devices are in compliance with the approved stormwater management plans and designs and with the requirements of this article. A final inspection and approval by the Stormwater Administrator shall occur before the release of any performance securities.
6. **Other Permits.** No Certificate of Compliance/Occupancy shall be issued by the Town Inspections Department without final as-built plans and a final inspection and approval by the Stormwater Administrator, except where multiple units are served by the stormwater practice or facilities, in which case the Inspections Department may elect to withhold a percentage of permits or Certificates of Compliance/Occupancy until as-built plans are submitted and final inspection and approval has occurred.

D. Approvals.

1. **Effect of Approval.** Approval of a stormwater management permit authorizes the applicant to go forward with only the specific plans and activities authorized in the permit. The approval shall not be construed to exempt the applicant from obtaining other applicable approvals from local, State, and federal authorities.
2. **Time Limit/Expiration.**
 - a. When work under an approved plan or permit is not completed within two years following the date of issuance, the permit or approval shall be deemed null and void. The Stormwater Administrator may grant a permit extension in one or two year increments, upon receiving a written request from the applicant before the expiration of the approved plan.
 - b. In granting an extension, the Stormwater Administrator may require compliance with standards adopted since the original application was submitted unless there has been substantial reliance on the original permit and the change in standards would infringe the applicant's vested rights.

E. Stormwater Variances.

1. Any person may petition the Town for a variance granting permission to use the person's land in a manner otherwise prohibited by this article. For all proposed major and minor variances from the requirements of this article, the Board of Adjustment shall make findings of fact showing that:
 - a. There are practical difficulties or unnecessary hardships that prevent compliance with the strict letter of the article;
 - b. The variance is in harmony with the general purpose and intent of the local watershed protection regulations and preserves their spirit; and
 - c. In granting the variance, the public safety and welfare have been assured and substantial justice has been done.
2. In the case of a request for a minor variance, the Board of Adjustment may vary or modify any of the regulations or provisions of the article so that the spirit of the article shall be observed, public safety and welfare secured, and substantial justice done, and may impose reasonable and appropriate conditions and safeguards upon any variance it grants.
3. The Board of Adjustment may attach conditions to the major or minor variance approval that support the purpose of the local watershed protection regulations. If the variance request qualifies as a major variance, and the Board of Adjustment decides in favor of granting the major variance, the Board shall then prepare a preliminary record of the hearing and submit it to the North Carolina Environmental Management Commission for review and approval. If the Commission approves the major variance or approves with conditions or stipulations added, then the Commission shall prepare a Commission decision which authorizes the Board of Adjustment to issue a final decision which would include any conditions or stipulations added by the Commission. If the Commission denies the major variance, then the Commission shall prepare a decision to be sent to the Board of Adjustment. The Board shall prepare a final decision denying the major variance.
4. Appeals from the local government decision on a major or minor variance request are made on certiorari to the local Superior Court. Appeals from the Commission decision on a major variance request are made on judicial review to Superior Court.

F. **Appeals.** Any aggrieved person affected by any decision, order, requirement, or determination relating to the interpretation or application of this article made by the Stormwater Administrator, may file an appeal to the Board of Adjustment or Town Council per the procedures specified in Section 12.2 (F)(2) within thirty (30) days. Applications for an Appeal shall be filed, reviewed, and decided in accordance with Section 12.2 (F)(2) Administrative Appeal, except that the Board of Adjustment shall make a final decision on an appeal of a decision relating to civil penalties for violations of this article within ninety (90) days after the date the appeal application is accepted.

G. **Standards.**

1. **General Standards.** All development and redevelopment to which this article applies shall comply with the standards of this section. The approval of the stormwater management permit shall require an enforceable restriction on property usage that runs with the land, such as a recorded deed restriction or protective covenants, to ensure that future development and redevelopment maintains the site consistent with the approved project plans.
2. **Nutrient Sensitive Waters (NSW).** In addition to the standards for stormwater handling set out in the design manual, development and redevelopment that drains in whole or part to class NSW waters shall design and implement the best stormwater practices that reduce nutrient loading, while still meeting the other requirements of this ordinance.
3. **Neuse River Estuary Nutrient Management Requirements.**
 - a. Nitrogen Loading Rate Targets
 - i. The project shall meet either a nitrogen stormwater loading rate of 3.6 pounds per acre per year (lb/ac/yr) or meet “runoff volume match” as defined in 15A NCAC 02H.1002.
 - ii. The project area used for nutrient calculation and stormwater requirements consists of the site area, including any engineered stormwater controls, less any existing built upon area. The project density used for determining stormwater requirements is the amount of built upon area subject to this ordinance at project completion divided by the project area.
 - iii. The developer shall determine the nitrogen load and loading rate generated from the project area without engineered stormwater controls and determine the needed nitrogen load reduction to meet nutrient targets by using the approved accounting tool.
4. **Nitrogen and Phosphorus Standard is Supplemental; Total Suspended Solids (TSS) Removal.**
 - a. The nitrogen and phosphorus loading standards in this article are supplemental to, not replacements for, stormwater standards otherwise required by federal, state, or local law, including without limitation any riparian buffer requirements applicable to the location of the development. This includes, without limitation, the riparian buffer protection requirements of 15A NCAC 2B.0714.
 - b. All stormwater systems used to meet these requirements shall be designed to have a minimum of eighty-five (85) percent average annual removal for TSS.

5. Control and Treatment of Runoff Volume.

- a. Stormwater systems shall be designed to control and treat the runoff volume generated from all surfaces by one inch of rainfall; the treatment volume. This treatment volume shall not exceed the maximum ponding depth and be drawn down pursuant to standards specific to each practice as provided in the Design Manual.
- b. To minimize flooding and to ensure that the integrity and nutrient processing functions of receiving waters and associated riparian buffers are not compromised by erosive flows, stormwater flows from the development or redevelopment shall not contribute to degradation of waters of the State. At a minimum, the development or redevelopment shall not result in a net increase in peak flow leaving the site from pre-development conditions for the 1-year, 24-hour storm; 2-year, 24-hour storm; and 10-year, 24-hour storm events.

6. Partial Offset of Nutrient Control Requirements.

- a. Development subject to this article shall attain a maximum nitrogen loading rate of three and six tenths (3.6) of a pound per acre per year and shall meet any requirements for engineered stormwater controls otherwise imposed by this article. A developer subject to this article may achieve nitrogen loading required by this article through a combination of the following methods:
 - i. Purchasing offset credits from an approved private seller with a project located within the same eight-digit Hydrologic Unit Code (8-digit HUC) as the proposed development. Refer to the North Carolina Department of Environmental Quality (NCDEQ) Division of Water Resources (DWR) for approved mitigation banks with applicable and eligible credits to Knightdale.
 - ii. A developer may propose other offset measures to the Town, including providing his or her own off-site offset.
 - iii. Making offset payments to the NC Ecosystem Enhancement Program contingent upon acceptance of payments by that Program.
 - iv. Making offset payments to the Town of Knightdale for equivalent nutrient credits at eighty (80) percent of the rate calculated by the NC Ecosystem Enhancement Program for the Neuse-Falls Lake watershed.
- b. All offset measures permitted by the ordinance shall meet the requirements of 15A NCAC 02B .0273 (2) through (4) and 15A NCAC 02B .0703. Documentation and proof of purchase for offset credit options is required prior to construction.

7. Standards for Stormwater Control Measures.

- a. **Evaluation According to Contents of Design Manual.** All stormwater control measures, stormwater systems and stormwater treatment practices (also referred to as Best Management Practices, or BMP/SCMs) required under this article shall be evaluated by the Stormwater Administrator according to the policies, criteria, and information, including technical specifications and standards and the specific design criteria for each stormwater practice, in the most updated version of the Design Manual. The Stormwater Administrator shall determine whether proposed BMP/SCMs will be adequate to meet the requirements of this article.
 - b. **Determination of Adequacy; Presumptions and Alternatives.** Stormwater treatment practices that are designed, constructed, and maintained in accordance with the criteria and specifications in the Design Manual and the approved accounting tool will be presumed to meet the minimum water quality and quantity performance standards of this article. Whenever an applicant proposes to utilize a practice or practices not designed and constructed in accordance with the criteria and specifications in the Design Manual, the applicant shall have the burden of demonstrating that the practice(s) will satisfy the minimum water quality and quantity performance standards of this article. The Stormwater Administrator may require the applicant to provide the documentation, calculations, and examples necessary for the Stormwater Administrator to determine whether such an affirmative showing is made.
 - c. **Safety Requirements.** All SCM facilities subject to this ordinance shall be designed with features to discourage access from unauthorized personal to prevent injury and accidental loss of life. Specific requirements for each facility type can be found in the Town of Knightdale Stormwater Management Manual.
8. **Completion of Stormwater BMPs and SCMs.** The developer of any nonresidential development will be expected to have installed and stabilized the final stormwater BMP/SCMs supporting their development prior to issuance of a Certificate of Occupancy. For residential development, the final stormwater device can be installed at such point that seventy-five (75) percent or more of the residential lots are completed.
 9. **Dedication of BMP/SCMs, Facilities, and Improvements.** The Town may accept dedication of any existing or future stormwater management facility for maintenance, provided such facility meets all the requirements of this article and includes adequate and perpetual access and sufficient area, by easement or otherwise, for inspection and regular maintenance.

H. Maintenance.

1. General Standards for Maintenance.

- a. **Function of BMP/SCMs as Intended.** The owner of each engineered stormwater control installed pursuant to this article shall maintain and operate it so as to preserve and continue its function in controlling stormwater quality and quantity at the degree or amount of function for which the engineered stormwater control was designed.

b. Annual Maintenance Inspection and Report.

- i. The person responsible for maintenance of any engineered stormwater control installed pursuant to this article shall submit to the Stormwater Administrator an inspection report from one of the following persons performing services only in their area of competence: a qualified licensed North Carolina Professional Engineer or registered surveyor, landscape architect, or person certified by the North Carolina Cooperative Extension Service for stormwater treatment practice inspection and maintenance. The inspection report shall contain all of the following:
 - a) The name and address of the land owner;
 - b) Parcel PIN.
 - c) The recorded book and page number of the lot of each engineered stormwater control;
 - d) A statement that an inspection was made of all engineered stormwater controls;
 - e) The date the inspection was made;
 - f) A statement that all inspected engineered stormwater controls are performing properly and are in compliance with the terms and conditions of the approved maintenance agreement required by this article; and
 - g) The original signature and seal of the engineer, surveyor, or landscape architect.
- ii. All inspection reports shall be on forms supplied by the Stormwater Administrator. An original inspection report shall be provided to the Stormwater Administrator beginning one year from the date of as-built certification and each year thereafter on or before the date of the as-built certification.

2. Operation and Maintenance Agreement.

a. In General.

- i. Prior to the conveyance or transfer of any lot or building site to be served by an engineered stormwater control pursuant to this article, and prior to issuance of any permit for development or redevelopment requiring an engineered stormwater control pursuant to this article, the applicant or owner of the site must execute an operation and maintenance agreement that shall be binding on all subsequent owners of the site, portions of the site, and lots or parcels served by the engineered stormwater control. Until the transference of all property, sites, or lots served by the engineered stormwater control, the original owner or applicant shall have primary responsibility for carrying out the provisions of the maintenance agreement.
- ii. The operation and maintenance agreement shall require the owner or owners to maintain, repair, and, if necessary, reconstruct the engineered stormwater control and subsequent conveyance systems, and shall state the terms, conditions, and schedule of maintenance for the engineered stormwater control. In addition, it shall grant to the Town a right of entry in the event that the Stormwater Administrator has reason to believe it has become necessary to inspect, monitor, maintain, repair, or reconstruct the engineered stormwater control; however, in no case shall the right of entry, of itself, confer an obligation on the Town to assume responsibility for the engineered stormwater control.

- iii. The operation and maintenance agreement must be approved by the Stormwater Administrator prior to plan approval, and it shall be referenced on the final plat and shall be recorded with the Register of Deeds of the county in which the stormwater control is located upon final plat approval. A copy of the recorded maintenance agreement shall be given to the Stormwater Administrator within fourteen (14) days following its recordation.
 - iv. For all engineered stormwater controls required pursuant to this article the required operation and maintenance agreement shall include all of the following provisions:
 - a) A statement that the agreement shall grant to the Town of Knightdale a right of entry to inspect, monitor, maintain, repair, and reconstruct structural BMP/SCMs.
 - b) A statement that the Town of Knightdale is authorized to recover from the property owner and/or association and its members, any and all costs the Town of Knightdale expends to maintain or repair the structural BMP/SCMs or to correct any operational deficiencies. Failure to pay the Town of Knightdale all of its expended costs, after forty-five days written notice, shall constitute a breach of the agreement. The Town of Knightdale shall thereafter be entitled to bring an action against the property owner and/or association and its members to pay, or foreclose upon the lien hereby authorized by the agreement against the property, or both, in case of a deficiency. Interest, collection costs, and attorney fees shall be added to the recovery.
 - c) A statement that the agreement shall not obligate the Town of Knightdale to maintain or repair any structural BMP/SCMs or encompassing easements, and the Town of Knightdale shall not be liable to any person for the condition or operation of structural BMP/SCMs.
 - d) A statement that the agreement shall not in any way diminish, limit, or restrict the right of the Town of Knightdale to enforce any of its ordinances as authorized by law.
 - e) A statement that the property owner and/or association and its members indemnifies and holds harmless the Town of Knightdale for any costs and injuries arising from or related to the structural BMP/SCM, unless the Town of Knightdale has agreed in writing to assume the maintenance responsibility for the BMP/SCM and has accepted dedication of any and all rights necessary to carry out that maintenance.
 - b. **Third Party Transfer Document For Homeowners' Associations.** A third-party document signed by the Town of Knightdale, the developer and the Homeowners' associations shall be required upon completion of the project and handoff of all structural BMP/SCM devices included in the recorded operations and maintenance agreement.
 - i. A formal onsite inspection with all three parties present shall be required. If all devices are compliant and functioning as designed the agreement will be signed by all three parties and recorded.
 - ii. The attachment shall then be recorded as an addendum to the original recorded operations and management agreement.
3. **Inspection Program.**
- a. Inspections and inspection programs by the Town may be conducted or established on any reasonable basis, including but not limited to routine inspections, random inspections, inspections based upon complaints or other notice of possible violations, and joint inspections with other agencies inspecting under environmental or safety laws. Inspections may include, but are not limited to: reviewing maintenance and repair records; sampling discharges, surface water, groundwater, and material or water in BMPs or SCMs; and evaluating the condition of BMP and SCM devices.

- b. If the owner or occupant of any property refuses to permit such inspection, the Stormwater Administrator shall proceed to obtain an administrative search warrant pursuant to N.C.G.S. 15-27.2 or its successor. No person shall obstruct, hamper, or interfere with the Stormwater Administrator while carrying out his or her official duties.
4. **Performance Security for Installation and Performance.**
- a. **Performance Security.** The Town shall require the submittal of a performance security prior to issuance of a permit in order to ensure that the engineered stormwater controls are:
 - i. Installed by the permit holder as required by the approved stormwater management plan, and/or
 - ii. Maintained by the owner as required by the operation and maintenance agreement.
 - b. **Amount.** The amount of an installation performance security shall be the total estimated construction cost of the BMP/SCMs approved under the permit, plus twenty-five (25) percent.
 - c. **Uses of Performance Security.**
 - i. **Forfeiture Provisions.** The performance security shall contain forfeiture provisions for failure, after proper notice, to complete work within the time specified, or to initiate or maintain any actions which may be required of the applicant or owner in accordance with this article, approvals issued pursuant to this article, or an operation and maintenance agreement established pursuant to this article.
 - ii. **Default.** Upon default of the owner to construct, maintain, repair and, if necessary, reconstruct any engineered stormwater control in accordance with the applicable permit or operation and maintenance agreement, the Stormwater Administrator shall obtain and use all or any portion of the security to make necessary improvements based on an engineering estimate. Such expenditure of funds shall only be made after requesting the owner to comply with the permit or maintenance agreement. In the event of a default triggering the use of installation performance security, the Town shall not return any of the unused deposited cash funds or other security, which shall be retained for maintenance.
 - iii. **Costs in Excess of Performance Security.** If the Town takes action upon such failure by the applicant or owner, the Town may collect from the applicant or owner the difference between the amount of the reasonable cost of such action and the amount of the security held, in addition to any other penalties or damages due.
 - iv. **Refund.** After final approval of record drawings, as-builts, and certifications, the installation performance security required per Section 9.4 (D)(4) shall be refunded to the applicant or terminated in accordance with this ordinance and the Town's Engineering Design and Construction Manual (EDCM).

5. **Notice to Owners.**

- a. **Deed Recordation and Indications on Plat.** The applicable operations and maintenance agreement pertaining to every engineered stormwater control shall be referenced on the final plat and shall be recorded with the Register of Deeds of the county in which the stormwater control is located upon final plat approval. If no subdivision plat is recorded for the site, then the operations and maintenance agreement shall be recorded with the Register of Deeds of the appropriate county so as to appear in the chain of title of all subsequent purchasers under generally accepted searching principles.
 - b. **Signage.** If determined by the Stormwater Administrator to assure compliance with this article, engineered stormwater controls shall be posted with a conspicuous sign stating the party responsible for required maintenance and annual inspection. The sign shall be maintained so as to remain visible and legible and comply with any applicable standards in Chapter 8 of the UDO and the Town of Knightdale Stormwater Manual.
6. **Records of Installation and Maintenance Activities.** The owner of each engineered SCM shall keep records of inspections, maintenance, and repairs for at least five (5) years running at any given time and shall submit the same upon reasonable request to the Stormwater Administrator.
7. **Nuisance.** The owner of each stormwater BMP/SCM, whether engineered stormwater control or non-engineered stormwater control, shall maintain it so as not to create or result in a nuisance condition.
8. **SCM Access and Maintenance Easement.** Every engineered stormwater control installed pursuant to this article shall be made accessible for adequate maintenance and repair by a maintenance easement. The easement shall be recorded and its terms shall specify who may make use of the easement and for what purposes.

I. Enforcement and Violations.

1. General.

- a. **Authority to Enforce.** The provisions of this article shall be enforced by the Stormwater Administrator, his or her designee, or any authorized agent of the Town. Whenever this section refers to the Stormwater Administrator, it includes his or her designee as well as any authorized agent of the Town.
- b. **Violation Unlawful.** Any failure to comply with an applicable requirement, prohibition, standard, or limitation imposed by this article, or the terms or conditions of any permit or other development approval or authorization granted pursuant to this ordinance, is unlawful and shall constitute a violation of this Ordinance.
- c. **Each Day a Separate Offense.** Each day that a violation continues shall constitute a separate and distinct violation or offense.
- d. **Responsible Persons/Entities.**
 - i. Any person who erects, constructs, reconstructs, alters (whether actively or passively), or fails to erect, construct, reconstruct, alter, repair, or maintain any structure, BMP/SCM, engineered stormwater control, practice, or condition in violation of this article shall be subject to the remedies, penalties, and/or enforcement actions in accordance with this section. Persons subject to the remedies and penalties set forth herein may include any architect, engineer, builder, contractor, developer, agency, or any other person who participates in, assists, directs, creates, causes, or maintains a condition that results in or constitutes a violation of this article, or fails to take appropriate action so that a violation of this article results or persists; or an owner, any tenant or occupant, or any other person, who has control over, or responsibility for, the use or development of the property on which the violation occurs.
 - ii. For the purposes of this article, responsible person(s) shall include, but not be limited to:
 - a) **Person Maintaining Condition Resulting in or Constituting Violation.** An architect, engineer, builder, contractor, developer, agency, or any other person who participates in, assists, directs, creates, causes, or maintains a condition that constitutes a violation of this article, or fails to take appropriate action so that a violation of this article results or persists.
 - b) **Person Responsible for Land or Use of Land.** The owner of the land on which the violation occurs, any tenant or occupant of the property, any person who is responsible for stormwater controls or practices pursuant to a private agreement or public document, or any person, who has control over, or responsibility for, the use or development of the property.

2. **Remedies and Penalties.** The remedies and penalties provided for violations of this article, whether civil or criminal, shall be cumulative and in addition to any other remedy provided by law, and may be exercised in any order.

a. Remedies.

- i. **Withholding of Certificate of Compliance/Occupancy.** The Stormwater Administrator or other authorized agent may refuse to issue a Certificate of Compliance/Occupancy for the building or other improvements constructed or being constructed on the site and served by the stormwater practices in question until the applicant or other responsible person has taken the remedial measures set forth in the notice of violation or has otherwise cured the violations described therein.

- ii. **Disapproval of Subsequent Permits and Development Approvals.** As long as a violation of this article continues and remains uncorrected, the Stormwater Administrator or other authorized agent may withhold, and the Town Council may disapprove, any request for permit or development approval or authorization provided for by this Ordinance and/or building regulations, as appropriate for the land on which the violation occurs.
 - iii. **Injunction, Abatements, Etc.** The Stormwater Administrator, with the written authorization of the Town Manager, may institute an action in a court of competent jurisdiction for a mandatory or prohibitory injunction and order of abatement to correct a violation of this article. Any person violating this article shall be subject to the full range of equitable remedies provided in the General Statutes or at common law.
 - iv. **Correction as Public Health Nuisance, Costs as Lien, etc.** If the violation is deemed dangerous or prejudicial to the public health or public safety and is within the geographic limits prescribed by N.C.G.S 160A-193, the Stormwater Administrator, with the written authorization of the Town Manager, may cause the violation to be corrected and the costs to be assessed as a lien against the property.
 - v. **Stop Work Order.** The Stormwater Administrator may issue a stop work order to the person(s) violating this article. The stop work order shall remain in effect until the person has taken the remedial measures set forth in the notice of violation or has otherwise cured the violation or violations described therein. The stop work order may be withdrawn or modified to enable the person to take the necessary remedial measures to cure such violation or violations.
- b. **Civil Penalties.** The Stormwater Administrator may assess a civil penalty against any person who violates any provision of this article or of a permit or other requirement pursuant to this article. Civil penalties may be assessed up to the full amount of penalty authorized by N.C.G.S. 143-215.6A.
 - c. **Criminal Penalties.** Violation of this article may be enforced as a misdemeanor subject to the maximum fine permissible under North Carolina law.
3. **Procedures.**
- a. **Initiation/Complaint.** Whenever a violation of this article occurs, or is alleged to have occurred, any person may file a written complaint. Such complaint shall state fully the alleged violation and the basis thereof, and shall be filed with the Stormwater Administrator, who shall record the complaint. The complaint shall be investigated promptly by the Stormwater Administrator.
 - b. **Inspection.** The Stormwater Administrator shall have the authority, upon presentation of proper credentials, to enter and inspect any land, building, structure, or premises to ensure compliance with this article.
 - c. **Notice of Violation and Order to Correct.**
 - i. When the Stormwater Administrator finds that any building, structure, or land is in violation of this article, the Stormwater Administrator shall notify, in writing, the property owner or other person violating this article. The notification shall indicate the nature of the violation, contain the address or other description of the site upon which the violation is occurring, order the necessary action to abate the violation, and give a deadline for correcting the violation. If civil penalties are to be assessed, the notice of violation shall also contain a statement of the civil penalties to be assessed, the time of their accrual, and the time within which they must be paid or be subject to collection as a debt.

- ii. The Stormwater Administrator may deliver the notice of violation and correction order by any means authorized for the service of documents by Rule 4 of the North Carolina Rules of Civil Procedure.
 - iii. If a violation is not corrected within a reasonable period of time, as provided in the notification, the Stormwater Administrator may take appropriate action under this article to correct and abate the violation and to ensure compliance with this article.
- d. **Extension of Time.** A person who receives a notice of violation and correction order, or the owner of the land on which the violation occurs, may submit to the Stormwater Administrator a written request for an extension of time for correction of the violation. On determining that the request includes enough information to show that the violation cannot be corrected within the specified time limit for reasons beyond the control of the person requesting the extension, the Stormwater Administrator may extend the time limit as is reasonably necessary to allow timely correction of the violation, up to, but not exceeding 30 days. The Stormwater Administrator may grant 30-day extensions in addition to the foregoing extension if the violation cannot be corrected within the permitted time due to circumstances beyond the control of the person violating this article. The Stormwater Administrator may grant an extension only by written notice of extension. The notice of extension shall state the date prior to which correction must be made, after which the violator will be subject to the penalties described in the notice of violation and correction order.
- e. **Enforcement after Time to Correct.** After the time has expired to correct a violation, including any extension(s) if authorized by the Stormwater Administrator, the Stormwater Administrator shall determine if the violation is corrected. The Stormwater Administrator may act to impose one or more of the remedies and penalties authorized by this article whether or not the violation has been corrected.
- f. **Emergency Enforcement.** If delay in correcting a violation would seriously threaten the effective enforcement of this article or pose an immediate danger to the public health, safety, or welfare, then the Stormwater Administrator may order the immediate cessation of a violation. Any person so ordered shall cease any violation immediately. The Stormwater Administrator may seek immediate enforcement, without prior written notice, through any remedy or penalty authorized by this article.

J. Illicit Discharges and Connections.

1. Illicit Discharges.

- a. No person shall cause or allow the discharge, emission, disposal, pouring, or pumping directly or indirectly to any stormwater conveyance, the waters of the State, or upon the land in manner and amount that the substance is likely to reach a stormwater conveyance or the waters of the State, any liquid, solid, gas, or other substance, other than stormwater; provided that non-stormwater discharges associated with the following activities are allowed and provided that they do not significantly impact water quality:
- i. Water line and fire hydrant flushing;
 - ii. Landscape irrigation;
 - iii. Temporarily diverted stream flows;
 - iv. Rising groundwaters;
 - v. Uncontaminated groundwater infiltration (as defined at 40 CFR 35.2005(20));
 - vi. Uncontaminated pumped ground water;
 - vii. Discharges from uncontaminated potable water sources;

- viii. Foundation drains;
- ix. Residential or commercial air conditioning condensate;
- x. Irrigation water;
- xi. Springs;
- xii. Water from crawl space pumps;
- xiii. Footing drains;
- xiv. Lawn watering;
- xv. Individual residential car washing;
- xvi. Flows from riparian habitats and wetlands;
- xvii. Dechlorinated swimming pool discharges;
- xv. Flows from active firefighting activities/Street wash water; and
- xviii. Other non-stormwater discharges for which a valid NPDES discharge permit has been approved and issued by the State of North Carolina, and provided that any such discharges to the municipal separate storm sewer system shall be authorized by the Town.
- xix. Prohibited substances include but are not limited to: oil, anti-freeze, chemicals, animal waste, paints, garbage, and litter.

2. **Illicit Connections.**

- a. Single-family detached and attached uses shall be prohibited from establishing direct connections to a stormwater conveyance or stormwater conveyance system, unless a permit is issued by the Town in accordance with the standards set forth in the Stormwater Management Manual.
- b. Connections to a stormwater conveyance or stormwater conveyance system that allow the discharge of non-stormwater, other than the exemptions in Section 9.4 (A)(4)(c), are unlawful. Prohibited connections include, but are not limited to: floor drains, waste water from washing machines or sanitary sewers, wash water from commercial vehicle washing or steam cleaning, and waste water from septic systems.
- c. Where such connections exist in violation of this section and said connections were made prior to the adoption of this provision or any other regulation prohibiting such connections, the property owner or the person using said connection shall remove the connection within one year following the effective date of this article. However, the one-year grace period shall not apply to connections which may result in the discharge of hazardous materials or other discharges which pose an immediate threat to health and safety or are likely to result in immediate injury and harm to real or personal property, natural resources, wildlife, or habitat.

- d. Where it is determined that said connection (a) may result in the discharge of hazardous materials or may pose an immediate threat to health and safety or is likely to result in immediate injury and harm to real or personal property, natural resources, wildlife, or habitat, or (b) was made in violation of any applicable regulation or ordinance other than this section, the Stormwater Administrator shall designate the time within which the connection shall be removed. In setting the time limit for compliance, the Stormwater Administrator shall take into consideration:
- i. The quantity and complexity of the work,
 - ii. The consequences of delay,
 - iii. The potential harm to the environment, to the public health, and to public and private property, and
 - iv. The cost of remedying the damage.
3. **Spills.**
- a. Spills or leaks of polluting substances released, discharged to, or having the potential to released or discharged to the stormwater conveyance system, shall be contained, controlled, collected, and properly disposed. All affected areas shall be restored to their preexisting condition.
 - b. Persons in control of the polluting substances immediately prior to their release or discharge, and persons owning the property on which the substances were released or discharged, shall immediately notify the Fire Chief of the release or discharge, as well as making any required notifications under State and federal law. Notification shall not relieve any person of any expenses related to the restoration, loss, damage, or any other liability which may be incurred as a result of said spill or leak, nor shall such notification relieve any person from other liability which may be imposed by State or other law.
4. **Nuisance.** Illicit discharges and illicit connections which exist within the Town are hereby found, deemed, and declared to be dangerous or prejudiced to the public health or public safety and are found, deemed, and declared to be public nuisances. Such public nuisances shall be abated in accordance with the procedures set forth in Section 9.4 (F)(5) below.
5. **Enforcement.**
- a. **Authority to Enter.** Any authorized Town personnel shall be permitted to enter upon public or private property for the purposes of observation, inspection, sampling, monitoring, testing, surveying, and measuring compliance. No person shall obstruct, hamper, or interfere with any such representative while carrying out his official duties.
 - b. **Civil and Criminal Penalties.**
 - i. **Illicit Discharges.** Any designer, engineer, contractor, agent, or any other person who allows, acts in concert, participates, directs, or assists directly or indirectly in the creation of a violation of this article shall be subject to civil penalties as follows:
 - a) For first time offenders, if the quantity of the discharge is equal to or less than five gallons and consists of domestic or household products in quantities considered ordinary for household purposes, or for any quantity of yard waste or litter, said person shall be assessed a civil penalty of \$100.00 per violation or per day for any continuing violation and if the quantity of discharge is greater than five gallons or contains non-domestic substances, including but not limited to process wastewater, or if the person cannot provide clear and convincing evidence of the volume and nature of the substance discharged, said person shall be assessed a civil penalty of \$1,000.00 per violation or per day for any continuing violation.

- b) For repeat offenders, the amount of the penalty shall be double the amount assessed for the previous penalty, not to exceed \$10,000.00 per violation for any continuing violation.
- ii. **Illicit Connections.** Any person found with an illicit connection in violation of this article and any designer, engineer, contractor, agent, or any other person who allows, acts in concert, participates, directs, or assists directly or indirectly in the establishment of an illicit connection in violation of this article shall be subject to civil penalties as follows:
 - a) First time offenders shall be subject to a civil penalty of \$500.00 per day of continuing violation.
 - b) Repeat offenders shall be subject to a civil penalty of \$1,000.00 per day of continuing violation.
- iii. **Procedures for Assessing Civil Penalties.** Said penalties shall be assessed by the Town manager or his designee. No penalty shall be assessed until the person alleged to be in violation is served written notice of the violation by registered, certified mail-return receipt requested, or personal service. Refusal to accept the notice shall not relieve the violator of the obligation to pay the penalty. The notice shall describe the violation with particularity and specify the measures needed to come into compliance. The notice shall designate the time within which such measures must be completed. The notice shall warn that failure to correct the violation within the specified time period will result in the assessment of additional civil penalties.
- iv. **Payment/Collection Procedures.** Penalties shall be assessed by the Town Manager or his designee after proper notice has been served as described in subsection (b)(iii) above. The Town Manager or designee shall make written demand for payment upon the person in violation. If payment is not received within thirty (30) days after demand for payment is made, the matter shall be referred to the Town Attorney for possible institution of a civil action in the name of the Town for recovering the penalty.
- v. **Criminal Penalties.** Any person who knowingly or willfully violates any provision of this article or any order duly adopted or issued pursuant to this article shall be guilty of a misdemeanor, punishable by a fine not to exceed \$500.00 or imprisonment for not longer than thirty (30) days. Each violation shall be a separate offense.
- c. **Suspension of MS4 Access.**
 - i. **Suspension due to Illicit Discharges in Emergency Situations.** The Stormwater Administrator may, without prior notice, suspend MS4 discharge access to a person when such suspension is necessary to stop an actual or threatened discharge which presents or may present imminent and substantial danger to the environment, or to the health or welfare of persons, or to the MS4 or Waters of the U.S. If the violator fails to comply with a suspension order issued in an emergency, the authorized enforcement agency may take such steps as deemed necessary to prevent or minimize damage to the MS4 or Waters of the U.S., or to minimize danger to persons.
 - ii. **Suspension due to the Detection of Illicit Discharge.** Any person discharging to the MS4 in violation of this ordinance may have their MS4 access terminated if such termination would abate or reduce an illicit discharge. The authorized enforcement agency will notify a violator of the proposed termination of its MS4 access. The violator may petition the authorized enforcement agency for a reconsideration and hearing.
 - iii. A person commits an offense if the person reinstates MS4 access to premises terminated pursuant to this Section, without the prior approval of the authorized enforcement agency.

- d. **Industrial or Construction Activity Discharges.** Any person subject to an industrial or construction activity NPDES stormwater discharge permit shall comply with all provisions of such permit. Proof of compliance with said permit may be required in a form acceptable to the Stormwater Administrator prior to the allowing of discharges to the MS4.
- e. **Monitoring of Discharges.**
- i. **Applicability.** This section applies to all facilities that have stormwater discharges associated with industrial activity, including construction activity.
 - ii. **Access to Facilities.**
 - a) The Stormwater Administrator shall be permitted to enter and inspect facilities subject to regulation under this ordinance as often as may be necessary to determine compliance with this ordinance. If a discharger has security measures in force which require proper identification and clearance before entry into its premises, the discharger shall make the necessary arrangements to allow access to the Stormwater Administrator.
 - b) Facility operators shall allow the Stormwater Administrator ready access to all parts of the premises for the purposes of inspection, sampling, examination and copying of records that must be kept under the conditions of an NPDES permit to discharge stormwater, and the performance of any additional duties as defined by state and federal law.
 - c) The Stormwater Administrator shall have the right to set up on any permitted facility such devices as are necessary in the opinion of the Administrator to conduct monitoring and/or sampling of the facility's stormwater discharge.
 - d) The Stormwater Administrator has the right to require the discharger to install monitoring equipment, as necessary. The facility's sampling and monitoring equipment shall be maintained at all times in a safe and proper operating condition by the discharger at its own expense. All devices used to measure stormwater flow and quality shall be calibrated to ensure their accuracy.
 - e) Any temporary or permanent obstruction to safe and easy access to the facility to be inspected and/or sampled shall be promptly removed by the operator at the written or oral request of the Administrator and shall not be replaced. The costs of clearing such access shall be borne by the operator.
 - f) Unreasonable delays in allowing the Stormwater Administrator access to a permitted facility is a violation of a stormwater discharge permit and of this ordinance. A person who is the operator of a facility with a NPDES permit to discharge stormwater associated with industrial activity commits an offense if the person denies the Administrator reasonable access to the permitted facility for the purpose of conducting any activity authorized or required by this ordinance.
 - g) If the Stormwater Administrator has been refused access to any part of the premises from which stormwater is discharged, and he/she is able to demonstrate probable cause to believe that there may be a violation of this ordinance, or that there is a need to inspect and/or sample as part of a routine inspection and sampling program designed to verify compliance with this ordinance or any order issued hereunder, or to protect the overall public health, safety, and welfare of the community, then the Administrator may seek issuance of a search warrant from any court of competent jurisdiction.

- f. **Requirement to Prevent, Control and Reduce Stormwater Pollutants by the Use of BMP/SCMs.** The Stormwater Administrator will adopt requirements identifying BMP/SCMs for any activity, operation or facility which may cause or contribute to pollution or contamination of stormwater, the storm drain system, or waters of the U.S. The owner or operator of a commercial or industrial establishment shall provide, at their own expense, reasonable protection from accidental discharge of prohibited materials or other wastes into the municipal storm drain system or watercourses through the use of these structural and non-structural BMP/SCMs. Further, any person responsible for a property or premise, which is, or may be, the source of an illicit discharge, may be required to implement, at said person's expense, additional structural and non-structural BMPs or SCMs to prevent the further discharge of pollutants to the municipal separate storm sewer system. Compliance with all terms and conditions of a valid NPDES permit authorizing the discharge of stormwater associated with industrial activity, to the extent practicable, shall be deemed compliance with the provisions of this section. These BMP/SCMs shall be part of a stormwater pollution prevention plan (SWPP) as necessary for compliance with requirements of the NPDES permit.
- g. **Watercourse Protection.** Every person owning property through which a watercourse passes or such person's lessee, shall keep and maintain that part of the watercourse within the property free of trash, debris, excessive vegetation, and other obstacles that would pollute, contaminate or significantly retard the flow of water through the watercourse. In addition, the owner or lessee shall maintain existing privately owned structures within or adjacent to a watercourse, so that such structures will not become a hazard to the use, function, or physical integrity of the watercourse.
- h. **Notification of Spills.** Notwithstanding other requirements of law, as soon as any person responsible for a facility or operation, or responsible for emergency response for a facility or operation has information of any known or suspected release of materials which are resulting or may result in illegal discharges or pollutants discharging into stormwater, the storm drain system, or water of the U.S.; said person shall take all necessary steps to ensure the discovery, containment, and cleanup of such release. In the event of such a release of hazardous materials said person shall immediately notify emergency response agencies of the occurrence via emergency dispatch services. In the event of a release of non-hazardous materials, said person shall notify the Stormwater Administrator in person or by phone or facsimile no later than the next business day. Notifications in person or by phone shall be confirmed by written notice addressed and mailed to the Stormwater Administrator within three (3) business days of the phone notice. If the discharge of prohibited materials emanates from a commercial or industrial establishment, the owner or operator of such establishment shall also retain an on-site written record of the discharge and the actions taken to prevent its recurrence. Such records shall be retained for at least three (3) years.

9.5. Flood Damage Prevention.

The flood-prone areas within the jurisdiction of the Town are subject to periodic inundation which results in loss of life, property, health and safety hazards, disruption of commerce and governmental services, extraordinary public expenditures of flood protection and relief, and impairment of the tax base, all of which adversely affect the public health, safety, and general welfare. These flood losses are caused by the cumulative effect of obstructions in floodplains causing increases in flood heights and velocities, and by the occupancy in flood-prone areas by uses vulnerable to floods or hazardous to other lands which are inadequately elevated, flood-proofed, or otherwise unprotected from flood damages.

This ordinance shall apply to all Special Flood Hazard Areas and Future Conditions Flood Hazard Areas within the jurisdiction, including the Extra-Territorial Jurisdiction of the Town.

In an effort to avoid potential flood losses special flood hazard areas (SFHAs) cannot be located on any single-family residential building lot (detached or attached) within a major subdivision as defined in Section 12.2 (D)(6)(f). In general terms, SFHAs in major subdivisions must be platted as separate lots where the responsibility of maintaining (in a natural state) said SFHA in perpetuity is typically designated to a homeowners association or non-profit land conversation agency.

- A. **Purpose and Intent.** It is the purpose of this ordinance to promote public health, safety, and general welfare and to minimize public and private losses due to flood conditions within flood-prone areas by provisions designed to:
1. Restrict or prohibit uses which are dangerous to health, safety, and property due to water or erosion hazards, or which result in damaging increases in erosion, flood heights, or velocities; and
 2. Require that uses vulnerable to floods, including facilities which serve such uses, be protected against flood damage at the time of initial construction; and
 3. Control the alteration of natural floodplains, stream channels, and natural protective barriers, which are involved in the accommodation of flood waters; and
 4. Control filling, grading, dredging, and all other development which may increase erosion or flood damage; and
 5. Prevent or regulate the construction of flood barriers that will unnaturally divert floodwaters, or which may increase flood hazards to other lands.
- B. **General Provisions.**
1. **Basis for Establishing the Special Flood Hazard Areas.** The Special Flood Hazard Areas and Future Conditions Flood Hazard Areas are those identified under the Cooperating Technical State (CTS) agreement between the State of North Carolina and FEMA in its FIS dated July 19, 2022, for Wake County and associated DFIRM panels, including any digital data developed as part of the FIS, and any revision thereto, which are adopted by reference and declared a part of this ordinance. The Special Flood Hazard Areas and Future Conditions Flood Hazard Areas also include those defined through standard engineering analysis for private developments or by governmental agencies, but which have not yet been incorporated in the FIRM. This includes, but is not limited to, detailed flood data:
 - a. Generated as a requirement of this ordinance;
 - b. Preliminary FIRMs where more stringent than the effective FIRM; or
 - c. Post-disaster Flood Recovery Maps.

2. **Establishment of Floodplain Development Permit.** A floodplain development permit shall be required in conformance with the provisions of this ordinance prior to the commencement of any development activities within Special Flood Hazard Areas and Future Conditions Flood Hazard Areas determined in Section 9.5 (B)(1).
3. **Compliance.** No structure or land shall hereafter be located, extended, converted, altered, or developed in any way without full compliance with the terms of this ordinance and other applicable regulations.
4. **Abrogation and Greater Restrictions.** This ordinance is not intended to repeal, abrogate, or impair any existing easements, covenants, or deed restrictions. However, where this ordinance and another conflict or overlap, whichever imposes the more stringent restrictions shall prevail.
5. **Interpretation.** In the interpretation and application of this ordinance, all provisions shall be:
 - a. Considered as minimum requirements;
 - b. Liberally construed in favor of the governing body; and
 - c. Deemed neither to limit nor repeal any other powers granted under State statutes.
6. **Warning and Disclaimer of Liability.** The degree of flood protection required by this ordinance is considered reasonable for regulatory purposes and is based on scientific and engineering consideration. Larger floods can and will occur on rare occasions. Actual flood heights may be increased by man-made or natural causes. This ordinance does not imply that land outside the Special Flood Hazard Areas and Future Conditions Flood Hazard Areas or uses permitted within such areas will be free from flooding or flood damages. This ordinance shall not create liability on the part of the Town or by any officer or employee thereof for any flood damages that result from reliance on this ordinance or any administrative decision lawfully made hereunder.

C. Violations and Corrective Procedures.

1. **Penalties for Violation.** Violation of the provisions of this ordinance or failure to comply with any of its requirements, including violation of conditions and safeguards established in connection with grants of variance or special exceptions, shall constitute a Class 1 misdemeanor pursuant to N.C.G.S. § 143-215.58. Any person who violates this ordinance or fails to comply with any of its requirements shall, upon conviction thereof, be fined not more than \$100.00 or imprisoned for not more than thirty (30) days, or both. Each day such violation continues shall be considered a separate offense. Nothing herein contained shall prevent the Town from taking such other lawful action as is necessary to prevent or remedy any violation.
2. **Corrective Procedures.**
 - a. Violations to be corrected: When the Floodplain Administrator finds violations of applicable state and local laws; it shall be his or her duty to notify the owner or occupant of the building of the violation. The owner or occupant shall immediately remedy each of the violations of law cited in such notification.
 - b. Actions in Event of Failure to Take Corrective Action: If the owner of a building or property shall fail to take prompt corrective action, the Floodplain Administrator shall give the owner written notice, by certified or registered mail to the owner's last known address or by personal service, stating:
 - i. That the building or property is in violation of the floodplain management regulations;

- ii. That a hearing will be held before the Floodplain Administrator at a designated place and time, not later than ten (10) days after the date of the notice, at which time the owner shall be entitled to be heard in person or by counsel and to present arguments and evidence pertaining to the matter; and
 - iii. That following the hearing, the Floodplain Administrator may issue an order to alter, vacate, or demolish the building; or to remove fill as applicable.
- c. **Order to Take Corrective Action:** If, upon a hearing held pursuant to the notice prescribed above, the Floodplain Administrator shall find that the building or development is in violation of the Flood Damage Prevention Ordinance, he or she shall issue an order in writing to the owner, requiring the owner to remedy the violation within a specified time period, not less than sixty (60) calendar days, nor more than one-hundred-eighty (180) calendar days. Where the Floodplain Administrator finds that there is imminent danger to life or other property, he or she may order that corrective action be taken in such lesser period as may be feasible.
- d. **Appeal:** Any owner who has received an order to take corrective action may appeal the order to the local elected governing body by giving notice of appeal in writing to the Floodplain Administrator and the Town Clerk within ten (10) days following issuance of the final order. In the absence of an appeal, the order of the Floodplain Administrator shall be final. The local governing body shall hear an appeal within a reasonable time and may affirm, modify and affirm, or revoke the order.
- e. **Failure to Comply with Order:** If the owner of a building or property fails to comply with an order to take corrective action for which no appeal has been made or fails to comply with an order of the governing body following an appeal, the owner shall be guilty of a Class 1 misdemeanor pursuant to N.C.G.S. § 143-215.58 and shall be punished at the discretion of the court.

D. Administration.

1. **Designation of Floodplain Administrator.** The Land Use Administrator or designee, hereinafter referred to as the “Floodplain Administrator,” is hereby appointed to administer and implement the provisions of this ordinance. In instances where the Floodplain Administrator receives assistance from others to complete tasks to administer and implement this ordinance, the Floodplain Administrator shall be responsible for the coordination and community’s overall compliance with the National Flood Insurance Program and the provisions of this ordinance.
2. **Floodplain Development Permit Data Requirements.** The following information shall be provided at a minimum on the floodplain development permit to ensure compliance with this code.
 - a. A complete description of all the development to be permitted under the floodplain development permit (e.g. house, garage, pool, septic, bulkhead, cabana, pier, bridge, mining, dredging, filling, grading, paving, excavation or drilling operations, or storage of equipment or materials, etc.).
 - b. The Special Flood Hazard Area or Future Conditions Flood Hazard Area determination for the proposed development per available data specified in Section 9.5 (B)(1).
 - c. The regulatory flood protection elevation required for the reference level and all attendant utilities.
 - d. The regulatory flood protection elevation required for the protection of all public utilities.
 - e. All certification submittal requirements with timelines.

- f. States that no fill material shall encroach into the floodway or non-encroachment area of any watercourse, if applicable.
 - g. The flood openings requirements as dictated by FEMA Technical Bulletin 1-93 Opening in Foundation Walls, if in Zones A, AE, or X (Future).
 - h. State limitations of below base flood elevation (BFE) enclosure uses (i.e., parking, building access and limited storage only).
3. **Certification Requirements.**
- a. **Elevation Certificates.**
 - i. An Elevation Certificate (FEMA Form 086-0-33) is required prior to the actual start of any new construction. It shall be the duty of the permit holder to submit to the Floodplain Administrator a certification of the elevation of the reference level, in relation to NAVD 1988. The Floodplain Administrator shall review the certificate data submitted. Deficiencies detected by such review shall be corrected by the permit holder prior to the beginning of construction. Failure to submit the certification or failure to make required corrections shall be cause to deny a floodplain development permit.
 - ii. An Elevation Certificate (FEMA Form 086-0-33) is required after the reference level is established. Within seven (7) calendar days of establishment of the reference level elevation, it shall be the duty of the permit holder to submit to the Floodplain Administrator a certification of the elevation of the reference level, in relation to NAVD 1988. Any work done within the seven (7) day calendar period and prior to submission of the certification shall be at the permit holder's risk. The Floodplain Administrator shall review the certificate data submitted. Deficiencies detected by such review shall be corrected by the permit holder immediately and prior to further work being permitted to proceed. Failure to submit the certification or failure to make required corrections shall be cause to issue a stop-work order for the project.
 - iii. A final Finished Construction Elevation Certificate (FEMA Form 086-0-33) is required after construction is completed and prior to Certificate of Compliance/Occupancy issuance. It shall be the duty of the permit holder to submit to the Floodplain Administrator a certification of final as-built construction of the elevation of the reference level and all attendant utilities. The Floodplain Administrator shall review the certificate data submitted. Deficiencies detected by such review shall be corrected by the permit holder immediately and prior to Certificate of Compliance/Occupancy issuance. In some instances, another certification may be required to certify corrected as-built construction. Failure to submit the certification or failure to make required corrections shall be cause to withhold the issuance of a Certificate of Compliance/Occupancy. The Finished Construction Elevation Certificate certifier shall provide at least 2 photographs showing the front and rear of the building taken within 90 days from the date of certification. The photographs must be taken with views confirming the building description and diagram number provided in Section A. To the extent possible, these photographs should show the entire building including foundation. If the building has split-level or multi-level areas, provide at least 2 additional photographs showing side views of the building. In addition, when applicable, provide a photograph of the foundation showing a representative example of the flood openings or vents. All photographs must be in color and measure at least 3" × 3". Digital photographs are acceptable.
 - iv. If a watercourse is to be altered or relocated, a description of the extent of watercourse alteration or relocation; an engineering report on the effects of the proposed project on the

flood-carrying capacity of the watercourse and the effects to properties located both upstream and downstream; and a map showing the location of the proposed watercourse alteration or relocation shall all be submitted by the permit applicant prior to issuance of a floodplain development permit.

b. Floodproofing Certificate.

- i. If non-residential floodproofing is used to meet the regulatory flood protection elevation requirements, a Floodproofing Certificate (FEMA Form 81-65), with supporting data and an operation plan, is required prior to the start of any new construction. It shall be the duty of the permit holder to submit to the Stormwater Administrator a certification of the floodproofed design elevation of the reference level and all attendant utilities, in relation to mean sea level. Floodproofing certification shall be prepared by or under the direct supervision of a professional engineer or architect and certified by the same. The Stormwater Administrator shall review the certificate data and plan. Deficiencies detected by such review shall be corrected by the applicant prior to permit approval. Failure to submit the certification or failure to make the required correction shall be cause to deny a floodplain development permit. Failure to construct in accordance with the certified design shall be cause to withhold issuance of a Certificate of Occupancy.
 - ii. A final Finished Construction Floodproofing Certificate (FEMA Form 086-0-34), with supporting data, an operational plan, and an inspection and maintenance plan are required prior to the issuance of a Certificate of Compliance/Occupancy. It shall be the duty of the permit holder to submit to the Floodplain Administrator a certification of the floodproofed design elevation of the reference level and all attendant utilities, in relation to NAVD 1988. Floodproofing certificate shall be prepared by or under the direct supervision of a professional engineer or architect and certified by same. The Floodplain Administrator shall review the certificate data, the operational plan, and the inspection and maintenance plan. Deficiencies detected by such review shall be corrected by the applicant prior to Certificate of Occupancy. Failure to submit the certification or failure to make required corrections shall be cause to deny a Floodplain Development Permit. Failure to construct in accordance with the certified design shall be cause to deny a Certificate of Compliance/Occupancy.
- c. Certification Exemptions.** The following structures, if located within Zones A, AE, or X (Future), are exempt from the elevation/floodproofing certification requirements specified in 9.5 (D)(3)(a) and 9.5 (D)(3)(b):
- i. Recreational Vehicles meeting requirements of Section 9.5 (E)(3)(g);
 - ii. Temporary Structures meeting requirements of Section 9.5 (E)(3)(h); and
 - iii. Accessory Structures less than one-hundred-fifty (150) square feet meeting requirements of Section 9.5 (E)(3)(i).
- 4. Determinations for Existing Buildings and Structures.** For applications for building permits to improve buildings and structures, including alterations, movement, enlargement, replacement, repair, change of occupancy, additions, rehabilitations, renovations, substantial improvements, repairs of substantial damage, and any other improvement of or work on such buildings and structures, the Floodplain Administrator, in coordination with the Building Official, shall:

- a. Estimate the market value, or require the applicant to obtain an appraisal of the market value prepared by a qualified independent appraiser, of the building or structure before the start of construction of the proposed work; in the case of repair, the market value of the building or structure shall be the market value before the damage occurred and before any repairs are made;
- b. Compare the cost to perform the improvement, the cost to repair a damaged building to its pre-damaged condition, or the combined costs of improvements and repairs, if applicable, to the market value of the building or structure;
- c. Determine and document whether the proposed work constitutes substantial improvement or repair of substantial damage; and
- d. Notify the applicant if it is determined that the work constitutes substantial improvement or repair of substantial damage and that compliance with the flood resistant construction requirements of the NC Building Code and this ordinance is required.

E. Provisions for Flood Hazard Reduction.

1. **Floodways and Non-Encroachment Areas.** Located within the Special Flood Hazard Areas established in Section 9.5 (B)(1) are areas designated as floodways or non-encroachment areas. The floodways and non-encroachment areas are extremely hazardous areas due to the velocity of floodwaters that have erosion potential and carry debris and potential projectiles. The following provisions shall apply to all development within such areas:
 - a. No encroachments, including fill, new construction, substantial improvements, and other developments shall be permitted unless:
 - i. It has been demonstrated through hydrologic and hydraulic analyses performed in accordance with standard engineering practice that the proposed encroachment would not result in an increase in the flood levels during the occurrence of the base flood. Such certification and technical data shall be presented to the Stormwater Administrator prior to issuance of floodplain development permit; or
 - ii. A Conditional Letter of Map Revision (CLOMR) has been approved by FEMA. A Letter of Map Revision (LOMR) must also be obtained within six (6) months of completion of the proposed encroachment.
 - b. If Section 9.5 (E)(1)(a) is satisfied, all development shall comply with all applicable flood hazard reduction provisions of this ordinance.
 - c. No manufactured homes shall be permitted, except replacement manufactured homes in an existing manufactured home park or subdivision provided the following provisions are met:
 - i. The anchoring and the elevation standards of Section 9.5 (E)(3)(c); and
 - ii. The no encroachment standards of Section 9.5 (E)(1)(a) are met.
2. **General Standards.**
 - a. All new construction and substantial improvements, where permitted, shall be:
 - i. Anchored to prevent flotation, collapse, or lateral movement of the structure; and
 - ii. Constructed with materials and utility equipment resistant to flood damage; and
 - iii. Constructed by methods and practices that minimize flood damages.

- b. All new electrical, heating, ventilation, plumbing, air conditioning equipment, and other service equipment shall be located at or above the RFPE or designed and installed to prevent water from entering or accumulating within the components during the occurrence of the base flood. These include, but are not limited to, HVAC equipment, water softener units, bath/kitchen fixtures, ductwork, electric/gas meter panels/boxes, utility/cable boxes, water heaters, and electric outlets/switches.
 - i. Replacements part of a substantial improvement, electrical, heating, ventilation, plumbing, air conditioning equipment, and other service equipment shall also meet the above provisions.
 - ii. Replacements that are for maintenance and not part of a substantial improvement, may be installed at the original location provided the addition and/or improvements only comply with the standards for new construction consistent with the code and requirements for the original structure.
- c. All new and replacement water supply systems shall be designed to minimize or eliminate infiltration of floodwaters into the system.
- d. New and replacement sanitary sewage systems shall be designed to minimize or eliminate infiltration of floodwaters into the systems and discharges from the systems into floodwaters.
- e. On-site waste disposal systems shall be located and constructed to avoid impairment to them or contamination from them during flooding.
- f. Non-conforming structures or other development may not be enlarged, replaced, or rebuilt unless such enlargement or reconstruction is accomplished in conformance with the provisions of this ordinance. Provided, however, nothing in this ordinance shall prevent the repair, reconstruction, or replacement of a building or structure existing on the effective date of this ordinance and located totally or partially within the floodway, non-encroachment area, or stream setback, provided that the bulk of the building or structure below the regulatory flood protection elevation in the floodway, non-encroachment area, or stream setback is not increased and provided that such repair, reconstruction, or replacement meets all of the other requirements of this ordinance.
- g. New solid waste disposal facilities, hazardous waste management facilities, salvage yards, and chemical storage facilities shall not be permitted in Special Flood Hazard Areas or Future Conditions Flood Hazard Areas. A structure or tank for chemical or fuel storage incidental to an allowed use or to the operation of a water treatment plant or wastewater treatment facility may be located in a Special Flood Hazard Area or Future Conditions Flood Hazard Area only if the structure or tank is either elevated or floodproofed to at least the regulatory flood protection elevation and certified according to Section 9.5 (D)(3) of this code.
- h. All subdivision proposals and other development proposals shall be consistent with the need to minimize flood damage.
- i. All subdivision proposals and other development proposals shall have public utilities and facilities such as sewer, gas, electrical, and water systems located and constructed to minimize flood damage.
- j. All subdivision proposals and other development proposals shall have adequate drainage provided to reduce exposure to flood hazards.
- k. All subdivision proposals and other development proposals shall have received all necessary permits from those governmental agencies for which approval is required by federal or state law,

- including Section 404 of the Federal Water Pollution Control Act Amendments of 1972, 33 U.S.C. 1334.
- l. When a structure is partially located in a Special Flood Hazard Area, the entire structure shall meet the requirements for new construction and substantial improvements.
 - m. When a structure is located in multiple flood hazard zones or in a flood hazard risk zone with multiple base flood elevations, the provisions for the more restrictive flood hazard risk zone and the highest BFE shall apply.
 - n. Fill is prohibited in the SFHA and Future Conditions Flood Hazard Areas, including construction of buildings on fill. This includes not approving Conditional Letters or Letters of Map Revision - Based on Fill (CLOMR-F or LOMR-F).
3. **Specific Standards.** In all Special Flood Hazard Areas where BFE data has been provided and in Future Conditions Flood Hazard Areas where Future Conditions Flood Elevations data has been provided, as set forth in Section 9.5 (B)(1), the following provisions are required:
- a. **Residential Construction.** New construction or substantial improvement of any residential structure (including manufactured homes) shall have the reference level, including basement, elevated no lower than two feet above the regulatory flood protection elevation or established BFE.
 - b. **Non-Residential Construction.** New construction or substantial improvement of any commercial, industrial, or other non-residential structure shall have the reference level, including basement, elevated no lower than the regulatory flood protection elevation. Structures located in A, AE, and X (Future) Zones may be floodproofed to the regulatory flood protection elevation in lieu of elevation provided that all areas of the structure below the required flood protection elevation are watertight with walls substantially impermeable to the passage of water, using structural components having the capability of resisting hydrostatic and hydrodynamic loads and the effect of buoyancy. A registered professional engineer or architect shall certify that the standards of this subsection are satisfied. Such certification shall be provided to the official as set forth in Section 9.5 (D)(3).
 - c. **Manufactured Homes.** New or replacement manufactured homes shall be elevated so that the reference level of the manufactured home is no lower than the regulatory flood protection elevation. In no case shall manufactured mobile homes be allowed in an A, AE, or X (Future) Zone.
 - i. Manufactured homes shall be securely anchored to an adequately anchored foundation to resist flotation, collapse, and lateral movement, either by certified engineered foundation system, or in accordance with the most current edition of the State of North Carolina Regulations for Manufactured Homes adopted by the Commissioner of Insurance pursuant to N.C.G.S. 143-143.15. Additionally, when the elevation would be met by an elevation of the chassis thirty-six (36) inches or less above the grade at the site, the chassis shall be supported by reinforced piers or engineered foundation. When the elevation of the chassis is above thirty-six (36) inches in height, an engineering certification is required.
 - ii. All enclosures or skirting below the lowest floor shall meet the requirements of Section 9.5 (E)(3)(d).
 - iii. An evacuation plan must be developed for evacuation of all residents of all new, substantially improved or substantially damaged manufactured home parks or subdivisions located within

flood prone areas. This plan shall be filed with and approved by the Floodplain Administrator and the local Emergency Management Coordinator.

- d. **Elevated Buildings.** New construction or substantial improvements of elevated buildings that include fully enclosed areas that are below the regulatory flood protection elevation shall not be designed to be used for human habitation but shall be designed to be used only for parking of vehicles, building access, or limited storage of maintenance equipment used in connection with the premises, be constructed entirely of flood-resistant materials below the regulatory flood protection level in A, AE, or X (Future) zones and meet the following design criteria:
- i. Measures for complying with this requirement shall be designed to automatically equalize hydrostatic flood forces on exterior walls by allowing for the entry and exit of floodwaters. To meet this requirement, the foundation must either be certified by a professional engineer or architect or meet the following minimum design criteria:
 - a) Provide a minimum of two (2) openings on different sides of each enclosed area subject to flooding.
 - b) The total net area of all openings must be at least one (1) square inch for each square foot of each enclosed area subject to flooding.
 - c) If a building has more than one (1) enclosed area, each area must have openings on exterior walls to allow floodwater to automatically enter and exit;
 - d) The bottom of all required openings shall be no higher than one (1) foot above the adjacent grade; and,
 - e) Openings may be equipped with screens, louvers, or other opening coverings or devices provided they permit the automatic flow of floodwaters in both directions.
 - f) **Foundation enclosures.**
 1. Vinyl or sheet metal skirting is not considered an enclosure for regulatory and flood insurance rating purposes. Therefore such skirting does not require hydrostatic openings as outlined above.
 2. Masonry or wood underpinning, regardless of structural status, is considered an enclosure and requires hydrostatic openings as outlined above to comply with this ordinance.
 - ii. Access to the enclosed area shall be the minimum necessary to allow for parking of vehicles (garage door) or limited storage of maintenance equipment used in connection with the premises (standard exterior door) or entry to the living area (stairway or elevator). The interior portion of such enclosed area shall not be partitioned or finished into separate rooms, except to enclose storage areas.
 - iii. Shall not be temperature-controlled or conditioned.
 - iv. Shall be constructed entirely of flood resistant materials at least to the Regulatory Flood Protection Elevation.
- e. **Fill/Grading.**
- i. Fill is prohibited in the SFHA and Future Conditions Flood Hazard Areas.
- f. **Additions and Improvements.**


- i. Additions and/or improvements to pre-FIRM structures whereas the addition and/or improvements in combination with any interior modifications to the existing structure:
 - a) Are not a substantial improvement, the addition and/or improvements must be designed to minimize flood damages and must not be any more non-conforming than the existing structure; and
 - b) Is a substantial improvement, both the existing structure and the addition and/or improvements must comply with the standards for new construction.
- ii. Additions to post-FIRM structures with no modifications to the existing structure shall require only the addition to comply with the standards for new construction.
- iii. Additions and/or improvements to post-FIRM structures whereas the addition and/or improvements in combination with any interior modifications to the existing structure:
 - a) Are not a substantial improvement, the addition and/or improvements only must comply with the standards for new construction; and
 - b) Are a substantial improvement, both the existing structure and the addition and/or improvements must comply with the standards for new construction.
- iv. Where a fire wall or independent perimeter load-bearing wall is provided between the addition and the existing building, the addition(s) shall be considered a separate building, and only the addition must comply with the standards for new construction.
- v. Any combination of repair, reconstruction, rehabilitation, addition or improvement of a building or structure taking place during a one (1) year period, the cumulative cost of which equals or exceeds 50 percent of the market value of the structure before the improvement or repair is started must comply with the standards for new construction. For each building or structure, the one (1) year period begins on the date of the first improvement or repair of that building or structure subsequent to the effective date of this ordinance. Substantial damage also means flood-related damage sustained by a structure on two separate occasions during a 10-year period for which the cost of repairs at the time of each such flood event, on the average, equals or exceeds 25 percent of the market value of the structure before the damage occurred. If the structure has sustained substantial damage, any repairs are considered substantial improvement regardless of the actual repair work performed. The requirement does not, however, include either:
 - a) Any project for improvement of a building required to correct existing health, sanitary or safety code violations identified by the building official and that are the minimum necessary to assume safe living conditions.
 - b) Any alteration of a historic structure provided that the alteration will not preclude the structure's continued designation as a historic structure.
- g. **Recreational Vehicles.** Recreation vehicles shall not be allowed within a Special Flood Hazard Area or a Future Conditions Flood Hazard Area. Furthermore, they shall be on site for fewer than one-hundred eighty (180) consecutive days and be fully licensed and ready for highway use (A recreational vehicle is read for highway use if it is on its wheels or jacking system, is attached to the site only by quick disconnect type utilities and has no permanently attached additions).
- h. **Temporary Structures.** Prior to the issuance of a floodplain development permit for a temporary structure, (i.e. Construction Trailer) the following requirements must be met:

- i. Applicants must submit to the Stormwater Administrator a plan for the removal of such structure(s) in the event of a hurricane or flash flood warning notification. The plan must include the following information:
 - a) A specified time period for which the temporary use will be permitted;
 - b) The name, address, and phone number of the individual responsible for the removal of the temporary structure;
 - c) The time frame prior to the event at which a structure will be removed (i.e. minimum of seventy-two (72) hours before landfall of a hurricane or immediately upon flood warning notification);
 - d) A copy of the contract or other suitable instrument with a trucking company to insure the availability of removal equipment when needed; and
 - e) Designation, accompanied by documentation, of a location outside the Special Flood Hazard Area or Future Conditions Flood Hazard Area to which the temporary structure will be moved.
- ii. The above information shall be submitted in writing to the Stormwater Administrator for review and written approval.
- i. **Accessory Structures.** When accessory structures (sheds, detached garages, etc. see Section 5.10) are to be placed within a Special Flood Hazard Area or Future Conditions Flood Hazard Area, the following criteria shall be met:
 - i. Accessory structures shall not be used for human habitation (including work, sleeping, living, cooking or restroom areas);
 - ii. Accessory structures shall be designed to have low flood damage potential;
 - iii. Accessory structures shall be constructed and placed on the building site so as to offer the minimum resistance to the flow of floodwaters;
 - iv. Accessory structures shall be firmly anchored in accordance with Section 9.5 (E)(2)(a);
 - v. All service facilities such as electrical and heating equipment shall be installed in accordance with Section 9.5 (E)(2)(b); and
 - vi. Openings to relieve hydrostatic pressure during a flood shall be provided below regulatory flood protection elevation in conformance with Section 9.5 (E)(3)(d)(i).
 - vii. An accessory structure with a footprint of less than one-hundred fifty (150) square feet does not require an elevation or floodproofing certificate. Elevation or floodproofing certifications are required for all other accessory structures in accordance with Section 9.5 (D)(3).
 - viii. Accessory structures shall not be temperature-controlled.
- j. **Other Development.**
 - i. Fences in regulated floodways and NEAs that have the potential to block the passage of floodwaters, such as stockade fences and wire mesh fences, shall meet the limitations of Section 9.5 (E)(1) of this ordinance.

- ii. Retaining walls, sidewalks and driveways in regulated floodways and NEAs. Retaining walls and sidewalks and driveways that involve the placement of fill in regulated floodways shall meet the limitations of Section 9.5 (E)(1) of this ordinance.
 - iii. Roads and watercourse crossings in regulated floodways and NEAs. Roads and watercourse crossings, including roads, bridges, culverts, low-water crossings and similar means for vehicles or pedestrians to travel from one side of a watercourse to the other side, that encroach into regulated floodways shall meet the limitations of Section 9.5 (E)(1) of this ordinance.
4. **Standards for Floodplains Without Established Base Flood Elevations.** Within the Special Flood Hazard Areas designated as Approximate Zone A and established in Section 9.5 (B)(1), where no BFE data has been provided, the following provisions shall apply:
- a. No encroachments, including fill, new construction, substantial improvements or new development shall be permitted within a distance of fifty (50) feet each side from top of bank or five times the width of the stream whichever is greater, unless certification with supporting technical data by a registered professional engineer is provided demonstrating that such encroachments shall not result in any increase in flood levels during the occurrence of the base flood discharge.
 - b. The BFE used in determining the regulatory flood protection elevation shall be determined based on one of the following criteria set in priority order:
 - i. If BFE data is available from other sources, all new construction and substantial improvements within such areas shall also comply with all applicable provisions of this ordinance and shall be elevated or floodproofed in accordance with Section 9.5 (D)(3).
 - ii. All subdivision and major development proposals shall provide BFE data if development is greater than five (5) acres or has more than fifty (50) lots/manufactured home sites. Such BFE data shall be adopted by reference per Section 9.5 (B)(1) to be utilized in implementing this ordinance.
 - iii. When BFE data is not available from a Federal, State, or other source as outlined above, the reference level, including basement, shall be elevated at least two (2) feet above the highest adjacent grade.
5. **Standards For Areas of Shallow Flooding (Zone AO).** Located within the Special Flood Hazard Areas are areas designated as shallow flooding areas. These areas have special flood hazards associated with base flood depths of one (1) to three (3) feet where a clearly defined channel does not exist and where the path of flooding is unpredictable and indeterminate. In addition to Sections 9.5 (E)(2) and (3), all new construction and substantial improvements shall meet the following requirements:

- a. The reference level shall be elevated at least as high as the depth number specified on the Flood Insurance Rate Map (FIRM), in feet, plus a freeboard of two (2) feet, above the highest adjacent grade; or at least four (4) feet above the highest adjacent grade if no depth number is specified.
 - b. Non-residential structures may, in lieu of elevation, be floodproofed to the same level as required in Section 9.5 (E)(3)(b), so that the structure, together with attendant utility and sanitary facilities, below that level shall be watertight with walls substantially impermeable to the passage of water and with structural components having the capability of resisting hydrostatic and hydrodynamic loads and effects of buoyancy. Certification is required in accordance with Section 9.5 (D)(3) and Section 9.5 (E)(3)(b).
 - c. Adequate drainage paths shall be provided around structures on slopes, to guide floodwaters around and away from proposed structures.
6. **Standards For Areas of Shallow Flooding (Zone AH).** Located within the Special Flood Hazard Areas established in Section 9.5 (B)(1), are areas designated as shallow flooding areas. These areas are subject to inundation by 1-percent-annual-chance shallow flooding (usually areas of ponding) where average depths are one (1) to three (3) feet. Base Flood Elevations are derived from detailed hydraulic analyses are shown in this zone. In addition to Sections 9.5 (E)(2) and (3), all new construction and substantial improvements shall meet the following requirements:
- a. Adequate drainage paths shall be provided around structures on slopes, to guide floodwaters around and away from proposed structures.

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Chapter 10. Infrastructure Improvement Standards

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10.1. Purpose and Intent

It is hereby declared to be the policy of the Town that the subdivision and development of land shall be guided and regulated in such a manner as to meet the following requirements for orderly and harmonious growth:

- A. Land to be subdivided shall be of such character that it can be used safely without danger to health, or peril from fire, flood, erosion, excessive noise, air and/or water pollution, or another menace, and in accordance with a Town approved phasing plan (Section 12.3 (E)(10));
- B. Proper provisions shall be made for drainage, water supply, sewerage, and other appropriate utility services;
- C. The proposed streets shall provide a safe, convenient and functional system for vehicular circulation and shall be properly related to the land use plan of the area;
- D. Streets shall be of such width, grade, and location as to accommodate prospective traffic, as determined by existing and probable future land uses;
- E. Streets shall be detailed to compliment neighborhoods and commercial centers and shall be pedestrian in scale;
- F. Buildings, lots, blocks, and streets shall be so arranged as to afford adequate light, view, and air, and to facilitate fire protection in accordance with the Fire Code; and
- G. Land shall be subdivided and developed with due regard to topography so that the natural beauty of the land and vegetation shall be protected and enhanced.

10.2. Required Improvements for all Development Plans

- A. Water Supply Distribution System
- B. Sanitary Sewer Collection System
- C. Stormwater Collection System
- D. Public Streets (Paved) and other Public Rights-of-Way
- E. Utility Easements
- F. Sidewalks and Greenways
- G. Curb and Gutter
- H. Street Lights
- I. Underground Wiring
- J. Dedicated Open Space
- K. Landscaping
- L. Traffic Control Signs & Pavement Markings
- M. Street Signs

10.3. Payments in Lieu of Construction

The Town Council has determined that it is in the best interest of the citizenry for the Town to accept a payment in lieu of constructing the following according to the standards set forth herein. All fee payments made in lieu of constructing the improvements stated herein shall be made at the time of Construction Drawing approval. Failure to submit the required payment along with Construction Drawing applications will delay approval of such submissions until payment is rendered.

- A. **Payment in Lieu of Street Right-of-Way Improvements.** A payment in lieu of street right-of-way improvements (i.e. roadway, curb and gutter, sidewalks) may be accepted when the Land Use Administrator determines that one of the following conditions exists:
 1. A new street stub may not practically be extended to the property line due to the need for a culvert, bridge or other structure(s) which prevents the roadway from being completed within the bounds of the subject property;
 2. A Town infrastructure project for the same improvements has received a commitment of funding through the Town's Capital Improvement Plan or Federal and/or State grant programs; or
 3. A temporary turnaround has been required by the Fire Marshal.

The fee shall be equal to the full present cost estimate for construction of the street right-of-way improvements with said estimate having been found acceptable by the Town Engineer. All fees received for payments in lieu of street right-of-way improvements shall be used exclusively toward the construction of transportation improvements within the Town of Knightdale.

10.4. General Infrastructure Design Guidelines

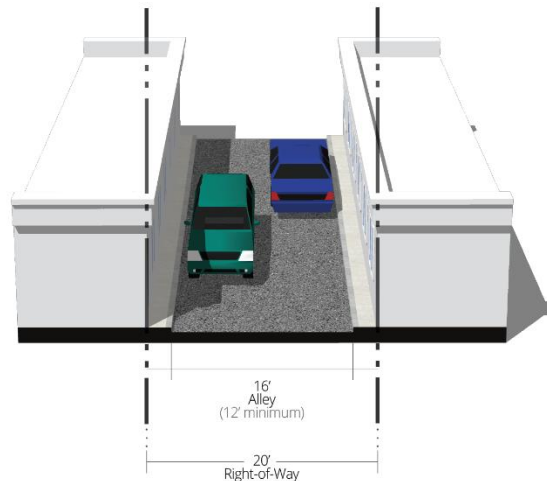
- A. **Street Classification and Design.** In an effort to protect this investment, the Town views streets as the most important public space and therefore has developed a set of principles that permit this space to be used by automobiles, pedestrians, and bicyclists. New development with frontages on existing and new publicly maintained streets shall be required to upgrade all their frontages to meet the standards of this Chapter. Healthy, traditional streets are categorized by the work they perform for the neighborhood. For simplicity, street types can be broken down into three (3) groups.

General illustrations of each street type (except freeways) are shown in sections 10.4 (A)(1)thru(3). Although the general illustrations have been designed with NCDOT planting guidelines in mind, whenever a street is to be maintained by NCDOT, NCDOT's Guidelines for Planting within Highway Right-of-Way shall supersede the general illustrations provide herein in the case of a conflict between the two (2) sets of guidelines. Where private streets are allowed, all private streets shall be constructed to the same standards as stated in Section 10.3 and as depicted in the following illustrations.

All street design standards shall be implemented with the dimensions specified in Section 10.4. The Land Use Administrator may approve enhanced facility widths for features such as sidewalks, bicycle facilities, parkways and on-street parking spaces where deemed appropriate. This approval may also entail approving a different overall total right-of-way than the typical standard.

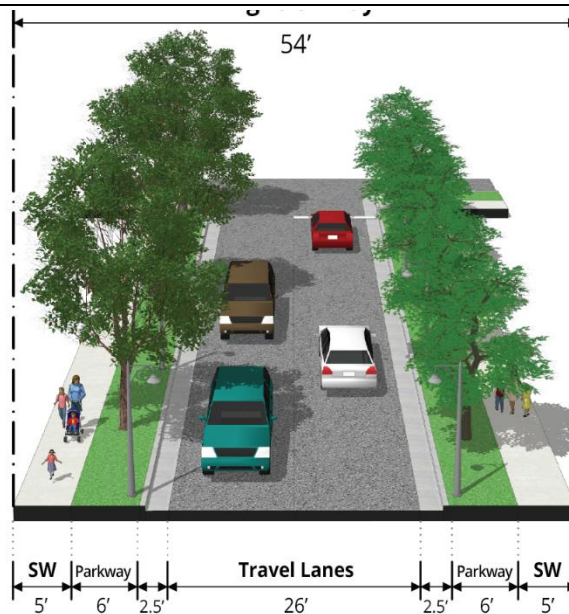
1. **Category One - Alleys and Local Streets.** Category One connectors, which form the heart of quiet neighborhood streets, function primarily to provide access to neighborhood destinations and make numerous connections within neighborhoods. These connectors – alleys and streets- provide access, utility and walking infrastructure. Traffic speeds of ten to twenty (10-20) mph are appropriate to such functions. Neighborhoods work best with many connections from the edges. Connections to the centers of neighborhoods are appropriate too, but they should not move significant amounts of traffic, nor move that traffic too quickly. People entering neighborhoods should feel rewarded by the ease of access to specific locations, but also encouraged to travel by foot or bicycle.
 - a. **Alley.** Alleys are low speed (ten [10] mph) service lanes running behind and sometimes between rows of houses. Alleys provide public service workers easy access to utilities and sanitation, and residents easy access to garages, backyards, and accessory units. Alleys may offer second or third approaches for fire response.
 - i. **ROW Width.** The right-of-way width of alleys shall be twenty (20) feet, unless otherwise approved by the Fire Code Official.
 - ii. **Travel Lane Width.** The minimum travel lane width of alleys shall be twelve (12) feet. The preferred travel lane width of alleys is sixteen (16) feet.
 - iii. **Block Length.** Alleys shall extend for a minimum of two (2) blocks.
 - iv. **Utility Location.** All utilities shall be located underground.

Figure 10.1 Alley Cross Section Standards



- b. **Local Street.** Local streets are the most common type of access road in healthy neighborhoods. Streets provide access to single- or multi-family housing and should be low speeds (twenty [20] mph).
- i. **ROW Width.** The right-of-way width of two (2) way local streets shall be fifty-four (54) feet. The right-of-way width of one (1) way local streets shall be forty-seven (47) feet.
 - ii. **Travel Lane Width.** The travel lane width of two (2) way local streets shall be thirteen (13) feet as measured from front of curb to front of curb. The travel lane width of one (1) way local streets shall be twelve (12) feet as measured from front of curb to front of curb.
 - iii. **Curb and Gutter.** A curb with a height and width of six (6) inches and a gutter with a width of twenty-four (24) inches shall be required along both sides of local streets.
 - iv. **Sidewalk.** A sidewalk with a width of five (5) feet shall be required on both sides of local streets.
 - v. **Parkway.** A parkway with a width of six (6) feet shall be located between the back of curb and the sidewalk along both sides of local streets.
 - vi. **Utility Location.** Utilities shall be located in the utility strip.
 - vii. **Street Trees.** Street trees shall be planted in the parkway. A minimum of one (1) canopy tree shall be planted every forty (40) feet. Where overhead utility line conflicts are present, a minimum of one (1) understory tree shall be planted every twenty (20) feet. The spacing of street trees shall take into consideration local conditions and clear vision triangles.
 - viii. **On-Street Parking.** On-street parking is encouraged along both sides of two (2) way local streets. On-street parking shall be required on one (1) side of one (1) way local streets. On-street parking shall be parallel. On-street parking spaces shall have a width of seven (7) feet (excluding curb and gutter) and a length of twenty-three (23) feet. On-street parking spaces shall be delineated with striping with a width of four (4) inches.

Figure 10.2: Local Street Cross Section Standards

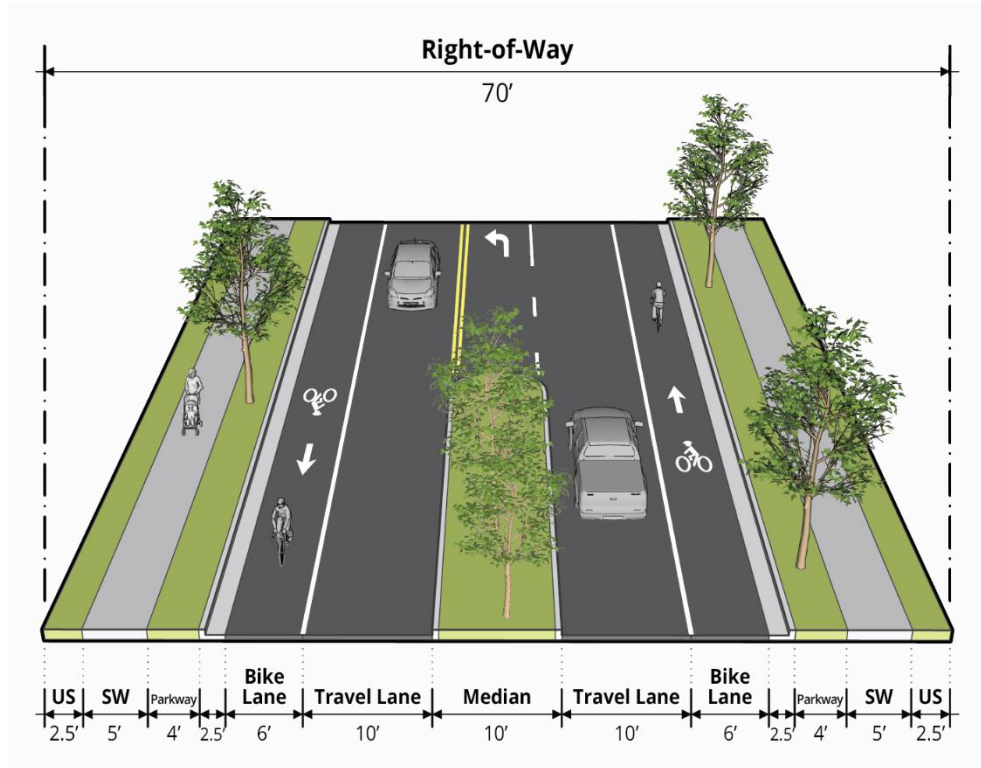


2. **Category Two – Avenues and Main Streets.** Category Two roadways connect neighborhoods to commercial centers. Avenues and Main Streets are “transitional” roadways: in addition to providing access, they carry large and more diverse amounts of traffic. Avenues and Main Streets host deliveries and efficient emergency responses. They anchor neighborhood commerce, serve pedestrians and bicyclists, and improve transit operations. Category Two streets must operate at low to moderate speeds, since many people live, work, shop, and play within these street environments. Parking is found on the Urban Main Street and the Urban Avenue.
 - a. **Main Street.** Main streets are “transitional” roadways that provide access to neighborhoods, as well as, places for neighborhood commercial and mixed-use buildings. Main Street speed limits should be between twenty to twenty-five (20-25) mph to slow vehicle speeds alongside on-street bicycle lanes and pedestrians.
 - i. **ROW Width.** The right-of-way width of main streets shall be seventy (70) feet.
 - ii. **Travel Lane Width.** The travel lane width of a main street shall be ten (10) feet.
 - iii. **Curb and Gutter.** A curb with a height and width of six (6) inches and a gutter with a width of twenty-four (24) inches shall be required along both sides of main streets.
 - iv. **Sidewalk.** A sidewalk with a width of five (5) feet shall be required on both sides of main streets.
 - v. **Parkway.** A parkway with a width of four (4) feet shall be located between the back of curb and the sidewalk along both sides of main streets.
 - vi. **Utility Location.** Utilities shall be located in the utility strip.
 - vii. **Street Trees.** Street trees shall be planted in the parkway. A minimum of one (1) canopy tree shall be planted every forty (40) feet. Where overhead utility line conflicts are present, a minimum of one (1) understory tree shall be planted every twenty (20) feet. The spacing of street trees shall take into consideration local conditions and clear vision triangles.
 - viii. **On-Street Parking.** On-street parking is reserved for the urban main street roadway type.
 - ix. **Medians.** Medians with a width of ten (10) feet shall be required on main streets. Medians shall be improved with a mountable curb with a height of nine (9) inches and a gutter with a width of nine (9) inches. Medians shall taper to four (4) feet at intersections. Medians shall be planted with a minimum of two (2) shrubs every twenty (20) feet.
 - x. **Bicycle Facilities.** Bike lanes, with a width of six (6) feet, shall be required along both sides of main streets. Bike lanes shall be delineated in accordance with NACTO standards.

Figure 10.3: Main Street Cross Section Standards

Main Street – 3-lanes

Bike Lanes



- b. **Urban Main Street.** Urban main streets are roadways that provide access from neighborhoods to downtown and mixed-use centers. The speed limits for urban main streets should be lower at twenty to twenty-five (20-25) mph to slow speeds for bicyclists, pedestrians and on-street parking.
- i. **ROW Width.** The right-of-way width of urban main streets shall be seventy-two (72) feet.
 - ii. **Travel Lane Width.** The travel lane width of an urban main street shall be ten (10) feet.
 - iii. **Curb and Gutter.** A curb with a height and width of six (6) inches and a gutter with a width of twenty-four (24) inches shall be required along both sides of urban main streets.
 - iv. **Sidewalk.** Sidewalk provisions differ for the two different urban main street cross section design types. A sidewalk with a width of seven (7) feet shall be required on both sides of the urban main street – separated bike lane roadway type. The pedestrian and bicycle accommodations are combined into a required ten (10) foot wide sidewalk in the urban main street – wide sidewalk roadway type.*
 - v. **Parkway.** Parkway widths differ for the two different urban main street cross section design types. A parkway with a width of five (5) feet shall be located between the back of curb and the sidewalk along both sides of main streets for the urban main street - wide sidewalk roadway type. A parkway with a width of five (5) feet shall be located between the back of curb and the sidewalk along both sides of urban main streets for the urban main street – separated bike lane roadway type.
 - vi. **Utility Location.** Utilities shall be located in the utility strip.
 - vii. **Street Trees.** Street trees shall be planted in the parkway. A minimum of one (1) canopy tree shall be planted every forty (40) feet. Where overhead utility line conflicts are present, a minimum of one (1) understory tree shall be planted every twenty (20) feet. The spacing of street trees shall take into consideration local conditions and clear vision triangles.
 - viii. **On-Street Parking.** On-street parking shall be required on urban main streets. On-street parking shall be parallel. On-street parking spaces shall have a width of six-and-a-half (6.5) feet (excluding curb and gutter) and a length of twenty-three (23) feet. On-street parking spaces shall be delineated with striping with a width of four (4) inches
 - ix. **Medians.** Medians are not a standard design component of the urban main street cross section.
 - x. **Bicycle Facilities.** Bicycle facility provisions differ for the two different urban main street cross section design types. Raised bike lanes, with a width of five (5) feet, shall be required along both sides of the urban main street – separated bike lane roadway type. Wide sidewalks, with a width of ten (10) feet, shall be required along both sides of the urban main street – wide sidewalk roadway type.* Bike lanes and wide sidewalks shall be delineated in accordance with NACTO standards. Where Appendix B calls for a sidepath, the urban main street - wide sidewalk cross section shall be utilized unless approved otherwise by the Land Use Administrator.

**The Land Use Administrator may allow for one side of the roadway to be a wide sidewalk and the other side of the roadway to be a raised bike lane if consistent with the Town's Sidepaths & Greenways Plan.*

Figure 10.4: Urban Main Street Cross Section Standards – Separated Bike Lane

Urban Main Street – 2-lanes Separated Bike Lanes (above the curb)

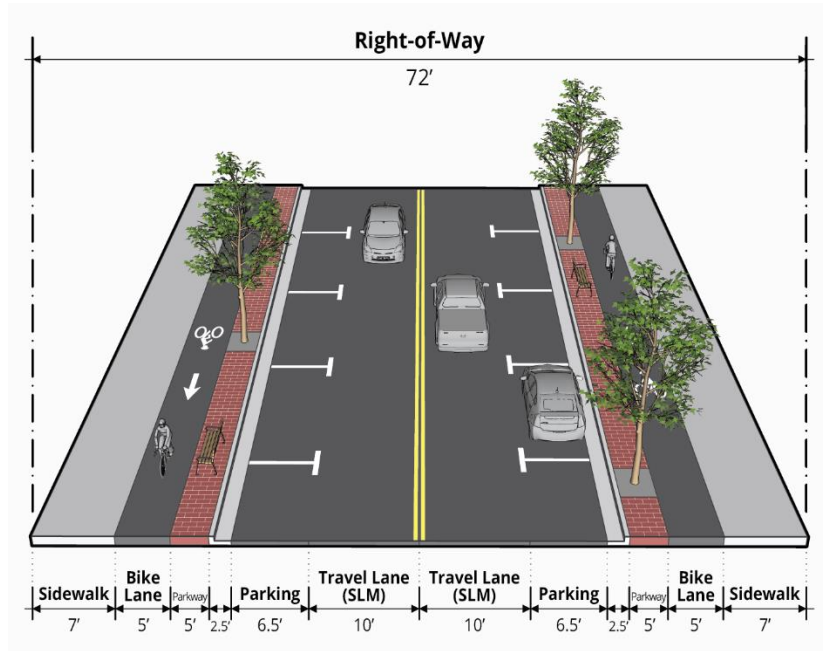
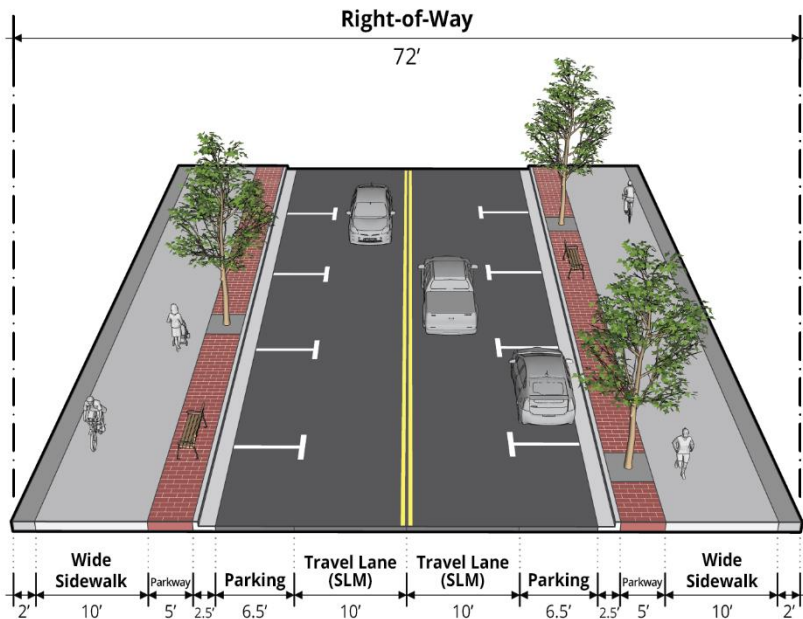


Figure 10.5: Urban Main Street Cross Section Standards – Wide Sidewalk

Urban Main Street – 2-lanes Wide Sidewalk

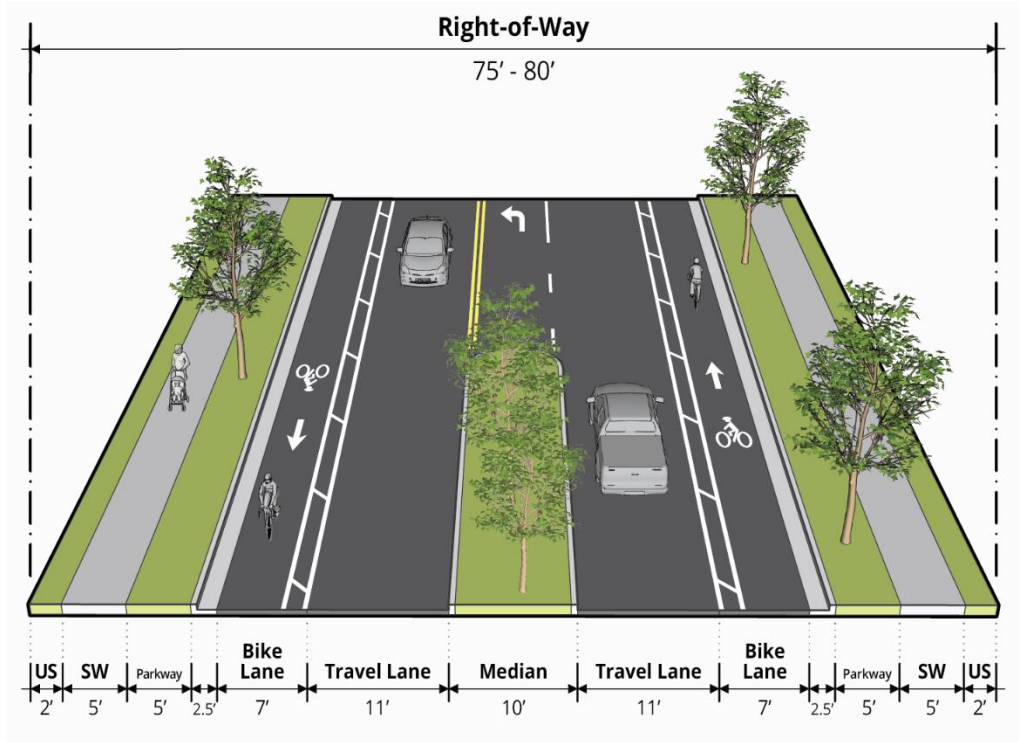


- c. **Avenue.** Avenues connect neighborhoods to town centers, and provide key north-south and east-west mobility corridors across town. Two-lane roadways contain sufficient pavement for bicyclists and motorists. Avenues are richly landscaped, since they are civic spaces that serve as gateways to the town center. Avenues should have the tallest tree canopies. Since avenues serve as the transition between the town and the neighborhoods, speeds should be kept low, typically thirty to thirty-five (30-35) mph. Avenues may also serve as major transit routes.
- i. **ROW Width.** The right-of-way width of avenues shall be seventy-five (75-80) feet.
 - ii. **Travel Lane Width.** The travel lane width of an avenue shall be eleven (11) feet.
 - iii. **Curb and Gutter.** A curb with a height and width of six (6) inches and a gutter with a width of twenty-four (24) inches shall be required along both sides of avenues.
 - iv. **Sidewalk.** A sidewalk with a width of five (5) feet shall be required on both sides of the avenue – buffered bike lane roadway type. Where Appendix B calls for a sidepath, the cross section shall increase by five (5) feet on the applicable side of the road to replace the 5 feet sidewalk with a 10 feet sidepath.
 - v. **Parkway.** A parkway with a width of five (5) feet shall be located between the back of curb and the sidewalk along both sides of the avenue – buffered bike lane roadway type.
 - vi. **Utility Location.** Utilities shall be located in the utility strip.
 - vii. **Street Trees.** Street trees shall be planted in the parkway. A minimum of one (1) canopy tree shall be planted every forty (40) feet. Where overhead utility line conflicts are present, a minimum of one (1) understory tree shall be planted every twenty (20) feet. The spacing of street trees shall take into consideration local conditions and clear vision triangles.
 - viii. **On-Street Parking.** On-street parking is reserved for the urban avenue roadway type.
 - ix. **Medians.** Medians with a width of ten (10) feet shall be required on the avenue – buffered bike lane roadway type. Medians shall be planted with a minimum of two (2) shrubs every twenty (20) feet.
 - x. **Bicycle Facilities.** Buffered bike lanes, with a width of seven (7) feet (2 feet buffer, 5 feet bike lane), shall be required along both sides of the street for the avenue – buffered bike lane roadway type. Where Appendix B calls for a sidepath, the cross section shall increase by 5 feet on the applicable side of the road to replace the 5 feet sidewalk with a 10 feet sidepath. Bike lanes shall be delineated in accordance with NACTO standards.

Figure 10.6: Avenue Cross Section Standards - Buffered Bike Lane

Avenue – 3-lanes

Buffered Bike Lanes



- d. **Urban Avenue.** Urban avenues are intended for slowing speeds and providing on-street parking where the standard avenue cross section roadway type intersects existing or planned mixed use or town centers. Two-lane roadways contain sufficient pavement for bicyclists and motorists. Avenues are richly landscaped, since they serve as civic spaces and gateways to the town center, and they should have the tallest tree canopies. Since avenues serve as the transition between the town and the neighborhoods, speeds should be kept low, typically twenty to twenty-five (20-25) mph to provide safer speeds for on-street parking. Urban avenues may also serve as major transit routes.
- i. **ROW Width.** The right-of-way width of urban avenues shall be eighty (80) feet.
 - ii. **Travel Lane Width.** The travel lane width of an urban avenue shall be eleven (11) feet.
 - iii. **Curb and Gutter.** A curb with a height and width of six (6) inches and a gutter with a width of twenty-four (24) inches shall be required along both sides of urban avenues.
 - iv. **Sidewalk.** Sidewalk facility widths vary between the three (3) urban avenue roadway cross section types. The urban avenue – wide sidewalk cross section requires a ten (10) feet wide sidewalk on both sides of travel lanes. The urban avenue – separated bike lane requires a seven (7) feet sidewalk on both sides of travel lanes. For the urban avenue – separated bike lane, the sidewalk shall be flush with the raised bike lane. The urban avenue – buffered bike lane requires a five (5) feet sidewalk on both sides of travel lanes.
 - v. **Parkway.** The parkway width varies depending on which urban avenue cross section type is utilized. Both the urban avenue –wide sidewalk and urban avenue – separated bike lane require a six (6) feet parkway along both sides of travel lanes, located between the back of the curb and the wide sidewalk or separated bike lane. The urban avenue – buffered bike lane requires a five (5) feet parkway along both sides of travel lanes, located between the back of the curb and the sidewalk. Pavers shall be installed flanking street tree grates with six (6) feet of pavers installed on each side of the street tree grate.
 - vi. **Utility Location.** Utilities shall be located in the utility strip.
 - vii. **Street Trees.** Street trees shall be planted in the parkway. A minimum of one (1) canopy tree shall be planted every forty (40) feet. Where overhead utility line conflicts are present, a minimum of one (1) understory tree shall be planted every twenty (20) feet. The spacing of street trees shall take into consideration local conditions and clear vision triangles.
 - viii. **On-Street Parking.** On-street parking shall be required on all urban avenue sections. On-street parking shall be parallel. On-street parking spaces shall have a width of six-and-a-half (6.5) feet (excluding curb and gutter) and a length of twenty-three (23) feet. On-street parking spaces shall be delineated with striping with a minimum width of four (4) inches.
 - ix. **Medians.** Medians are not a standard design component of the urban avenue cross section.
 - x. **Bicycle Facilities.** Bicycle facility widths vary between the three (3) urban avenue cross sections types. Where Appendix B calls for a sidepath, the urban avenue – wide sidewalk cross section shall be utilized unless approved otherwise by the Land Use Administrator. The urban avenue – sidepath cross section requires a ten (10) feet sidepath on both sides of travel lanes. The urban avenue – separated bike lane requires a five (5) feet bicycle lane between the sidewalk and parkway on both sides of travel lanes. For the urban avenue – separated bike lane, the sidewalk shall be flush with the raised bike lane. The urban avenue – buffered bike lane requires a six (6) feet bicycle lane with a two (2) feet buffer on both sides of travel lanes. Bicycle facilities shall be delineated in accordance with NACTO standards.

Figure 10.7: Urban Avenue Cross Section Standards – Wide Sidewalk

Urban Avenue – 2-lanes

Wide Sidewalk

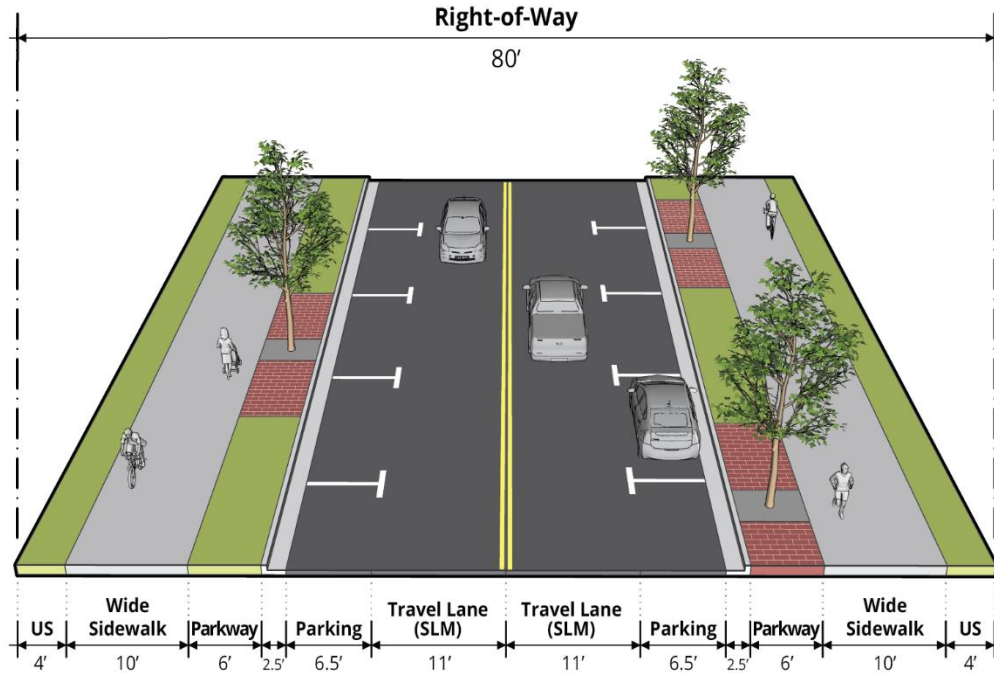


Figure 10.8: Urban Avenue Cross Section Standards - Separated Bike Lane

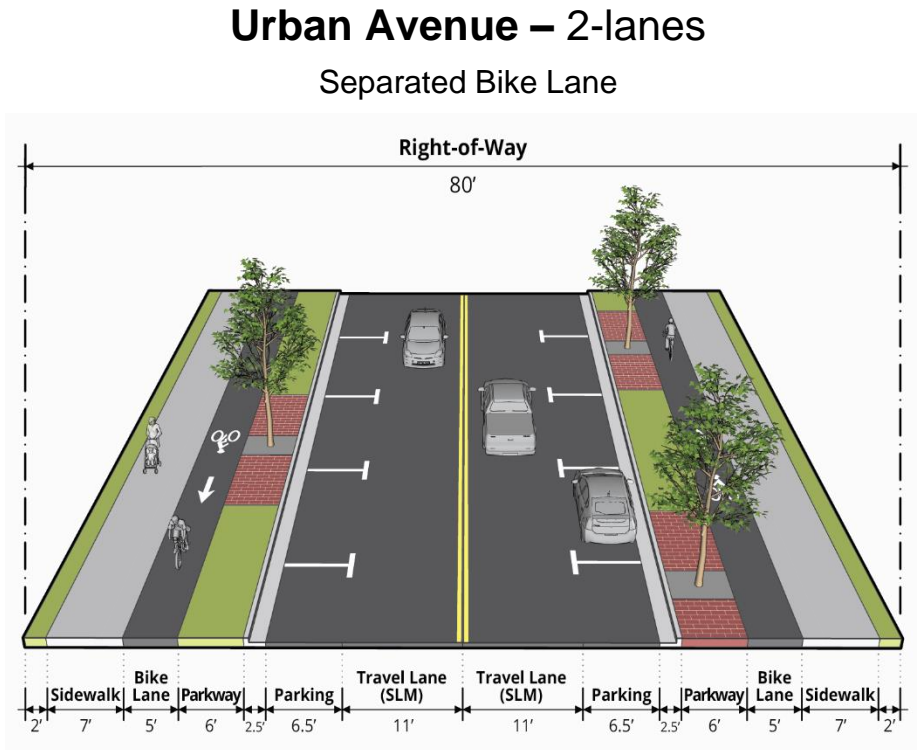
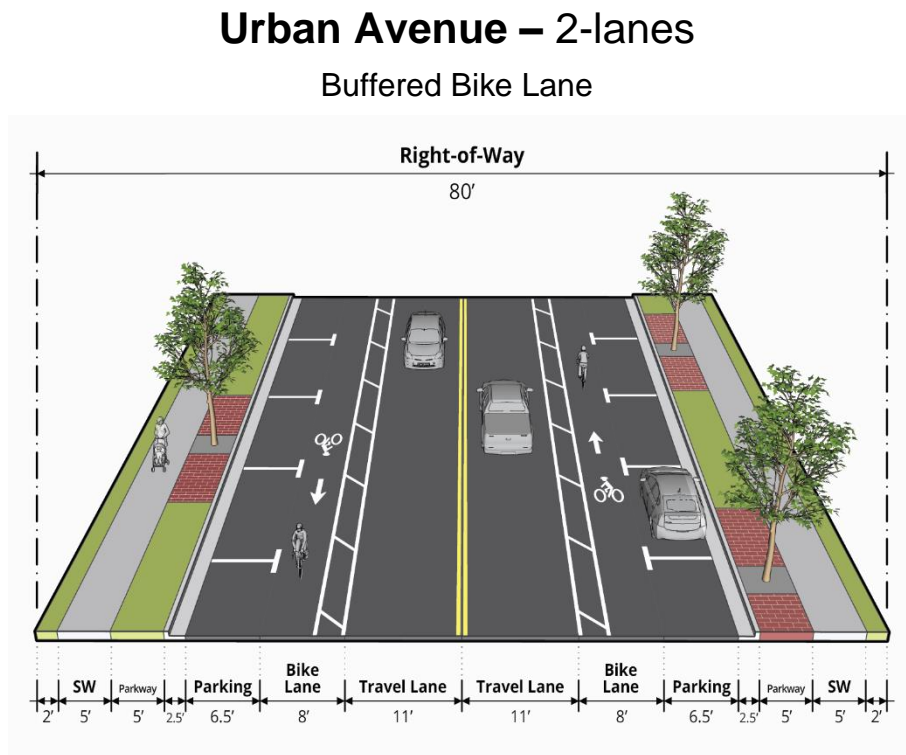


Figure 10.9: Urban Avenue Cross Section Standards – Buffered Bike Lane



3. **Category Three – Boulevards and Freeways.** Category Three boulevards and freeways connect town centers to the greater region. On these streets, car traffic, delivery trucks, emergency responders, and transit must operate with high levels of efficiency. Freeways are generally Interstate or US Highway Routes maintained by NCDOT where the main purpose of the roadway is to provide mobility. Access is generally controlled and speeds are high (forty-five to sixty-five [45-65] mph). Two (2) roadways are classified as Freeways in the town – Interstate 540 and Interstate 87.
- a. **Boulevard.** Boulevards also bring people into Town or carry commuter traffic. They are not designed to accommodate adjoining development. Roadway speeds are usually thirty-five to forty-five (35-45) mph.
 - i. **ROW Width.** The right-of-way width of boulevards shall be one hundred (100) feet for the four (4) lane median divided section and one hundred and twenty (120) feet for the six (6) lane median divided section.
 - ii. **Travel Lane Width.** The travel lane width of a boulevard shall be eleven (11) feet.
 - iii. **Curb and Gutter.** A curb with a height and width of six (6) inches and a gutter with a width of twenty-four (24) inches shall be required along both sides of boulevards.
 - iv. **Sidewalk.** Sidewalk provisions vary based on the boulevard roadway cross section type. A sidepath with a width of ten (10) feet shall be required on both sides of the four and six lane boulevard - sidepath cross section types. Where the Land Use Administrator deems necessary, the boulevard – buffered bike lane section may be utilized which includes a five (5) feet sidewalk in conjunction with buffered bike lane facilities.
 - v. **Parkway.** A parkway shall be located between the back of the curb and the sidewalk along both sides of boulevards. Parkway widths vary amongst the boulevard roadway cross section types, as follows: buffered bike lane: five (5) feet, 4-lane median divided sidepath: six-and-a-half (6.5) feet and 6-lane median divided sidepath: four (4) feet.
 - vi. **Utility Location.** Utilities shall be located in the utility strip.
 - vii. **Street Trees.** Street trees shall be planted in the parkway. A minimum of one (1) canopy tree shall be planted every forty (40) feet. Where overhead utility line conflicts are present, a minimum of one (1) understory tree shall be planted every twenty (20) feet. The spacing of street trees shall take into consideration local conditions and clear vision triangles.
 - viii. **On-Street Parking.** On-street parking shall be prohibited along boulevards.
 - ix. **Medians.** Median widths vary based on the boulevard roadway cross section type. Medians with a width of ten (10) feet shall be required on all four (4) lane median divided boulevards. A sixteen (16) feet median is reserved for the six (6) lane median divided section which is characteristic of Knightdale Boulevard.

Medians shall be improved with a mountable curb with a height of nine (9) inches and a gutter with a width of nine (9) inches. Medians shall taper to a of four (4) feet at intersections. Medians shall be planted with a minimum of one (1) understory tree every twenty (20) feet and a minimum of two (2) shrubs every twenty (20) feet.
 - x. **Bicycle Facilities.** Bicycle facility provisions vary based on the boulevard roadway cross section type. Where Appendix B calls for a sidepath, the boulevard - sidepath cross section shall be utilized unless approved otherwise by the Land Use Administrator. A sidepath with a width of ten (10) feet shall be required on both sides of the four and six lane boulevard – sidepath cross section types. Where the Land Use Administrator deems necessary, the boulevard – buffered bike lane section may be utilized which includes a five (5) feet bike lane with a three (3) feet striped buffer. Bike lanes shall be delineated in accordance with NACTO standards.

Figure 10.10: 4 Lane Boulevard Cross Section Standards – Sidepath

Boulevard – 4-lanes

Sidepath

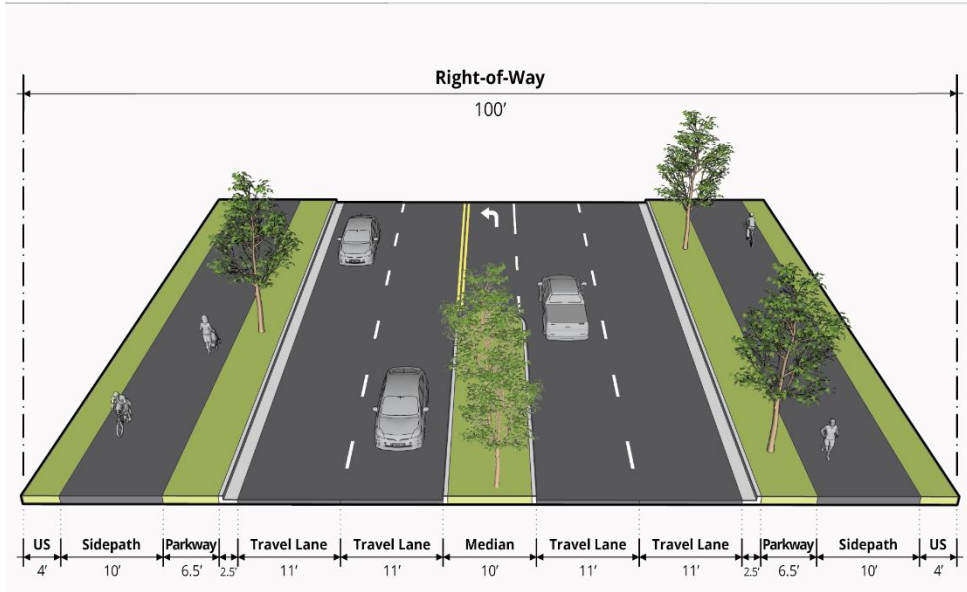


Figure 10.11: 4 Lane Boulevard Cross Section Standards – Buffered Bike Lane

Boulevard – 4-lanes

Buffered Bike Lane

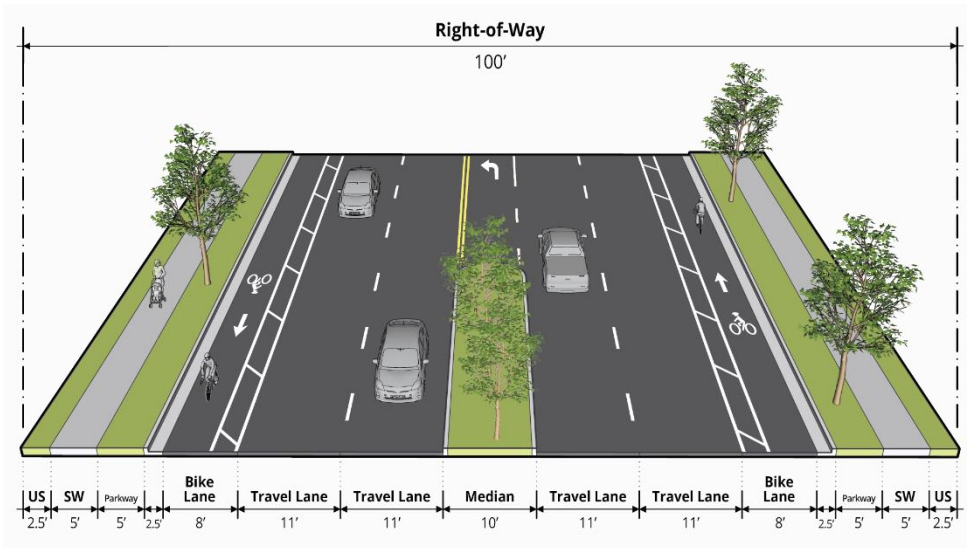
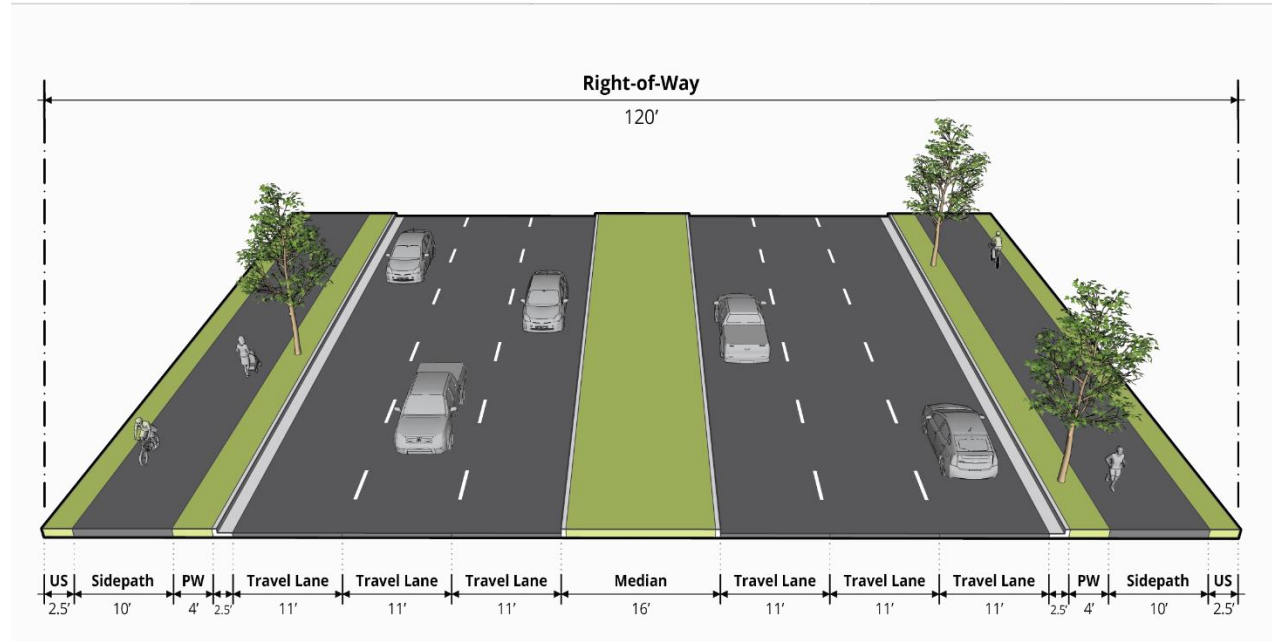


Figure 10.12: 6 Lane Boulevard Cross Section Standards – Sidepath

Boulevard – 6-lanes

Sidepath



10.5. General Roadway Design Criteria

- A. **Horizontal Curve Street Design Criteria.** Design Criteria for design speed centerline radius, reverse curve tangent distance, and maximum rate of superelevation rates for streets are summarized in Table 10.1 (D)(2)(a). Superelevation rates, minimum runoff lengths and methods of distribution should be in accordance with AASHTO guidelines. The minimum tangent length approach an intersection should be at least fifty (50) feet for alleys and streets. All other streets shall have a tangent section no less than one-hundred (100) feet approaching an intersection.

Table 10.1(D)(2)(a): Horizontal Curve Street Design Criteria								
Standards	Street Type							
	Alley	Street	Main Street	Urban Main Street	Avenue	Urban Avenue	Boulevard (4 lane)	Boulevard (6 lane)
<i>Design Standards (Maximum)</i>								
Speed (mph)	10	20	20-25	20-25	30-35	20-25	35-45	35-45
(ft/ft)	n/a	n/a	n/a	n/a	0.04	n/a	0.06	0.06
<i>Design Standards (Minimum)</i>								
Min. Centerline Radius (ft)	50	150	300	300	533	300	833	833
Min. Tangent Distance Between Reverse Curves (ft)	0	0	0	100	250	100	250	400

Note: NCDOT may limit max super to 0.04 on NCDOT curb and gutter facilities.

- B. **Vertical Curve Street Design Criteria.** Whenever practical, streets should follow the existing contours of a site so as to avoid excessive grading and removal of vegetation. Street grades shall not be less than three-quarters (0.75) of one percent. Standards for vertical street design are listed in Table 10.1 (D)(2)(b). At signalized intersections, the maximum grade approaching the intersection should not exceed two (2) percent and extend a minimum distance of one-hundred (100) feet in each direction. For intersections not controlled by a traffic signal, the maximum grade approaching the intersection should not exceed five (5) percent and extend a minimum distance of fifty (50) feet in each direction.

Table 10.1(D)(2)(b): Vertical Curve Street Design Criteria								
Standards	Street Type							
	Alley	Street	Main Street	Urban Main Street	Avenue	Urban Avenue	Boulevard (4 lane)	Boulevard (6 lane)
<i>Design Standards (Maximum)</i>								
Speed (mph)	10	20	20-25	20-25	30-35	20-25	35-45	35-45
Max. Gradient (%)	12	12	9	8	8	8	7	7
<i>Design Standards (Minimum)</i>								
Min. Vertical Curve Length, L (ft)	25	50	75	100	125	100	150	150
Min. Rate of Vertical Curvature, K (Crest)	10	12	19	29	44	29	84	84
Min. Rate of Vertical Curvature, K (Sag)	10	26	37	49	64	49	96	96

Note: The rate of vertical curvature, K, is the length of curve (feet) per percent algebraic difference in intersecting grades (A). $K = L/A$

Note: May grade of 5% is desirable where pedestrian facilities are present.

- C. **Roadway Sight Design.** All sight distance lengths and methods of measuring sight distance along a roadway shall be in accordance with AASHTO guidelines. Sight distance is the length of the roadway visible to the driver. The minimum sight distance available on the roadway shall be sufficiently long to enable a vehicle traveling at or near the design speed to stop before reaching a stationary object in its path. Minimum stopping sight distances shall be provided in both the horizontal and vertical planes for planned roadways as related to the assumed driver's eye height and position. Where there are sight obstructions (such as walls, cut slopes, buildings, and other hazards) on the inside of curves, changes in roadway alignment may be required to obtain adequate stopping sight distance if the sight obstruction cannot be removed.

D. Intersection Design Criteria.

1. Corner Radii.

- a. **Curbs.** Curb radii shall be designed to reduce pedestrian crossing times along all streets requiring sidewalks. In general, curb radii should be approximately twenty (20) feet except along NCDOT-maintained roads, where larger radii may be required. In all cases, curb radii shall be sufficiently large to accommodate large commercial or fire trucks.
- b. **Property Lines.** Property lines at street intersections shall be rounded with a minimum radius of twenty (20) feet. At an angle of intersection of less than ninety (90) degrees, a greater radius may be necessary.

2. Angles and Offsets.

- a. All streets shall intersect at right angles as nearly as possible and no street shall intersect at less than seventy-five (75) degrees.
- b. Offset intersections for Category 1 streets (Alleys and Local Streets) should be at least one-hundred twenty-five (125) feet apart measured from centerline to centerline. A larger spacing in accordance with AASHTO standards may be required for other street categories.

3. Intersection Sight Distance.

- a. **Measurements.** Sight distance lengths and methods of measuring intersection sight distance along a roadway shall be in accordance with AASHTO guidelines. Intersections should be planned and located to provide as much sight distance as possible. A basic requirement for all controlled intersections is that drivers must be able to see the control device well in advance of performing the required action. Stopping sight distance on all approaches is needed as a minimum.
- b. **Sight Triangles.** Obstruction-free sight triangles shall be provided in both the horizontal and vertical planes, as related to the assumed driver's eye height and position. Within the area of a defined sight triangle, there shall be no sight obstructing or partly obstructing wall, fence, sign, foliage, berming, or parked vehicles between the heights of twenty-four (24) inches and eight (8) feet above the curb line elevation or the nearest traveled way if no curbing exists. Objects, which may be located in the sight distance triangle, are items such as: hydrants, utility poles, utility junction boxes, and traffic control devices provided these objects are located to minimize visual obstruction.

E. Other Design Criteria. Design standards not specifically addressed in this ordinance must comply with the minimum design and construction criteria of the NCDOT.

1. **Turning Lanes.** Lanes for right and left turning movements into a driveway or cross-street shall be constructed by the developer as required by the Town of Knightdale, North Carolina Department of Transportation and/or a TIA. Such requirements may be necessary for safety and capacity reasons, where roadway speeds and traffic volumes are high, or where there are any substantial turning volumes.
2. **Traffic Calming Devices.** The use of traffic calming devices such as raised intersections, landscaping bulb-outs, and traffic circles are encouraged as alternatives to conventional traffic control measures.
3. **Street Markers and Traffic Control Signs.** All street markers and traffic control signs posted in accordance with the Manual of Uniform Traffic Control Devices shall be installed by the developer prior to the issuance of any certificates of occupancy for any building on that street.

- F. **Posted Speeds.** Unless otherwise established by the Town Council, the posted speeds for Town-maintained streets within the Town of Knightdale shall be as follows:
1. **Alleys.** Ten (10) miles per hour
 2. **Local Streets.** Twenty (20) miles per hour
 3. **Main Streets.** Twenty to twenty-five (20-25) miles per hour
 4. **Urban Main Streets.** Twenty to twenty-five (20-25) miles per hour
 5. **Avenues.** Thirty to thirty-five (30-35) miles per hour
 6. **Urban Avenues.** Twenty to twenty-five (20-25) miles per hour
 7. **Boulevards.** Thirty-five to forty-five (35-45) miles per hour
- G. **Street Names.** Street names shall be assigned by the developer subject to the approval of the Town of Knightdale and Wake County. Proposed streets which are continuations of existing streets shall be given the same name. In assigning new street names, names shall not duplicate or be phonetically similar to existing street names in Wake County. Upon Final Plat approval, the Town shall cause the developer to erect the street name signs.
- H. **Lights and Utilities.**
1. **Streetlights.** The developer shall install streetlights on all streets, local and NCDOT, in accordance with the requirements of Chapter 7.
 2. **Underground Location.** All utilities, other than lines used only to transmit electricity between generating stations or substations and three-phase electric power distribution lines shall be placed underground, and all ground or surface disruptions required for installation shall be rehabilitated to the original or an improved condition. Underground utilities except water and sewer should be located in alleys preferably. If no alley is provided, then those utilities shall be located along the roadway in accordance with the street classification drawings in Section 10.3 (D)(1).
 3. **Public Water and Sewer.**
 - a. **Water Allocation.** In order to preserve and enhance property values, manage its limited water supply as a vital natural resource, promote economic development, and incentivize smart growth practices, the allocation of Knightdale's potable water capacity shall be granted in accordance with the Town of Knightdale Municipal Water Allocation Policy (the "Policy") as amended from time to time. The goals and procedures contained in the policy are reviewed in May of each year and when appropriate readjusted by the Town Council. The Town's overall progress on policy goals are considered and the multipliers and/or point thresholds readjusted accordingly.

- b. **Connection to Public System.** Every lot proposed for subdivision within the Knightdale corporate limits or ETJ shall have connection to the public water and sewer systems if the subdivision of which it is a part, or any part thereof, is (without resorting to crossing a ridge line such that the pumping of wastes would be necessary) within the distances set out for the size of the entire subdivision as provided below:

Table 10.1(D)(7)(c)(ii): Connections to Public Water and Sewer				
Standards	Maximum Number of Dwellings			
	Up to 5 Units	6 to 14 Units	15 to 24 Units	25 or more Units
<i>Distance from System</i>				
Distance (ft)	300	450	600	1,000

All non-residential development within the Town’s Urban Service Area, as designated by Wake County, shall connect to the public water system whenever it is practicable in terms of distance and in accordance with Town Council policy on water and sewer extensions. In the case of family subdivisions, extensions of water shall be in accordance with the standards in Section 12.2 (D)(6)(d).

- c. **Water and Sewer Mains.** All water and sewer main extensions and distribution/collection facilities which connect to the water distribution/sewerage collection systems of the Town shall be designed, constructed, and installed in accordance with the City of Raleigh Public Utilities Handbook.
 - i. **Distribution and Collection Plans.** A water distribution plan shall be designed to create a complete circuit without dead-ends. Water mains shall be extended to the termination of the street right-of-way or where the street right-of-way intersects the boundaries of another phase of the same subdivision or another tract for subdivision. A sewerage collection plan shall be designed to extend sewer mains to the termination of the street right-of-way or natural drainage way where the street right-of-way intersects the boundaries of another phase of the same subdivision or another tract for subdivision.
 - ii. **Sizing.** In determining line sizes, the engineer for the public system and the Project Engineer shall consider the zoning classification of adjacent tracts which could also be served by the mains if extended, the potential type and density of development which might be served, and the Town’s water distribution/sewer collection network plans.
 - iii. **Avoiding Street Tree Conflicts.** Water and sewer utilities should not be located near required street tree planting areas, and service lines must be laid perpendicular to those planting areas.
- d. **Fire Hydrants.** Fire hydrants shall deliver sufficient water to provide adequate fire protection, as defined in Appendix B of the Fire Code. Hydrants shall be located in accordance with the City of Raleigh Public Utilities Handbook and Fire Code Appendix C.

10.6. Acceptance of Public Infrastructure

If the developer submits an application to the Town for Final Plat approval prior to the completion of the required improvements, the developer shall provide security for said improvements in the amount of one-hundred-twenty-five (125) percent of the cost of construction, engineering, and installation for the improvements of the approved Construction Drawings which have not been completed by the developer nor approved by the Town at the time of Final Plat submission.

- A. **Surety Performance Bond(s).** The Land Use Administrator shall determine which improvements shall be covered by the security. The developer shall provide the Town Engineer with a list and description including unit cost and total cost for improvements to be covered, and engineering services. The amount of security shall be approved by the Town Engineer.
1. **Cash or Equivalent Security.** The security shall be in a form acceptable to the Town and may include, (a) Surety bond issued by any company authorized to do business in this State, (b) letter of credit issued by any financial institution licensed to do business in this State, (c) other form of guarantee that provides equivalent security to a surety bond or letter of credit.
 2. **Guarantee Period.** The performance security guarantee shall remain in effect for a period of one (1) year and may be renewed only one time for a period up to, but no more than, one (1) year.
 3. **Release of Security.** Upon completion of the improvements and other actions guaranteed by the security arrangement, and the acceptance and approval of the same, the Town shall release the security to the developer with written confirmation from the Land Use Administrator.
- B. **Warranty Period.**
1. **Security for Completed Improvements.** Whenever all improvements intended for dedication are completely installed, the developer shall provide security in one of the forms set out in Section 10.6 (A), guaranteeing to the Town, against defects for one (1) year, all utility taps, curbs, gutters, street pavement, sidewalks, drainage facilities, water and sewer lines, and other improvements. The amount of security shall be approved by the Town Engineer and shall be not less than twenty-five (25) percent of the cost for construction or installation of the improvements based upon unit costs and total costs provided by the Project Engineer. If the developer shall correct and rectify all defects arising within one (1) year, then the security shall be released; otherwise, the Land Use Administrator shall notify the Town Council, the developer, and surety that a default has occurred, and the Land Use Administrator shall proceed in accordance with defaults in security arrangements as set forth in subsection b below.
 2. **Defaults for Incomplete Improvements and Warranty Period.** If any portion of the required improvements for which security was given as set out in the above section shall fail to be completed, repaired, accepted, or dedicated in accordance with the Preliminary and Final Plat and the terms and conditions for allowing the improvements to be completed subsequent to Final Plat approval and pursuant to a surety arrangement, then the Town shall notify the developer and the surety of the default and seek a formal explanation of the reason for the default. Except as noted in subsection c below, the Administrator shall report to the Town Council that the security is in default, and the Land Use Administrator may take such actions as it deems necessary to enforce and collect the security and shall use the proceeds to finance the completion of the improvements or the rebuilding and repairing of such improvements to proper specifications, and the completion of such other actions as may have been contemplated under said surety arrangements. Unused portions of the proceeds, if any, shall be returned to the surety.
 3. **Modification of Terms for Good Cause.** If the Land Use Administrator finds that there is good cause for the improvements not being made on time, or that only a small delay in completing the improvements appears likely, then, upon a showing that the existing surety arrangement is still in effect or has been extended, the terms for the completion of the improvements may be modified.

C. Final Acceptance of Improvements.

1. **Developer Responsibilities.** The developer shall be responsible for:
 - a. Providing all engineering services (including the cost of testing materials and performance of soil compaction tests) and furnishing plans and specifications consistent with those in this chapter and the Standard Specifications and Construction Details Manual;
 - b. Paying the entire initial cost of all improvements required under this chapter; and
 - c. Payment to the Town of all fees and charges required by the Town including, but not limited to, the costs of permits, inspections, utility taps, and acreage fees, at such times as payments are specified under the various codes, fee schedules, or resolutions of the Town.
2. **Town Responsibilities.** The Town or its designee shall be responsible for the inspection and approval of all construction work.

D. Maintenance of Dedicated Areas Until Acceptance. All facilities and improvements with respect to which the developer makes an offer of dedication to public use shall be maintained by the developer, his successors, and assigns until such offer of dedication is accepted by the Town Council or other appropriate authority. No street shall be maintained by the Town, no street dedication shall be accepted for ownership and maintenance, no CIP shall be issued, nor shall water, sewer, or other Town facilities or services be extended to or connected with any development for which a Final Plat is required to be approved unless and until such Final Plat has been approved by the Town of Knightdale.

E. Incomplete Improvement Guarantee. In cases when weather conditions would make it unreasonable for the developer to comply with all of the non-life/safety requirements of the UDO prior to commencing the intended use(s) or occupying any buildings, the developer shall provide security for such improvements in an amount not less than one-hundred-twenty-five (125) percent of the cost to construct or install the improvements.

F. Surety Performance Bond(s). The specific improvements requested to be covered and the amount of security shall be approved by the Land Use Administrator. The developer shall provide the Land Use Administrator with a list and description including unit cost and total cost for improvements to be covered.

G. Cash or Equivalent Security. The security shall be in a form acceptable to the Town and may include:

1. a deposit of U.S. currency with the Town; or
2. a deposit of a certified check with the Town; or
3. a deposit of a money order with the Town.

H. Guarantee Period. The performance security guarantee shall remain in effect for a period determined by the Land Use Administrator. The time period may range from a few days up to, but no more than, one (1) year. Such performance security guarantees shall not be renewable under any circumstance.

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Chapter 11. Subdivision Standards

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11.1. General Provisions

- A. **Maximum Development Density.** The maximum development density per gross acreage of a subdivision shall be as established per zoning district as detailed in Table 11.1(A) below.

Table 11.1(A) Maximum Development Density	
District	Maximum Development Density Per Gross Acreage
RT	.5 unit/acre
RR1	1 unit/acre
GR3	3 units/acre
GR8	8 units/acre
UR12	12 units/acre
RMX	18 units/acre
NMX	no maximum
TC	no maximum
HB	not applicable
BO	not applicable
MI	not applicable

- B. **Required Distribution of Uses.** The minimum and maximum required distribution of uses shall be as detailed in Table 11.1(B) below and shall be calculated as the net development area which excludes street rights-of-way and dedicated open space as detailed in Section 11.2.

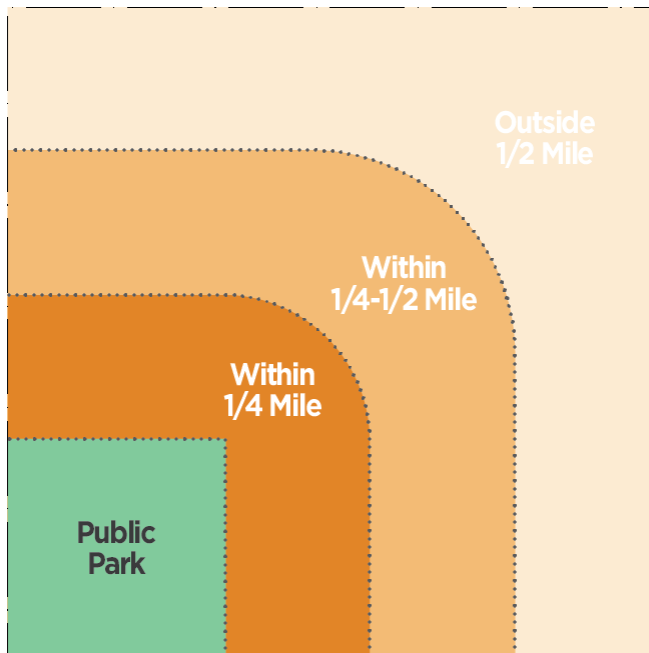
Table 11.1(B) Required Distribution of Uses		
Use Type	Minimum Distribution	Maximum Distribution
Dwelling-Duplex/Townhouse	10%	40%
Dwelling-Multifamily	5%	40%
Dwelling-Single Family	15%	60%
Mixed Use*	10%	100%
Lodging/Office/Service/Retail/Restaurant/Entertainment/Recreation*	5%	20%
Civic/Institutional*	As determined by the Town Council	
*Minimum and maximum distribution requirements shall apply only to nonresidential subdivisions or subdivisions with both residential and non residential uses.		

11.2. Recreational Open Space

- A. **Purpose and Intent.** Open spaces are characterized by the fact that the outdoor space has some recreational, ecological, and/or aesthetic value. Open space generally includes but is not limited to: outdoor areas not covered by buildings, structures, parking lots, “dry” stormwater detention facilities, public rights-of-way, or required setbacks. Specifically, recreational open space is distinct from those areas that are ecologically significant and must be protected in their pristine state in that it is designed to supplement the human habitat through its use and enjoyment. While Chapter 9 addresses the requirements related to areas of ecological value, the intent of these requirements is to allow for the active or passive usage of centrally located land as neighborhood recreational open spaces available to the public, and not to permit the use of leftover or otherwise unusable land to fulfill the requirements of this Chapter.
- B. **General Provisions.**
1. **Consistency with Parks and Recreation Master Plan.** Areas noted on any adopted Parks and Recreation Master Plan as open space shall be incorporated into developments where applicable.
 2. **Location and Improvement.** Recreational open space shall be planned and improved to provide focal points for a neighborhood and are centrally located so that they are accessible and usable by persons living within a half (½) mile walking distance. A central square or green, for example, may comprise a majority of the area required for dedication. Improved shall mean cleared of underbrush and debris and containing active or passive enhancements as described in Section 11.2 (C)(7).
 3. **Preservation of Natural Aesthetic Features.** Significant stands of trees, stream bed areas, and other valuable natural aesthetic features shall be preserved within the recreational open space areas where practical.
 4. **Placement of Amenities.** Recreational open space amenities such as playground equipment, statues, and fountains should be located toward the interior of squares and parks, sufficiently away from the public right-of-way, to provide for the adequate safety of users.
 - a. Pet waste stations shall be provided along public greenways every 2,000 feet. Placement consideration shall be based on proximity to other existing waste stations, proximity to other open space amenities and access to roads for collection purposes. If the public greenway segment being constructed is less than 2,000 feet, the requirement may be waived unless the segment connects into the existing greenway network and creates a 2,000 foot greenway segment without a pet waste station. The pet waste station design shall be in accordance with the Town’s Standard Specifications and Details Manual.
 - b. Benches shall be provided along public greenways every 2,000 feet. Placement consideration shall consider the location of other amenities, presence of shade, providing rest from climbing hills and/or taking advantage of viewsheds. If the public greenway segment being constructed is less than 2,000 feet, the requirement may be waived unless the segment connects into the existing greenway network and creates a 2,000 foot greenway segment without a bench. Bench designs shall be in accordance with the Town’s Standard Specifications and Details Manual.
 5. **Ownership.** Dedicated recreational open space may be held in private ownership, provided that the necessary easements are recorded with the Wake County Register of Deeds in a form approved by the Town. Otherwise, dedicated recreational open space shall be separately deeded to a homeowner’s association, a non-profit land trust or conservancy, Wake County, or the Town of Knightdale (upon approval by the Town Council).
- C. **Recreational Open Space Dedication.** All developments with more than eight (8) residential units shall be required to dedicate recreational open space. The amount of recreational open space required for dedication shall be determined using the following Recreational Open Space Dedication Matrix (“Dedication Matrix”) included in Table 11.2(C)(4). The Dedication Matrix is based upon similar dedication requirements throughout the State of North Carolina with a few enhancements:

1. **Proximity to Improved Publicly Dedicated Recreational Open Space Credits.** The Dedication Matrix accounts for the availability of accessible recreational open space in close proximity to the proposed development, referred to as “Proximity Zone.” The portion of a development within a half (0.5) mile walk (along sidewalks or other pedestrian access within a public right-of-way or public easement) to existing publicly dedicated recreational open space (parks, greenways, etc.) are granted a reduction in required recreational open space dedication of twenty-five (25) percent. Similarly, the portion of a development within a quarter (0.25) mile of existing publicly dedicated recreational open space is granted a fifty (50) percent reduction in required dedication. Publicly dedicated recreational open space means that the property has been dedicated to the Town of Knightdale or other government agency, is actively maintained through a maintenance agreement or acceptance for maintenance by the government agency, and has been improved as provided for in Section 11.2(B)(2).
2. **Density (Dwelling Units/Acre).** To encourage the preservation of proportional acres of land in higher density developments, the Dedication Matrix provides for an increasing requirement in the dedication of recreational open space as gross density also increases.
3. **Number of Bedrooms.** In addition to density, the Dedication Matrix was also designed to base recreational open space requirements on the estimated number of bedrooms in a given development rather than the more typical dedication based upon the number of dwelling units, since bedroom counts better represent the actual number of residents for whom an appropriate amount of recreational open space is needed. For the purposes of good faith estimation, all single-family developments will dedicate open space at a rate of three and one-half (3.5) bedrooms per unit unless otherwise stipulated. In the absence of known building specifications, duplexes, townhomes, and multifamily will dedicate open space at a rate of two and one-half (2.5) bedrooms per unit.
4. **Recreational Open Space Dedication Matrix.** The Dedication Matrix shall be used as detailed below.
 - a. Estimate average density for each zone of proximity within the development.
 - b. Estimate the total number of bedrooms within each zone of proximity.
 - c. Multiply the total number of bedrooms within each zone of proximity times the dedication rate (in square feet) for the corresponding average density for each zone of proximity.
 - d. If applicable, add the preceding results for each zone of proximity together to determine the total dedication required.

Table 11.2(C)(4) Required Open Space Dedication Matrix				
Proximity Zone	Dedication Rate (square feet)			
	0-2 du/acre	2-6 du/acre	6-10 du/acre	+10 du/acre
Outside 1/2 mile	500	520	550	580
Between 1/4 and 1/2 mile	375	390	413	435
Within 1/4 mile	250	260	275	290

EXAMPLE:

A developer wants to subdivide a 50-acre tract of land into 120 lots for 120 single-family dwellings. The good faith estimated number of bedrooms per dwelling is 3.5. 8 acres are within $\frac{1}{4}$ mile of existing publicly dedicated open space, while another 24 acres are between $\frac{1}{4}$ and $\frac{1}{2}$ mile. (Assumption: In the absence of specific information, dwelling units may be equally distributed across the entire acreage.)

How much recreational open space is required for dedication?

Density = 120 units / 50 acres or 2.4 gross dwelling units/acre (applies to whole site)

Bedroom Estimate:

Total bedrooms = 120 units * 3.5 bedroom/unit or 420 bedrooms

Total bedrooms within $\frac{1}{4}$ mile = 420 bedrooms * (8/50 acres) or 68 bedrooms

Total bedrooms $\frac{1}{4}$ - $\frac{1}{2}$ mile = 420 bedrooms * (24/50 acres) or 202 bedrooms

Total bedrooms outside $\frac{1}{2}$ mile = 420 bedrooms * (18/50 acres) or 152 bedrooms

Open Space Calculations (square foot multipliers come from chart, 2.4 is between 2 – 6):

Within $\frac{1}{4}$ mile = 68 bedrooms * 260 square feet or 17,680 sf

$\frac{1}{4}$ - $\frac{1}{2}$ mile = 202 bedrooms * 390 square feet or 78,780 sf

Outside $\frac{1}{2}$ mile = 152 bedrooms * 520 square feet or 79,040 sf

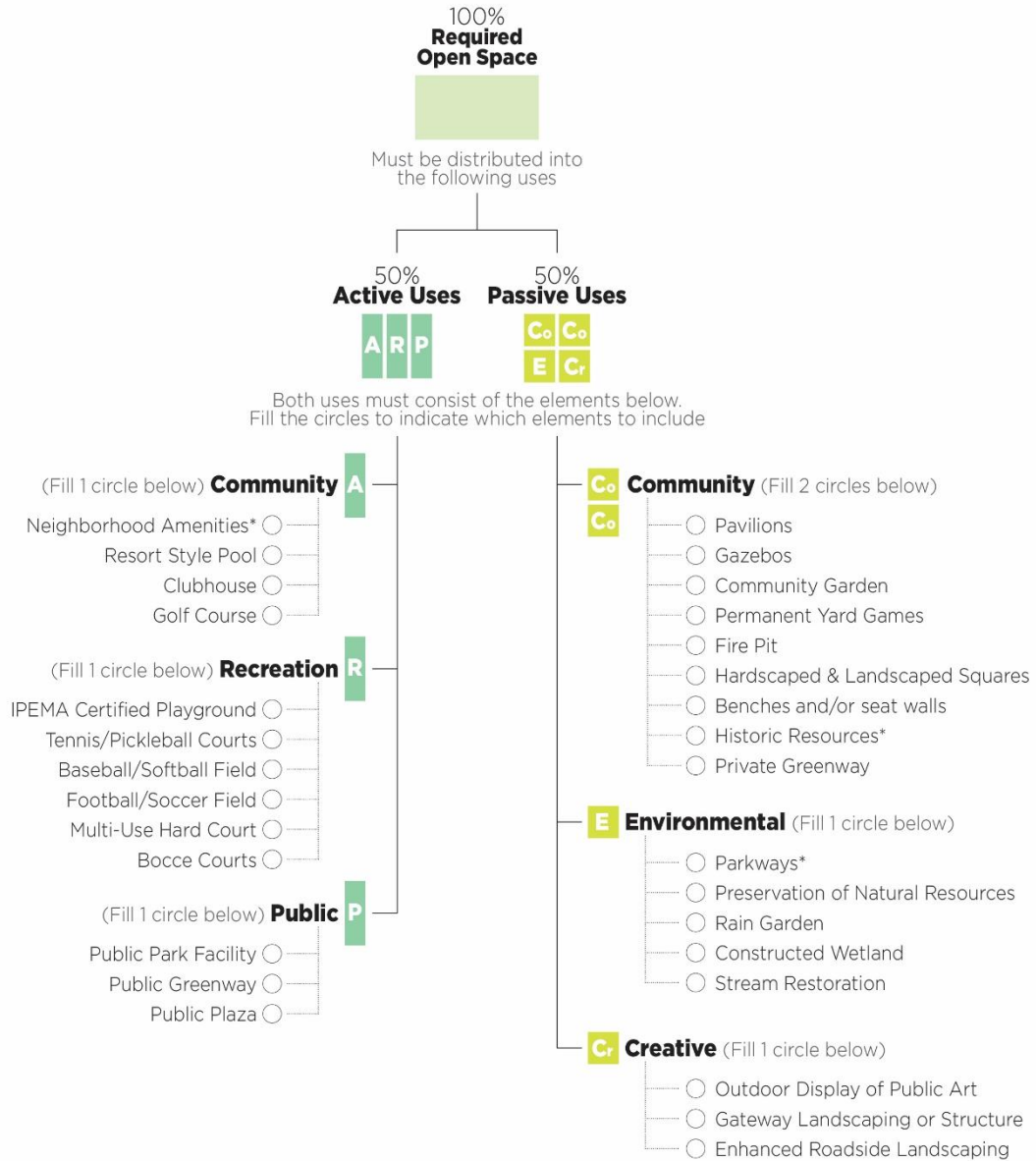
Total Recreational Open Space = 17,680 sf + 78,780 sf + 79,040 sf or 175,500 square feet
(also 4.03 acres or 8% of the total area)

5. **Variation Permitted from Final Build-Out.** Because the open space dedication requirements are based upon preliminary estimations of bedroom units in a given development, changing market conditions and the final build-out of a project may yield a different bedroom count. In order to accommodate for variations, this code will allow the number of actual bedrooms to exceed the estimated number of bedrooms as follows:
 - a. Less Than 10% = No further dedication required
 - b. 10% - 25% = Payment in Lieu required for additional bedrooms
 - c. More than 25% = Additional recreational open space dedication required
6. **Payment in Lieu of Recreational Open Space Dedication.** If recreational open space within a development is physically impractical due to unusual topographic conditions, then the Town Council may, at its discretion, accept either an equitable amount of land in another location or a fee paid to the Town in lieu of dedication. A combination of dedication and payments in lieu of dedication are permitted.

Payments in lieu of dedication shall be approved as part of the Development Plan. All payments made in lieu of dedication shall be made in accordance with the Town's Fee Schedule at the time of Final Plat approval. Failure to submit the required fee along with other required Final Plat materials will delay approval of the Final Plat until payment is rendered. All funds received for payment in lieu of dedication shall be used for the acquisition, development, or redevelopment of public open space within the Town.

7. **Recreational Open Space Criteria.** In addition to meeting the general requirements of Section 11.2, land proposed for improved recreational open space shall meet the following criteria:

Figure 11.1: Open Space Menu



8. **Topography.**
 - a. **Active.** The average slope of the land for active recreation shall not exceed seven and one-half (7.5) percent.
 - b. **Passive.** The average slope of the land for passive recreation shall not exceed the average slope of the entire subdivision or development, and in no case shall the average slope exceed fifteen (15) percent unless otherwise approved by the DRC for the preservation of natural resources.
9. **Shape.**
 - a. **Active.** The shape of land for active recreation shall be sufficiently square or rectangular to be suitable for, but not limited to, playgrounds, courts, or playfields.
 - b. **Passive:** The shape of land for passive recreation shall be sufficient to encompass the walking or jogging path, natural or cultural resource or other proposed area to be enjoyed.
10. **Unity.** Land provided for recreational open space shall form a single parcel except where the DRC determines that two (2) or more parcels are more suitable to the accessibility needs (Section 5.7 (E)) of a particular subdivision. The DRC may require that such parcels be connected by a path contained within a strip of recreation area which shall have a minimum width of thirty (30) feet. A maximum width of fifty (50) feet may be required where slope, parallel utility lines or other site conditions warrant additional width.
11. **Accessibility.**
 - a. All recreational open space shall have at least fifty (50) feet of frontage on at least one (1) public street within the subdivision.
 - b. All public and private greenways shall be ten (10) feet multi-use asphalt paths. All public greenways shall be located on an easement of at least thirty (30) feet in width that guarantees access by pedestrians and non-motorized vehicles.
 - c. Construction standards for public and private greenways shall be in accordance with Town of Knightdale Standard Specifications & Detail Manual. Greenway bridges shall also be in accordance with Town of Knightdale Standard Specifications & Detail Manual.

D. Recreational Open Space Credits.

1. **Parkways.** For each street segment within a development that is single-loaded (buildings fronting on one side only with recreational open space on the other), the area consisting of the length times half of the width of said street segment right-of-way shall be credited at a rate of one-hundred (100) percent against the passive recreational open space square foot requirement.
2. **Historic Resources.** Historic resources determined by the Land Use Administrator as candidates for local historic district or local historic landmark designation per Chapter 160D-945 or 160D-144 of the North Carolina General Statutes, and are identified for preservation as part of a development proposal shall be credited two-hundred (200) percent of the area against the passive recreational open space square foot requirement. In the case of historic buildings “preservation” shall constitute active rehabilitation and use of the building or deeded transfer of the building(s) and associated property to a local historic preservation organization enabled to receive such transfers.
3. **Neighborhood Amenities.** Developments that provide neighborhood amenity facilities will receive a credit of twenty-five (25) percent of the required passive open space, and twenty-five (25) percent of the required active open space (to be equally divided). The amenities shall contain a resort-style pool or equivalent with a minimum of two-thousand five-hundred (2,500) square feet in surface water and a clubhouse with a minimum of one-thousand five-hundred (1,500) square feet. Such amenity must be open to all residents of the neighborhood and are not subject to private membership separate from any related HOA dues.

11.3. Circulation and Connectivity

A. **Purpose and Intent.** The purpose of this Section is to support the creation of a highly connected transportation system within the Town in order to:

1. Provide choices for drivers, bicyclists, and pedestrians;
2. Promote walking and bicycling;
3. Connect neighborhoods to each other and to local destinations such as schools, parks, and shopping centers;
4. Reduce vehicle miles of travel and travel times;
5. Increase effectiveness of municipal service delivery; and
6. Free up arterial capacity to better serve regional long-distance travel needs.

It is the intent of this UDO to build streets that are integral components of community design. Streets must be pedestrian in nature and shall be designed with sufficient detail to complement the architectural detail of neighborhoods and commercial centers. In addition to the standards of this Chapter, streets shall also conform to the provisions of Chapter 10.

B. **Arterial and Collector Plans.**

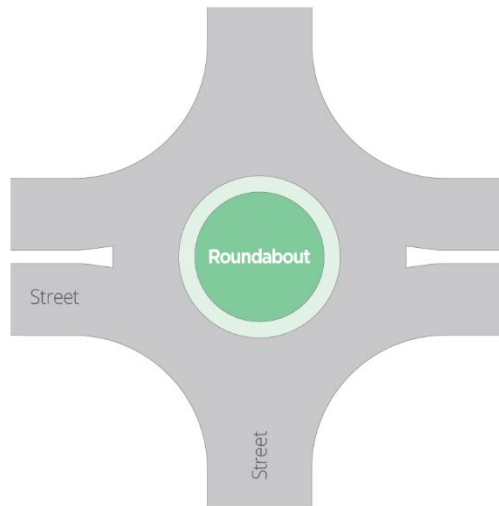
1. **Conformity.** The street layout in any development shall conform to the arrangement, width, and location of public streets indicated on the Town's Comprehensive Transportation Plan (See Roadway Network Plan, Appendix A; Sidepaths and Greenways Plan, Appendix B). Whenever a tract of land included within any proposed development plan embraces any part of the arterial or collector systems as designated on the Town's Comprehensive Transportation Plan, the development shall be required to dedicate and plat the arterial or collector right-of-way and shall be responsible for the cost and the installation of the improvements in accordance with the Town's standards for streets.

Developments that embrace only one (1) side of an existing or planned arterial or collector right-of-way will only be required to dedicate and plat additional right-of-way for that portion of street with which the development has frontage and shall be responsible for the cost and the installation of the improvements in accordance with the Town's standards for street spaces directly along the parcels frontage toward the parking requirement.

2. **Street Stubs.** New developments are required to stub streets to the outer perimeter boundaries of the development based on the criteria below. If the street in question meets at least two (2) of the criteria, then the street must be built to an appropriate collector street standard.
 - a. The street intersects directly with an arterial street and provides access to an area with an overall density of ten (10) dwelling units per acre, or provides access to more than one-hundred fifty (150) dwelling units.
 - b. The street by its general configuration, in relationship to the existing development of the area, in effect serves a collector function.
 - c. The street extends into an undeveloped area in such a manner as to serve a future collector function.
 - d. The street serves as the primary access to a significant nonresidential, institutional, or recreational land as well as an access to a residential area of twenty (20) or more acres.
3. **Street Design.** New developments that provide new streets that are not identified on the Town's Comprehensive Transportation Plan, but meet any of the following criteria must be built to an appropriate collector street standard.

- a. The street intersects directly with an arterial street and provides access to an area with an overall density of ten (10) dwelling units per acre or provides access to more than one-hundred fifty (150) dwelling units.
 - b. The street by its general configuration, in relationship to the existing development of the area, in effect serves a collector function.
 - c. The street extends into an undeveloped area in such a manner as to serve a future collector function.
 - d. The street serves as the primary access to a significant nonresidential, institutional, or recreational land, as well as an access to a residential area of twenty (20) or more acres.
4. **Intersection Design.** The intersection of two (2) collector streets, a collector street and an arterial street, two (2) arterial streets, or at other intersection as required by the Town, shall be designed as a roundabout when under the jurisdiction of the Town of Knightdale. When under the jurisdiction of the NCDOT, roundabouts shall be the Town of Knightdale's local preference.

Figure 11.2: Intersection Design Preference



- C. **Conformity to Adopted Plans.** All site and subdivision plans shall conform to the arrangement, width, and location of public transportation elements indicated in appendices A and C (Transit & Mobility Hub Plan) as approved by the Land Use Review Board and adopted by the Town Council. All site and subdivision plans shall also meet the requirements of the Long-Range Transportation Plan for the Capital Area Metropolitan Planning Organization (CAMPO) as adopted by the CAMPO Transportation Advisory Committee and the North Carolina Department of Transportation.

Whenever a tract of land included within any proposed development plan embraces any part of the arterial or collector systems as designated on the Town's Comprehensive Transportation Plan (appendices A and B), the development shall be required to dedicate and plat the arterial or collector right-of-way and shall be responsible for the cost and the installation of the improvements in accordance with the Town's standards for streets.

D. **Transportation Impact Analysis (TIA).**

1. **Purpose.** TIAs are used to evaluate whether or not the scale of development is appropriate for a particular site and what improvements may be necessary, on and off the site, to provide safe and efficient access and traffic flow. It is an essential part of the development review process to assist developers and government agencies in making land use decisions involving annexations, subdivisions, rezoning, special land uses, and other development reviews.

As a specialized study that evaluates the effects of a development's traffic on the surrounding transportation infrastructure, the TIA helps identify where the development may have a significant impact on safety, traffic and transportation operations, and provides a means for the developer and government agencies to mitigate these impacts.

2. **Threshold.** A TIA, meeting the requirements of Section 12.3(J), is necessary in the following instances:
 - a. For any proposed rezoning, preliminary subdivision, or master plan if the nature of the proposed rezoning or development is such that the number of trips it can be expected to generate equals or exceeds one-hundred fifty (150) new peak hour trips; or
 - b. When the Land Use Administrator determines:
 - i. That a new project's traffic will substantially affect an intersection or a roadway segment already identified as operating at a failing level of service (LOS), or
 - ii. That a project may create a hazard to public safety, or
 - iii. That a project will substantially change the off-site transportation system or connections to it.

- E. **Vehicular Connectivity.** Traffic studies have shown that highly connected street networks provide much greater traffic throughput and mobility for a community, at less cost. A high degree of connectivity should occur not only at the level of arterials but also on collector, local, and other secondary roads. Such connectivity vastly improves a street network's performance. The street pattern should not force short trips of one (1) or two (2) miles onto arterials; it should be possible to make trips of this sort by using collector or other secondary streets. With a highly connected street network, cross-town trips should be possible using fairly direct secondary roads.

1. **General Street Layout.** In general, streets should be designed and located so that they relate to the topography, preserve natural features such as streams and tree growth, and provide adequate public safety and convenience for motorists, cyclists and pedestrians alike. To accomplish this, local public and private streets may incorporate traffic calming devices in conformance with the Town's "Traffic Calming Policy" as most recently adopted by the Town Council.

The proposed street layout shall also be coordinated with the existing street system of the surrounding area. Where a through street or a series of streets establishes a connection between two (2) public streets, such street shall be a public street.

2. **Street Classification.** The Town shall make the final determination of the classification of streets in a proposed development based on guidance from the Comprehensive Plan. Street classifications are defined in Section 10.4 (A).

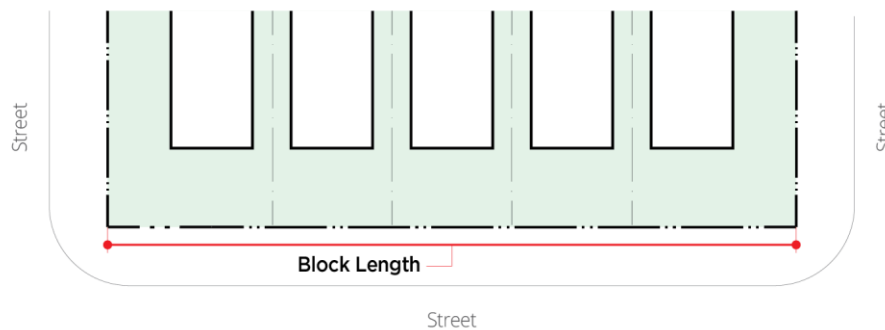
3. Street Stubs.

- a. **Continuation of Adjoining Street Systems.** Vehicular connections from adjacent property (street stub-outs) must be utilized unless the Land Use Administrator deems the connection impractical due to topographic conditions, environmental constraints, property shape or property accessibility.
- b. **New Street Stubs.**
 - i. **Development Perimeter and Surrounding Parcels.** New developments are required to stub streets to the outer perimeter boundaries of the development so as to ensure access of surrounding properties to a public right-of-way and in accordance with appendices A and B.
 - ii. Whenever connections to existing or proposed streets on an adjoining property are required, the street right-of-way shall be extended and the street developed to the property line of the subdivided property (or to the edge of the remaining undeveloped portion of a single tract) at the point where the connection to the existing or proposed street is expected.
 - iii. Where land is subdivided into parcels and tracts larger than ordinary building lots, such parcels and tracts shall be arranged in a phasing plan so as to allow for the opening of future streets and logical further subdivision.
 - iv. The Town may require temporary turnarounds to be constructed at the end of such streets pending their extension. Where a temporary turnaround is required that precludes the completion of street right-of-way improvements to the property line, please see Section 10.1 (C).
 - v. The Town may require the extension of a stub or connection where necessary to permit the convenient movement of traffic between residential neighborhoods or to facilitate access to neighborhoods by emergency service vehicles or for other sufficient reasons.
- c. If the street being stubbed meets at least two (2) of the following criteria, then the street must be built to an appropriate collector street standard:
 - i. The street intersects directly with an arterial street and provides access to an area with an overall density of ten (10) dwelling units per acre or provides access to more than one-hundred fifty (150) dwelling units.
 - ii. The street by its general configuration, in relationship to the existing development of the area, in effect serves a collector function.
 - iii. The street extends into an undeveloped area in such a manner as to serve a future collector function.
 - iv. The street serves as the primary access to a significant nonresidential, institutional, or recreational land, as well as an access to a residential area of twenty (20) or more acres.

- Block Length.** Maximum block lengths inside proposed developments shall be in accordance with lengths shown in the following table. Short block lengths are intended to create a better pedestrian-scaled environment. The Land Use Administrator may allow a deviation from this requirement if it is determined that this requirement is impractical due to topographic conditions, environmental constraints, property shape, or property accessibility.

Table 11.3(E)(1): Maximum Block Length												
	OSP	RT	RR1	GR3	GR8	UR12	RMX	NMX	TC	HB	BP	MI
<i>Standards (Maximum)</i>												
Block length (ft)	n/a	1,500 ft	1,500 ft	1,000 ft	1,000 ft	800 ft	800 ft	660 ft	660 ft	n/a	n/a	n/a

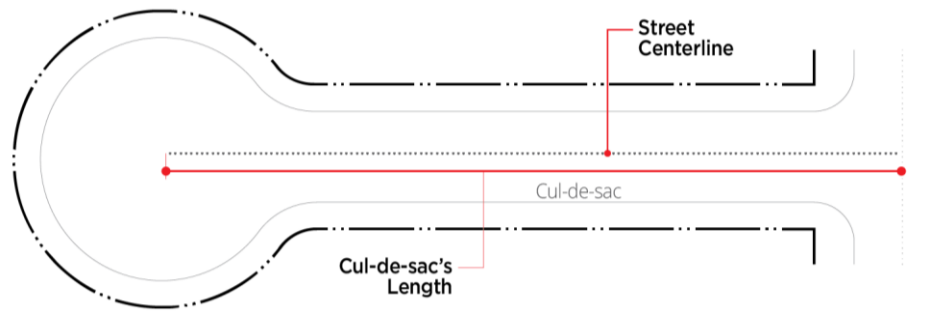
Figure 11.3: Block Length Standards



- Cul-de-sacs.** Permanent cul-de-sac streets and dead-end streets are discouraged in the design of street network systems, and they should only be used when topography, the presence of natural features, and/or vehicular safety factors make a vehicular connection impractical. Where cul-de-sacs or dead-end streets are unavoidable, developments shall incorporate provisions for future vehicular connections to adjacent, undeveloped properties, and to existing adjacent developments where existing connections are poor. No system of multiple branching cul-de-sacs from a single junction with a connected street network is permitted unless the Land Use Administrator deems it allowable due to environmental constraints. Any permanent dead-end streets or cul-de-sac shall comply with the length limits (as measured along the street centerline) shown in the following table and shall be provided with a turnaround at the closed end of the street as set forth in the Town’s Standard Specifications and Details Manual and the Fire Code, unless otherwise approved by the Fire Code Official.

Table 11.3(E)(2): Cul-de-Sac Length												
Standards	All Buildings											
	OSP	RT	RR1	GR3	GR8	UR12	RMX	NMX	TC	HB	BP	MI
<i>Standards (Maximum)</i>												
Cul-de-Sac Length (ft)	n/a	500 ft	500 ft	300 ft	300 ft	200 ft	200 ft	n/a	n/a	n/a	n/a	n/a

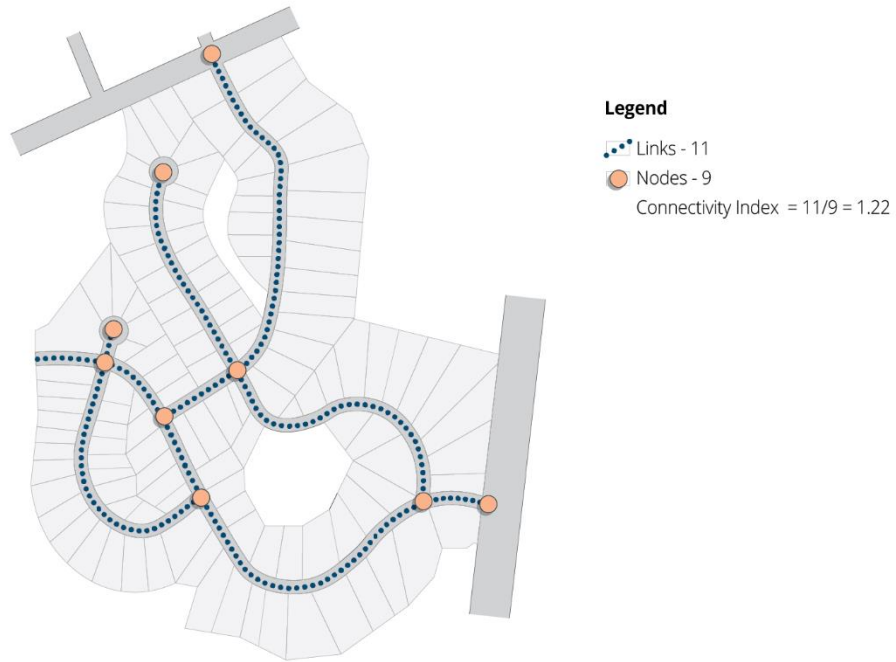
Figure 11.4: Cul-de-Sac Standards



6. **Second and Additional Points of Access Required for Residential Developments.** Residential development shall be required to provide points of access as detailed in the following sections. The number of further open and functioning vehicular access points shall be controlled and determined by the development's Town-approved TIA (Section 12.3 (J)). If a TIA should establish a higher standard for the number of open and functioning vehicular access points from the existing public street system, the requirement of the TIA shall prevail. The requirements herein shall not preclude a development from also meeting the following connectivity index required in Section 11.3(E)(7). For purposes of this section, a median-divided vehicular access point counts as a single vehicular access point. This section does not preclude developments from connecting to existing street stubs and/or street stub rights-of-way abutting their property. When two points of open and functioning vehicular access are required, the placement shall be in accordance with the Fire Code.
 - a. **One- and Two-Family Dwelling Developments.** At a minimum, a second point of open and functioning vehicular access from the existing public street system (not a stub-out) is required for developments of one- or two-family dwellings that contain one-hundred (100) residential units or more, and a third shall be required for developments that exceed five-hundred (500) residential units. These second and third points shall be open and functioning prior to the issuance of the 100th and 501st Certificate of Occupancy respectively for the development.
 - b. **Multi-family Residential Developments.** At a minimum, a second point of open and functioning vehicular access from the existing public street system (not a stub-out) is required for multi-family residential developments that exceed 100 dwelling units. However, if all buildings are equipped with an approved automatic sprinkler system, multi-family projects with up to 200 dwelling units may have a single open and functioning vehicular access. Regardless of automatic sprinkler systems, all multi-family developments with more than 200 dwelling units shall have two separate open and functioning vehicular access roads.
7. **Connectivity Index.** A Connectivity Index shall be used to determine the adequacy of street layout design. This is calculated as the ratio of the number of street *links* (road sections between intersections) in the project's street layout divided by the number of street *nodes* (intersections and cul-de-sac heads). For comparison purposes, a perfect grid has a Connectivity Index of 2.00 or higher, while a conventional cul-de-sac subdivision is often 1.00 or less. The accompanying illustration exhibits a connectivity index of 1.22 (links are shown as circles and nodes are shown as stars). Street links on existing adjacent streets that are not part of the proposed subdivision are not included in the connectivity index calculation. The illustration has eleven (11) links and nine (9) nodes for an index of $11 / 9 = 1.22$. Any development shall be required to achieve a Connectivity Index as shown in the following table.

Table 11.3(E)(3): Connectivity Index												
Standards	All Buildings											
	OSP	RT	RR	GR3	GR8	UR12	RMX	NMX	TC	HB	BP	MI
<i>Connectivity Index (Min.)</i>												
Index Score	n/a	1.30	1.30	1.40	1.40	1.40	1.40	1.50	1.60	n/a	n/a	n/a

Figure 11.5: Connectivity Index



8. **Land Use Administrator-Awarded Modifications.** The Land Use Administrator may award reductions to the minimum index value if it is determined that more than sixty (60) percent of any “side” of a development (four [4] sides total) faces impracticalities for connectivity to adjacent properties due to the presence of controlled-access highways, railroad rights-of-way, NRBs or existing developments that have not provided street stub-outs for connection purposes. In addition, the Land Use Administrator may award bonuses to a development’s index score where pedestrian greenways are provided to link any cul-de-sac to another street or cul-de-sac within the development.

Table 11.3(E)(4): Administrator-Awarded Modifications			
Standards	Rights of Way		
	Controlled-Access Highway, Railroad Right-of-Way or Adjacent Developments with No Street Stub-Outs	Neuse River Buffer (NRB)	Pedestrian Greenway
<i>Administrator-Awarded Reductions</i>			
Index Value	-0.05	-0.03	-
<i>Administrator-Awarded Bonuses</i>			
Index Value	-	-	0.03

9. **Cross Access.** All developments featuring on-site parking lots shall be designed to allow for cross-access to adjacent properties to encourage shared parking (Section 7.1 (J)(3)). When cross access is deemed impractical by the Land Use Administrator on the basis of severe topography, environmental constraints, or vehicular safety factors, the requirement may be deviated from provided that appropriate bicycle and pedestrian connections are provided between adjacent developments or land uses. Development plans shall provide cross-access easement and complete the connection if completing the link can derive an immediate benefit. If no immediate benefit can be derived, development plans shall provide cross access and construction easements and arrange the site design so when the adjoining property owner extends the connection to the property line, the link will be completed. If the link is to be completed in the future, the grade of the connection, parking, landscaping, and other improvements must be set to allow for extension into the adjacent property.
10. **Bicycle Amenities.** In North Carolina, a bicycle has the legal status of a vehicle and is permitted to operate on any roadway where NC Board of Transportation policy does not expressly prohibit non-motorized vehicles (i.e. interstates and other fully-controlled, limited access highways). In addition to the preceding requirements of this Section:
- Bicycle amenities in the form of bike lanes shall be incorporated in the design of all arterials, collector streets and roads with bicycle routes identified on *Appendix A: Roadway Network Plan and Appendix B: Sidepaths and Greenways Plan*; and
 - Bicycle parking shall be provided according to the requirements established in sections 7.1 (F) and (N).

- F. **Pedestrian Circulation & Connectivity.** In order for walking to be a viable transportation choice for local trips, circulation routes must be safe, convenient, and highly connected. Pedestrian circulation and connectivity should primarily take place adjacent to planned streets within the right-of-way; however, a considerable amount of pedestrian activity also takes place on-site, where vehicle speeds are lower but the numbers of potential conflict points are much higher. As such, the following standards shall be met when designing a connected pedestrian circulation system:
1. All pedestrian walkways shall be designed to comply with the design standards outlined in Chapter 7.
 2. Pedestrian crossings shall be made safer for pedestrians whenever possible by shortening crosswalk distances with roadway designs including, but not limited to, curb extensions, reduced curb radii, and the elimination of free right-turn lanes. Traffic calming devices may only be installed according to the Town’s “Traffic Calming Policy” as most recently adopted by the Town Council and approved by the Fire Code Official. Pedestrian crossings at mid-block or unsignalized locations shall be accompanied by Rectangular Rapid Flash Beacon (RRFB) signals. If a mid-block pedestrian crossing is not granted by NCDOT, the bicycle and pedestrian infrastructure shall be modified to account for a crossing at a bordering signalized intersection that is determined to be the most suitable by the entity or entities owning the intersection roadways.
 3. Pedestrian walkways shall form an on-site circulation system that minimizes the number of points of conflict (where pedestrian networks and bicycle/vehicle networks intersect) between pedestrians and vehicles, particularly where pedestrians access on-site parking and building entrances.
 4. Pedestrian walkways shall connect building entrances and building entrances with public sidewalk connections and existing or planned transit stops.
 5. All developments that contain more than one (1) building shall provide walkways between the principal entrances of the buildings.
 6. Multi-purpose paths, whether required by Appendix B or built to satisfy the recreational requirements of Section 11.2, shall connect to the street system in a safe and convenient manner. These paths should be used to enhance pedestrian and bicycle travel where the existing circulation system does not serve these patrons well.
 7. Trunk line greenways, as shown in Appendix B, shall be designed in a way that minimizes roadway and alley crossings to the maximum extent possible. Trunk line design shall adhere to natural features such as creeks, as shown in Appendix B, even if that entails providing creek and smaller tributary bridge crossings. Signage shall also be provided where trunk line greenways intersect other greenways, and where trunk line greenways intersect bicycle and pedestrian destinations such as parks, open space, schools and activity centers. Signage shall be in accordance with Town of Knightdale Standard Specifications & Detail Manual.
 8. If a development site includes public greenways on the Comprehensive Transportation Plan Appendix B Sidepaths and Greenways Plan, any private greenways on the development site shall directly connect to the public greenway network unless deemed not possible by the Land Use Administrator.
 9. Public and private greenways shall not overlap with Stormwater Control Measure (SCM) primary access easements, unless approved by the Stormwater Administrator.

G. Access Management.

1. Number of Driveway Access Points.

a. Single-Family Residential Lots In General.

Standards	Parcel Frontage	
	<= 100 ft	> 100 ft
<i>Number of Access Points Allowed</i>	1	2

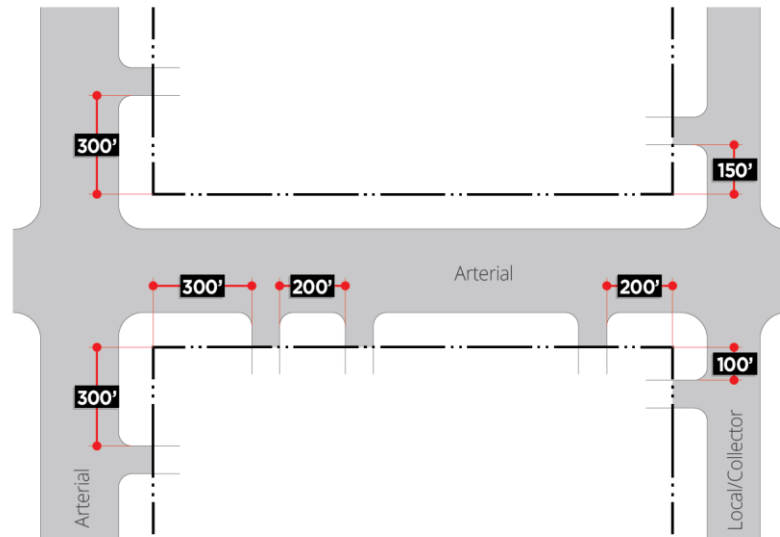
- b. **Along Arterials and Collectors.** Developments should minimize or eliminate curb cuts along arterials and collectors. Single Family lots, attached or detached, shall not have access to a collector or arterial street. In this instance rear-loaded alley access is permitted. Where possible, vehicular access drives should be shared with the adjacent properties and/or alleys should be utilized for access. All lots, parcels, or any other division of land adjacent to an arterial or collector may be allowed driveways or street connections in accordance with the following.

Standards	Parcel Frontage		
	< 500 ft	501 – 1200 ft	>1200 ft
<i>Number of Access Points Allowed</i>	1	2	

2. Location of Driveway Access Points.


- a. **In General.** Except for shared drives, all driveways shall be a minimum of three-and-a-half (3½) feet from the property line.
- b. **Along Arterials.** Location guidelines for driveway access points along arterials are shown in the illustration below in relation to the direction of traffic flow. If access to a lot, parcel, or other lawful division of land is physically unobtainable under the provisions illustrated below, driveway access points shall be located the greatest distance possible from one another and from other streets.

Figure 11.6: Location of Driveway Access Points



- H. **Median Cross-Over Spacing.** In general, if the left turn lane storage requirements for adjacent intersections overlap, the minimum spacing specified below shall be increased to provide adequate left turn lane storage in both directions. Additionally, where the NC DOT Driveway Manual or Median Crossover Guide conflicts, the stricter of the two (2) standards should prevail.
- I. **Median Cuts for Alleys.** Providing turning cuts in landscaped roadway medians shall not be allowed for alleys unless approved by the Land Use Administrator.

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Chapter 12. Administrative Standards

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12.1. Administrative Agencies and Boards

- A. **Purpose and Intent.** For the efficient and effective administration of this Ordinance, the agents, boards, and committees described herein are established along with their respective rules, procedures, duties and responsibilities.

- B. **Land Use Administrator.** The authority to establish a Land Use Administrator for the Town of Knightdale is granted under the provisions of N.C.G.S.160D-402. The various provisions of this Ordinance shall be administered by the Knightdale Development Services Department under the primary direction of the Development Services Director. Administrative decisions may be appealed to the Board of Adjustment (see Section 12.1 (C)(2)). For the purposes of the administration of this Ordinance, the Development Services Director and subordinate staff are collectively referred to as the Land Use Administrator. In addition to any general actions necessary for the administration of the requirements of this Ordinance, the Land Use Administrator shall have the following specific duties and responsibilities.
 - 1. **Record and File Management.** To maintain records in accordance with municipal records retention laws adopted by the General Assembly;
 - 2. **Planning Process Applications.** To establish application requirements and schedules for submittal and review of applications and appeals;
 - 3. **Plan Review.** To review and approve, approve with conditions, or disapprove plan applications submitted pursuant to this Ordinance;
 - 4. **Recommendations.** To review and make recommendations to the Town Council on applications involving legislative matters;
 - 5. **Professional Assistance.** To provide expertise and technical assistance to the Town Council, upon request;
 - 6. **Ordinance Interpretation.** To make determinations and render interpretations of this Ordinance;
 - 7. **Code Enforcement.** To enforce the provisions of this ordinance in accordance with Chapter 14 Violations and Penalties;
 - 8. **Board and Committee Staff.** To serve as staff to the boards and committees established herein; and
 - 9. **Delegation of Certain Duties.** To designate appropriate other person(s) who shall carry out the powers and duties of the Land Use Administrator.

- C. **Floodplain Administrator.** The Floodplain Administrator shall perform, but not be limited to, the following duties:
1. Review all floodplain development applications and issue permits for all proposed development within Special Flood Hazard Areas and Future Conditions Flood Hazard Areas to assure that the requirements of this ordinance have been satisfied.
 2. Review all proposed development within Special Flood Hazard Areas and Future Conditions Flood Hazard Areas to assure that all necessary local, state and federal permits have been received, including Section 404 of the Federal Water Pollution Control Act Amendments of 1972, 33 U.S.C. 1334.
 3. Notify adjacent communities and the North Carolina Department of Public Safety, Division of Emergency Management, State Coordinator for the National Flood Insurance Program prior to any alteration or relocation of a watercourse, and submit evidence of such notification to the Federal Emergency Management Agency (FEMA).
 4. Assure that maintenance is provided within the altered or relocated portion of said watercourse so that the flood-carrying capacity is maintained.
 5. Prevent encroachments into floodways and non-encroachment areas unless the certification and flood hazard reduction provisions of Section 9.5 (E)(1) are met.
 6. Obtain actual elevation (in relation to NAVD 1988) of the reference level (including basement) and all attendant utilities of all new and substantially improved structures, in accordance with the provisions of Section 9.5 (D)(3).
 7. Obtain actual elevation (in relation to NAVD 1988) to which all new and substantially improved structures and utilities have been floodproofed, in accordance with the provisions of Section 9.5 (D)(3).
 8. Obtain actual elevation (in relation to NAVD 1988) of all public utilities in accordance with the provisions of Section 9.5 (D)(3).
 9. When floodproofing is utilized for a particular structure, obtain certifications from a registered professional engineer or architect in accordance with the provisions of Section 9.5 (D)(3) and Section 9.5 (E)(2).
 10. Where interpretation is needed as to the exact location of boundaries of the Special Flood Hazard Areas or Future Conditions Flood Hazard Areas, floodways, or non-encroachment areas (for example, where there appears to be a conflict between a mapped boundary and actual field conditions), make the necessary interpretation. The person contesting the location of the boundary shall be given a reasonable opportunity to appeal the interpretation as provided in this article.
 11. When BFE data has not been provided in accordance with the provisions of Section 9.5 (B)(1), obtain, review, and reasonably utilize any BFE data, along with floodway data or non-encroachment area data available from a federal, state, or other source, including data developed pursuant to Section 9.5 (E)(4) in order to administer the provisions of this ordinance.
 12. When BFE data is provided but no floodway or non-encroachment area data has been provided in accordance with the provisions of Section 9.5 (B)(1), obtain, review, and reasonably utilize any floodway data or non-encroachment area data available from a federal, state, or other source in order to administer the provisions of this ordinance.
 13. When the lowest floor and the lowest adjacent grade of a structure or the lowest ground elevation of a parcel in a Special Flood Hazard Area is above the BFE, advise the property owner of the option to apply for a Letter of Map Amendment (LOMA) from FEMA. Maintain a copy of the LOMA issued by FEMA in the floodplain development permit file.
 14. Permanently maintain all records that pertain to the administration of this ordinance and make these records available for public inspection, recognizing that such information may be subject to the Privacy Act of 1974, as amended.

15. Make on-site inspections of work in progress. As the work pursuant to a floodplain development permit progresses, the Floodplain Administrator shall make as many inspections of the work as may be necessary to ensure that the work is being done according to the provisions of the local ordinance and the terms of the permit. In exercising this power, the Floodplain Administrator has a right, upon presentation of proper credentials, to enter on any premises within the jurisdiction of the community at any reasonable hour for the purposes of inspection or other enforcement action.
 16. Issue stop-work orders as required. Whenever a building or part thereof is being constructed, reconstructed, altered, or repaired in violation of this ordinance, the Floodplain Administrator may order the work to be immediately stopped. The stop-work order shall be in writing and directed to the person doing or in charge of the work. The stop-work order shall state the specific work to be stopped, the specific reason(s) for the stoppage, and the condition(s) under which the work may be resumed. Violation of a stop-work order constitutes a misdemeanor.
 17. Revoke floodplain development permits as required. The Floodplain Administrator may revoke and require the return of the floodplain development permit by notifying the permit holder in writing stating the reason(s) for the revocation. Permits shall be revoked for any substantial departure from the approved application, plans, and specifications; for refusal or failure to comply with the requirements of State or local laws; or for false statements or misrepresentations made in securing the permit. Any floodplain development permit mistakenly issued in violation of an applicable State or local law may also be revoked.
 18. Make periodic inspections throughout the Special Flood Hazard Areas within the jurisdiction of the community. The Floodplain Administrator and each member of his or her inspections department shall have a right, upon presentation of proper credentials, to enter on any premises within the territorial jurisdiction of the department at any reasonable hour for the purposes of inspection or other enforcement action.
 19. Follow through with corrective procedures of Section 9.5 (C).
 20. Review, provide input, and make recommendations for variance requests.
 21. Maintain a current map repository to include, but not limited to, historical and effective FIS Report, historical and effective FIRM and other official flood maps and studies adopted in accordance with the provisions of Section 9.5 (B)(1) of this ordinance, including any revisions thereto including Letters of Map Change, issued by FEMA. Notify State and FEMA of mapping needs.
 22. Coordinate revisions to FIS reports and FIRMs, including Letters of Map Revision Based on Fill (LOMR-Fs) and Letters of Map Revision (LOMRs).
- D. **Boards and Committees.** The authority to establish various boards and committees is found throughout Chapter 160A of the General Statutes, including N.C.G.S. 160D-301. The Town has established the following boards and standing committees which shall follow the rules of procedure as adopted by the respective board or committee.
- Board of Adjustment (BOA)
 - Land Use Review Board (LURB)
 - Development Review Committee (DRC)
1. **Board of Adjustment (BOA).** For the purposes of this Ordinance, the Board of Adjustment shall be the decision making body for Appeals of administrative decisions and requests for Variances.
 - a. **Appointment and Terms.**
 - i. **Number.** There shall be a BOA consisting of five (5) members.
 - a) **Town Members.** Three (3) members, appointed by the Town Council, shall reside within the corporate limits shall be named as quasi-judicial voting members of the Board of Adjustment.

- b) **ETJ Members.** Two (2) members appointed by the Wake County Board of Commissioners, shall reside within the Town's extra-territorial jurisdiction. The Wake County Board of Commissioners appointees shall also be named as quasi-judicial voting members of the Board of Adjustment. If despite good faith efforts, enough residents of the ETJ cannot be found to fill the seats reserved for residents of such area, then the Wake County Board of Commissioners may appoint other residents of the county (including residents of the Town) to fill these seats. If the Wake County Board of Commissioners fails to make these appointments within 90 days after receiving a resolution from the Town Council requesting that they be made, the Town Council may make them.
 - ii. **Board of Adjustment Alternates.** Two additional members not named as quasi-judicial voting members of the Board of Adjustment in subsections 1(a)(i) above shall serve as voting alternates. When not filling in as an alternate for absent or excused named voting members of the Board of Adjustment, the remaining members may participate in the quasi-judicial deliberations and fact-finding efforts; however, they may not vote.
 - iii. **Staggered Terms.** BOA members shall be appointed for two-year (2 year) staggered terms. Members shall continue to serve until their successors have been appointed.
 - iv. **Term Limits.** No person, either appointed or re-appointed by the Town Council, may serve more than three (3) consecutive full terms on the BOA. A person who has served three (3) consecutive full terms shall be eligible for re-appointment after a lapse in service of at least 12 months.
 - v. **Attendance.** In-town members of the BOA may be removed by the Town Council at any time for failure to attend three (3) consecutive meetings or for failure to attend seventy-five (75) percent or more of the meetings within any twelve-month period or for any other good cause related to the performance of duties. ETJ members who fail to attend three (3) consecutive meetings or who fail to attend seventy-five (75) percent or more of the meetings within any twelve-month period or for any other good cause related to the performance of duties shall be recommended for removal to the Wake County Board of Commissioners.
 - vi. **Relocation.** If a town member moves outside the town, or if an ETJ member moves outside the extra-territorial planning jurisdiction, that shall constitute a resignation from the board.
- b. **Officers.**
 - i. **Elections and Terms.** At the first regularly scheduled meeting following the annual appointment of members, the BOA shall select from among its members a Chair and Vice-Chair. These officers shall serve for a period of not more than two (2) consecutive 1-year terms in the same capacity.
 - ii. **Responsibilities and Duties.** The Chair shall preside over the BOA as a non-voting member (except in the case of breaking a tie) and decide all points of order or procedure using the latest edition of "Robert's Rules of Order". The Vice-Chair shall assume the duties of the Chair in his/her absence. The Chair and Vice-Chair may take part in all deliberations during the legislative segment.
 - iii. **Board Clerk Assigned.** The clerk to the BOA shall be a Town staff member assigned by the Land Use Administrator.
- c. **Meetings.**
 - i. **Schedule.** The BOA shall establish a regular meeting schedule and shall meet frequently enough, at least monthly if necessary, so as to take action as expeditiously as possible on the items of business.
 - ii. **Open Meetings.** All BOA meetings shall be open to the public, and whenever feasible, the agenda for each meeting shall be made available in advance of the meeting

- iii. **Rules of Procedure.** All meetings shall be conducted using the latest edition of "Robert's Rules of Order". The BOA may adopt rules of procedure governing its quasi-judicial procedures and operations not inconsistent with the provisions of this Ordinance.
 - iv. **Board of Adjustment Items.** The meetings of the BOA shall include but not be limited to final quasi-judicial decisions on appeals, variances, interpretations, and other items as required by this Ordinance.
- d. **Responsibilities and Duties.**
- i. **Board of Adjustment Cases.**
 - a) **Quorum.** A quorum for the quasi-judicial Board of Adjustment shall consist of a super-majority (four-fifths) of the Board of Adjustment membership (excluding vacant seats or disqualified members in the absence of qualified alternates) for Variance cases and equal to a simple majority of the Board of Adjustment membership for all others. A quorum is necessary for the BOA to take action.
 - b) A member who has withdrawn from the meeting without being excused shall be counted as present for purposes of determining whether a quorum is present.
 - c) Concurring vote of a super-majority (four-fifths) of the regular voting membership (excluding vacant seats or disqualified members in the absence of qualified alternates) shall be necessary to grant any Variance. All other actions during the quasi-judicial segment shall be taken by a simple majority vote of the eligible voting members.
 - d) Once a member is physically present during the BOA meeting, any subsequent failure to vote shall be recorded as an affirmative vote unless the member has been excused in accordance with subsection "ii" below. If a quasi-judicial voting member is either absent from the BOA meeting or has been excused in accordance with this Ordinance, he or she shall be replaced by an alternate at any time during the quasi-judicial portion.
 - ii. A member shall be excused from voting on a particular issue by a majority vote of the remaining quasi-judicial voting members present under the following circumstances.
 - a) If the member has a direct financial interest in the outcome of the matter at issue; or
 - b) If the matter at issue involves the member's own official conduct; or
 - c) If participation in the matter might violate the letter or spirit of a member's code of professional responsibility; or
 - d) If a member has such close personal ties to the applicant that the member cannot reasonably be expected to exercise sound judgment in the public interest; or
 - e) If a member has had undisclosed ex parte communications; or
 - f) If a member has a fixed opinion prior to hearing that matter that is not susceptible to change.
 - g) A roll call vote shall be taken upon the request of any member.
 - h) Annual Report. At least once a year, the Chair of the BOA shall submit to the Town Council an annual report summarizing its activities during the previous year.
2. **Land Use Review Board (LURB).** For the purposes of this Ordinance, the LURB shall serve as the Town's Planning Board, the Community Appearance Commission, and the Tree Board.
- a. **Appointment and Terms.**
 - i. **Number.** There shall be a LURB consisting of seven (7) members.
 - a) **Town Members.** Five (5) members, appointed by the Town Council, shall reside within the corporate limits.

- b) **ETJ Members.** Two (2) members appointed by the Wake County Board of Commissioners, shall reside within the Town's extra-territorial jurisdiction. If despite good faith efforts, enough residents of the ETJ cannot be found to fill the seats reserved for residents of such area, then the Wake County Board of Commissioners may appoint other residents of the county (including residents of the Town) to fill these seats. If the Wake County Board of Commissioners fails to make these appointments within 90 days after receiving a resolution from the Town Council requesting that they be made, the Town Council may make them.
 - ii. **Resident Planning Academy.** Prior to being seated with full voting rights, newly appointed members shall be required to attend and complete the Town's Resident Planning Academy or its training equivalent. The Academy is a function of the Town's Development Services Department and is also open to the general public. It shall be offered at least once each year to ensure that any LURB appointee will have the opportunity to take the class prior to attending their first LURB meeting.
 - iii. **Staggered Terms.** LURB members shall be appointed for two-year (2 year) staggered terms. Members shall continue to serve until their successors have been appointed.
 - iv. **Term Limits.** No person, either appointed or re-appointed by the Town Council, may serve more than three (3) consecutive full terms on LURB. A person who has served three (3) consecutive full terms shall be eligible for re-appointment after a lapse in service of at least 12 months.
 - v. **Attendance.** In-town members of the LURB may be removed by the Town Council at any time for failure to attend three (3) consecutive meetings or for failure to attend seventy-five (75) percent or more of the meetings within any twelve-month period or for any other good cause related to the performance of duties. ETJ members who fail to attend three (3) consecutive meetings or who fail to attend seventy-five (75) percent or more of the meetings within any twelve-month period or for any other good cause related to the performance of duties shall be recommended for removal to the Wake County Board of Commissioners.
 - vi. **Relocation.** If a town member moves outside the town, or if an ETJ member moves outside the extra-territorial planning jurisdiction, that shall constitute a resignation from the board.
- b. **Officers.**
- i. **Elections and Terms.** At the first regularly scheduled meeting following the annual appointment of members, the LURB shall select from among its members a Chair and Vice-Chair. These officers shall serve for a period of not more than two (2) consecutive 1-year terms in the same capacity.
 - ii. **Responsibilities and Duties.** The Chair shall preside over the LURB as a non-voting member (except in the case of breaking a tie), decide all points of order or procedure using the latest edition of "Robert's Rules of Order", and transmit reports and recommendations of LURB to the Town Council. The Vice-Chair shall assume the duties of the Chair in his/her absence. The Chair and Vice-Chair may take part in all deliberations during the legislative segment.
 - iii. **Board Clerk Assigned.** The clerk to the LURB shall be a Town staff member assigned by the Land Use Administrator.
- c. **Meetings.**
- i. **Schedule.** The LURB shall establish a regular meeting schedule and shall meet frequently enough, at least monthly if necessary, so as to take action as expeditiously as possible on the items of business.
 - ii. **Open Meetings.** All LURB meetings shall be open to the public, and whenever feasible, the agenda for each meeting shall be made available in advance of the meeting

- iii. **Rules of Procedure.** All meetings shall be conducted using the latest edition of "Robert's Rules of Order". The LURB may adopt rules of procedure governing its quasi-judicial procedures and operations not inconsistent with the provisions of this Ordinance.
- d. **Responsibilities and Duties.**
 - i. **Planning Board.** Subject to authorization, referral, or budget appropriation by the Town Council the LURB shall have the following legislative responsibilities and duties related to planning and zoning:
 - a) To develop plans and prepare studies for the orderly growth and development of the Town of Knightdale and its environs. Such plans shall set forth goals, objectives, and policies designed to manage the quantity, type, cost, location, timing and quality of development and redevelopment in the Knightdale community;
 - b) To seek to coordinate the activities of individuals and public or private agencies and organizations whose plans, activities and programs bear on the general development of the community;
 - c) To formulate and recommend to the Town Council the adoption or amendment of ordinances that, in the opinion of the LURB will serve to promote the orderly development of the community in accordance with the Comprehensive Plan;
 - d) To conduct public meetings and hearings, giving reasonable notice to the public thereof;
 - e) To review and make recommendations to the Town Council on proposed amendments to the zoning map, UDO, or Comprehensive Plan.
 - f) To exercise such other powers and to perform such other duties as are authorized or required elsewhere in this Ordinance, the N.C.G.S., or by the Town Council;
 - g) To review and make recommendations to the Town Council on proposed applications for Conditional Districts, and Vested Rights.
 - ii. **Community Appearance Commission.** Subject to authorization, referral, or budget appropriation by the Town Council the LURB shall have the following legislative responsibilities and duties related to the appearance and beautification of the Town:
 - a) To initiate, promote and assist in the implementation of programs for general community beautification within the Town's corporate limits and ETJ;
 - b) To seek to coordinate the activities of individuals and public or private agencies and organizations whose plans, activities and programs bear on the appearance of the community;
 - c) To provide leadership and guidance in matters of community design and appearance to individuals and public or private agencies and organizations;
 - d) To direct the attention of appropriate Town officials to needed enforcement of any ordinance that may affect the appearance of the community;
 - e) To seek voluntary adherence to the standards and policies of its plans.
 - f) To formulate and recommend to the Town Council the adoption or amendment of ordinances (including the UDO and other local ordinances regulating the use of property) that will, in the opinion of the commission, serve to conserve the Town's natural beauty, visual character, and charm by ensuring that structures, signs, and other improvements are properly related to their sites, and surrounding sites and structures, with due regard to the aesthetic qualities of the natural terrain and landscaping, and that proper attention is given to the exterior appearance of structures, signs and other improvements.

- c) Conditionally approve preliminary plats or site plans subject to final review by the Land Use Administrator; or
- d) Table the preliminary plat or site plan for further study or additional information; or
- e) Forward the preliminary plat or site plan to the Town Council for further consideration.

Any of the preceding actions taken that involves a final decision by the DRC may be appealed to the Town Council (see Section 12.2 (F)(2)).

- ii. **Schedule.** The DRC shall establish a regular meeting schedule and shall meet frequently enough, at least monthly if necessary, so as to take action as expeditiously as possible on the items of business.
- iii. **Planning Process Application Technical Requirements.** The DRC shall establish the technical requirements for all applications including submission schedules, size, and number of drawings, type of media, etc.
- b. **Membership.** The DRC shall be chaired by the Development Services Director and consist of the following additional members.
 - Three (3) Development Services Department Representatives
 - Town Police Chief or Designee
 - Town Fire Chief or Designee
 - One (1) Public Works Department Representative
 - One (1) Stormwater Utility Representative
 - One (1) Parks and Recreation Department Representative
 - Town Engineer or Designee
 - One (1) Administration Representative
 - One (1) Public Utility Representative

12.2. Development Processes

- A. **Purpose and Intent.** In order to provide a clear and comprehensible development process that is fair and equitable to all interests, including the petitioners, affected neighbors, Town staff and related agencies, the LURB, and the Town Council; this Chapter establishes guidelines and procedures for the development of land within the jurisdiction of the Town of Knightdale. These guidelines and procedures are specifically intended:
 - To ensure that land, parcels, and lots are subdivided in a manner that supports the compliance of future land uses and development with all applicable requirements of this Ordinance;
 - To ensure that development is generally harmonious with surrounding properties and does not endanger the health, safety, and general welfare of existing, prospective or future owners or users of surrounding and adjoining properties, or of the public; and
 - To provide for the adequate and efficient construction of facilities and infrastructure; including but not limited to, buildings, utilities, streets, sidewalks, landscaping, and recreational open space; as well as the provision of dedicated land, rights-of-way, and easements in such a manner so as not to burden the fiscal resources of the Town.
- B. **Applicability.** The provisions of this Chapter shall be applicable to all development activity under the jurisdiction of the Town of Knightdale. No building, sign, or other structure (except as otherwise provided in this Ordinance) shall be erected, moved, extended, enlarged, or structurally altered, nor shall the use conducted within the building

change, nor shall any excavation or filling of any lot for the construction of any building be commenced, nor shall any change in the use of a property be commenced until the Land Use Administrator has issued an applicable permit for such work. Failure to obtain the applicable permit(s) shall be considered a violation of this Ordinance and shall be enforced in accordance with the provisions of Chapter 14.

C. General Provisions.

1. Names.

- a. **Development and Subdivision Names** shall be assigned by the developer subject to the approval by resolution of the Town Council.
- b. **Street Names** shall be assigned by the developer subject to the approval of both the Town Council and Wake County and shall adhere to the rules that follow.
 - i. Proposed streets which are continuations of existing streets shall be given the same name.
 - ii. New street names shall not duplicate or be phonetically similar to existing street names in Wake County.

2. Completeness Review.

- a. **Authorized Representative.** Applications may only be submitted by persons having the legal authority to take such action, and the Land Use Administrator shall require an applicant to provide evidence of said authority to submit the specified application.
- b. **Preliminary Review of Application.** Prior to formal submission of an application, the Land Use Administrator may review the application and confer with the applicant as appropriate to ensure:
 - i. That the applicant understands the interpretation of the applicable requirements of this Chapter;
 - ii. That the applicant has submitted all of the information intended for submission; and
 - iii. That the application represents precisely and completely what the applicant proposes to do.
 - iv. That the applicant understands the desires of the Town regarding the overall design goals and considerations pertaining to Stormwater and associated control measures (SCMs).
- c. **Applications to be Complete before Processing.** No application shall be accepted by the Land Use Administrator unless it contains all of the information that is necessary for the permit-issuing authority to determine whether or not the development, if completed as proposed, will comply with all of the requirements of this Chapter. Applications that are not complete shall be returned forthwith to the applicant with a notation of deficiencies in the application.

3. Neighborhood Meetings.

Where pre-submittal neighborhood meetings are required they shall meet the following criteria:

- a. The required neighborhood meeting must be conducted prior to submittal of the application. The meeting may not occur more than 6 months prior to submittal of the application. Notice of the neighborhood meeting must be made by the applicant in accordance with Section 12.2(C)(4).
- b. The meeting shall be held at a time and place that is generally accessible to neighbors that reside in close proximity to the land subject to the application.
- c. A report of the meeting, made by the applicant, shall be included with the application. The report shall include a list of those persons and organizations contacted about the neighborhood meeting, the date, time, and location of the meeting, a roster of the persons in attendance at the meeting, and a summary of

issues discussed at the meeting; including a description of how the applicant proposes to respond to neighborhood concerns or changes made as a result of the meeting.

4. Public Notification Requirements.

- a. **In General.** Notification of all public hearings required by this Ordinance shall be as follows.
- b. **Legal Ad.** A notice shall be published in a newspaper having general circulation in the Town once a week for two (2) successive weeks, the first notice to be published not less than ten (10) days nor more than 25 days prior to the date established for the hearing. The notice shall indicate the nature of the public hearing, as well as the date, time, and place at which the hearing is to occur.
- c. **First-Class Mail Notice.** A notice of the proposed action shall be sent by first-class mail, as applicable, from the Land Use Administrator to the affected property owner and to all contiguous property owners and any property within two-hundred (200) feet of the affected property. Person(s) mailing the notices shall certify to the Town Council that fact and the certificate(s) shall be deemed conclusive in the absence of fraud.
- d. **Sign Posted.** A prominent sign shall be posted on the subject property(ies), as applicable, beginning not less than ten (10) days nor more than 25 days prior to the date established for the hearing. Such posting shall list a phone number to contact during regular business hours for additional information. The sign shall remain posted until after the decision-making authority has rendered its final decision.

Application Type	First-Class Mail	Posted Sign	Legal Ad
<i>Variances</i>	Y	Y	Y
<i>Special Use Permit</i>	Y	Y	Y
<i>Zoning Text Amendment</i>	Y	N	Y
<i>Zoning Map Amendment</i>	Y	Y	Y

5. **Re-Zoning More than 50 Properties.** When a zoning reclassification action directly affects more than 50 properties owned by a total of at least 50 different property owners, the preceding general public hearing notice requirements may be altered as follows.
 - a. **Newspaper Notice.** The Town shall publish a notice once a week for two (2) successive calendar weeks in a newspaper having general circulation in the area with a map showing the boundaries of the area affected by the proposed re-zoning. The map shall not be less than one-half (½) of a newspaper page in size. The notice shall only be effective for property owners who reside in the area of general circulation of the newspaper which publishes the notice.
 - b. **First-Class Mail Notice.** Property owners who reside outside of the Town's jurisdiction or outside of the newspaper circulation area, according to the address listed on the most recent property tax listing for the affected property, shall be notified by mail pursuant to subsection 12.2(C)(4). Person(s) mailing the notices shall certify to the Town Council that fact and the certificate(s) shall be deemed conclusive in the absence of fraud.
 - c. **Sign(s) Posted.** In addition to the published and mailed notices, the Town shall post one (1) or more prominent signs on or immediately adjacent to the subject property area reasonably calculated to give public notice of the proposed re-zoning. These signs shall remain posted until after the decision-making authority has rendered its final decision.
6. **Modification of Application at Hearing.** In response to questions or comments from persons appearing at the hearing or to questions or comments from the Town Council, BOA, or LURB, the applicant may offer to modify the application, including the submitted plans and specifications. Unless modifications are deemed to be so substantial or extensive that the board may not reasonably be expected to perceive the nature and impact

of the modifications without having revised plans submitted, the board may approve an application with a condition that the permit shall not be issued until plans reflecting the agreed-upon modifications are submitted to the Land Use Administrator.

7. **Written Decision.** Any decision made by the Town Council, BOA, or the LURB regarding an appeal, variance, Special Use Permit, Special Use Permit modification, Zoning Map Amendment or Zoning Text Amendment shall be reduced to writing, signed by the board Chair or other duly authorized board member, and served upon the applicant and all other persons who make a written request for a copy. Decisions are deemed as served when delivered in person, or when sent via electronic mail or first-class mail. Unless otherwise stated, all decisions shall be effective upon filing with the clerk to the board. As applicable, the written decision shall include.
 - a. A statement of the ultimate disposition of the case by the board;
 - b. Findings and conclusions of the board;
 - c. Supporting reasons or facts; and
 - d. Other information deemed appropriate.
8. **Compliance and Violations.** Permits are issued on the basis of approved dimensional plans that authorize only the use, arrangement, and construction set forth in such approved plans and applications. Use, arrangement, or construction which differs from that authorized by any permit or approval process enumerated in this Chapter shall be deemed a violation of this Ordinance and shall be subject to civil penalties as specified in Chapter 13.
9. **As-Built Drawings.** Prior to the issuance of a Certificate of Occupancy associated with a Site Development Approval or prior to the acceptance of public infrastructure for maintenance in Major Subdivisions, as-built drawings of all water, sewer, and stormwater management facilities illustrating their layouts and connections to existing systems must be produced. Such plans shall show all easements and rights-of-way to demonstrate that the facilities are properly placed and shall indicate the locations of all fire hydrants, blow-off valves, manholes, pumps, force mains, and gate valves.

For any stormwater control measure the drawings shall also show a recently surveyed location, size, depth and planted vegetation of all controls and devices. Deviations must be requested from the Stormwater Administrator and approved by the Town. All approved deviations in size, shape, or depth must be noted on the As-Built Drawings, and demonstrate the same capacity and treatment of the original design. These documents will serve as the basis of the Town's Stormwater Operation and Maintenance agreement and serve as the framework for future annual inspections.

A copy of all as-built pages must be submitted at the same time using the open Portable Document Format (pdf) standard in a digital format.

- D. **Administrative Permits and Approvals.** Administrative permits and approvals are those that may typically either be granted by the Land Use Administrator or the DRC as enabled by the Town Council.

1. **General Provisions.**

- a. **Permit or Approval Not Required.** Notwithstanding any other provisions of this Ordinance, including the possibility of zoning violations and penalties (Chapter 14), an administrative permit is not required for the following uses and/or activities.
 - i. Street construction or repair by NCDOT or the Town of Knightdale.
 - ii. Electric power, telephone, telegraph, cable television, gas, water, and sewer lines; wires or pipes, together with supporting poles or structures located within a public right-of-way for maintenance or non-development-related capital expansions.

- iii. Specific signs exempted in Chapter 8.
 - iv. Individual property mailboxes, newspaper boxes, decorative walls under forty-eight (48) inches in height, birdhouses, flag poles, pump covers, and doghouses.
- b. **Review of Applications.**
- i. **In General.** The Land Use Administrator shall approve, approve with conditions or deny the application. Applications that are denied shall have the reasons for denial, in writing, attached to the application. All administrative permits shall:
 - a) Be issued in the name of the property owner;
 - b) Identify the property involved and the proposed use;
 - c) Incorporate by reference the plans submitted; and
 - d) Contain any special conditions or requirements lawfully imposed by the permit-issuing authority.
 - ii. **Master Plan Applications.** Within ninety (90) days from the submittal of a Master Plan Application, the DRC shall review the site development permit (Section 12.2(D)(5)) or Major Subdivision Plan (Section 12.2(F)(6)(d)), the comments and recommendations of the Land Use Administrator, and the necessary criteria for Master Plan requirements as laid out in Section 12.3(E). The DRC shall either approve or deny the Master Plan application within this time period unless the applicant has caused additional delay by failing to provide necessary or accurate information. Failure to act by the DRC within the described time period shall be deemed a denial.

The DRC may defer the decision on the Master Plan Application to the Town Council when any two (2) members (voting or non-voting) deem that one (1) or more of the necessary criteria for Master Plan requirements may not be met by the proposed plan.

Once the DRC takes action, the reasons for the denial, approval or deferral to the Council shall be stated in the record of action on the Master Plan Application.
- c. **Right of Appeal.** If a request for an administrative permit is denied, or if a ruling of the Land Use Administrator or DRC is questioned, any aggrieved party may appeal such ruling to the BOA.
- d. **Certificate of Occupancy.** No structure shall be erected, moved, structurally altered, used, or occupied until a Certificate of Occupancy (CO) has been issued by the Town of Knightdale. Any CO issued shall state that the structure or portion of a structure has:
- i. Complied with the information stated on the permit;
 - ii. Complied with all applicable provisions of this Ordinance; and
 - iii. Received final inspection approval for compliance with the N.C. Building Code, as applicable.
 - iv. Where certain infrastructure elements have not been installed (i.e. landscaping due to time of year), a Temporary CO may be issued by the Land Use Administrator subject to collection of a completion surety as outlined in UDO Section 10.

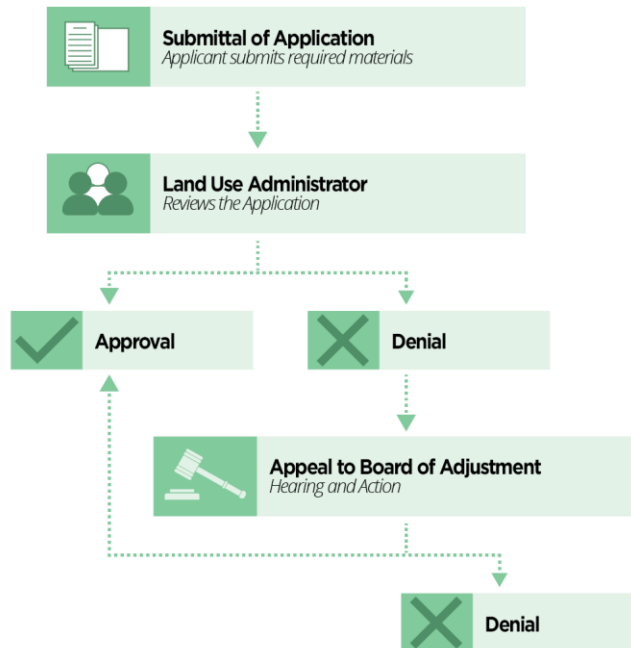
2. **Zoning Compliance Permits.**

a. **Applicability.** A zoning compliance permit (ZCP) is required for the approval of all applications for single-family homes, home occupations, new businesses, and all other development not otherwise covered by other procedures in this Chapter.

b. **Procedure:**

Table 12.2(D)(2)(b) Zoning Compliance Permit Procedure			
SUBMITTAL REQUIREMENTS	REVIEWING AUTHORITY	ACTION TO BE TAKEN	APPEAL PROCESS
ZCP Application	Land Use Administrator	ZCP Issued -or- Denied	BOA

Figure 12.1: Zoning Compliance Permit Process



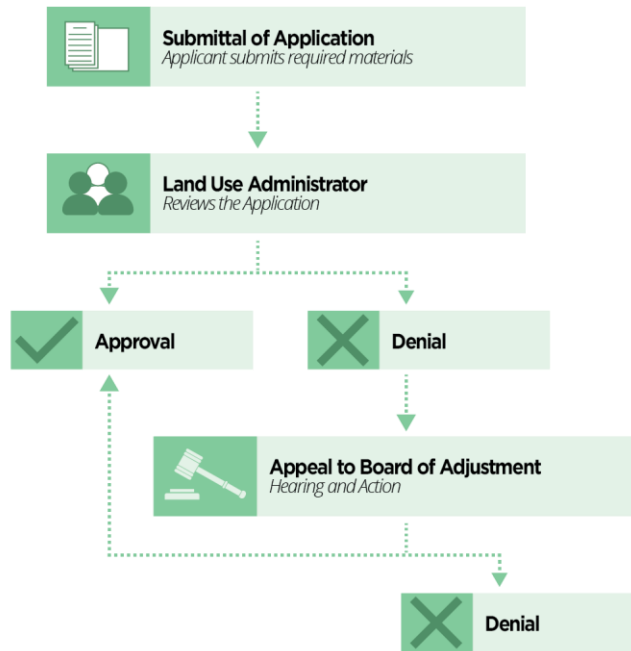
3. Sign Permits.

a. **Applicability.** A sign permit (SP) is required for the erection, alteration, construction, re-location, conversion or enlargement of any sign, except as may be provided in Section 8.4.

b. **Procedure:**

Table 12.2(D)(3)(b) Sign Permit Procedure			
SUBMITTAL REQUIREMENTS	REVIEWING AUTHORITY	ACTION TO BE TAKEN	APPEAL PROCESS
SP Application; Sketch Plan (12.3.D) As Needed *	Land Use Administrator	SP Issued -or- Denied	BOA
<i>Note:</i>			
* Commercial Building Permit also required for most signs, except for those in which only the sign face is being replaced.			

Figure 12.2: Sign Permit Process



4. **Floodplain Development Permits.**

- a. **Applicability.** A floodplain development permit (FDP) with an accompanying Elevation Certificate shall be required prior to the commencement of any development activities within the Special Flood Hazard Areas and Future Conditions Flood Hazard Areas determined in Section 9.5(B)(1). FDPs shall be approved by the Floodplain Administrator.

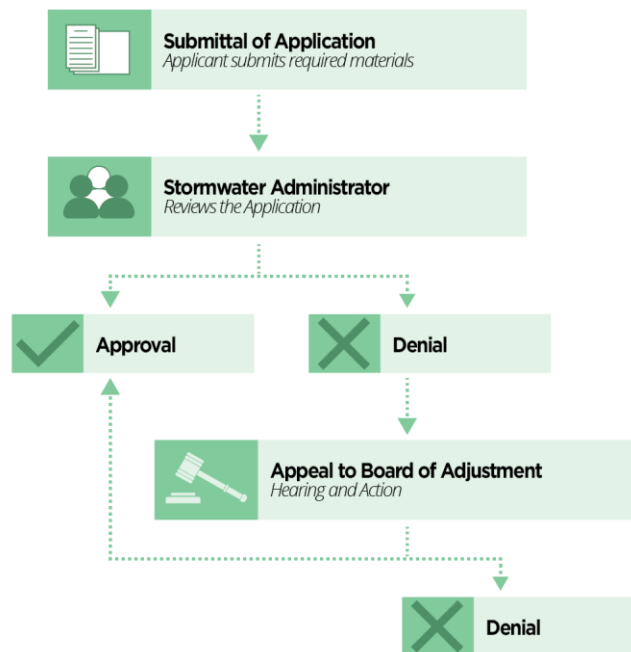
No structure or land shall be located, extended, converted, or structurally altered without full compliance with the term of this Chapter and Section 9.5. In addition to those federal, state, and local government agency approvals, the applicant must also be in compliance with the Town of Knightdale Erosion and Sedimentation Control Ordinance, as amended.

Any activity which differs from that authorized by the FDP shall be deemed a violation of this Ordinance and shall be subject to civil penalties as specified in Chapter 14.

- b. **Procedure.** Review will specifically verify the actual elevation (in relation to NAVD 1988) of the lowest floor (including basement) and the actual elevation to which the new or substantially improved buildings have been flood-proofed. Certification from the property owner’s or developer’s NC-licensed Professional Engineer or Surveyor must accompany this application.

Table 12.2(D)(4)(b) Floodplain Development Permit Procedure			
SUBMITTAL REQUIREMENTS	REVIEWING AUTHORITY	ACTION TO BE TAKEN	APPEAL PROCESS
FDP Application (12.3.C)	Floodplain Administrator	FDP Issued -or- Denied	BOA

Figure 12.3: Floodplain Development Permit Process

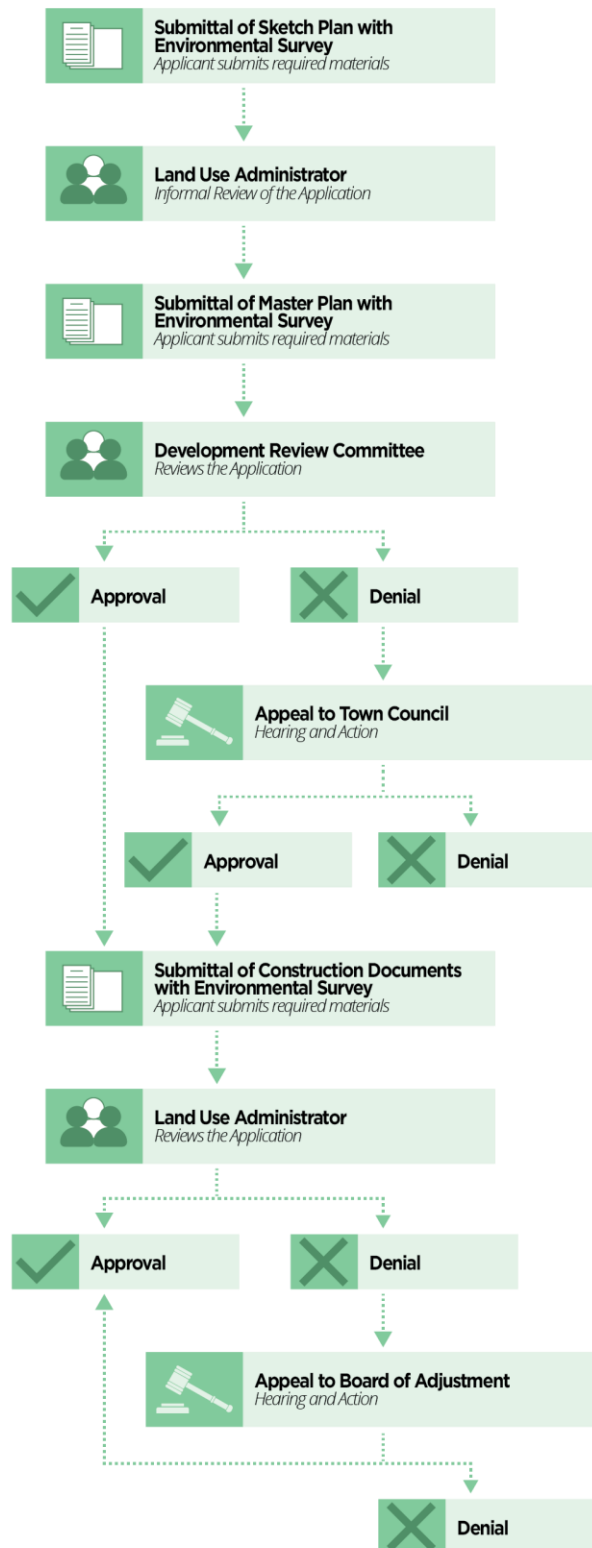


5. **Administrative Site Plan.**

- a. **Applicability.** An Administrative Site Plan Approval and associated construction improvement permit (CIP) are required for an individual building or buildings on previously platted lots.
- b. **Procedure.** To receive Administrative Site Plan approval and a CIP, a completed Master Plan Application must be submitted for review.

SUBMITTAL REQUIREMENTS	REVIEWING AUTHORITY	ACTION TO BE TAKEN	APPEAL PROCESS
Sketch Plan (12.3.D) w/Environmental Survey (12.3.B)	Land Use Administrator	For Non-Binding Review Only	n/a
Master Plan (12.3.F) w/Environmental Survey (12.3.B)	DRC	Review for Completeness & Ordinance Compliance; Master Plan Approved -or- Denied	Town Council
Construction Drawings (12.3.G) w/Environmental Survey (12.3.B)	Land Use Administrator	Review for Completeness & Ordinance Compliance; CIP Issued -or- Denied	BOA

Figure 12.4: Administrative Site Plan Approval Process



6. Subdivision Approvals.

- a. **Applicability.** Subdivisions shall include all divisions of a tract or parcel of land into two (2) or more lots, building sites, or other divisions when any one (1) or more of those divisions is created for the purposes of sale or building development, whether immediate or future, and shall include all division of land involving the dedication of a new street or a change in existing streets.
- b. **Exempt Plats.** An Exempt Plat involves the dedication of easements or rights-of-way, or meets the standards for exempt plats as stated in G.S. 160D-802(a)(1)-(5) which include recombination plats. Exempt plats are reviewed according to the following procedure:

Table 12.2(D)(6)(b) Subdivision Exempt Plat Approval Procedure			
SUBMITTAL REQUIREMENTS	REVIEWING AUTHORITY	ACTION TO BE TAKEN	APPEAL PROCESS
Final Plat (12.3.H)	Land Use Administrator	Review for Completeness & Ordinance Compliance; Final Plat Issued -or- Denied	BOA
A Sketch Plan and review is not required, but can be scheduled with the Development Services Department if it is desired.			

c. General Provisions.

- i. **Notice to Proceed with Construction Activity.** Only after receiving Final Plat approval for a Family/Minor Subdivision or Construction Drawing approval for Major Subdivisions as prescribed by this Chapter and other written approval and necessary permits from the appropriate regulating agencies, shall the developer begin tree clearing, grading, soil erosion, and infrastructure construction for the development.
- ii. **Construction Drawings.**
 - a) **Approval Duration.** Approved Construction Drawings are valid for one (1) year from the date of approval by the Town of Knightdale. Reasonable and necessary extensions may be granted at the Town Council's sole discretion if a written request by the developer is made to the Town Council forty five (45) days prior to the one- (1) year anniversary of Construction Drawing approval. A 1-year extension may be granted from the date when the approved Construction Drawings would otherwise expire.
 - b) **New Application Required.** Should Construction Drawing approvals expire, a new application for subdivision approval will be required in accordance with the processes outlined within this Chapter before development may re-commence and any Final Plats be approved and/or recorded.
 - c) **Multiple Phases Not Approved.** Approval of Construction Drawings constituting an individual phase of a multi-phase project which has not been entirely approved does not constitute approval by the Town of any remaining phases.

- d) **Infrastructure Required within One (1) Year.** All required infrastructure improvements within the Construction Drawings shall be in place within one (1) year of issuance of a CIP unless the improvement has been guaranteed in accordance with Section 10.1. If circumstances beyond the control of the developer do not allow for the commencement of the required work within the 1-year period, or the size of the phase is such that one (1) year is insufficient time to commence all required work, then the developer may file a written request for an extension with the Land Use Administrator no later than 45 days prior to the 1-year anniversary of CIP approval by the Town as provided above. If infrastructure work is not commenced within one (1) year and/or no extension request is filed with the Land Use Administrator and approved, CIP approval becomes null and void on the day of the one (1) year anniversary and a new application will be required.

iii. **Final Plats.**

- a) **Review Period.** The developer shall initiate the final subdivision plat approval process by submitting the Final Plat and copies of any required surety or improvement guarantees (as specified in Section 10.1(E)) to the Land Use Administrator or other departments as required. The Land Use Administrator will then have 45 calendar days to approve or deny the Final Plat. During the review period, the Land Use Administrator will confirm the accuracy of the Final Plat. If substantial errors are found, including inconsistencies with the approved Construction Drawings, the Final Plat shall not be approved and the review period suspended until the applicant has corrected such errors. A list of the needed corrections and/or conditions shall be provided to the applicant. Any corrections and/or conditions placed by the Town on the approval of the Final Plat shall be addressed by the developer within 45 days. Failure of the developer to meet the 45 day response period shall cause the conditional approval of the Town to be null and void. Once complete, the Final Plat shall be approved or denied by the Land Use Administrator within 30 calendar days of the date of final completed submission.
- b) **Improvements Required.** The Final Plat shall constitute all portions of the approved Construction Drawings. No Final Plat shall be approved unless and until the developer has installed in that area all improvements required by this Ordinance or has posted any required improvement guarantees approved by the Town Council and prescribed by this Ordinance in Section 10.1(E).
- c) **Plats to be Recorded.** Approved Final Plats must be filed by the applicant for recording with the Wake County Register of Deeds within thirty (30) days of the date of approval by the Land Use Administrator; otherwise, such approval shall be null and void. After recordation, the developer shall provide prints (number to be determined by the Land Use Administrator) of the registered plat to the Town for distribution to the various state and local government agencies and public utilities along with one (1) electronic copy in Portable Document Format (PDF) for permanent file in the Development Services Department.

d. **Family Subdivisions**

- i. **Purpose & Definition.** The specific purpose of a family subdivision is to allow the creation of lots from larger tracts where lots are conveyed to or developed for building purposes by members of the lineal family. A family subdivision shall be defined as the division of land into not more than five (5) parcels (or lots) from the original tract as it existed on January 1, 2000, for the purpose of conveying the resultant parcels or lots to the grantee or grantees who are in any degree of lineal kinship to the grantor.
- ii. **Procedure.** The request for family subdivision approval shall be filed by submitting an application for Final Plat to the Land Use Administrator. This application shall include a prescribed statement satisfying the Land Use Administrator that such subdivision is in fact a “family subdivision” not meant to circumvent the provisions of this Ordinance, and shall meet the standards of subsection “iii” that follows.

Table 12.2(D)(6)(d) Family Subdivision Approval Procedure			
SUBMITTAL REQUIREMENTS	REVIEWING AUTHORITY	ACTION TO BE TAKEN	APPEAL PROCESS
Final Plat (12.3.H)	Land Use Administrator	Review for Completeness & Ordinance Compliance; Final Plat Issued -or- Denied	BOA
A Sketch Plan and review is not required, but can be scheduled with the Development Services Department if it is desired.			

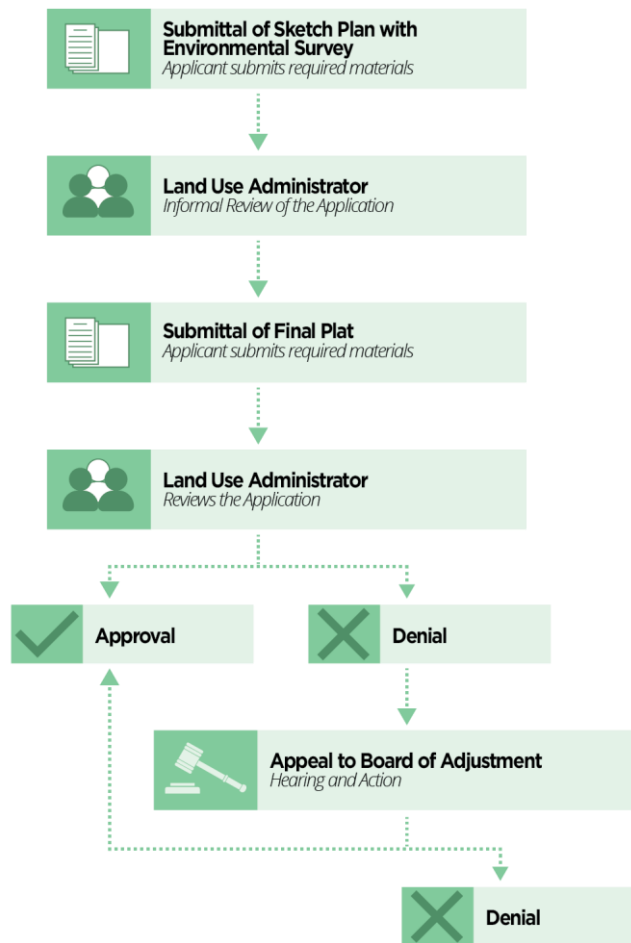
iii. **Minimum Standards.**

- a) **Parent Tract.** The original tract as it existed on January 1, 2000, must be a minimum of 10 acres, and a plat of the original tract is required to be on file with the Land Use Administrator so that the department can determine the number of lots subdivided.
- b) **Conveyance.** Only lineal family members acting personally or through their legal representatives, including but not limited to, estate executors, trustees, attorneys-in-fact, or legal guardians; may be grantees of the land from the grantor as stated in the definition of family subdivision in subsection “i” above. Any immediate transfer of land from the grantee to a non-lineal family member is considered a violation, which is subject to any and all penalties, including the requirement of the subdivision to come into compliance with any or all minor or major subdivision requirements.
- c) **Deeds.** The deed for each lot in a family subdivision must contain an express statement that the conveyance is a conveyance of a lot within a family subdivision and must contain an express grant of a public or private right of way to a public street.
- d) **Zoning Conformity.** All lots proposed under the family subdivision section shall conform to the zoning requirements of the zoning district in which the subdivision is located, including, but not limited to, minimum lot size and width.
- e) **Street Frontage.** All lots proposed for subdivision, including the original tract, shall front on a dedicated private or public right of way of at least fifty-four (54) feet in width which connects to a public street. The final plat is required to show this right of way.
- f) **Street Standards.** All lots proposed for subdivision, including the original tract, shall front on a street built to the following standards:
 - (i) If determined by the Town to be a logical location for a street, a 54-foot public or private right-of-way is required.
 - (ii) If determined by the Town to be an area where the future street location is not determined a 54-foot private easement or right-of-way is required.
 - (iii) All access streets shall be constructed to a minimum NCDOT standard with base course, but are not required to be constructed with pavement, curb, gutter, or sidewalk.
 - (iv) A note is to be added to the plat that maintenance is to be the responsibility of all adjacent property owners of said right of way and unimproved street. A maintenance agreement is required to be recorded at the Wake County Register of Deeds and approved by the Town Attorney.

- g) **Public Utilities.** If any lot proposed by the family subdivision is within 300 feet from the public water line and/or public sewer system, the lot shall connect to the public water system and/or public sewer system if a residence is proposed. A voluntary annexation petition is required to be submitted if connecting to Town water and/or sewer.
 - h) **Development Fees.** Family subdivision lots shall be exempt from paying development fees as outlined in the Town's Fee Schedule. The subdivider shall be responsible for payment to the Town of all fees and charges required by the Town including, but not limited to, the costs of permits, inspections, utility taps, and capital facility fees, at such times as payments are specified under the various codes, fee schedules, or resolutions of the Town.
 - i) **Additional Right-of-Way Dedication.** Family subdivision lots fronting on an existing public street, which is identified as a thoroughfare or collector street as identified on the Town's Arterial and Collector Street Plan and which are not currently constructed to the ultimate cross-section shall not be required to build the street to the standard section and shall not be required to pay a fee in lieu of such street construction, but shall be required to dedicate the ultimate required right-of-way.
 - j) **Right-of-Way Reservation.** Where a planned NCDOT or Town of Knightdale street is located within the boundaries of the family subdivision land, a reservation of the right of way is required to be shown on the plat to reserve the land for the future street.
- e. **Minor Subdivisions.**
- i. **Purpose & Definition.** Minor subdivisions are those that involve the creation of not more than four (4) lots fronting on an existing street that meets all of the requirements of this UDO, and do not involve any of the following:
 - a) The construction of any new street or prospectively requiring any new street for access to interior property; or
 - b) The extension of public sewage or water lines to serve properties at the rear; or
 - c) The creation of any new or residual parcels not conforming to the requirements of these regulations and related ordinances.
 - ii. **Procedure.** The request for a minor subdivision approval shall be filed by submitting an application for Final Plat to the Land Use Administrator.
 - iii. **Expedited Review.** Except as regulated above the following subdivisions should be exempt from the sketch plan requirements and may only be required to submit a plat for recordation:
 - a) The tract or parcel to be divided is not exempt under subsection 12.2 (D)(6)(b) of this ordinance.
 - b) No part of the tract or parcel to be divided has been divided under this subsection in the ten (10) years prior to division.
 - c) The entire area of the tract or parcel to be divided is greater than five acres.
 - d) After division, no more than three (3) lots result from the division.
 - e) After division, all resultant lots comply with all of the following:
 - (i) Any lot dimension size requirements of the applicable land-use regulations,
 - (ii) The use of the lots is in conformity with the applicable zoning requirements, and
 - (iii) A permanent means of ingress and egress is recorded for each lot.

Table 12.2(D)(6)(e) Minor Subdivision Approval Procedure			
SUBMITTAL REQUIREMENTS	REVIEWING AUTHORITY	ACTION TO BE TAKEN	APPEAL PROCESS
Sketch Plan (12.3.D) w/Environmental Survey (12.3.B)	Land Use Administrator	For Non-Binding Review Only	n/a
Final Plat (12.3.H)	Land Use Administrator	Review for Completeness & Ordinance Compliance; Final Plat Issued -or- Denied	BOA

Figure 12.5: Minor Subdivision Process

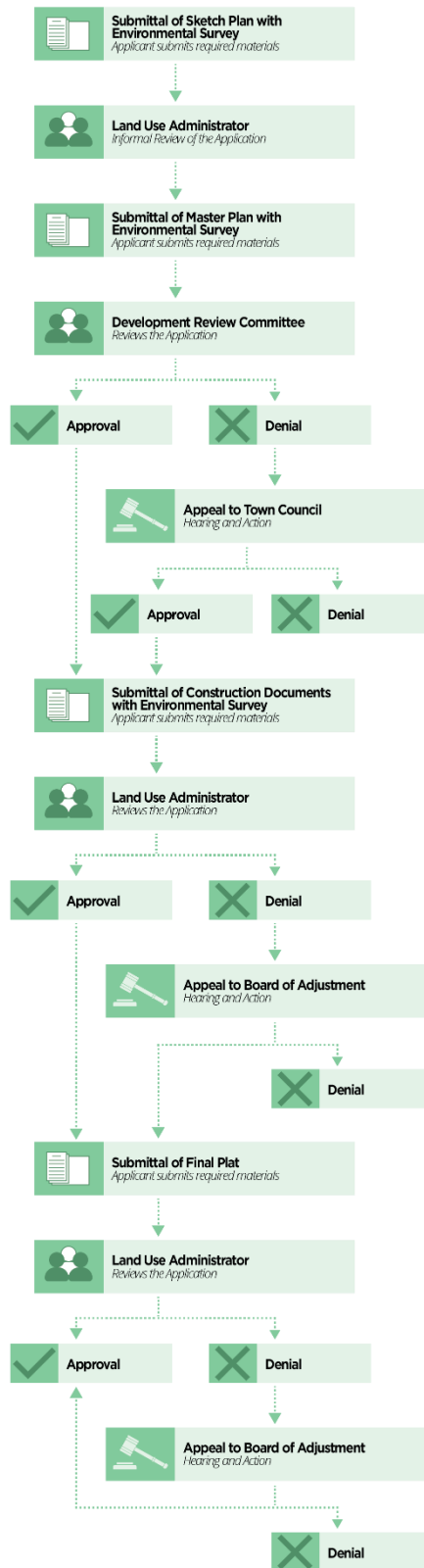


f. **Major Non-PUD Subdivisions.**

- i. **Purpose & Definition.** A Major Non-PUD Subdivision is a subdivision of land that is not residential and does not meet the definition of an Exempt Plat, Family Subdivision, or Minor Subdivision.
- ii. **Procedure.** To receive Major Subdivision approval and a CIP, a completed Master Plan Application must be submitted to the Land Use Administrator for review.

Table 12.2(D)(6)(f) Major Subdivision Approval Procedure			
SUBMITTAL REQUIREMENTS	REVIEWING AUTHORITY	ACTION TO BE TAKEN	APPEAL PROCESS
Sketch Plan (12.3.D) w/Environmental Survey (12.3.B)	Land Use Administrator	For Non-Binding Review Only	n/a
Master Plan (12.3.F) w/Environmental Survey (12.3.B)	DRC	Review for Completeness & Ordinance Compliance; Master Plan Issued -or- Denied	Town Council
Construction Drawings (12.3.G) w/Environmental Survey (12.3.B)	Land Use Administrator	Review for Completeness & Ordinance Compliance; CIP Issued -or- Denied	BOA
Final Plat (12.3.H)	Land Use Administrator	Review for Completeness & Ordinance Compliance; Final Plat Issued -or- Denied	BOA

Figure 12.6: Major Non-PUD Subdivision Process



E. Administrative Modification of Dimensional Standards.

1. The administrator is authorized to approve requests that deviate from required setbacks set forth in this Ordinance by up to ten (10) percent of the required setbacks or 24 inches, whichever is greater, upon determination that one or more of the following conditions exists:
 - a. There are site or structural conditions that preclude strict adherence to the setback requirements, including but not limited to: the lot does not meet the dimensional standards established for the zoning district in which it is located; the lot has topographic limitations that require placement of the structure into the required setback area; or the structures is physically in line with an existing, legally established wall or walls of a principle structure already within the minimum setback area.
 - b. The part of the proposed structure that encroaches into the minimum setback area is necessitated by a life-safety Ordinance, flood hazard reduction, Americans with Disabilities Act standard or other public safety Ordinance requirements.
 - c. The proposed structure will allow the preservation of significant existing vegetation.
 - d. A good faith error was made in the location of a building foundation due to either construction or survey error.
2. The authority given to the Administrator to grant such modification shall be construed to be permissive and not mandatory, and the Administrator may decline to make such modification. In the event this occurs, the applicant shall have the right to submit an application to the Board of Adjustment to grant a variance to these requirements.
3. Nothing in this section shall be construed as limiting the Administrators' duties and rights under this Chapter, or an applicant's right to appeal the decision of the Administrator to the Board of Adjustment.

F. Quasi-Judicial Procedures. This Section provides for the evaluation of certain applications by requiring that certain decisions be made using a quasi-judicial procedure with the right of the parties to offer evidence, have sworn testimony, and have findings of fact supported by competent, substantial, and material evidence.

1. General Provisions.

a. Re-Hearings.

- i. **Applicability.** An application for a re-hearing shall be made in the same manner as provided for an original hearing within fifteen (15) days after the date of the BOA, LURB or Town Council decision. In addition, specific information to enable the applicable board to determine whether or not there has been a substantial change in facts, evidence, or conditions in the case, shall be presented in writing or graphically.
- ii. **Procedure.** A re-hearing shall be denied by the applicable board if, in its judgment, such change in facts, evidence or conditions has not been proven. A public hearing shall not be required to be held to consider holding such a re-hearing. Approval of said consideration shall, however, require an affirmative vote of at least four-fifths (4/5) of the voting members. In the event that the applicable board finds that a re-hearing is warranted, it shall proceed as in the original hearing except that the application fee shall be waived.

- b. **Right of Judicial Appeal.** Every quasi-judicial decision of the BOA or the Town Council shall be subject to review by the Superior Court Division of the General Courts of Justice of the State of North Carolina by proceedings in the nature of certiorari. Any petition for review by the Superior Court shall be duly verified and filed with the Clerk of Superior Court within thirty (30) days after the effective date of the decision, or after a written copy is served in accordance with the provisions of Section 12.2(C), whichever is later. In the event any decision is served via first-class mail, three (3) days shall be added to the allowed time in which to file a petition for review.

2. Administrative Appeals.

- a. **Applicability.** The BOA shall hear and decide appeals from and review any order, requirement, decision, interpretation or citation made by the Land Use Administrator or DRC, respectively, and apply such interpretation to particular fact situations.
- b. **Applicant with Standing.** The following persons and entities shall have standing to file an appeal under this section:
 - i. Any person meeting any of the following criteria.
 - a) Has an ownership interest in; a leasehold interest in; or an interest created by easement, restriction, or covenant in the property that is the subject of the decision being appealed; or
 - b) Has an option or contract to purchase the property that is the subject of the decision being appealed; or
 - c) Was an applicant before the decision-making authority whose decision is being appealed.
 - ii. Any other person who will suffer special damages as the result of the decision being appealed.
 - iii. An incorporated or unincorporated association to which owners or lessees of property in a designated area belong by virtue of their owning or leasing property in that area, or an association otherwise organized to protect and foster the interest of the particular neighborhood or local area, so long as at least one (1) of the members of the association would have standing as an individual to challenge the decision being appealed, and the association was not created in response to the particular development or issue that is the subject of an appeal.
 - iv. The BOA when it believes the Land Use Administrator or DRC, respectively, has been inconsistent with the proper interpretation of the Ordinance.
- c. **Filing.** An appeal by the property owner to the appropriate board shall be made within thirty (30) days of receipt of the written notice stating the decision, order, determination, or interpretation made by the Land Use Administrator or DRC. An appeal by any other person with standing shall be made within thirty (30) days of the receipt of any actual or constructive notice regarding the decision, order, determination, or interpretation made by the Land Use Administrator or DRC.
 - i. **Timely Hearing and Decision.** An appeal must be placed on the appropriate board agenda within 30 days of filing, and a decision shall be reached within a reasonable amount of time.
 - ii. **Witness.** The Land Use Administrator or their successor shall appear as witness in the appeal.
 - iii. **Enforcement Proceedings Stayed.** The filing of any application stays all enforcement proceedings unless the Land Use Administrator certifies by facts stated in an affidavit that a stay in his/her opinion will cause imminent peril to life or property, or that because the violation charged is transitory in nature, a stay would seriously interfere with the enforcement of the Ordinance. In that event, enforcement proceedings shall not be stayed except by a restraining order granted by a judicial court of law.

- a) **Expedited Hearing.** If enforcement proceedings are not stayed the appellant may request from the Land Use Administrator an expedited hearing, in which case, the BOA shall conduct said hearing within 15 days after such request has been filed.
- iv. **Other Review Proceedings Not Stayed.** Notwithstanding the foregoing, appeals of decisions granting a permit or otherwise affirming that a proposed use of property is consistent with this Ordinance shall not stay further review of an application for permits or permissions to use such property. In said situations, the appellant may request and the BOA may grant a stay of any final decision concerning permit applications or building permits affected by the appeal.
- d. **Board Powers and Responsibilities.** The appropriate board may, after having held a public hearing on the matter, reverse or affirm, wholly or partly, or may modify the order, requirement, decision, or determination appealed. The appropriate board shall have all the powers of the Land Use Administrator in making any order, requirement, decision, interpretation, or determination with reference to an appeal. For appeals of DRC decisions involving administrative permits requiring a Master Plan, the Town Council must make the following findings to overturn the original decision.
 - i. The plan is consistent with Comprehensive Plan goals and objectives and all other Town Council adopted development policies;
 - ii. The plan complies with all applicable requirements of this Ordinance, including but not limited to the development and design standards of chapters 6 and 7 as well as the dedication and improvements provisions of chapters 7 and 10;
 - iii. The plan adequately protects other adjacent or nearby property, or residential uses located on the same property, from the potential adverse effects of the proposed development;
 - iv. The plan provides harmony and unity with the development of adjacent and nearby properties;
 - v. The plan provides safe conditions for pedestrians and motorists and prevents a dangerous arrangement of pedestrian and vehicular ways; and
 - vi. The plan provides safe ingress and egress for emergency services.
- e. **Simple Majority Required.** The concurrent simple majority vote of the appropriate board's voting members shall be necessary to make an interpretation of the Ordinance or reverse any administrative order, requirement, decision, or determination. In all matters coming before either board, the applicant shall have the burden of providing clear, competent, and material evidence in support of the application.

3. Variances.

- a. **Applicability.**
 - i. **In General.** When unnecessary hardships would result from carrying out the strict letter of this Ordinance and the required findings of fact set forth in Section 12.2 (F)(3)(d)(i) are made, the BOA shall vary any of the regulations or provisions of this Ordinance.
 - ii. **Flood Damage Protection.** Variances related to Flood Damage Protection may be issued for.
 - a) The repair or rehabilitation of historic structures upon the determination that the proposed repair or rehabilitation will not preclude the structure's continued designation as a historic structure and that the variance is the minimum necessary to preserve the historic character and design of the structure; or
 - b) Functionally dependent facilities as defined in Chapter 15 provided such facilities are protected by methods that minimize flood damages; or

- c) Any other type of development provided it meets the requirements stated in this section.
- iii. **Items Not Cause for Variance.**
- a) The request for a particular use expressly, or by inference, prohibited in the District involved.
 - b) Hardship resulting from personal circumstances.
 - c) Hardship resulting from conditions that are common to the neighborhood or the general public.
 - d) Any request that will cause a structure to be in violation of other Federal, State, or local laws, regulations, or ordinances.
 - e) Any request within any designated floodway or non-encroachment area where the variance would result in an increase in flood levels during the base flood discharge.
- b. **Applicant with Standing.** A petition for a variance may be initiated only by the owner of the affected property, an agent authorized in writing to act on the owner's behalf or a person having a written contractual interest in the affected property upon the submission of a completed application.
- c. **Enforcement and Other Proceedings Stayed.** The filing of any application stays all proceedings unless the Land Use Administrator certifies by facts stated in an affidavit that a stay in his/her opinion will cause imminent peril to life or property, or that because the violation charged is transitory in nature, a stay would seriously interfere with enforcement of the Ordinance. In that event, proceedings shall not be stayed except by a restraining order granted by a judicial court of law.
- d. **Board Powers and Responsibilities.**
- i. **Required Findings of Fact.** The BOA, after having held a public hearing on the matter, may grant or deny a variance based on the following:
 - a) **General Required Findings of Fact.** The BOA must make the following determinations of fact for all variance requests.
 - (i) Unnecessary hardship would result from the strict application of the Ordinance;
 - (ii) The identified hardship is the result of conditions peculiar to the property, such as location, size and/or topography;
 - (iii) The identified hardship did not result from actions taken by the applicant or property owner; and
 - (iv) The variance is consistent with the spirit, purpose and intent of this Ordinance, such that public safety is secured and substantial justice is achieved.
 - b) **Flood Damage Prevention.**
 - (i) **Specific Procedures.** Variances to flood damage prevention requirements shall only be issued prior to development permit approval. To assure that any such variance is consistent with the spirit, purpose, and intent of the Ordinance, in passing upon variances to flood damage prevention requirements, the BOA shall consider all technical evaluations, all relevant factors, and all standards specified in other sections of this Ordinance including:
 - 1. The danger that materials may be swept onto other lands to the injury of others;
 - 2. The danger to life and property due to flooding or erosion damage;

3. The susceptibility of the proposed facility and its contents to flood damage and the effect of such damage on the individual owner;
4. The importance of the services provided by the proposed facility to the community;
5. The necessity to the facility of a waterfront location, where applicable;
6. The availability of alternative locations, not subject to flooding or erosion damage, for the proposed use;
7. The compatibility of the proposed use with existing and anticipated development; The relationship of the proposed use to the comprehensive plan and floodplain management program for that area;
8. The safety of access to the property in times of flood for ordinary and emergency vehicles;
9. The expected heights, velocity, duration, rate of rise, and sediment transport of the flood waters and the effects of wave action, if applicable, expected at the site; and
10. The costs of providing governmental services during and after flood conditions including maintenance and repair of public utilities and facilities such as sewer, gas, electrical and water systems, and streets and bridges.

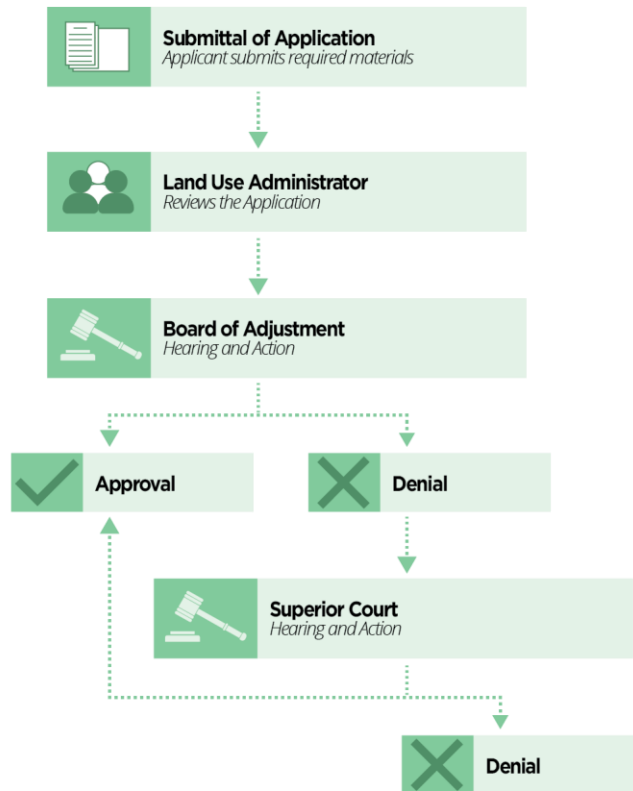
Any applicant to whom a variance is granted shall be given written notice specifying the difference between the BFE and the elevation to which the structure is to be built and a written statement that the cost of flood insurance will be commensurate with the increased risk resulting from the reduced reference level elevation. Such notification shall be maintained with a record of all variance actions. The Land Use Administrator shall maintain the records of all appeal actions and report any variances to the FEMA and the State of North Carolina upon request.

(ii) **Additional Required Findings of Fact.** To assure that any such variance is consistent with the spirit, purpose, and intent of the Ordinance, Flood Damage Prevention variances shall only be issued upon the BOA determining the following findings of fact, in addition to those findings enumerated in Section 12.2(F)(3)(d)(i).

1. That the variance is the minimum necessary, considering the flood hazard, to afford relief;
2. That there is a showing of good and sufficient cause; and
3. That the granting of a variance will not result in increased flood heights, additional threats to public safety, or extraordinary public expense, create nuisance, cause fraud on or victimization of the public, or conflict with existing local laws or ordinances.

- c) **Adult Establishments and Sweepstakes Centers.** To assure that any such variance is consistent with the spirit, purpose, and intent of the Ordinance, variances to the minimum distance between adult establishments and/or sweepstakes centers shall only be issued upon the following findings of fact, in addition to those findings enumerated in Section 12.2(E)(3)(d)(i)(a):
- (i) The proposed use will not be injurious to property or improvements in the affected area;
 - (ii) The proposed use will not enlarge or encourage the development of a blighted condition within an area; and
 - (iii) The permitting of an adult establishment in the area will not be contrary to any governmental program of neighborhood conservation, rehabilitation, improvement, or revitalization.
- ii. **Conditions to Motion.** The BOA in granting a variance may impose appropriate conditions and safeguards in conformity with this Ordinance, provided such conditions are reasonably related to the variance. Violation of such conditions and safeguards, when made a part of the terms under which a variance is granted, shall be deemed a violation of this Ordinance and shall be punishable as prescribed in Chapter 14.
- iii. **Supermajority Required for Decision.** The concurrent supermajority vote of four-fifths (4/5) of the voting members of the BOA shall be necessary to grant a variance. In all matters coming before the BOA, the applicant shall have the burden of providing clear, competent, and material evidence in support of the application.
- iv. **Other Considerations.** It shall not be necessary for the applicant to demonstrate that, in the absence of a variance, no reasonable use can be made of the property. Additionally, the act of purchasing property with knowledge that circumstances exist that may justify the granting of a variance shall not be regarded as a self-created hardship.
- v. **Time for Decision.** The BOA shall hold a public hearing on an application no later than 60 days after a complete application has been filed with the Land Use Administrator. The BOA shall decide on the matter which was presented at the public hearing within forty five (45) days of the close of the public hearing.
- vi. **Time Limit on Approval.** If an application for a variance is approved by the BOA, the owner of the property shall have the ability to (i) develop the use in accordance with the stipulations contained in the variance or (ii) develop any other use listed as a "permitted use" for the District in which it is located. Unless otherwise authorized by the BOA and included in its decision to grant a variance, an order of the BOA in granting a variance shall expire if a building permit or CO (for a use for which a building permit is not required) has not been obtained within two (2) years from the date of its decision.

Figure 12.7: Variance Process



- e. **Effect of Denial/Time to Resubmit.** Upon the denial of an original application, or upon the denial of an application from which a re-hearing has been conducted, a similar application may not be filed for a period of one (1) year after the date of denial of the original application.
- f. **Procedure.**

SUBMITTAL REQUIREMENTS	REVIEWING AUTHORITY	ACTION TO BE TAKEN	APPEAL PROCESS
Variance Application	Land Use Administrator	Review for Completeness & Ordinance Compliance	n/a
	BOA	Public Hearing	Superior Court

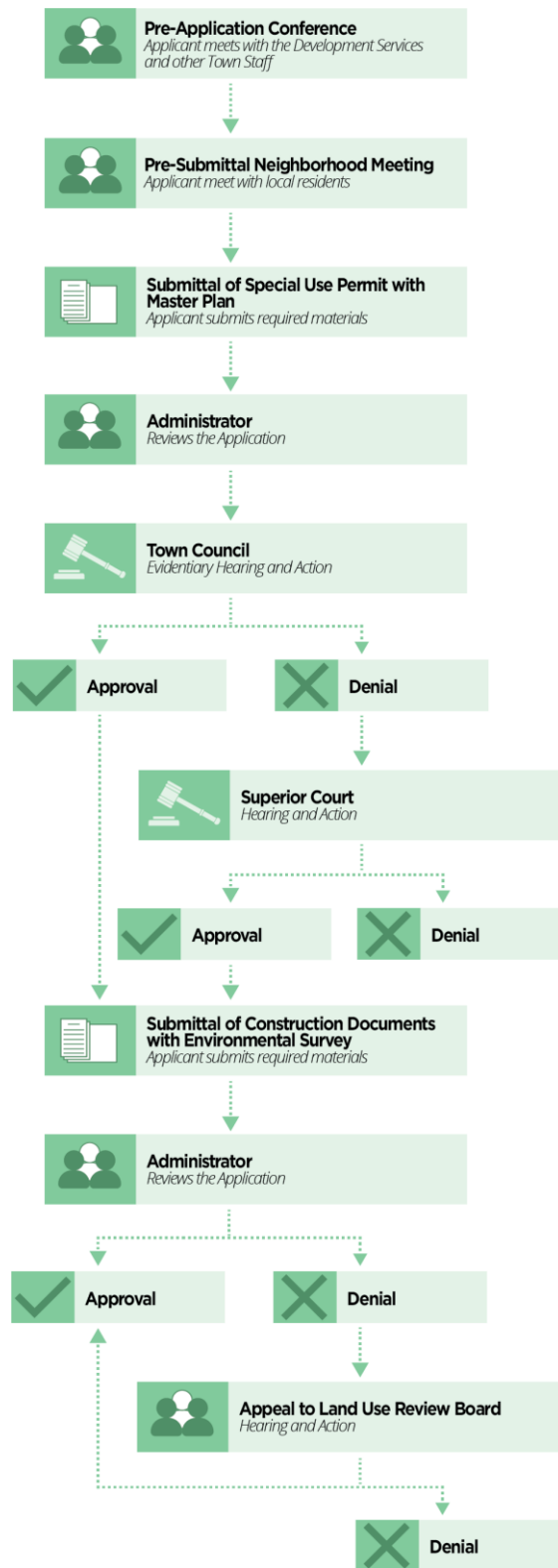
4. Special Use Permits.

- a. **Applicability.** A special use permit (SUP) ensures the appropriateness of the use at a particular location within a given District. Special Uses are generally compatible with the land uses permitted by right in a District, but which require individual review of their location, design, and configuration so as to evaluate the potential for adverse impacts on adjacent property and uses. Only those uses enumerated (Section 3.1) as required SUPs in a District may be authorized by the Town Council.
- b. **Neighborhood Meeting.** A pre-submittal neighborhood meeting is required as outlined in 12.2(C)(3).
- c. **Board Powers and Responsibilities.** The processing of a SUP shall be conducted by the Town Council. During the public hearing, all parties presenting testimony and evidence shall be duly sworn.
- i. **Required Findings of Fact.** The burden of proof of producing evidence to support these Findings of Fact and to overcome any challenges that approval of the plan would be contrary to one or more of these Findings of Fact shall rest entirely with the applicant or landowner. The evaluation and approval of the SUP shall be based upon the sworn testimony and evidence both in favor and against the SUP application presented at the hearing relevant to the following Findings of Fact:
- The use meets all required principles and specifications of the UDO and any adopted land use plans, is in harmony with the general purpose and intent and preserves its spirit;
 - The proposed plan as submitted and approved will be visually and functionally compatible with the surrounding area; and
 - The public health, safety, and welfare will be assured to not substantially injure the value of adjoining property and associated uses if located where proposed.
- ii. **Conditions to Motion.** In approving an application for a SUP, the Town Council may attach fair and reasonable conditions on the location, nature, and extent of the proposed use which support the required Findings of Fact. The Town Council may not require the landowner to waive a vested right as a condition of the SUP approval. The applicant shall have up to thirty (30) calendar days to consider and respond to any additional requirements prior to approval or denial by the Town Council.
- d. **Effect of Approval.** If an application is approved, the SUP that is established and all conditions which may have been attached to the approval are binding on the property. All subsequent development and use of the property must be in accordance with the approved plan and conditions. The applicant must record at the Wake County Register of Deeds office the approved SUP and submit a copy of the recorded document(s) to the Town.

- e. **Substantial Changes.** Any substantial change to a SUP that results in the increase of the intensity, density, or character of the use shall be approved or denied by the Town Council as an amended SUP. Minor field alterations or minor revisions to approved SUPs may be approved by the Land Use Administrator if the special use still meets the intent of the standards established with the original approval.
- f. **Time Limit on Approval.** The applicant must secure a valid building permit within a 24-month period from the date of approval of the SUP unless otherwise specified.
- g. **Rescission or Extension of Special Use Permits.** The Town Council may completely rescind or extend for a specified period of time a SUP after notice by the Land Use Administrator and subsequent hearing upon one (1) or more of the following grounds:
- i. The project is not complete or a valid building permit is not in place at the end of the 24-month approval period; or
 - ii. Failure to comply with the additional standards specified in Section 5; or
 - iii. Operating an establishment disruptive of peace and good order as evidenced by lack of sufficient on-premises security and specifically by a conviction of a criminal offense, a material element of which occurred on the premises; or
 - iv. Excessive criminal activity on or near the premises if the Town Council finds that the operation of the establishment is related to such criminal activity or attracts transients or other persons who have been involved or are likely to be involved in such criminal activity.
- h. **Procedure.**

Table 12.2(E)(4)(h) Special Use Permit Approval Procedure			
SUBMITTAL REQUIREMENTS	REVIEWING AUTHORITY	ACTION TO BE TAKEN	APPEAL PROCESS
Sketch Plan (12.3.D) w/ Environmental Survey (12.3.B)	Land Use Administrator	For Non-Binding Review Only	n/a
Special Use Permit w/ Master Plan (12.3.F)	Land Use Administrator	Review for Completeness & Ordinance Compliance; Issue Staff Report	n/a
	Town Council	Evidentiary Public Hearing; SUP Approved – or - Denied	Superior Court
Construction Drawings (12.3.G) w/Environmental Survey (12.3.B)	Land Use Administrator	Review for Completeness & Ordinance Compliance; CIP Issued - or - Denied	BOA

Figure 12.8: Special Use Permit Process



G. **Legislative Procedures.** This Section establishes uniform procedures for processing matters requiring a legislative approval process before the Town Council.

1. **General Provisions.**

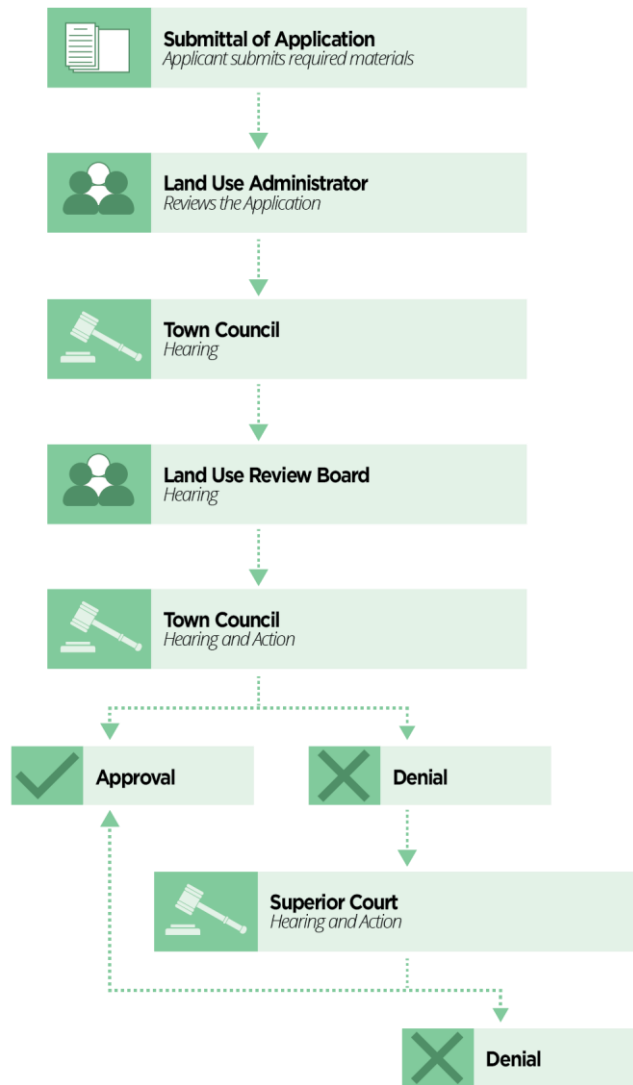
- a. **Town Council Decision.** Once the public hearing has been conducted, the Town Council shall refer the matter to the LURB for a recommendation. If no comments have been received from the LURB within thirty (30) days of referral from the Town Council, the Council may proceed with consideration of the proposal and render a decision.
- b. **Compliance with Comprehensive Plan.** Zoning Text and Map Amendments shall be made in accordance with a comprehensive plan. The LURB shall have advised and commented on whether the proposed amendment is consistent with any comprehensive plan that has been adopted and any other officially adopted plan that is applicable. The LURB shall have provided a written recommendation to the Town Council that addresses plan consistency and other matters as deemed appropriate by the LURB, but a comment by the LURB that a proposed amendment is inconsistent with the comprehensive plan shall not preclude consideration or approval of the proposed amendment by the Town Council. Prior to adopting or rejecting any zoning amendment, the Town Council shall adopt a statement describing whether its action is consistent with an adopted comprehensive plan and explaining why the Town Council considers the action taken to be reasonable and in the public interest. That statement is not subject to judicial review.
- c. **Re-Hearing.**
 - i. **Applicability.** An application for a re-hearing shall be made in the same manner as provided for an original hearing within a period of fifteen (15) days after the date of the Town Council decision. In addition, specific information to enable the Town Council to determine whether or not there has been a substantial change in facts, evidence, or conditions in the case, shall be presented in writing or graphically.
 - ii. **Procedure.** A re-hearing shall be denied by the Town Council if, in its judgment, such change in facts, evidence, or conditions have not been proven. A public hearing shall not be required to be held by the Town Council to consider holding such a re-hearing. Approval of said consideration shall, however, require an affirmative vote of at least four-fifths (4/5) of the voting members. In the event that the Town Council finds that a re-hearing is warranted, it shall then proceed as in the original hearing except that the application fee shall be waived.
- d. **Effect of Denial/Time to Resubmit.** Upon the denial of an original application, or upon the denial of an application from which a re-hearing has been conducted, a similar application may not be filed for a period of one (1) year after the date of denial of the original application.
- e. **Appeals.** Every legislative decision of the Town Council shall be subject to review by the Superior Court Division of the General Courts of Justice of the State of North Carolina by proceedings in the nature of certiorari. Any petition for review by the Superior Court shall be duly verified and filed with the Clerk of Superior Court within thirty (30) days after the decision of the Council is filed in the office of the Town Clerk, or after a written copy is delivered to every aggrieved party who has filed a written request for such copy with the Land Use Administrator at the time of the hearing of the case by the Town Council, whichever is later.
- f. **Application Withdrawal.** The applicant may withdraw a legislative application by providing written notice to the Land Use Administrator in accordance with the following:
 - i. The petitioner may withdraw his/her application before submission of the public notice to the newspaper announcing the public hearing.

- ii. After submission of such notice, an application may be withdrawn at the discretion of the Town Council at the public hearing.
 - iii. No more than two (2) withdrawals may occur on the same parcel or portion of land within a one (1) year period.
 - iv. No application shall be filed on the same parcel or portion of land within a one (1) year period after the date of the second withdrawal.
2. **Zoning Text Amendment.**

- a. **Applicability.** A Zoning Text Amendment (ZTA) may be initiated by the Town Council, the LURB, the Land Use Administrator or any private citizen by filing an application with the Land Use Administrator.
- b. **Citizen Comments.** In addition to comments provided in person at public hearings and public meetings, any resident or property owner in the town may submit a written statement regarding a proposed amendment, modification, or repeal to a zoning ordinance to the clerk to the board at least two (2) business days prior to the proposed vote. If submitted according to the preceding condition, the Town Clerk shall submit said written statements to the Town Council, prior to such hearing.
- c. **Decision.** A decision concerning the petition to amend the text of this Ordinance shall be as follows:
 - i. Adoption of the amendment as written; or
 - ii. Adoption of the amendment as revised by the Land Use Administrator, LURB, or Town Council; or
 - iii. Rejection of the amendment.
- d. **Procedure.**

Table 12.2(F)(2)(d) Text Amendment Approval Procedure			
SUBMITTAL REQUIREMENTS	REVIEWING AUTHORITY	ACTION TO BE TAKEN	APPEAL PROCESS
Text Amendment Application	Land Use Administrator	Review for Completeness & Ordinance Compliance; Issue Staff Report	n/a
	Town Council	Public Hearing Refer to LURB	n/a
	LURB	Review and Recommendation	n/a
	Town Council	ZTA Approved – or – Denied	Superior Court

Figure 12.9: Zoning Text Amendment Process

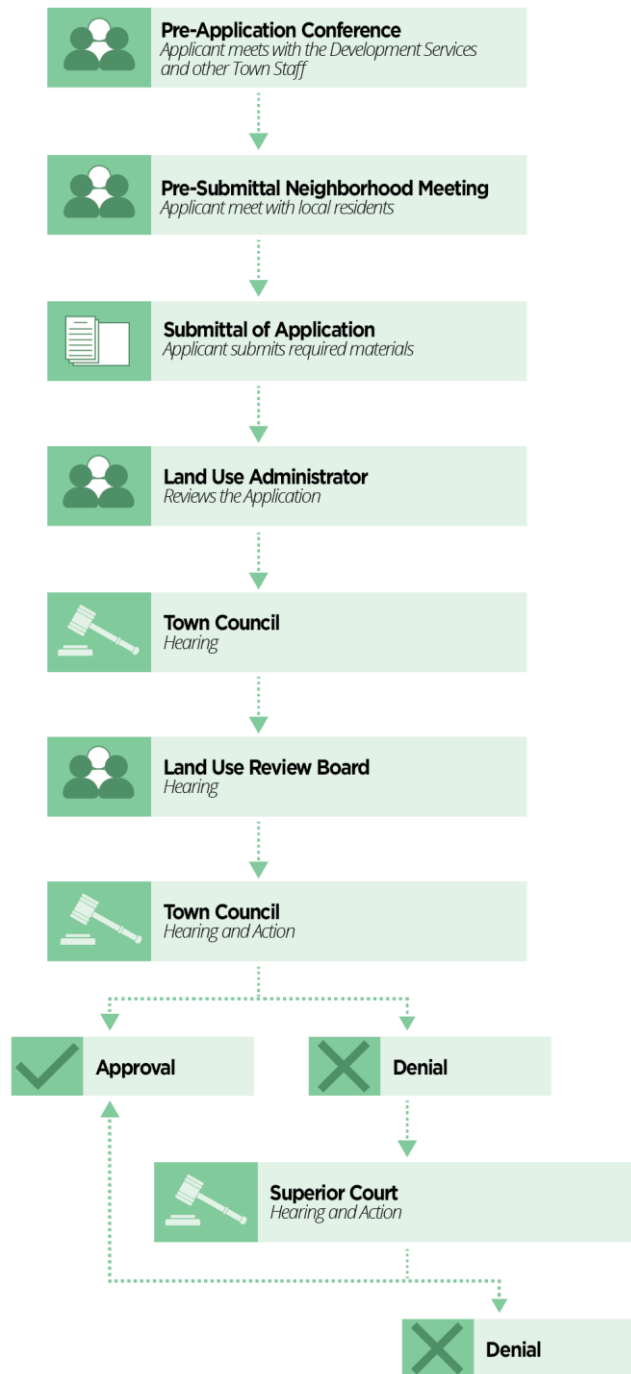


3. Zoning Map Amendments (Re-Zonings).

- a. **Applicability.** An amendment to the Official Zoning Map, or “Zoning Map Amendment” (ZMA) may be initiated by the Town Council, the LURB, the Land Use Administrator, or any private citizen by filing an application with the Land Use Administrator.
- b. **Neighborhood Meetings.** A pre-submittal neighborhood meeting is required for all applications for a Zoning Map Amendment as outlined in 12.2(C)(3).
- c. **Citizen Comments.** In addition to comments provided in person at public hearings and public meetings, any resident or property owner in the town may submit a written statement regarding a proposed amendment, modification, or repeal to a zoning ordinance to the clerk to the board at least two (2) business days prior to the proposed vote. If submitted according to the preceding condition, the Town Clerk shall submit said written statements to the Town Council, prior to the hearing. If the proposed change is the subject of a quasi-judicial proceeding the clerk shall provide only the names and addresses of the individuals providing written comment.
- d. **General Re-Zoning.**
 - i. **Decision.** A decision concerning a petition for re-zoning shall be as follows:
 - a) Grant the re-zoning as requested; or,
 - b) Grant the re-zoning with a reduction in the area requested; or,
 - c) Grant the re-zoning to a more restrictive general zoning district; or,
 - d) Grant the re-zoning with a combination of “ii” and “iii” above; or,
 - e) Deny the application.
- e. **Procedure.**

SUBMITTAL REQUIREMENTS	REVIEWING AUTHORITY	ACTION TO BE TAKEN	APPEAL PROCESS
Map Amendment Application	Land Use Administrator	Review for Completeness & Ordinance Compliance; Issue Staff Report	n/a
	Town Council	Public Hearing Refer to LURB	n/a
	LURB	Review and Recommendation	n/a
	Town Council	ZTA Approved – or – Denied	Superior Court

Figure 12.10: Map Amendment Process

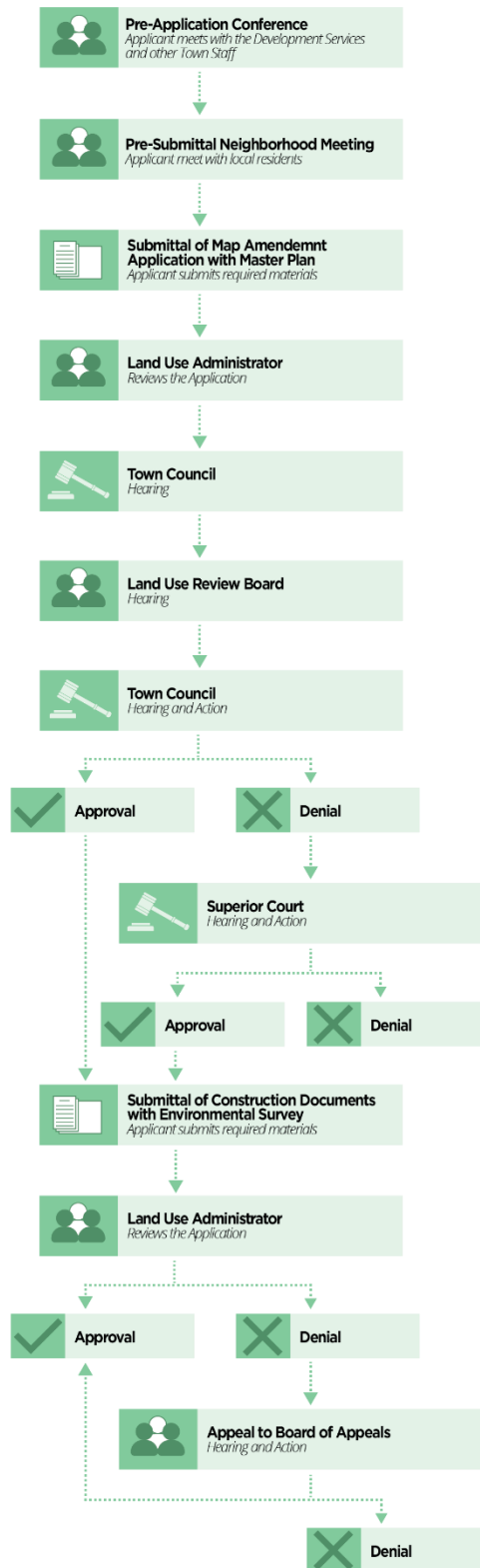


- f. **Re-Zoning.** The Conditional District (ZMA-CD) re-zoning process provides a procedure for the re-zoning of property based upon the recognition that certain types of zoning districts would be inappropriate at particular locations in the absence of special conditions. This process affords a degree of certainty in land use decisions not possible when re-zoning to a general category allowing many different uses.
- i. **Specific Requirements.**
- a) **Applicant.** Conditional District classification shall only be considered upon the request of the owners and/or their representatives of all the property to be included.
 - b) **Standards of Corresponding General District to be Met.** All standards and requirements of the corresponding General District shall be met, except to the extent that the conditions imposed are more restrictive than those standards. However, when a Conditional District is a requirement of Section 3.1, petitioners may also ask that certain standards identified be decreased. Within an approved Conditional District, no use shall be permitted except pursuant to the conditions imposed on the Conditional District in the approval of the re-zoning.
 - c) **Content of Application.** The Master Plan, as a site-specific Conditional Zoning Plan, is itself a condition of the ZMA-CD. In addition to the Master Plan, the applicant shall provide the exact land use classifications proposed for the Conditional District. Such use classifications may be selected from any of the uses, whether permitted by right or special use, allowed in the General District upon which the Conditional District is based. Uses not otherwise permitted within the General District shall not be permitted within the Conditional District.
 - d) **Fair and Reasonable Conditions.** At the request of the applicant, the LURB may recommend and the Town Council may attach reasonable and appropriate conditions including but not limited to the location, nature, hours of operation, and extent of the proposed use. The applicant will have a reasonable opportunity to consider and agree to any additional requirements proposed by either the LURB or the Town Council prior to final action.
- ii. **Substantial Changes.** Any substantial change to a Master Plan that results in a net increase to the number of lots or to the heated floor area shall be reviewed by the LURB and approved or denied by the Town Council as an amended Conditional District.
- iii. **Time Limit on Approval.** The Applicant must secure a valid building or construction permit(s) within a 24-month period from date of approval of the ZMA-CD unless otherwise specified.
- iv. **Rescission of Conditional Districts.** If such project is not complete and a valid building or construction permit is not in place at the end of the 24-month period, the Land Use Administrator shall notify the applicant of either such finding. Within sixty (60) days of notification, the Land Use Administrator shall make a recommendation concerning the rescission of the ZMA-CD to the Town Council. The Town Council may then rescind the ZMA-CD or extend the life of the ZMA-CD for a specified period of time.

v. Procedure.

Table 12.2(F)(3)(f)(v) Conditional District Re-Zoning Approval Procedure			
SUBMITTAL REQUIREMENTS	REVIEWING AUTHORITY	ACTION TO BE TAKEN	APPEAL PROCESS
Sketch Plan (12.3.D) w/ Environmental Survey (12.3.B)	Land Use Administrator	For Non-Binding Review Only	n/a
Map Amendment Application w/ Master Plan (12.3.F)	Land Use Administrator	Review for Completeness & Ordinance Compliance; Issue Staff Report	n/a
	Town Council	Public Hearing Refer to LURB	n/a
	LURB	Review and Recommendation	n/a
	Town Council	ZMA-CD Approved -or- Denied	Superior Court
Construction Drawings (12.3.G) w/Environmental Survey (12.3.B)	Land Use Administrator	Review for Completeness & Ordinance Compliance; CIP Issued -or- Denied	BOA

Figure 12.11: Conditional District Rezoning Process



- g. **Planned Unit Development Overlay District Rezoning.**
- i. **General Provisions.**
- a) Each planned unit development should be presented and judged on its own merits. It shall not be sufficient to base justification for approval of a planned unit development upon an already existing planned unit development except to the extent such planned unit development has been approved as part of a development master plan.
 - b) The burden of providing evidence and persuasion that any planned unit development is necessary and desirable shall in every case rest with the applicant.
- ii. **Standards for Review.** Approval of development through a Planned Unit Development Overlay District rezoning, including modifications to the requirements of this UDO, is a privilege and will be considered by the Town only in direct response to the accrual of tangible benefits from the planned unit development to the Town or the neighborhood in which it would be located. These benefits shall be in the form of exceptional amenities, outstanding environmental, landscape, architectural, or site design, or the conservation of special man-made or natural features of the site. In reviewing an application for a planned unit development, the LURB and/or the Town Council, as the case may be, shall be required to make certain findings based on the following standards:
- a) **Required Findings.** No application for a Planned Unit Development Overlay District Rezoning shall be approved unless all the following findings are made about the proposal:
 - (i) **Comprehensive Plan.** The planned unit development shall conform with the general planning policies of the Town as set forth in the Comprehensive Plan and other adopted policy documents.
 - (ii) **Public Welfare.** The planned unit development shall be so designed, located, and proposed to be operated and maintained that it will not impair an adequate supply of light and air to adjacent property and will not substantially increase the danger of fire or otherwise endanger the public health, safety, and welfare.
 - (iii) **Impact on Other Property.** The planned unit development shall not be injurious to the use or enjoyment of other property in the neighborhood for the purposes permitted in the district, shall not impede the normal and orderly development and improvement of surrounding properties for uses permitted in the zoning district, shall not be inconsistent with the community character of the neighborhood, shall not alter the essential character of the neighborhood and shall be consistent with the goals, objectives, and policies set forth in the Comprehensive Plan, and shall not substantially diminish or impair property values within the neighborhood, or be incompatible with other property in the immediate vicinity.
 - (iv) **Impact on Public Facilities and Resources.** The planned unit development shall be so designed that adequate utilities, road access, drainage, and other necessary facilities will be provided to serve it. The planned unit development shall include such impact donations as may be reasonably determined by the Town Council. These required impact donations shall be calculated in reasonable proportion to the impact of the planned unit development on public facilities and infrastructure.
 - (v) **Archaeological, Historical, or Cultural Impact.** The planned unit development shall not substantially adversely impact a known archaeological, historical, or cultural resource located on or off the parcel(s) proposed for development.

- (vi) **Parking and Traffic.** The planned unit development shall have or make adequate provision to provide necessary parking and ingress and egress to the proposed use in a manner that minimizes traffic congestion in the public streets and provides adequate access for emergency vehicles.
 - (vii) **Adequate Buffering.** The planned unit development shall have adequate landscaping, public open space, and other buffering features to protect uses within the development and surrounding properties.
 - (viii) **Performance.** The applicant shall demonstrate a successful history of having completed one or more recent projects of comparable value and complexity to provide the Town with reasonable assurance that, if authorized, the planned development can be completed according to schedule as designed.
- b) **Modification Standards.** In addition to the findings required above, the following standards shall be utilized in considering Site Development Allowances. These standards shall not be regarded as inflexible but shall be used as a framework by the Town to test the quality of the amenities, benefits to the community, and design and desirability of the proposal.
- (i) **Place Making.**
 - (ii) **Integrated Design.** A planned unit development shall be laid out and developed as a unit in accordance with an integrated overall design. This design shall provide for safe, efficient, convenient, and harmonious grouping of structures, uses, and facilities, and for appropriate relation of space inside and outside buildings to intended uses and structural features.
 - (iii) **Beneficial Common Open Space.** Common open space in excess of what is required by this UDO in the planned unit development shall be integrated into the overall design. Such spaces shall have a direct functional or visual relationship to the main building(s) and not be of isolated or leftover character. The following would not be considered usable common open space:
 1. Areas reserved for the exclusive use or benefit of an individual tenant or owner.
 2. Dedicated streets, alleys, and other public rights-of-way.
 3. Vehicular drives, parking, loading, and storage area.
 4. Irregular or unusable narrow strips of land less than fifteen (15) feet wide.
 5. Land areas needed to provide required buffer yards as set forth in UDO Section 7.
 - (iv) **Location of Taller Buildings.** Taller buildings shall be located within the planned unit development in such a way as to dissipate any material adverse impact on adjoining lower buildings within the development or on surrounding properties and shall not unreasonably invade the privacy of occupants of such lower buildings.
 - (v) **Functional and Mechanical Features.** Exposed storage areas, trash, and garbage retainers, exposed machinery installations, service areas, truck loading areas, utility buildings and structures, and similar accessory areas and structures shall be accounted for in the design of the planned unit development and made as unobtrusive as possible. They shall be subject to such setbacks, special planting, or other screening methods as shall reasonably be required to prevent their being incongruous with the existing or contemplated environment and the surrounding properties.
 - (vi) **Visual and Acoustical Privacy.** The planned unit development shall provide reasonable visual and acoustical privacy for each dwelling unit or tenant space. Fences, insulations,

walks, barriers, and landscaping shall be used as appropriate for the protection and aesthetic enhancement of property and the privacy of its occupants, screening of objectionable views or uses, and reduction of noises.

- (vii) **Energy Efficient Design.** A planned unit development shall be designed with consideration given to various methods of site design and building location, architectural design of individual structures, and landscaping design capable of reducing energy consumption within the planned development.
 - (viii) **Landscape Conservation and Visual Enhancement.** The existing landscape and trees in a planned unit development shall be conserved and enhanced, as feasible, by minimizing tree and soil removal, and the conservation of special landscape features such as streams, ponds, groves, and landforms. The addition or use of larger trees, shrubs, flowers, fountains, ponds, special paving amenities will be encouraged to the extent of their appropriateness and usefulness to the planned development and the likelihood of their continued maintenance.
 - (ix) **Drives, Parking and Circulation.** Principal vehicular access shall be from dedicated public streets, and access points shall be designed to encourage smooth traffic flow with controlled turning movements and minimum hazards to vehicular or pedestrian traffic. With respect to vehicular and pedestrian circulation, including walkways, interior drives, and parking, special attention shall be given to location and limiting the number of access points to the public streets through the use of cross access connections, width of interior drives, and access points, general interior circulation, separation of pedestrian and vehicular traffic, adequate provision for service by emergency vehicles, and arrangement of parking areas that are safe and convenient, and insofar as feasible, do not detract from the design of proposed buildings and structures and the neighboring properties.
 - (x) **Surface Water Drainage.** Special attention shall be given to proper site surface drainage so that the removal of surface waters will not adversely impact neighboring properties or the public storm drainage system. Surface water in all paved areas shall be collected at intervals so that it will not obstruct the flow of vehicular or pedestrian traffic.
- c) **Site Development Allowances.** Notwithstanding any limitations on variances which can be approved as contained elsewhere in this UDO, site development allowances, i.e., deviations from the underlying zoning provisions set forth outside this Chapter may be approved provided the applicant specifically identifies each such site development allowance and demonstrates how each such site development allowance would be compatible with surrounding development, is in furtherance of the stated objectives of this UDO, and is necessary for proper development of the site.

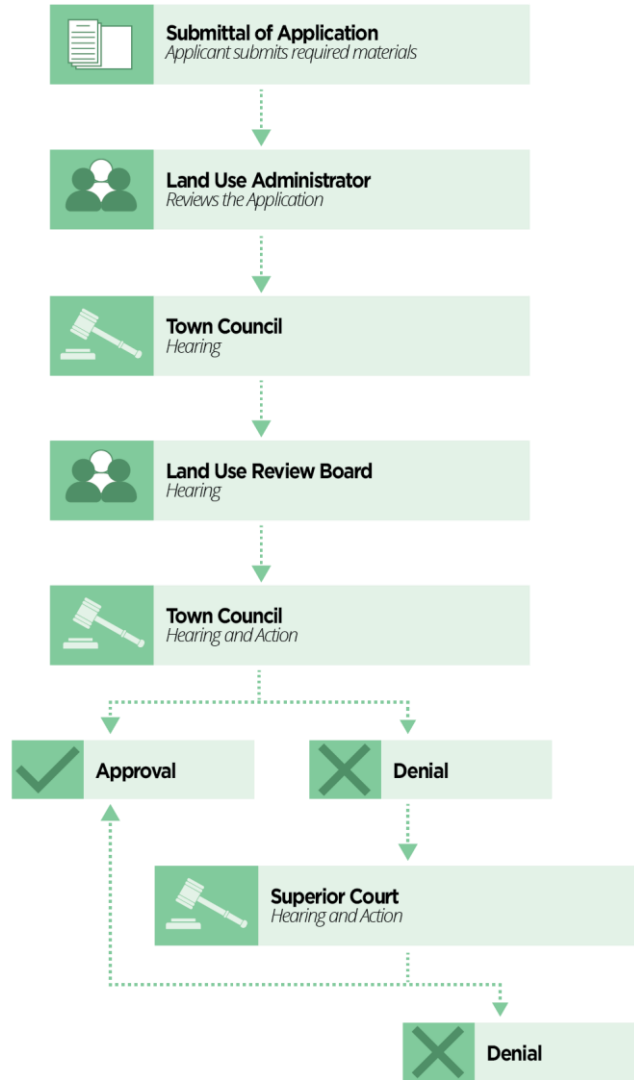
4. Vested Rights Extensions.

- a. **Applicability.** Pursuant to N.C.G.S.160D-108(d) and notwithstanding any other provision or amendment, a landowner may apply for approval of a Site-Specific Development Plan (Master Plan) as defined in the statute that shall entitle said landowner to develop the property over a period beyond the original two (2) year approval duration in accordance with the previously approved plan. All requests for Vested Rights shall be accompanied by a copy of the approved Site-Specific Development Plan (Master Plan) in accordance with the provisions of this Chapter.
- b. **Board Powers and Responsibilities.** A request to extend Vested Rights to a previously approved Site-Specific Development Plan (Master Plan) shall be reviewed and approved by the Town Council after notice and public hearing.
 - i. **Decision.** The Town Council shall determine whether or not to grant or establish a Vested Right after the review and consideration of the LURB. The Town Council may not require the landowner to waive his Vested Right as a condition of development approval.
 - ii. **Required Determinations.** The Town Council may approve the Vested Right for a period greater than two (2) years where it is determined that due to (i) the sizing and phasing of the development; (ii) the level of investment; (iii) the need for the development; (iv) economic cycles; or (v) due to market conditions, building permits for all phases of the development cannot be secured within the initial two (2) year approval duration period.
 - iii. **Time Limit on Vested Right.** The maximum vesting term that may be granted by the Town Council may not exceed five (5) years from the date of original Master Plan approval with the exception of multi-phase development of at least twenty-five (25) acres for which the Town Council may grant a maximum vesting term not to exceed seven (7) years.
- c. **Effect of Approval of Vesting.** A Vested Right shall confer upon the landowner the right to undertake and complete the development and use of said property under the terms and conditions of the approved Site-Specific Development Plan (Master Plan). The establishment of a Vested Right on a piece of property for a Site-Specific Development Plan shall not preclude the Town from establishing and enforcing on the property any additional regulations (adopted during the time the Vested Right was in effect) which are general in nature and applicable to all property subject to the regulations of this Ordinance. A Vested Right, once established shall preclude any zoning action by the Town which would change, alter, impair, prevent, diminish or otherwise delay the development or use of the property in accordance with the approved Site-Specific Development Plan (Master Plan), except under the conditions in subsection “e” below where such rights are terminated and revoked.
- d. **Establishment of Common Law Vesting Plans.** Previously approved Site-Specific Development Plans (Master Plans) shall be reviewed for compliance and consistency and subsequently approved by the Land Use Administrator or designee in accordance with the provisions of this Chapter, providing the proposed CDs for the SDA or Subdivision do not deviate from, and is subdivided/developed in accordance with the previously approved Site-Specific Development Plan (Master Plan). Substantial financial investment must be determined and a good faith effort made to develop proportionate to the approved statutory vested plan.

- e. **Revocation of Vested Rights.** Once a Vested Right is granted to a particular Master Plan, nothing in this Section shall preclude the Town from conducting subsequent reviews and approvals to ensure compliance with the terms and conditions of the original approval, provided such reviews and approvals are consistent with the original approval. Failure to abide by the terms and conditions placed upon such approval or with any other applicable portion of this Ordinance will result in the forfeiture of the previously granted or established Vested Right. As prescribed under the provisions of G.S.160D-108.1, the Vested Right shall otherwise expire at the end of the approval period established by the Town Council. A building permit issued by the permit-issuing authority pursuant to G.S. 160D-1110 may not expire or be revoked because of the running of time on a piece of property while a plan has been approved and the Vested Right period has not otherwise expired. As noted in subsection “c” above, the presence of any of the following conditions shall cause such vested rights to be terminated and revoked:
- i. The affected landowner provides written consent to the Town of his/her desire to terminate the Vested Right;
 - ii. The Town determines, after having advertised and held a public hearing, that natural or man-made hazards exist on or in the immediate vicinity of the property which pose a serious threat to the public health, safety, and welfare if the project were to proceed as indicated in the plan;
 - iii. Compensation is made by the Town to the landowner for all costs, expenses, and other losses incurred, including but not limited to. all fees paid in consideration of financing; and all architectural, planning, marketing, legal, and any other consultant's fees incurred after approval together with interest thereon at the legal rate until paid;
 - iv. The Town determines, after having advertised and held a public hearing, that the landowner or his representative intentionally supplied inaccurate information or made material misrepresentations which made a difference in the approval by the Town Council of the plan; or
 - v. Upon the enactment of a State or Federal law or regulations which precludes development as shown in the plan. In such case, the Town may, after having advertised and conducted a public hearing, modify the affected provisions upon a finding that this change in State or Federal law has a fundamental effect on the plan.
- f. **Procedure.**

Table 12.2(F)(4)(f) Vested Right Approval Procedure			
SUBMITTAL REQUIREMENTS	REVIEWING AUTHORITY	ACTION TO BE TAKEN	APEAL PROCESS
Vested Right Application w/Master Plan (12.3.F)	Land Use Administrator	Review for Completeness & Ordinance Compliance; Issue Staff Report	n/a
	Town Council	Public Hearing	n/a
	LURB	Review and Recommendation	n/a
	Town Council	Vested Right Approved -or- Denied	Superior Court

Figure 12.12: Vested Rights Extension Process



12.3. Development Plan Requirements

- A. **Purpose and Intent.** This Chapter describes the information required for all development activity to ensure compliance with the standards found in this Ordinance. The submission of a complete application in accordance with this Chapter is necessary prior to any review being undertaken as described in Chapter 11 by the Land Use Administrator, DRC, LURB, and/or Town Council.
- B. **Environmental Survey.** An environmental survey is intended to identify historic buildings, areas, and landscapes; to identify forest stands or trees of uniform size and species; specimen trees of varying sizes and species, particularly free-standing or open-grown or field-grown trees; a distinctive tree line or forest edge; existing watercourses and previously documented endangered species' habitats. Identification of existing trees, understory vegetation, endangered species and their supporting habitat, wetlands, perennial streams, floodplains, topographical features such as steep slopes and unique geologic features, and historic resources on a site prior to the advanced preparation of development plans enables the reasonable and practical planned preservation of environmentally sensitive areas. This requirement provides the Town and the applicant the ability to:
- Evaluate the proposed development in order to preserve vegetation;
 - Improve the appearance of the proposed development;
 - Encourage the use of the existing forest and tree canopy, specimen trees, and significant vegetation; and
 - Encourage the preservation of cultural resources. Elements of this requirement may be waived by the Land Use Administrator if the site lacks qualifying natural features.
1. **Sketch Plan and Master Plan Submittal.** The use of digital geographic data obtained from the Town of Knightdale or Wake County is deemed to be sufficient for the Sketch Plan and Master Plan phases of submittal requirements.
 2. **Construction Drawing Submittal.** For Construction Drawings, the Environmental Survey requirements are as follows.
 - a. Provide a general written description of the significant vegetation, which includes specimen trees as well as any tree stand containing canopy trees twelve (12) inches DBH or greater and/or understory species two (2) inches or greater in caliper (e.g. dogwood, holly, redbud, etc.). For this significant vegetation, identify the species or general species composition, the general size and height, the average spacing (in tree stands) and the overall health and vigor of the tree(s).
 - b. Denote the dripline of any existing tree stand, as measured between existing tree trunks six (6) inches or greater located at the edge of the stand.
 - c. Identify all open-grown or field-grown specimen trees (see Chapter 15) standing alone in a field or on the edge of a tree stand that are located on the site 12" or greater DBH.
 - d. Identify any tree on the site 24" DBH or greater.
 - e. Denote the presence of any historic resources identified for preservation under Section 11.2.

- f. Show all other important natural features influencing site design such as:
 - i. The location of wetlands, rock outcroppings, site topography at two-foot (2') contour intervals,
 - ii. Slopes steeper than fifteen (15) percent,
 - iii. Perennial streams, natural drainage ways, lakes, other water bodies and floodplains indicating both the flood fringe and the floodway. USGS and FEMA data shall be used to determine the location of perennial streams unless stream data determination has already been obtained from the North Carolina Division of Water Quality or from a licensed engineering firm.
 - g. Denote the presence of any known endangered species' habitats indicated in any surveys completed by Wake County, the State of North Carolina, or other governmental agency.
 - h. Show all NRB delineations as follows:
 - i. NRB boundaries including all undisturbed buffer zones must be clearly delineated on all Development Plans submitted for approval by the Town, including all Construction Drawings sets and specifically on grading and clearing sheets, erosion and sediment control plan sheets, and site plan sheets.
 - ii. NRB boundaries for all required undisturbed buffer zones must be clearly delineated on-site in the field prior to any land disturbing activities. Where existing trees are to be preserved in a buffer zone, limits of grading shall maintain a minimum 20-foot separation from the base of each tree on the upland side of the buffer or to the dripline, whichever is greater.
 - iii. NRB boundaries including all buffer zones as well as all buffer requirements must be specified on the final plat of record, on individual deeds and in property association documents for lands held in common.
- C. **Floodplain Development Permit Requirements.** A floodplain development permit is required prior to the commencement of any development activities within the Special Flood Hazard Areas and Future Conditions Flood Hazard Areas as determined in Section 9.5 (B)(1). Application for a floodplain development permit shall be made to the Floodplain Administrator on furnished forms prior to any development activities proposed on site. All plans shall be submitted at a scale not less than 1 inch = 60 feet unless otherwise authorized by the Land Use Administrator. The following items/information shall be presented to the.
- 1. A plot plan drawn to scale which shall include, but shall not be limited to, the following specific details of the proposed floodplain development:
 - a. The nature, location, dimensions, and elevations of:
 - i. The area of development/disturbance,
 - ii. Existing and proposed structures,
 - iii. The location of utility systems,
 - iv. Proposed grading/pavement areas,
 - v. Fill materials,
 - vi. Storage areas,
 - vii. Drainage facilities, and
 - viii. Other proposed development.

- b. The boundary of the Special Flood Hazard Area or Future Conditions Flood Hazard Area as delineated on the FIRM or other flood map as determined in Section 9.5 (B)(1) or a statement that the entire lot is within the Special Flood Hazard Area;
 - c. Flood zone(s) designation of the proposed development area as determined on the FIRM or other flood map as determined in Section 9.5(B)(1);
 - d. The boundary of the floodway(s) or non-encroachment area(s) as determined in Section 9.5 (B)(1);
 - e. The Base Flood Elevation (BFE) where provided as set forth in Section 9.5(B)(1);
 - f. The old and new location of any watercourse that will be altered or relocated as a result of the proposed development; and
 - g. Preparation of the plot plan for the original development of property by or under the direct supervision of a registered land surveyor or professional engineer and certified by same. Additions to an existing structure such as a deck are exempt.
2. Proposed elevation, and method thereof, of all development within a Special Flood Hazard Area including but not limited to:
 - a. Elevation in relation to NAVD 1988 of the proposed reference level (including basement) of all structures;
 - b. Elevation in relation to NAVD 1988 to which any non-residential structure will be flood-proofed;
 - c. Elevation in relation to NAVD 1988 to which any proposed utility systems will be elevated or flood-proofed;
 3. If flood-proofing, a flood-proofing certificate and back-up plans from a registered professional engineer or architect certifying that the non-residential flood-proofed development will meet the flood-proofing criteria in sections Section 9.5 (D)(3)(b).
 4. A foundation plan drawn to scale, which shall include details of the proposed foundation system to ensure all provisions of this ordinance are met. These details include but are not limited to.
 - a. Proposed method of elevation, if applicable (i.e., fill, solid foundation perimeter wall, solid backfilled foundation, open foundation on columns/piers); and
 - b. Should solid foundation perimeter walls be used in floodplains, details of sufficient openings to facilitate the unimpeded movements of floodwaters in accordance with Section 9.5 (E)(d);
 5. Usage details of any enclosed space below the regulatory flood protection elevation.
 6. Plans and/or details for the protection of public utilities and facilities such as sewer, gas, electrical, and water systems to be located and constructed to minimize flood damage;
 7. If floodplain development permit is issued for the placement of recreational vehicles and/or temporary structures, documentation to ensure sections Section 9.5 (E)(3)(g) and Section 9.5 (E)(3)(h) of this code are met.
 8. If a watercourse is proposed to be altered and/or relocated:
 - a. A description of the extent of watercourse alteration or relocation,
 - b. An engineering report on the effects of the proposed project on the flood-carrying capacity of the watercourse and the effects to properties located both upstream and downstream, and
 - c. A map (if not shown on plot plan) showing the location of the proposed watercourse alteration or relocation.

- D. **Sketch Plan Requirements.** Prior to submitting a Sketch Plan for Administrative review, the applicant shall schedule a pre-application submittal (“pre-app”) meeting with the Land Use Administrator and Stormwater Manager. In addition to the information required by the Environmental Survey (Section 12.3(B)), the Sketch Plan shall show the proposed layout of streets, lots, buildings, public open spaces, and other features in relation to existing conditions based upon the size of the tract proposed for development. The size and number of completed applications shall be set by the Land Use Administrator. All plans shall be submitted at a scale not less than 1 inch = 60 feet unless otherwise authorized by the Land Use Administrator. Generally, a Sketch Plan will include the following information:
1. A sketch vicinity map, including north arrow, showing the location of the subdivision or site in relation to neighboring tracts, subdivisions, roads, and waterways;
 2. The name, address, and telephone number of the property owner;
 3. The name of the proposed subdivision;
 4. The boundary lines of the property;
 5. The total acreage;
 6. The existing and proposed land uses and the existing land uses of adjacent properties;
 7. The existing topographic and planimetric conditions of the property and a surrounding three hundred-(300) foot buffer area around the property including contours not exceeding five-(5) foot (5’) intervals (Wake County or Town of Knightdale topographic information may be used to fulfill this requirement);
 8. The location, names, and right-of-way width of any existing streets on or within three hundred (300) feet of the land to be subdivided; Lots of adjacent developed or platted properties;
 9. The zoning classification of the land and adjacent properties;
 10. Illustrative building elevations denoting general design elements and materials;
 11. Watershed classification, if any;
 12. A general graphic inventory of the natural resources (wetlands, lakes, ponds, forest cover, stream buffers, geologic features, native vegetative areas, etc.) at the site and surrounding area out to a radius of 300 feet around the subject subdivision or site as they exist prior to the commencement of development activities; and
 13. A graphic concept plan of the proposed post-development stormwater management system including but not limited to swales, low-impact design elements, structural stormwater controls, flow paths, stream channel modifications, bridges, and culvert crossings.
 14. A statement and any supporting documentation regarding how the proposed development will meet the Town of Knightdale Water Allocation Policy; thereby securing connection to the public water and sewer infrastructure.
 15. Additional information may be required by the Land Use Administrator prior to the formal submittal of further development applications.

- E. **Planned Development District (PDD) Plan Requirements.** All Planned Development Districts shall have a corresponding plan to include the following elements:
1. **Zoning Designation(s).** The Planned Development District master plan shall include a request for a zoning designation(s) that matches the proposed density.
 2. **Boundary & Significant Feature Survey.** The boundary, as determined by survey, of the area to be developed with all bearings and distances shown and the location within the area, or contiguous to it, of any existing streets, railroad lines, perennial streams, wetlands, easements, or other significant features of the tract;
 3. **Scale & North Arrow.** Scale denoted both graphically and numerically with north arrow;
 4. **Vicinity Map.** A vicinity map at a scale no smaller than 1 inch equals 1,200 feet showing the location of the PDD with respect to adjacent streets and properties;
 5. **Site Data.** Site calculations shall include total acreage, acreage in parks and other non-residential uses, total number and acreage of parcels, and the total number of housing units.
 6. **General Layout Map.** A map delineating the boundaries of proposed uses and building types. This map should include descriptive conditions indicating the use, density, and building type of each distinct area of the proposed district.
 7. **Dimensional Standards.** Description of dimensional standards and any modifications to the general use regulations.
 8. **Transportation.** Major streets and any collector/arterials required shall be shown on the PDD Plan. Any modifications to street sections or requests for modified street sections shall be included.
 9. **Open Space and Public Gathering Space.** Recreational Opens Space and Public Gathering Space areas shall be shown and descriptive conditions shall be utilized to indicate the type of improvements contemplated.
 10. **Phasing Plan.** If more than one phase is proposed the PDD shall establish a general phasing plan. In mixed-use proposals, the non-residential component shall be phased in association with a percentage of the total residential units not to exceed seventy five (75) percent.
 11. **Design Guidelines.** Architectural elevations representative of the proposed structures and any proposed design guidelines shall be included in the PDD plan.
 12. **Stormwater Management.** A generalized stormwater management plan.
 13. **Comprehensive Plan Consistency.** A statement of consistency with the adopted Comprehensive Plan.
 14. **UDO Consistency.** A statement of consistency with the Unified Development Ordinance. Any section of the UDO that is proposed to be modified shall be included as an additional section of the PDD plan.
- F. **Master Plan Requirements.** All plans shall be submitted at a scale not less than 1 inch = 60 feet unless otherwise authorized by the Land Use Administrator. All plan pages must be submitted at the same time using the open Portable Document Format (pdf) standard in a digital format.

No processing or review of a Master Plan will proceed without all of the following information:

1. **Boundary & Significant Feature Survey.** The boundary, as determined by survey, of the area to be developed with all bearings and distances shown and the location within the area, or contiguous to it, of any existing streets, railroad lines, perennial streams, wetlands, easements, or other significant features of the tract;
2. **Scale & North Arrow.** Scale denoted both graphically and numerically with north arrow;

3. **Vicinity Map.** A vicinity map at a scale no smaller than 1 inch equals 1,200 feet showing the location of the subdivision with respect to adjacent streets and properties;
4. **Site Data Table.** Site calculations shall include total acreage of the tract, acreage in parks and other non-residential uses, total number and acreage of parcels, and the total number of housing units.
5. **General Site Information.** The proposed name of the development, street names, the owner's name and address, the names of adjoining subdivisions or property owners, the name of the Township, county, and state in which the development is located, the date of plan preparation, and the zoning classification of the tract to be developed, and of adjoining properties.
6. **Environmental Survey.** See Section 12.3(B).
7. **Topography.** Original contours at intervals of not greater than two (2) feet for the entire area to be subdivided and extending into the adjoining property(ies) for a distance of three-hundred (300) feet at all points where street rights-of-way connect to the adjoining property and fifty (50) feet at all other points of common project boundaries. Wake County or Town of Knightdale digital topography may be used to satisfy this requirement but should be field-verified to ensure accuracy. This requirement may be waived for developments smaller than one (1) acre or where insufficient topographic changes warrant such information.
8. **Natural Development Constraints.** The location of any building restriction areas such as flood hazard areas, buffer locations, watershed protection districts and/or jurisdictional wetlands;
9. **Municipal & ETJ Boundaries.** Corporate limits and extra-territorial jurisdiction boundaries where applicable.
10. **Site Improvements & Dimensions.** The location of proposed buildings, parking and loading areas, streets, alleys, easements, lots, parks or other open spaces, site reservations (i.e. school sites), property lines, street dimensions, and tentative lot dimensions;
11. **Recreational Open Space Calculations.** The location and dimensions of proposed recreation areas, parks, open space, and required amenities and improvements including the calculated area of all required open space dedications in accordance with Chapter 11.2.
12. **Street Cross-Sections.** Typical cross-sections of proposed streets. Where a proposed street is an extension of an existing street, the profile of the street shall include three hundred (300) feet of the existing roadway, with a cross-section of the existing street. Where a proposed street within the development abuts a tract of land that adjoins the development and where said street may be expected to extend into said adjoining tract of land, the profile shall be extended to include three hundred (300) feet of the said adjoining tract.
13. **Two-Dimensional (2-D) Utility Plans.** Two-dimensional (2-D) utility plan showing the location of sanitary sewer lines, water distribution lines, storm sewer lines, manholes, clean-outs, fire hydrants, fire lines, valves, underground private utilities, backflow prevention devices showing make and model, meters, and pipe sizes. If applicable, also show well and septic locations, force mains, and pump stations.
14. **Construction Limits.** The proposed limits of construction for all proposed development activity.
15. **Phasing Plan & Timetable.** A phasing plan, including a timetable for estimated project completion for each phase proposed.
16. **Water Allocation Policy.** A statement and any supporting documentation regarding how the proposed development will meet the Town of Knightdale Water Allocation Policy; thereby securing connection to the public water and sewer infrastructure.

17. **Specific Plan Sheets.** Unless otherwise exempted by the Land Use Administrator, the following specific plan sheets are also required.
- a. Landscape Plan in accordance with Section 12.3(I)(1);
 - b. Lighting Plan in accordance with Section 12.3(I)(2);
 - c. Signs & Markings Plan in accordance with Section 12.3(I)(3);
 - d. Architectural Plans in accordance with Section 12.3(I)(4); and
 - e. Stormwater Management Plan in accordance with Section 12.3(I)(5).

In addition to the above required information, the following additional information may be required by the Land Use Administrator, the Land Use Review Board, or the Town Council on a site-specific basis.

18. Transportation Impact Analysis (if required) in accordance with 12.3(J).
19. **Environmental Impact Statement.** An Environmental Impact Statement, pursuant to Article 113A of the North Carolina General Statutes, may be required if the development exceeds two (2) acres in area, and; if the Town Council deems it necessary due to the nature of the land or peculiarities in the proposed design.
20. **Floodplain Development Permit.** FDP application with supporting documentation as may be required by the Knightdale Flood Damage Prevention Ordinance in Section 9.5.

- G. **Construction Drawing Requirements.** All plans shall be submitted at a scale not less than one (1) inch = 60 feet unless otherwise authorized by the Land Use Administrator. The size and number of complete application submittal copies required shall be set by the Land Use Administrator. In addition, a copy of all plan pages must be submitted at the same time using the open Portable Document Format (pdf) standard in a digital format.

No processing or review of Construction Drawings/Preliminary Plats will proceed without all of the following information:

1. **Boundary & Significant Feature Survey.** The boundary, as determined by survey, of the area to be subdivided or built upon with all bearings and distances shown and the location and the location within the area, or contiguous to it, of any existing streets, railroad lines, water courses, easements, bridges or other significant features of the tract. One corner of the tract shall be tied to the NC State Plane 1983 Coordinate System.
2. **Scale & North Arrow.** Scale in feet denoted both graphically and numerically with north arrow and declination.
3. **Vicinity Map.** A sketch vicinity map at a scale no smaller than one (1) inch equals 1,200 feet showing the relationship between the proposed subdivision or building site and the surrounding area.
4. **Site Data Table.** Site calculations shall include total acreage of tract, acreage in parks and other non-residential uses, total number and acreage of parcels, the total number of housing units, area of all mixed-use and non-residential buildings, gross project density per acre, linear feet of streets and public greenway trails, public sidewalks, curb and gutter, and storm drainage and the accurate locations and descriptions of all monuments, markers, and control points.
5. **General Site Information.**
 - a. The proposed names and addresses of the Development and streets,
 - b. The owner's name and address,
 - c. Signature of the owner or owner's duly authorized agent,

- d. The surveyor's name,
 - e. The names of existing and proposed adjoining subdivisions or property owners,
 - f. The names of the township, county, and state in which the development is located,
 - g. The date of preparation,
 - h. The zoning classification of the tract to be developed and of adjoining properties, and
 - i. The names, widths, right-of-way dimensions, pavement design, utility and storm drainage locations of adjoining streets.
6. **Environmental Survey.** See Section 12.3(B).
 7. **Topography.** Existing topography and finish grading with contours drawn at two (2) foot intervals. This requirement may be waived for developments smaller than one (1) acre or where insufficient topographic changes warrant such information. Elevations to be based on North American Vertical Datum of 1988 (NAVD 88) with benchmark indicated.
 8. **Natural Development Constraints.** The location of any building restriction areas such as flood hazard areas, watershed protection districts, and/or jurisdictional wetlands.
 9. **Municipal & ETJ Boundaries.** Corporate limits and extra-territorial jurisdiction boundaries where applicable.
 10. **Lots & Numbering.** Proposed lot lines, lot dimensions, lot and block numbers, and exact dimensions (for Major Subdivisions only).
 11. **Dedications & Reservations.** The future ownership and location of common and public areas (dedication or reservation for public use to a governmental body; for owners to duly constituted homeowners' association, for tenants remaining in subdivider's ownership of recreation and open space lands).
 12. **Water Allocation Policy.** A statement including an estimated calculation of sewer capacity requested in gallons per day along with the methodology for how such calculation was derived, and any supporting documentation regarding how the proposed development will meet the Town of Knightdale Water Allocation Policy; thereby securing connection to the public water and sewer infrastructure.
 13. **Three-Dimensional (3-D) Utility Plans.** The plans and profiles for utility layouts including sanitary sewers, storm sewers and water lines, illustrating connections to existing systems. Specific data includes, but is not limited to.
 - a. Pipe material, size, length, and slope;
 - b. Drainage areas and run-off for each storm drain pipe;
 - c. Invert elevations and top elevations for structures;
 - d. Water meter locations and size;
 - e. Sewer service lateral locations and size;
 - f. Detailed pump station plans;
 - g. Volume and cycle time calculations, total discharge head calculations, pump selection curve, and hydrostatic uplift calculations for pump stations and force mains;
 - h. Easements;
 - i. Fire hydrant locations;

- j. Valve, fittings, and blow-off locations;
- k. Details for borings;
- l. Temporary and permanent sampling station locations; etc.

All systems shall conform to current Town standards and the Knightdale Standards Specifications and Construction Details Manual.

14. **Easements.** Easements shall be provided on all Construction Drawings as follows:
- a. **Utility Easements.** Easements for underground or above ground utilities shall be provided for and centered along rear or side lot lines, and shall be a minimum of ten (10) feet in width. Easements for water lines, sanitary sewers, and storm drains shall be centered on the pipe and a minimum of twenty (20) feet in width or as required by the Knightdale Standard Specifications and Construction Details Manual.
 - b. **Drainage Easements.** Where a development is crossed by a stream or drainage way, an easement shall be provided conforming to the lines of such stream and of sufficient width as shall be adequate to maintain the overall integrity of the drainage area and provide for its periodic maintenance. All easements located on private property outside of the designated ROW shall be labeled and recorded as private, with the responsibility for maintenance and upkeep falling to the designated property owner or association.”
 - c. **Public Access Easements.** Public Access Easements shall be provided for sidewalks, trails, greenways, and other pedestrian and bicycle facilities that provide connections other than within public rights-of-way.
 - d. **SCM Access and Maintenance Easements.** Following the criteria listed in the NCDEQ SCM MDC, all easements and their associated paths shall be sized appropriately to ensure adequate access of equipment to all components of the designed facility.
15. **Off-Street Parking & Loading Areas.** The number, location, and dimensions of all off-street parking and loading spaces and the location and dimensions of all walkways indicating the type of surfacing, size, angle of stalls, and width of aisles.
16. **Recreational Open Space Amenities.** The location and dimensions of proposed recreation areas, parks, open space, and required amenities and improvements including the calculated area of all required open space dedications in accordance with Section 11.2.
17. **Street Improvements.** The location and dimensions of any sidewalks, curb and gutters to be installed along public street frontages, and other required street improvements designated in Chapters 7 and 11 of this Ordinance. Required right-of-way shall be drawn in the location shown on any official plan at the width specified in this Ordinance.
18. **Street Cross-Sections.** Typical cross-sections of proposed streets showing rights-of-way, pavement widths, grades, and design engineering data for all corners and curves. Where a proposed street is an extension of an existing street the profile of the street shall include three hundred (300) feet of the existing roadway, with a cross-section of the existing street. Where a proposed street within the subdivision abuts a tract of land that adjoins the subdivision and where said street may be expected to extend into said adjoining tract of land, the profile shall be extended to include three hundred (300) feet of the said adjoining tract.
19. **Demolition Landfills.** The location of any existing or proposed demolition landfills in the site. Such sites shall not be used for building.
20. **Erosion & Sedimentation Control Permit.** A copy of the full soil erosion and sedimentation permit application including forms, plans and calculations to be submitted to the Town of Knightdale along with copies of all other local, State and Federal floodplain development permits required (i.e. Wetlands, Riparian Buffers, Mining, etc.); and a copy of all approval letters prior to Site Plan or Construction Drawing approval.

21. **Specific Plan Sheets.** Unless otherwise exempted by the Land Use Administrator, the following specific plan sheets are also required.
- a. Landscape Plan in accordance with Section 12.3(I)(1)
 - b. Lighting Plan in accordance with Section 12.3(I)(2)
 - c. Signs & Markings Plan in accordance with Section 12.3(I)(3)
 - d. Architectural Plans in accordance with Section 12.3(I)(4)
 - e. Stormwater Management Plan in accordance with Section 12.3(I)(5)
 - f. Lot to lot stormwater management / erosion and sedimentation control plans in accordance with section 12.3(I)(5)
22. **Additional Information.** In addition to the preceding required information, the following additional information may be necessary for specific sites as determined by the Land Use Administrator or the DRC:
- a. **Transportation Impact Analysis** (if required) in accordance with Section 12.3(J).
 - b. **Private Community Utilities.** Where a proposed water and sewer system does not contemplate the use of publicly owned and operated facilities, the proposed facility plans as approved by the appropriate agency shall be submitted with the Constructions Drawings.
 - c. **Individual Well & Septic.** Where public or community water supply and/or sewerage systems are not available or to be provided, a written statement from the Wake County Health Department shall be submitted with the Construction Drawings indicating that each lot has adequate land area and soil conditions suitable to accommodate the proposed methods of water supply and sewage disposal.
23. **Certification Statements.**
- a. **Cover Sheet.** The following certifications must appear on the cover sheet for Construction Drawings for Site Plans and Major Subdivisions:

a. **Town Approved Standards Shall Control.** In the event of a conflict or inconsistency between these construction drawings and the Town of Knightdale's Approved Standards for this project, the Approved Standards shall control. Town of Knightdale Approved Standards shall mean all development documents necessary for approval for the Property including, but not limited to, any special use permit, subdivision plan, site plan, subdivision plat(s), phasing schedule, Development Agreement, Utility Allocation Agreement, Annexation Agreement, the Town of Knightdale Standard Specification and Details Manual and applicable provisions of the North Carolina State Building Code.

b. **Professional Design Engineer Certification.** These improvements shall be constructed in accordance with the following drawings and with the Standard Specifications of the Town of Knightdale.

I, _____, PE, certify that the Standard Specifications of the Town of Knightdale have been thoroughly checked and found to be applicable to this project. All exceptions to the applicable Town standards have been previously approved by the Town of Knightdale and said exceptions are shown on Sheet(s) _____ of these drawings.

Seal By: _____, PE

 Date: _____

- b. **Each Sheet.** The following certification must appear on each sheet containing drawings for Construction Drawings for Site Plans and Major Subdivisions:

a. **Town Certification.** This design has been reviewed by the Engineer for the Town of Knightdale, and to the best of my knowledge and belief, it conforms to the requirements established in the Standard Specifications of the Town of Knightdale.

By: _____ Date: _____
 Town Engineer

These plans are approved by the Town of Knightdale and serve as construction plans for this project.

By: _____ Date: _____
 Land Use Administrator

- c. **Landscape Plan Sheet(s):** The Land Use Administrator may allow the following Certificate to be placed on the Landscape Plan sheets for Construction Drawings for Site Plans and Major Subdivisions if a reasonable amount of time has passed, and a Lighting Plan has not yet been able to be procured from the lighting utility provider:

a. **Lighting Plan Certification:** I hereby certify I am the applicant and that a Lighting Plan shall be submitted by the utility provider to the Knightdale Development Services Department for approval prior to the installation of all required lighting. The lighting plan shall designate the proposed location of all light poles and shall be in compliance with Section 7.7 of the Town of Knightdale UDO. If a proposed light pole location should present a conflict with existing or proposed vegetation according to the approved construction drawings, the Landscaping Plan shall be revised to comply with the Town of Knightdale UDO requirements. All revisions are subject to Town of Knightdale approval.

_____ Date
 _____ Applicant

I (officer authorized to take acknowledgments) do hereby certify that _____ personally appeared before me this day and acknowledged the due execution of this certificate. Witness my hand and (where an official seal is required by law) official seal this ____ day of _____, A.D., ____ (year).

Official Seal _____
 Notary

 Commission Expires

- H. **Final Plat Requirements.** The final plat shall be prepared by a registered land surveyor, licensed to practice in the State of North Carolina, and shall constitute all portions of the site, which the subdivider proposes to record and develop at the time. Final Plats must be drawn to a scale of not more than 1 inch = 60 feet unless otherwise authorized by the Land Use Administrator, and shall meet the requirements of the Wake County Register of Deeds Office. The size and number of completed applications shall be set by the Land Use Administrator. In addition, a copy of all plan pages must be submitted at the same time using the open Portable Document Format (pdf) standard in a digital format.

No Final Plat shall be approved unless and until the subdivider has installed in the platted area all improvements required by this Ordinance and has submitted As-Built Drawings in accordance with Section 12.2 (C)(9) or has posted Improvement Guarantees in accordance with Chapter 10. Furthermore, submittal of any payment in lieu of dedicated recreational open space shall also be made prior to the approval of any Final Plat.

The Final Plat shall be drawn in black ink on mylar and shall contain the following:

1. **Title Block Information.** The name of the township in which the subdivision is located, the name of the subdivision, the name of the owner, the name, registration number, and seal of the registered surveyor under whose supervision the plat was prepared, the date of the plat, and the words "Final Plat."
2. **Boundary Survey.** The exact boundary of the tract of land being subdivided showing clearly the disposition of all portions of the tract. One corner of the tract shall be tied to the NAD83 State Plane Coordinate System.
3. **Scale & North Arrow.** Scale denoted both graphically and numerically with north arrow and declination.
4. **Vicinity Map.** A vicinity map showing the location of the subdivision with respect to adjacent streets and properties.
5. **Survey Points.** The accurate locations and descriptions of all monuments, markers, and control points
6. **Adequate Data & Dimensions.** Sufficient data to determine readily and reproduce accurately on the ground the location, bearing, and length of every street, alley line, lot line, building footprint, easement line, and setback line. All dimensions shall be measured to the nearest one-hundredth of a foot and all angles to the nearest second.
7. **Street and Lot Information.** The centerlines and names of all streets, alley lines, lot lines, lot and block numbers, lot addresses.
8. **Delineated Public Purpose Areas.** Easements, reservations, on-site demolition landfills, and areas dedicated to public purpose with notes stating their purposes.
9. **Utility Easements.** Underground and aerial utility easements shall be shown and indicated with dimensions and widths.
10. **Environmental Protection Boundaries.** The exact location of stream corridor buffer boundaries including all buffer zones as well as all buffer requirements and required tree cover areas must be specified on the record plat, on individual deeds, and in property association documents for land held in common.
11. **Residential Landscaping Notes.** All residential landscaping notes as required in Section 7.4(K).
12. **SCM Maintenance & Access Easement.** All Final Plats that include a SCM Maintenance and Access Easement shall be noted with the following statement:

"SCM Maintenance & Access Easement grants Town of Knightdale entry/access for inspections and should there be an issue, failure, emergency, etc. Otherwise, both the easement and SCM device are to be maintained by the owner/developer/HOA."

13. **Finished Floor Elevations.** Minimum floor finish elevations shall be shown for each lot which wholly or partly lies within any floodplain boundary. All lots subject to flooding shall be noted with the following statement:

"Any construction or use within the areas delineated as floodway are subject to the restrictions imposed by the Knightdale Flood Damage Prevention Ordinance."

14. **Certification Statements.**

- a. **All Final Plats.**

<p>a. Certificate of Survey and Accuracy. I, _____, certify that this map was (drawn by me)(drawn under my supervision) from (an actual survey made by me)(an actual survey under my supervision)(deed description recorded in Book____, Page____, Book____, Page____, etc)(other); that the error of closure as calculated by latitudes and departures is 1:____, that the boundaries not surveyed are shown as broken lines plotted from information found in Book____, Page____; that this map was prepared in accordance with G.S. 47- 30 as amended. Witness my hand and seal this ___ day of____, A.D., _____ (year).</p>	
<p>_____</p> <p>Surveyor</p>	
<p>_____</p> <p>Official Seal</p>	<p>_____</p> <p>License or Registration Number</p>

c. Certificate of Approval of the Design and Installation of Streets and Other Required Improvements. I hereby certify that all streets and other required improvements have been installed in an acceptable manner and according to the Town of Knightdale's *Standard Specifications and Details Manual* or that guarantees of the installation of the required improvements in an amount and manner satisfactory to the Town of Knightdale has been received.

Date

Town Engineer, Town of Knightdale

d1. Certificate of Approval for Recording. I hereby certify that the subdivision plat shown hereon has been found to comply with the Unified Development Ordinance for the Town of Knightdale, North Carolina and that this plat has been approved by the Town of Knightdale for recording in the Office of the Register of Deeds of Wake County.

Date

Land Use Administrator, Town of Knightdale

OR

(The following certificate shall appear on all plats which do not meet the definition of subdivision as defined in this Ordinance, but which need approval from the Town for recording at the Wake County Register of Deeds Office. This Certificate is to be used in lieu of d1. above.)

d2. Certificate of Approval for Recording. I hereby certify that the subdivision plat shown is exempt from the subdivision provisions of the Unified Development Ordinance for the Town of Knightdale, North Carolina, and is therefore exempt from its provisions. The plat has been found to comply with the zoning regulations of the Unified Development Ordinance for the Town of Knightdale, North Carolina, and has been approved by the Town of Knightdale for recording in the Office of the Register of Deeds of Wake County.

Date

Land Use Administrator, Town of Knightdale

- d. **Open Space/Public Gathering Space Plans.** The location of proposed open space/public gathering space, dimensions of open space/public gathering space, details and specifications on how the open space/public gathering space is proposed to be improved, dimensions of open space/public gathering space, the overall capacity of open space/public gathering space, and any applied reductions due to public park distance.
 - e. **Utility Locations.** The location of all overhead and underground utilities, including utility easements
 - f. **Existing Conditions.** See Section 12.3(B) “Environmental Survey”
 - g. **Undisturbed Areas.** Identify existing plant materials and areas to be left in a natural state such as qualifying buffers and tree cover areas
 - h. **Tree Protection Devices.** Methods and details for protecting the critical root zone of existing plant materials during construction such as tree protections fences, etc.
 - i. **New Plant Material.** Locations, size, and labels for all proposed plants
 - j. **Plant List Table.** Plant lists with common name, botanical name, quantity, and spacing and size of all proposed landscape material at the time of planting
 - k. **Other Landscape Improvements.** Location and description of other landscape improvements, such as earth berms (with two-foot [2'] topography), walls, fences, screens, sculptures, fountains, lights, courtyards, walks or paved areas; and
 - l. **Planting Details.** Planting and installation details as necessary to ensure conformance with all required standards as referenced in Chapters 7 and 10.
2. **Lighting Plan.** Any person submitting an application that involves the installation of outdoor lighting fixtures shall submit evidence that the proposed work will comply with Section 7.7 in the form of a lighting plan sheet(s). The lighting plan sheet(s) shall at a minimum contain the following information.
- a. **Title Block.** Name of the project, name and address of owner, name and address of engineer, scale, date, legend, and north arrow
 - b. **Boundary Survey.** An accurate drawing of property boundaries
 - c. **Building & Vehicle Accommodation Area Locations.** A site plan drawn to scale showing the building(s), driveways, parking areas, required parking spaces and traffic patterns
 - d. **Landscaping Plan Elements.** The location of all undisturbed areas (Section 12.3 (I)(1)(g) new plant material Section 12.3 (I)(1)(i), and other landscape improvements (Section 12.3(I)(1)(k)).
 - e. **Exterior Lighting Fixtures.** Locations of all pole-mounted and building-mounted exterior lighting fixtures;
 - f. One (1) of the following:
 - i. **Footcandle Grid.** A numerical point-by-point FC grid (photometric report) maximum of 10 feet by 10 feet for small and medium-size projects (less than two [2] acres) and 25-foot by 25-foot grid for large projects that indicates the minimum, maximum, and average FC levels within the lighted area of the site and the average to minimum ratio* for the determination of uniformity;

OR

 - ii. **Isolux Diagram.** An isolux lighting plan is also permitted in fulfillment of this Section, provided that it indicated the FCs at grade by contour diagram or grid points that cover the site and indicates the minimum, maximum and average FCs as well as the average to minimum uniformity ratio*; and

** The minimum (lowest number) is usually at the outer edges of the illuminated area or between two fixtures. The average light level is determined by adding the FC values of all points in the grid and dividing by the total number of points. This information is usually calculated by a computer program and is available from the manufacturer of the specified fixture.*

- g. **Lighting Details.** Specifications that may include but are not limited to. manufacturers catalog cuts enlarged or reduced to the correct scale of the site plan, and drawings including sections where required; of the illuminating devices, lamps, supports, and other devices, including the IESNA cut-off classification of the fixture(s) used.
3. **Traffic Signs and Markings Plan.** A traffic signs and markings plan shall depict traffic sign and marking details of the proposed development and shall at a minimum contain the following information.
 - a. **Title Block.** Name of the project, name and address of owner, name and address of engineer, scale, date, legend, and north arrow
 - b. **Boundary Survey.** An accurate drawing of property boundaries
 - c. **Sign Location & Details.** Location of all traffic and directional signs within the public right-of-way as well as private parking lots and drives, including sign and pole materials, text and dimensions; an
 - d. **Pavement Marking Locations & Details.** Location of all pavement markings and striping within the public right-of-way as well as private parking lots and drives, including materials and dimensions.
 4. **Architectural Plans.** Architectural plans do not include full construction drawings and interior arrangements are not considered as part of this review. Architectural plans shall depict architectural details of the proposed development and shall at a minimum contain the following information
 - a. **Title Block.** Name of the project, name and address of owner, name and address of architect, scale, date, and legend
 - b. **Building Elevations.** At Master Plan - preliminary color renderings of building elevations plus typical cross-sections to clearly define the character of the project as required by the Land Use Administrator, and at Construction Drawings - final proposed elevations of all non-single-family
 - c. **Cross-Sections.** A cross-section elevation plan depicting all buildings, structures, monuments, and other significant natural and man-made features of the proposed development; an
 - d. **Materials Board.** An exterior building materials board.
 5. **Stormwater Management Plan.** Prior to the issuance of a CIP, a stormwater management plan for all development and redevelopment must be properly submitted and reviewed, pursuant to this Section, unless otherwise exempted according to Section (9.4(B)(2)).
 - a. **Purpose.** The stormwater management plan shall govern the design, installation, and construction of stormwater management and control practices on the site, including structural BMPs and elements of site design for stormwater management other than structural BMPs. The plan is intended to provide a mechanism for the review, approval, and inspection of the approach to be used for the management and control of stormwater for the development or redevelopment site consistent with the requirements of this ordinance, whether the approach consists of structural BMPs or other techniques such as low-impact or low-density design. Further, the plan is intended to demonstrate lot-to-lot drainage and stormwater management to ensure adequate drainage between and behind all residential and non-residential lots.

- b. **Preparer.** A qualified registered North Carolina professional engineer, surveyor or landscape architect shall prepare the stormwater management plan. The engineer, surveyor, or landscape architect shall perform service only in their area of competence, and shall verify that the design of all stormwater management facilities and practices meets the submittal requirements for complete plans, that the designs and plans are sufficient to comply with applicable standards and policies found in the Manual, and that the designs and plans ensure compliance with this ordinance
 - c. **Authority to File Stormwater Management Plans.** All stormwater management plans required pursuant to the Knightdale UDO shall be submitted to the Stormwater Administrator by the landowner or the landowner's duly authorized agent.
 - d. **Establishment of Plan Requirements and Fees.**
 - i. **Plan Contents and Form.** The Stormwater Administrator shall establish requirements for the content and form of all stormwater management plans and shall amend and update those requirements from time to time. At a minimum, the stormwater management plan shall describe in detail how post-development stormwater runoff will be controlled and managed, the design of all storm water facilities and practices, individual lot to lot drainage, and how the proposed project will meet the requirements of this ordinance, including Section 9.4(E), Development Standards. Incomplete submittals shall be treated pursuant to Section 121.2(C)(2) Completeness Review.
 - ii. **Approval.** If the Stormwater Administrator finds that the stormwater management plan complies with the standards of this ordinance, the Stormwater Administrator shall approve the plan. The Stormwater Administrator may impose conditions of approval as needed to ensure compliance with this ordinance. The conditions shall be included as part of the approval.
 - iii. **Fails to Comply.** If the Stormwater Administrator finds that the stormwater management plan fails to comply with the standards of this ordinance, the Stormwater Administrator shall notify the applicant and shall indicate how the plan fails to comply. The applicant shall have an opportunity to submit a revised application.
 - iv. **Revision and Subsequent Review.** A complete revised stormwater management plan shall be reviewed by the Stormwater Administrator after its re-submittal and shall be approved, approved with conditions or disapproved. Any re-submittal shall be made in accordance with the adopted Fee Schedule.
- J. **Transportation Impact Analysis (TIA).** A Transportation Impact Analysis (TIA) is required for any proposed Zoning Map Amendment (Section 12.2 (F)(3)) or Master Plan submittal (Section 12.3(F)) if the nature of the proposed re-zoning or development is such that the number of trips it can be expected to generate equals or exceed 150 new peak hour trips. Trips are those occurring on peak days on the adjacent roadway(s).
- 1. **Preparer.** A traffic-engineering consultant licensed as a professional engineer shall prepare the TIA.
 - 2. **Procedure.**
 - a. **TIA Scoping Meeting.** The applicant shall arrange for a TIA Scoping Meeting to discuss the project with the Town, NCDOT and the developer's traffic-engineering consultant. The applicant shall supply the following information for consideration and discussion at the TIA Scoping Meeting in a draft Memorandum of Understanding (MOU):
 - i. description of project
 - ii. site location map including entrance location(s),
 - iii. development site plan,

- iv. proposed land uses including all relevant Institute of Transportation Engineers (ITE) Trip Generation Manual codes,
- v. draft study network intersections,
- vi. proposed traffic count collection days,
- vii. proposed background growth annual percentage rate(s),
- viii. projected build-out year including any phases,
- ix. draft nearby development list for modeling in the background scenario. Background scenario development shall include growth that would add traffic to study network intersections that is expected to come online between the current year and the TIA development's build out year, and
- x. trip assignment percentages at all study network intersection movements where trip assignment is expected. Trip assignment percentages shall be broken out by each land use category,
- xi. a description of the anticipated Bicycle and Pedestrian Mode Analysis, if required,
- xii. a proposed heavy vehicle percentage for industrial and warehouse developments,
- xiii. a list of entrances where vehicle path turning movement diagrams will be included,
- xiv. a list of intersections where roundabouts will be considered as a traffic control solution if capacity improvements are warranted,
- xv. a list of entrances where sight distance analysis will be performed,
- xvi. a description of the Bicycle and Pedestrian Mode Analysis infrastructure map and analysis to occur including any deviations from the standard ½ mile analysis approved by Development Services,
- xvii. additional information may be required by the Land Use Administrator as part of the MOU.

The TIA Scoping Meeting will determine the appropriateness and extent of the individual TIA requirements as outlined in Subsection 4 below. TIA Scoping Meeting materials shall be submitted to Town and NCDOT staff five (5) business days ahead of the meeting. Following the meeting, the developer's traffic engineer shall submit an updated MOU with any revisions required by the Town and NCDOT. The Town staff must approve the MOU over email before the TIA moves forward and is submitted to the Town for review.

Submittal of TIA. Electronic copies of the TIA, appendices and traffic modeling files shall be emailed to Development Services and the Town's engineer. The TIA shall also be submitted electronically in the development review plans portal as part of the Master Plan submittal package. Town staff will review the TIA and determine if additional or revised information is needed upon initial review.

- b. **Post-Submittal Conference.** After the completion of the study, the town and/or consultant may arrange a time to meet with the Applicant to discuss the study's findings and recommendations.
3. **Study Area Boundaries.** The extent of the study for the TIA depends upon the location and size of the proposed project and the prevailing conditions of the surrounding area as determined by the Land Use Administrator. The study area should include an analysis of all major intersections, site drives, and adjacent roadways, plus off-site intersections where site traffic will constitute (10) percent or more of any intersection approaching volume during the peak hour. Controlled access roadways are not included in the study area or analysis; however, controlled access ramp intersections with non-controlled access roadways are subject to analysis. The Town may request the ten (10) percent analysis be included in the materials provided at the TIA Scoping Meeting, or after the TIA Scoping Meeting but before approval of the MOU, if agreement is not reached on study network intersections at the TIA Scoping Meeting.

4. **Contents.** The following is a general outline of issues to be addressed by the TIA. Specific components will be determined for each project during the TIA Scoping Meeting:
- a. **Site Description.** A detailed report, containing illustrations and narrative, shall describe the site's characteristics, adjacent land uses, as well as any anticipated development within the site's vicinity influencing future traffic conditions. The development's latest site plan shall be included in the TIA submittal.
 - b. **Study Area.** The report shall indicate the geographic location of the study area, roadway segments, critical intersections, and access points to be analyzed.
 - c. **Existing Traffic Conditions.** An analysis of the existing traffic conditions, including all data used for the analysis shall be provided in the report, including.
 - i. Traffic count and turning movement information, including the date and source from which this information was obtained. New traffic counts are preferred but existing counts from the last twelve (12) months may be utilized if approved by the Town. All counts shall be collected on weekdays during typical traffic conditions. Weekend analysis may also be required for uses that generate significant weekend traffic;
 - ii. Correction factors used to convert collected traffic data into representative average daily traffic volumes; and
 - iii. Roadway characteristics, including.
 - a) Design configuration of existing or proposed roadways;
 - b) Existing traffic control measures;
 - c) Existing driveways and turning movement conflicts in the vicinity of the site; and
 - d) Existing Level of Service (LOS) for roadways and intersections without project development traffic (LOS shall be calculated for the weekday peak hour, and in the case of uses generating high levels of weekend traffic, the Saturday peak hour)
 - d. **Horizon Year(s) and Background Traffic.** The report shall identify the horizon year(s) that were analyzed in the study, the background traffic growth factors for each horizon year, and the method and assumptions used to develop the background traffic growth. Unless otherwise approved, development impacts shall be examined for the first and tenth years after the development is completed.
 - e. **Trip Generation, Trip Reduction, and Trip Distribution.** A summary of projected a.m. and p.m. peak hour and average daily trip generation for the proposed development shall be provided in addition to projected trip distribution to and from the site. The factors used to determine trip generation, reduction, and distribution are also to be included in the summary.

Trip generation shall be measured based on the current edition of the Institute for Transportation Engineers (ITE) Trip Generation Manual. In the case of a rezoning where the uses are not known, trip generation calculations shall assume the permitted use that generates the highest number of peak hour trips or a likely mix of uses agreed upon by the Land Use Administrator. Development Services may require traffic counts be conducted at similar facilities in the region if the Development Services determines an appropriate and representative ITE Trip Generation Manual code is not available.
 - f. **Traffic Assignment.** The report shall identify the projected roadway segment, intersection or driveway traffic volumes, with and without the proposed development, for the horizon year(s) of the study. Traffic assignment percentages shall be provided at all study network intersections where traffic was determined to travel in the approved MOU.

- g. **Impact Analysis.** The report shall address the impact of projected horizon year(s) traffic volumes. It shall identify the methodology used to evaluate the impact. The weekday peak hour impact shall be evaluated as well as the Saturday peak hour for those uses exhibiting high levels of weekend traffic generation.
- h. **LOS Standards, Mitigation, and Alternatives.** The study shall clearly indicate those recommended improvements and associated costs that are necessary to achieve a LOS “C” along new/planned roadway segments and LOS “D” along existing roadway segments. In addition, where the existing roadway segment LOS is currently below LOS “D”, improvements must also be recommended that, at a minimum, attain or maintain the associated existing at-grade intersection levels of service as measured at each intersection approach along and adjacent to said roadway segment. Only the Town Council may grant exceptions to the LOS standards. If the recommended improvements do not meet the applicable LOS standards, one (1) or more of the following actions may be necessary.
- i. Reduce the size, scale, scope, or density of the development to decrease traffic generation
 - ii. Divide the project into phases, allowing for only one phase at a time until traffic capacity is adequate for the next phase of development;
 - iii. Dedicate right-of-way for street improvements;
 - iv. Construct new streets;
 - v. Expand the capacity of existing streets;
 - vi. Redesign ingress and egress to the project to reduce traffic conflicts;
 - vii. Alter the use and type of development to reduce peak hour traffic
 - viii. Reduce existing traffic
 - ix. Eliminate the potential for additional traffic generation from undeveloped properties in the vicinity of the proposed development;
 - x. Integrate non-vehicular design components (i.e. pedestrian and bicycle and transit improvements) to reduce trip generation;
 - xi. Recommend denial of the application for which the TIA is submitted.

- i. **Other Factors to Include in Study.** In each case, the issue as to whether adequate service levels will be maintained will be resolved by evaluating the projected impact of the proposed development on the public facilities in question at the time occupancy is expected to occur. This analysis will take into account not only the status of existing facilities and the impact of the proposed development but also the project impact of the following on the capacity of those facilities:
 - i. Projected capital improvements either by the Town or NCDOT that will increase the capacity of the facilities in question;
 - ii. Traffic from other nearby approved developments shall be included in the analysis; and
 - iii. Those improvements related to other approved development projects.
 - iv. The TIA shall include a Bicycle and Pedestrian Mode Analysis if the Town transportation planning staff determines the development will generate bicycle and/or pedestrian demand. The analysis shall include:
 - a) An inventory of existing bicycle, pedestrian and transit infrastructure within ½ mile of the development boundaries. The ½ mile calculation shall be based on transportation infrastructure distances, not a linear buffer from the boundary. The analysis may be limited to collector and arterial roadways unless the Town identifies smaller roadways with anticipated bicycle and pedestrian concerns for inclusion.
 - b) An inventory of bicycle and pedestrian attractions within ½ mile of the development boundary. The analysis of attractions shall include uses such as schools, activity centers, bus stops, and parks, as well as an analysis of potential demand between residential, commercial and industrial land uses. The inventory shall also document gaps in the bicycle and pedestrian infrastructure within the ½ mile analysis. Examples of gaps include sidewalks, crosswalks, bus stop amenities and bicycle facilities called for in the CTP. A map of the existing infrastructure and gaps shall be included in the final TIA.

**Development Services may approve a deviation from the ½ mile analysis to reduce or extend the distance by up to ¼ mile depending on the development context and nearby attractions.*
 - v. Sight distance analysis shall be provided at all proposed development entrances. The analysis shall document visibility conditions in all directions and note the existing conditions for sight distance based on speed limits, topography, roadway design, buildings, signage and any other constraining variables.
 - vi. The TIA Scoping Meeting will discuss which intersections of the study network shall be modeled as a roundabout based on the Town's Comprehensive Transportation Plan and Safety Action Plan.
 - vii. For industrial or commercial warehouse developments, the TIA shall include vehicle path turning diagram(s) for heavy vehicles at all entrances and any study network intersections where the Town or NCDOT anticipates challenges. The TIA Scoping Meeting MOU shall also include a section for heavy vehicle percentage for modeling in traffic simulation software. Vehicle path turning diagrams may also be required for fixed route buses for any land use type where transit service exists or is programmed.
5. **Revisions.** If the Land Use Administrator determines that a significant change (including, but not limited to, new connectivity patterns or higher-intensity uses) in the project proposal has occurred that will possibly lead to different findings and mitigation measures, a revised TIA shall be required.

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Chapter 13. Nonconformities

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13.1. Purpose, Intent, and Applicability

- A. **Purpose and Intent.** The purpose of this Chapter is to regulate and limit the continued existence of uses and structures established prior to the effective date of this Ordinance (or any subsequent amendment) that do not conform to this Ordinance. Many nonconformities may continue, but the provisions of this Chapter are intended and designed to limit substantial investment in nonconformities and to bring about eventual elimination and/or lessen their impact upon surrounding conforming uses in order to preserve the integrity of the area in which it is located.
- B. **Applicability.** Any nonconformity created by a change in the classification of property, or the text of these regulations shall also be regulated by the provisions of this Chapter.

13.2. Nonconforming Lots

- A. Except as provided in Section 13.3(B), a nonconforming vacant lot may be developed for any of the uses permitted by these regulations in the District in which it is located (Section 3.1), provided that the use meets all applicable yard and setback requirements for the District in which the lot is located.
- B. A nonconforming lot may be developed if, at the effective date of this Ordinance, the lot is located in a subdivision that at a minimum had received preliminary plat approval prior to the adoption of this Ordinance.

13.3. Nonconforming Principal Structures

- A. A nonconforming principal structure containing a use permitted in the District is allowed to remain subject to the following provisions:
1. Normal repair and maintenance of nonconforming principal structures is permitted.
 2. Nonconforming principal structures may be enlarged or altered; however, the enlargement or alteration must not increase the structure's nonconformity.
 3. If a nonconforming principal structure is damaged to an extent greater than fifty (50) percent of its assessed value, it may be rebuilt only after the issuance of a building permit from the Land Use Administrator. A building permit for reconstruction of such structure must be secured no later than sixty (60) days after the date the structure sustained the damage. The building permit shall expire six (6) months after issuance unless substantial progress shall have occurred and thereafter diligently pursued. In the issuance of the building permit, the following standards shall apply:
 - a. **All Uses.**
 - i. If the principal structure can be reconstructed on the same lot and meet all District and building type requirements, it shall be.
 - ii. If the principal structure cannot be reconstructed at the same size (ground floor area) in accordance with the minimum standards of the District in which it is located or building type, then it shall be placed on the lot in as conforming a manner as possible.
 - iii. The reconstructed nonconforming principal structure shall not be rebuilt in a manner which increases its nonconformity.
 - b. **Non-Residential Uses.** In all circumstances, the reconstruction of a nonconforming non-residential principal structure (at the same or smaller size) shall be required to meet the standards of Chapters 6 and 7 of this Ordinance.
- B. If a nonconforming structure is moved on the lot upon which it is located, it shall be placed on the lot in as conforming a manner as possible.
- C. Also, a nonconforming use may be re-established in case of damage to the structure in which it is located (to an extent of less than fifty [50] percent of its assessed value) due to fire or other disaster event pursuant to the issuance of a permit by the Land Use Administrator. This shall include, as well, the repair or reconstruction of any structure or on-site utility, parking, or street infrastructure in support of said nonconforming use. If said structure was also nonconforming, the reconstruction shall meet the requirements of the applicable District.

13.4. Nonconforming Principal Uses

Nonconforming principal uses of land or structures may continue only in accordance with the following provisions:

A. All Uses.

1. Normal structural repair and maintenance may be performed to allow the continuation of a nonconforming principal use.
2. A nonconforming principal use may be re-established within a structure damaged to an extent of more than fifty (50) percent of its assessed value, subject to the issuance of a building permit by the Land Use Administrator. In the case of a non-conforming structure, refer to Section 13.5. An application must be filed for such building permit no later than sixty (60) days after the date the structure sustained the damage, otherwise, the use shall not be re-established. The building permit shall expire six (6) months after issuance unless substantial progress shall have occurred and thereafter diligently pursued.
3. Where a nonconforming use exists, the intensity of the use may be altered and the equipment or processes used at the property may change, provided that these or similar changes amount only to a change in the degree of activity rather than the kind of activity or change of use (Section 3.1(C)).

B. Non-Residential Uses.

1. A nonconforming non-residential use may only be expanded, changed or enlarged if the expansion, change or enlargement can be accomplished within the existing structure, and the Land Use Administrator determines that the interior expansion, change or enlargement will not have a negative impact upon surrounding conforming uses.
2. A nonconforming non-residential use shall not be enlarged by additions to the structure in which the nonconforming non-residential use is located (either attached or detached).
3. Any occupation of additional lands beyond the boundaries of the lot on which the nonconforming non-residential use is located is prohibited.

C. **Residential Uses.** An existing nonconforming residential use may be enlarged or altered as long as the enlargement or alteration complies with all yard requirements and other applicable District regulations.

D. Once a nonconforming principal use of land or a structure has been changed to a conforming use, a nonconforming use shall not be re-established upon said land or within said structure.

E. If a nonconforming principal use of land or a structure has been terminated for one-hundred eighty (180) consecutive calendar days or more, the use shall not be allowed to be re-established. All new uses subsequently established on said land or within said structure shall be conforming.

13.5. Nonconforming Accessory Uses and Structures

- A. A nonconforming accessory use or accessory structure may be expanded only if the expansion does not increase the nonconforming condition of the structure.
- B. No nonconforming accessory use or accessory structure shall continue after the principal use or structure is abandoned, damaged, destroyed or otherwise terminated unless such accessory use or accessory structure is made to conform to the accessory standards for the District in which it is located.
- C. A nonconforming accessory use or structure shall not become or replace any abandoned, damaged, destroyed, or otherwise terminated principal nonconforming use or structure.

13.6. Nonconforming Wireless Telecommunication Towers

Towers existing at the time this Ordinance was adopted may be reviewed for approval by the Land Use Administrator and replaced with a taller tower, provided that the tower shall conform to the standards detailed in Section 5.9(D), as well as the following:

- A. Subject to the provisions of Section 5.9(D)(2), the height of the replacement tower may not exceed the height of the original tower by more than 50 feet, and the addition of up to fifty (50) feet may occur only once.
- B. The fall and debris radius requirement and setback requirement in Section 5.9(D)(3) and Section 5.9(D)(4) may be exempted provided that:
 - 1. A registered professional engineer certifies that the proposed replacement tower and debris would fall within the boundary lines of the property on which the tower is located; and
 - 2. This certification is reviewed and verified by a third-party registered professional engineer of the Town's choosing.
- C. The replacement tower must be located in as close proximity to the base of the original tower as reasonably possible but in no event more than fifty (50) feet from the base of the original tower.
- D. The owner of the replacement tower must provide the Land Use Administrator with an affidavit stating that at least one (1) other wireless communications carrier needs a wireless communications facility within one-thousand two-hundred fifty (1,250) feet of the subject site and that such carrier has agreed to co-locate on the replacement tower.

13.7. Nonconforming Manufactured Homes

- A. A nonconforming manufactured home used as a principal residential structure may only be replaced in accordance with the criteria found in Sections 5.2(E) and 6.5 of this Ordinance.
- B. A manufactured home may continue to be placed or replaced within a nonconforming manufactured home neighborhood or mobile home park on previously platted lots or previously approved spaces, as well as make any necessary improvements to the neighborhood or park infrastructure, but shall not be permitted to expand the area or number of units contained within the boundary of the neighborhood or park.

13.8. Nonconforming Landscaping, Screening, and Lighting

- A. If there is a change of use, or if there is an expansion to the heated square footage of an existing use by more than twenty-five (25) percent, the lot shall fully comply with all applicable street yard landscaping and screening requirements of Chapter 7.
- B. Expansions to the vehicle accommodation areas which increase the total area by more than twenty-five (25) percent shall be required to comply with all applicable vehicle accommodation area screening and parking lot landscaping requirements of Chapter 7.
- C. Changes in the use of a nonconforming light fixture, replacement, or structural alterations of outdoor light fixtures shall require that the fixture conform to the applicable requirements of Chapter 7.

13.9. Nonconforming Signs

- A. The ordinary maintenance or repair of an on-site nonconforming sign is allowed. The copy of an on-site nonconforming sign may be altered, replaced, or modified if the following two (2) conditions are met:
 - 1. There is no change in the supporting structural components of the said on-site non-conforming sign; and
 - 2. Only the existing on-site tenants operating a business on the related site at the time of the original sign construction, and whose name already appears on the non-conforming sign are permitted to locate copy on the non-conforming sign.
- B. New tenants may be permitted to locate on the related site; however, if they wish to add their tenant name to the existing non-conforming sign, the sign shall be immediately brought into compliance with all the requirements of Chapter 8. Under no circumstance, however, shall the nonconforming condition of any nonconforming sign be increased. Any other alteration, replacement, conversion, or change will require the entire sign to be immediately brought into compliance with all the requirements of Chapter 8.
- C. Nonconforming signs which are destroyed or damaged by fifty (50) percent or more of their value shall not be rebuilt or repaired except in conformance with the requirements of Chapter 8.
- D. When the establishment to which a sign is related ceases or is vacated, the sign shall be classified as 'obsolete', and such sign, including all of its attendant supports, frames, and hardware, shall be removed within 180 days of the cessation or vacating of the use or establishment unless such sign is used by a new use or establishment on the premises in accordance with all of the other requirements of Chapter 8.
- E. If there is an expansion of the heated square footage of an existing business, or a change in use to an existing building (except multi-tenant buildings), and there were one (1) or more on-premise nonconforming signs which advertised the former or current business or use, any new signs and all new sign faces for the new use or business must meet all the requirements of Chapter 8.
- F. Residential neighborhood identification signs which exist prior to the adoption of this Ordinance may be replaced with new signs in the same location as the existing signs as long as the sign will comply with the sign area and height limitations of Chapter 8.

13.10. Nonconforming Street Frontages

- A. **Nonconforming Street Frontages and Site Plan Review.** In any of the following situations, projects shall submit site plans for review in accordance with Chapter 12, and be required to comply with all street improvement requirements of Chapter 10 along the fronting public streets, including but not limited to; turning and storage lanes, access management, sidewalks, bike lanes, and curb and gutter:
1. New developments, including new principal structures on a previously developed site;
 2. A change of use to the building or site that requires an expansion to the existing parking area by more than ten (10) percent of the maximum parking spaces permitted for the proposed use as determined by Section 7.1 (G)(2), or by more than ten (10) spaces, whichever is less; or
 3. An expansion to the square footage of an existing non-residential or multi-family building that increases the total area by more than twenty-five (25) percent.
- B. **Nonconforming Street Frontages and Redevelopment Site Plan Review.** In any of the following situations, projects shall be required to comply with the redevelopment site plan requirements found in Subsection C:
1. If there is a change of use to the building or site that requires an expansion to the existing parking area of no more than ten (10) percent of the maximum parking spaces permitted for the proposed use as determined by Section 7.1(G)(2), or ten (10) spaces, whichever is less; or
 2. If there is an expansion to the square footage of an existing non-residential or multi-family building that increases the total area by no more than twenty-five (25) percent.
- C. **Administrative Review of a Redevelopment Site Plan.**
1. The Land Use Administrator may approve a redevelopment site plan subject to all of the following standards.
 - a. For change of uses, the proposed use is permitted within the zoning district and for an expansion to an existing use, the existing use is permitted within the zoning district;
 - b. The proposed use will occupy existing building(s) on the site;
 - c. Any proposed expansions or additions are no more than twenty-five (25) percent of the floor area of the existing building to which the expansion or addition is being made;
 - d. The proposed use or expansion does not expand existing encroachments into required setbacks, buffers, easements, rights-of-way, or other similar features;
 - e. The existing structure is not a manufactured home;
 - f. A residential structure which is converted to a non-residential structure complies with all applicable Federal, State, and local standards; and
 - g. The applicant submits a redevelopment site plan that complies with all the requirements in this section. If the Land Use Administrator determines that a request for a change of use or expansion warrants a full DRC review in order to address community concerns or potential project impacts, he/she may require the request to go through the full site development plan review process as described in Section 12.2(D)(5).


2. Property owners shall submit a site plan signed and sealed by a professional engineer or landscape architect licensed in North Carolina. At a minimum, this plan shall comply with the applicable requirements of this Ordinance for the following.
 - a. Rights-of-way dedication to meet the applicable specifications in the Town's Comprehensive Plan;
 - b. Sidewalk installation, if the sidewalk can be placed in the final location for the applicable road section, as specified in the Town's Comprehensive Plan or a fee-in-lieu of the sidewalk installation if the sidewalk cannot be located in its final location;
 - c. Access roads, entrance drives, and/or exit drives added and/or removed to ensure vehicular and pedestrian safety and traffic flow;
 - d. ADA accessible route(s);
 - e. Off-street parking location and design;
 - f. Vehicle accommodation area surface;
 - g. At a minimum, all portions of a building façade within 100 feet of a public or private street shall avoid long, monotonous, uninterrupted walls of 20 feet or more on any floor by utilizing wall offsets, windows, doors, stairwells, pilasters, spandrel glass, awnings or other architectural elements.
 - h. Any additional, voluntary exterior building improvements proposed by the property owner shall comply with the requirements of Chapter 6 or be heard before the DRC if alternative exterior improvements are proposed and meet the spirit and intent of said requirements;
 - i. Street trees, parking and loading area landscaping and vehicle accommodation screening and/or fencing;
 - j. Screening for dumpsters, storage areas, mechanical equipment, and other similar equipment; and
 - k. Lighting (parking lot, building, and streets).

13.11. Nonconforming Plans (Approved Prior to the Adoption of this Ordinance)

- A. Any site-specific plan, including but not limited to: master plans, preliminary plats, final plats, conditional district plans, planned unit developments, and site plans, for the development of property and/or construction of a building which has received approval by the Town of Knightdale for development and/or construction, but does not conform to this Ordinance, may be developed and/or constructed in accordance with the rules, regulations, and conditions that were in effect at the time of approval, so long as a vested right established by common law, ordinance or statute is maintained (Section 12.2(F)(4)).

Chapter 14. Violations and Penalties

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14.1. Purpose and Intent

This Chapter outlines the typical procedure for the most common violations of this Ordinance. Any or all of the remedies and powers available to the Land Use Administrator in Section 12.1 (B) may be utilized if a violation of the Knightdale UDO is identified.

14.2. Responsible Persons/Entities.

Any person who erects, constructs, reconstructs, alters (whether actively or passively); or fails to erect, construct, reconstruct, alter, repair, or maintain any building, structure, SCM, practice or condition in violation of this Ordinance shall be subject to the remedies, penalties and/or enforcement actions in accordance with this Chapter. For the purposes of this Chapter, responsible persons(s) shall include but not be limited to:

- A. **Person(s) Maintaining Condition Resulting in or Constituting Violation.** An architect, engineer, builder, contractor, developer, agency, or any other person who participates in, assists, directs, creates, causes, or maintains a condition that constitutes a violation of this Ordinance, or fails to take appropriate action so that a violation of this ordinance results or persists.
- B. **Person(s) Responsible for Land or Use of Land.** The owner of the land on which the violation occurs, any tenant or occupant of the property, any person who is responsible for stormwater controls or practices pursuant to a private agreement or public document, or any person who has control over, or responsibility for, the use, development or redevelopment of the property.

14.3. General Procedures

- A. **Initiation/Complaint/Investigation.** Whenever a violation of this Ordinance occurs or is alleged to have occurred, any person may file a written or verbal complaint. Any written or verbal complaint made to the Land Use Administrator stating fully the cause and basis of the complaint shall be documented by the Land Use Administrator, investigated in a timely manner with appropriate actions taken as provided herein.
- B. **Notice of Violation and Order to Correct (NOV).**
1. **Issuance.** Whenever the Land Use Administrator finds that a person has violated a provision or failed to meet a requirement of this Ordinance, the Land Use Administrator may order compliance by written notice of violation to the responsible person. If abatement or correction of a violation is required, the NOV shall set forth a ten (10) day compliance period during which such abatement or correction must be completed. Said notice shall further advise that, should the violator fail to abate or correct the violation within the established compliance period or any extension of time that may be granted (Section 14.3 (B)(3)), the Land Use Administrator may take appropriate actions, as provided in Section 14.4, to correct and abate the violation and ensure UDO compliance, with any expenses thereof charged to the violator.
 2. **Service.** The Land Use Administrator may serve the NOV by any one of the following methods:
 - a. By delivery in person or by leaving the notice at the usual place of abode of the owner or responsible party with a person who is over the age of sixteen (16) years of age and a member of the family of the owner or responsible party;
 - b. By the deposit of first-class mail, postage prepaid, to the owner or responsible party at his or her last known mailing address, as listed by the Wake County Tax Administration; or
 - c. By the posting of a placard in a conspicuous place on the premises on which the violation exists in conjunction with first-class mail notice to the owner or responsible party. Service shall be deemed sufficient if the first-class mail is not returned by the post office within 10 days of deposit. Service by posting shall be deemed sufficient if the first-class mail is returned and notice of the pending proceedings was posted in a conspicuous place on the property affected on the day the first class mail notice was deposited.
 3. **Extension of Time.**
 - a. **Written Request Required.** A person who receives a NOV, or the owner of the land on which the violation occurs, may submit to the Land Use Administrator a written request for an extension of time for correction of the violation.
 - b. **Initial Extension.** On determining that the request includes enough information to show that the violation cannot be corrected within the original fifteen (15) day compliance period for reasons beyond the control of the person requesting the extension, the Land Use Administrator may extend the time limit as is reasonably necessary to allow timely correction of the violation, up to, but not exceeding sixty (60) days.
 - c. **Subsequent Extensions.** The Land Use Administrator may grant thirty (30) day extensions in addition to the foregoing extension if the violation cannot be corrected within the permitted time due to circumstances beyond the control of the person violating this ordinance.

- d. **Land Use Administrator Responsibilities.** The Land Use Administrator may grant an extension as provided in subsections (2) and (3) above only by written notice of extension. The notice of extension shall state the date prior to which correction must be made, after which the violator will be subject to the penalties described in the original notice of violation and correction order (Section 14.3 (B)).
4. **Specific Corrective Measures for Landscaping Violations.** Corrective orders issued as part of any landscaping NOV shall state that any disturbed landscaped areas and vegetation shall be replanted to meet the standards of Section 7.4(G) as well as the specifications of the approved site or master plan.
- C. **Emergency Enforcement.** If a violation or the delay in correcting or abating said violation poses an immediate danger to the public health, safety, or welfare, the Land Use Administrator may seek immediate enforcement, without prior written notice, through any remedy or penalty authorized by this Ordinance. Any person so ordered shall cause the violation to cease immediately.
- D. **Appeals.** Any appeal of the Land Use Administrator's actions to the Board of Adjustment shall be filed within ten (10) days of the NOV being served upon the violator in accordance with Section 12.2 (E)(2).
- E. **Enforcement Measures After Appeal.** If the violation has not been corrected pursuant to the requirements set forth in the NOV, or in the event of an appeal, within thirty (30) days of the appellate decision, then the Land Use Administrator may take any and all measures necessary as provided by law to abate the violation and/or restore the property.
- F. **Specific Procedural Modifications.**
 1. **Lighting Violations.** Property owners that install lighting fixtures after the effective date of this ordinance and are found to be in non-compliance shall receive a NOV providing them with ninety (90) day initial compliance period for bringing the lighting system into compliance.

14.4. Penalties for Violation.

Failure to comply with any provision of this Ordinance is hereby declared unlawful. The following remedies and enforcement powers may be used to administer and enforce this Ordinance immediately upon the expiration of the compliance period identified in the NOV and as may be extended by the Land Use Administrator (Section 14.3 (B)(3)).

A. Judicial Penalties.

1. **Equitable Remedy.** The Land Use Administrator may apply to a judicial court of law for any appropriate equitable remedy to enforce the provisions of this Ordinance. It is not a defense to the Land Use Administrator's application for equitable relief that there are other remedies provided under general law or this Ordinance.
2. **Injunction.** When a violation occurs, the Land Use Administrator may, either before or after the initiation of other authorized action, apply to the appropriate division of the court for a mandatory or prohibitory injunction commanding the defendant to correct the unlawful condition or cease the unlawful use of the property. If the defendant fails or refuses to comply with an injunction within the time allowed by the court, the defendant may be cited for contempt.
3. **Order of Abatement.** In addition to an injunction, the Land Use Administrator may apply for and the court may enter into an order of abatement as part of the judgment in the case. An order of abatement may direct any of the following actions:
 - a. Buildings or other structures on the property be closed, demolished, or removed;
 - b. Fixtures, furniture, or other moveable property be moved or removed entirely; or
 - c. Improvements, alterations, modifications, or repairs be made; or
 - d. The elimination of illicit connections, discharges, practices, or operations; or
 - e. The abatement or remediation of storm water pollution or contamination hazards and the restoration of any affected property; or
 - f. Any other action be taken that is necessary to bring the property into compliance with this Ordinance.

If the defendant fails or refuses to comply with an order of abatement within the time allowed by the court, the defendant may be cited for contempt. The Land Use Administrator may execute the order of abatement and will have a lien on the property in the nature of a mechanic's and materialman's lien for the cost of executing the order. The defendant may secure cancellation of an order of abatement by paying all costs of the proceedings and by posting a bond for compliance with the order. The bond must be given with sureties approved by the Clerk of Superior Court in an amount approved by the judge before whom the matter was heard and shall be conditioned for the defendant's full compliance with the terms of the order of abatement within the time fixed by the judge. Cancellation of an order of abatement does not suspend or cancel an injunction (Section 14.4 (A)(3)) issued in conjunction with the order.

B. Administrative Penalties.

1. **Stop Work Order Issuance.** Whenever a building, structure, or part thereof is being constructed, demolished, renovated, altered, or repaired in material violation of any applicable provision of this Ordinance, the Land Use Administrator may order the specific part of the work that is in violation or would be when the work is completed, to be immediately stopped. The stop work order shall be in writing, directed to the person doing the work, and shall state the specific work to be stopped, the specific reasons for cessation and the action(s) necessary to lawfully resume work.
2. **Revocation of Permits.** The Land Use Administrator may withhold or revoke any permit (e.g. Building Certificate of Occupancy) by written notification to the permit holder when violations of this Ordinance have occurred. Permits may be revoked when false statements or misrepresentations were made in securing the permit, work is being or has been done in substantial departure from the approved application or plan, there has been a failure to comply with the requirements of this Ordinance, or a permit has been mistakenly issued in violation of this Ordinance.
 - a. **Use Discontinued.** No person may continue to make use of land or buildings in the manner authorized by any Zoning Compliance, Sign, Special use, or Conditional Use permit after such permit has been revoked in accordance with this section.
 - b. **Permits Revoked Until Violation Cured.** Certificates of Occupancy or other permits may continue to be withheld until the applicant or other responsible person has taken the remedial measures set forth in the notice of violation or has otherwise cured the violations described therein.
 - c. **Special Use Permits.** Before a SUP may be revoked, all of the notice and public hearing requirements of Section 12.2 (C)(4) of this Ordinance shall be complied with. The notice shall inform the permit recipient of the alleged grounds for the revocation. The burden of presenting evidence sufficient for the permit-issuing authority to conclude that a permit should be revoked for any of the reasons set forth in Section 14.4 (B)(2) shall be upon the party advocating that position. The burden of persuasion shall also be upon that party. A motion to revoke a permit shall include, insofar as practicable, a statement of the specific reasons or findings of fact that support the motion.
 - d. **Zoning Compliance and Sign Permits.** Before a ZCP or sign permit may be revoked, the Land Use Administrator shall give the permit recipient thirty (30) day notice of intent to revoke the permit and shall inform the recipient of the alleged reasons for the revocation and of his right to submit a written request for an administrative hearing on the allegations. If the permit is revoked, the Land Use Administrator shall provide to the permittee a written statement of the decision and the reasons therefore. Any appeal of the Land Use Administrator's decision to the Board of Adjustment shall be filed within ten (10) days of the date of the administrative hearing in accordance with Section 12.2 (E)(2).
3. **New Permit Requests and Approvals Withheld.** As long as a violation of this ordinance continues and remains uncorrected, the Land Use Administrator may withhold, and the LURB or Town Council may disapprove any request for permit or development approval or authorization provided by this ordinance for the parcel on which the violation occurs.

4. **Civil Citations.** In addition to the other remedies cited in this Ordinance for the enforcement of its provisions, and pursuant to N.C.G.S. 160A-175, the regulations and standards in this Ordinance may be enforced through the issuance of civil penalties by the Land Use Administrator. If the offender fails to pay the civil penalties within ten (10) days after having been cited, the Town may recover the penalties in a civil action in the nature of debt.
- a. **Initial Citation.** The initial citation for civil penalties shall be issued upon the expiration of the compliance period identified in the Notice of Violation and Order to Correct. Fines for the specific citation are as follows.
- i. **Signs.** \$100 per violation or per offense; \$250 if the violation occurs within 6 months of a previous offense; and \$25 per violation per day thereafter.
 - ii. **Landscaping.** \$50 per violation or per offense (May be applied per tree or shrub for landscaping installation violations) and \$2 for every square foot area of vegetation damaged or destroyed; and \$50 per violation per day thereafter.
 - iii. **Lighting.** \$50 per violation or offense; and \$50 per violation per day thereafter.
 - iv. **Environmental Protection Violations.** \$250 per violation or offense; and \$250 per violation per day thereafter.
 - v. **Occupancy of Building without CO or Expiration of Temporary CO.** \$500 per violation or offense; and \$100 per violation per day thereafter.
 - vi. **All Other UDO Violations.** \$250 per violation or offense; and \$50 per violation per day thereafter.
- b. **Subsequent Citations.** Each day that a violation continues shall constitute a separate and distinct violation or offense for which additional citations may be issued. Subsequent citations for the same violation may be issued by the Land Use Administrator if the offender does not pay the initial citation after it has been issued unless the offender has sought an appeal to the actions of the Land Use Administrator through the Board of Adjustment.

Note that willful violation of this ordinance in a manner similar to the original violation within a six (6) month period following the initial citation is regarded as a continuation of the original violation or offense regardless of whether the original violation or offense was abated or corrected. (e.g., An illegal sign erected and properly cited as a violation and issued a citation can not be removed for a day and then re-erected simply to restart the enforcement and compliance actions of the Land Use Administrator.)

14.5. Specific Penalties for Transferring Lots in Unapproved Subdivisions.

A. Judicial.

1. **Criminal.** Any property owner or owner's agent of any land located within the planning and zoning jurisdiction of the Town of Knightdale subdivides land in violation of this Ordinance or transfers or sells land by reference to, exhibition of, or any other use of a plat showing a subdivision of the land before the plat has been properly approved under this Ordinance and recorded in the Wake County Register of Deeds, shall be guilty of a misdemeanor. The description by metes and bounds in the instrument of transfer or other document used in the process of selling or transferring land shall not exempt the transaction from this penalty.
2. **Injunction.** The Town of Knightdale may bring an action for injunction of any illegal subdivision, transfer, conveyance or sale of land, and the court shall, upon appropriate findings, issue an injunction and order requiring the offending party to comply with this Ordinance.

B. Administrative.

The Town may refuse to issue any permits.

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Chapter 15. Definitions

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15.1. Intent

For the purpose of interpreting this Ordinance, certain words, concepts, and ideas are defined herein. Except as defined herein, all other words used in this Ordinance shall have their everyday meaning as determined by their dictionary definition.

15.2. Interpretation

- A. Words used in the present tense include the future tense.
- B. Words used in the singular number include the plural, and words used in the plural number include the singular.
- C. Any word denoting gender includes the female and the male.
- D. The word “**person**” includes a firm, association, organization, partnership, corporation, trust, and company as well as an individual.
- E. The word “**lot**” includes the word “**plot**” or “**parcel**” or “**tract.**”
- F. The word “**shall**” is always mandatory and not merely directory.
- G. The word “**structure**” shall include the word “**building.**”
- H. The word “**Zoning Map,**” “**Knightdale Zoning Map,**” or “**Official Zoning Map**” shall mean the Official Zoning Map of Knightdale, North Carolina.
- I. The term “**Development Services Director**” shall mean the “**Planning Director of the Town of Knightdale, North Carolina**” or “**Designee.**”
- J. The term “**Land Use Administrator**” shall collectively mean “Development Services Director of the Town of Knightdale, North Carolina and subordinate staff.”
- K. The term “**Town Council**” shall mean the “Town Council of the Town of Knightdale, North Carolina.”
- L. The term “**Land Use Review Board**” shall mean the “Land Use Review Board of the Town of Knightdale, North Carolina.”
- M. The term “**Development Services Department**” shall mean the “Development Services Department of the Town of Knightdale, North Carolina.”
- N. The terms “**Ordinance,**” “**UDO**” and “**Unified Development Ordinance**” shall be synonymous and refer to the “Town of Knightdale Unified Development Ordinance.”
- O. **Fractional Requirements.** Unless otherwise indicated, when calculations for any requirement of this Ordinance, including the determination of the number of dwelling units permitted on a lot, result in a fraction of a unit, a fraction of one-half or more shall be considered a whole unit and a fraction of less than one-half shall be disregarded.

15.3. “A” Definitions

- A. **Access Easement.** See “Easement, Access.”
- B. **Accessory Building.** See “Building, Accessory.”
- C. **Accessory Structure.** See “Structure, Accessory.”
- D. **Adult Establishment 3.1C(5)a.** Any establishment having a substantial portion of materials or entertainment characterized by an emphasis on sexual activities, anatomical genital areas, or the female breast as defined in N.C.G.S. §14-202.10 (or any successor thereto).
- E. **Agribusiness 3.1C(6)a-b.** These establishments grow crops, raise animals, harvest timber, and harvest fish and other animals from a farm, ranch, or their natural habitats. They may be described as farms, bona fide farms, ranches, dairies, greenhouses, nurseries, orchards, or hatcheries. A farm, as an establishment, may be one or more tracts of land, which may be owned, leased, or rented by the farm operator. Farms may hire employees for a variety of tasks in the production process. Subcategories in this dimension differentiate establishments involved in production versus those that support agricultural production. Therefore, agribusiness does not include agricultural research establishments administering programs for regulating and conserving land, mineral, wildlife, and forest use. Said establishments are classified under the relevant institutional or research and development categories. Agribusiness also does not include swine farms as defined in N.C.G.S. §106-802. See Section 1.5B and Section 7.4.B.5.b for agribusiness related exemptions (LBCS F9000 and S8000).
- F. **Airport 3.1C(8)a.** Establishments that provide air transportation for passengers or cargo using aircraft, such as airplanes and helicopters. This subcategory includes scenic and sightseeing air transportation establishments, which may involve local departure and same-day return. (LBCS F4110, S3920 and S5600)
- G. **Alley or Alleyway.** A strip of land, owned publicly or privately, set aside primarily for vehicular service access to the back or side of properties otherwise abutting a street.
- H. **Alteration of a Watercourse.** A dam, impoundment, channel relocation, change in channel alignment, channelization, or change in cross-sectional area of the channel or the channel capacity, or any other form of modification which may alter, impede, retard or change the direction and/or velocity of the riverine flow of water during conditions of the base flood.
- I. **Amusements, Indoor 3.1C(5)b-d.** Establishments that provide commercial recreation activities completely within an enclosed structure such as pool halls, arcades, movie theaters, skating rinks, roller rinks, and bowling alleys. May also include no more than three (3) non-server-based, non-internet connected sweepstakes center games as a customary accessory use for those indoor amusement establishments maintaining an “on-premises” retail ABC permit. (LBCS F5320, F5380, F5390 and S3200)
- J. **Amusements, Outdoor 3.1C(5)e.** Establishments that provide commercial recreation activities primarily outdoors such as miniature golf establishments; go-cart facility; theme parks, carnivals, fairgrounds, and midways; paintball parks; and water rides. (LBCS F5310 and S4440)
- K. **Animal Services 3.1C(3)a-b.** Establishments that include services by licensed practitioners of veterinary medicine, dentistry, or surgery for animals; indoor boarding services for pets; and grooming. (LBCS F2418 and F2720)

- L. **Animated Sign.** See “Sign, Animated.”
- M. **Arm.** A mounting device which projects from a wall and attaches to a sign.
- N. **Arterial.** Those streets which generally serve through traffic and are designated on the current edition of the officially adopted Arterial Plan (Appendix A: Street Network Plan).
- O. **Arterial Plan.** A plan, adopted by the Town Council, for the development of existing and proposed major streets that will adequately serve the future travel needs of an area in an efficient and cost-effective manner.
- P. **Automated Teller Machines (ATM).** Computerized, self-service machines used by banking customers for financial institutions, including deposits, withdrawals, and fund transfers, without face-to-face contact with financial institution personnel. These machines may be located at or within banks, or in other locations.
- Q. **Auto Parts Sales 3.1C(4)a.** Establishments selling new, used, or rebuilt automotive parts and accessories. Examples include parts and supply stores, automotive stereo stores, speed shops, truck cap stores, and tires and tube shops. (LBCS F2115)
- R. **Awning Sign.** See “Sign, Awning.”

15.4. “B” Definitions

- A. **BUG (Backlight, Uplight, and Glare) Rating.** A luminaire classification system that classifies backlight (B), uplight (U), and glare (G) ratings to evaluate luminaire optical performance related to light trespass, sky glow, and high angle brightness control.
- B. **Ballast.** A device used with an electric-discharge lamp to obtain the necessary circuit conditions (voltage, current, and waveform) for starting and operating.
- C. **Banks, Credit Unions, Financial Services 3.1C(3)c.** Establishments that engage in financial transactions that create, liquidate, or change ownership of financial services. Banks, credit unions, and savings institutions may perform central banking functions, accept deposits, and lend funds from these deposits. In addition to banks and credit unions, financial services institutions may include credit agencies, trust companies, holding companies, lending and thrift institutions, securities/commodity contract brokers and dealers, security and commodity exchanges, vehicle finance (equity) leasing agencies, and investment companies. (LBCS F2200 and F2210)
- D. **Banner.** See “Sign, Banner.”
- E. **Bar/Tavern 3.1C(4)b.** A business where alcoholic beverages are sold for on-site consumption, which are not part of a larger restaurant. Includes bars, taverns, pubs, and similar establishments where any food service is subordinate to the sale of alcoholic beverages. May also not more than three (3) non-server based, non-internet connected sweepstakes center games. (LBCS F2540)
- F. **Base Flood.** The flood having a one percent (1%) chance of being equaled or exceeded in any given year.

- G. **Base Flood Elevation (BFE).** A determination of the water surface elevations of the base flood based on current conditions hydrology as published in the FIS. When the BFE has not been provided in a Special Flood Hazard Area, it may be obtained from engineering studies available from a Federal or State source using FEMA-approved engineering methodologies. This elevation, when combined with the freeboard, established the Regulatory Flood Protection Elevation in Special Flood Hazard Areas.
- H. **Bay Window.** A window assembly whose maximum horizontal projection is not more than two (2) feet from the plane of an exterior wall and is elevated above the floor level of the home.
- I. **Bed and Breakfast Inn 3.1C(2)a.** Establishments primarily engaged in providing short-term lodging in facilities known as bed-and-breakfast inns. These establishments provide short-term lodging in private homes or small buildings converted for this purpose. Bed-and-breakfast inns are characterized by highly personalized service and the inclusion of a full breakfast in a room rate. (LBCS F1310)
- J. **Berm.** A mound of earthen material where the slope, height, and width do not exceed the standards established by this Ordinance, the purpose of which is to divert the flow of runoff water and/or to act as a visual and sound buffer to nearby properties.
- K. **Best Management Practices (BMP).** In a stormwater management program, a structural or nonstructural management-based practice used singularly or in combination to reduce non-point source inputs to receiving waters in order to achieve water quality protection goals.
- L. **Bicycle Facilities.** A general term denoting improvements and provisions made to accommodate or encourage bicycling, including parking, bicycle lanes, and shared roadways.
- M. **Billboard.** A common term for certain types of off-premise signs. Also, sometimes referred to as an “outdoor advertising sign.”
- N. **Block Face.** One side of a street between two consecutive intersections, having at least one principal building on a lot facing the street. For a corner lot having frontage along more than one street, the block face shall consist of that side of the block that has the more numerous parcels or lots fronting the street. An “opposite block face” is the block face across the street from a given block face.
- O. **Board of Adjustment.** The Board of Adjustment is a five (5) member appointed body responsible for the decision making for appeals of administrative decisions and requests for Variance.
- P. **Buffer Yard.** A landscaped area intended to give spatial separation between incompatible land uses.
- Q. **Building.** Any structure having a roof supported by columns or by walls, and intended for shelter, housing, or enclosure of persons, animals, or property. The connection of two buildings by means of an open porch, breezeway, passageway, carport, or other such open structure, with or without a roof, shall not be deemed to make them one (1) building.
- R. **Building, Accessory.** A roofed structure supported by columns or walls; built, erected, and framed of component structural parts; designed for the housing, shelter, enclosure and/or support of persons, animals, or property of any kind; and subordinate in height and bulk to the principal building located on the same lot.
- S. **Building, Principal.** A building in which the principal use of the associated lot, on which said building is situated, is conducted.

- T. **Building Coverage.** The amount of land covered or permitted to be covered by a building(s), usually measured in percentage of a lot (or percentage of a yard in the case of accessory buildings).
- U. **Business Support Services 3.1C(3)d.** These establishments provide any of the following: document preparation, telephone answering, telemarketing, mailing (except direct mail advertising), court reporting, and steno typing. They may operate copy centers, which provide photocopying, duplicating, blueprinting, or other copying services besides printing. They may provide a range of support activities, including mailing services, document copying, facsimiles, word processing, on-site PC rental, and office product sales. (LBCS 2424)

15.5. “C” Definitions

- A. **Caliper.** The trunk diameter for nursery-grown trees measured at a height of six (6) inches above the ground for all trees up to and including a reading of four (4) inches in diameter, and at 12 inches above the ground for those trees larger than four (4) inches in diameter.
- B. **Campground 3.1C(7)a.** Establishments, including parks, that may accommodate campers and other individuals along with their equipment, including tents, tent trailers, travel trailers, and recreational vehicles (RVs). Includes facilities and services such as cabins, washrooms, food services, recreational facilities, and equipment, and organized recreational activities. (LBCS F5400)
- C. **Campus Entrance Sign.** See “Sign, Neighborhood/Campus Entrance.”
- D. **Candela.** The metric unit luminous intensity (that is, power emitted by a light source in a particular direction, with wavelengths weighted by the luminosity function, a standardized model of the sensitivity of the human eye).
- E. **Cemetery 3.1C(7)b.** A parcel of land used for the internment of the dead in the ground or in mausoleums. (LBCS S4700)
- F. **Certificate of Occupancy.** A certificate issued by the Land Use Administrator certifying that all structures, their land uses, and land restrictions conform with all the requirements of the Knightdale UDO. This certificate is issued prior to occupying any structure or commencing a use for which a building permit is issued.
- G. **Change of Use.**
 1. A new, different, or additional use of a structure or land which required or requires a certificate of occupancy.
 2. Change of Use includes without limitation any new, different, or additional use within the list of permitted uses for the underlying property, any purported use outside the list of permitted uses.
 3. When any prior use of a structure or land has ceased for a period greater than 180 days.

The Land Use Administrator may grant a 180-day extension to part (3) if the property and/or building owner provides sufficient evidence of actively recruiting a use that would not constitute a change of use under either part (1) or (2) above. Thereafter, if any prior use of the structure or land has ceased for a period greater than 360 days, any subsequent use shall be considered a change of use.

Multi-tenant structures shall not be considered a change of use when individual uses change unless the essential character (more than 50% of structure’s square footage) of the activity conducted in the entire structure (e.g. shopping center, professional service office building) has changed as defined in part (1), (2) or (3) above.

- H. **Chicken Coop.** A single accessory building for the housing of female chickens consisting of a hen house for sleeping and the laying of eggs in conjunction with an open-air pen or run.
- I. **Child/Adult Day Care Home 3.1C(3)e.** Supervision or care provided on a regular basis as an accessory use within a principal residential dwelling unit, by a resident of the dwelling, for five (5) or fewer children/adults who are not related by blood or marriage to, and who are not the legal wards or foster children of, the supervising adult.
- J. **Child/Adult Day Care Center 3.1C(3)f.** An individual, agency, or organization providing supervision or care on a regular basis for children/adults who are not related by blood or marriage to, and who are not the legal wards or foster children of, the supervising adults; designed and approved to accommodate six (6) or more children/adults at a time; not an accessory to residential use.
- K. **Collector.** Those streets which generally provide access into or out of a neighborhood, commercial or industrial area and are designated on the current edition of the officially adopted Collector Plan (Appendix B). Emphasizing balance between mobility and access, a collector is designed to better accommodate bicycle and pedestrian activity while still serving the needs of the motoring public.
- L. **Collector Plan.** A plan, adopted by the Town Council, for the development of existing and proposed collectors that will adequately serve the future travel needs of a neighborhood, commercial or industrial area in an efficient and cost-effective manner.
- M. **Colleges/Universities 3.1C(7)c.** These establishments furnish academic or technical courses and grant degrees, certificates, or diplomas at the associate, baccalaureate, or graduate levels. They include junior colleges, colleges, universities, and professional schools. (LBCS F6130)
- N. **Community Service Organization 3.1C(3)g.** A public or quasi-public establishment providing social and/or rehabilitation services, serving persons with social or personal problems requiring special services, the handicapped, and the otherwise disadvantaged such as counseling centers, welfare offices, job counseling, and training centers, vocational rehabilitation agencies, and community improvement and neighborhood redevelopment, but does not include any services providing on-site residential or accommodation services. (LBCS F6560)
- O. **Comprehensive Plan.** A document or series of documents setting forth policies for the future of a community. It is normally the result of considerable study and analysis of existing physical, economic, and social conditions, and a projection of future conditions. When adopted by a public body, it serves as a guide for many public decisions, especially land use changes.

- P. **Condominium.** Real estate, portions of which are designated for separate ownership and the remainder of which is designated for common ownership solely by the owners of those portions.
- Q. **Conservation Easement.** See “Easement, Conservation.”
- R. **Construction Identification Sign.** See “Sign, Construction Identification.”
- S. **Contractor Office 3.1C(3)h.** Establishments engaged in construction activities that provide specialty trade services which may include, but are not limited to, heating and air conditioning, electrical, flooring, painting, plumbing, roofing, and tiling. Facilities typically include an office component, along with storage of materials, equipment, and/or fleet vehicles. Retail sales to the general public are a customary accessory use. (LBCS 7300)
- T. **Copy.** Any message consisting of words, letters, numbers, characters and/or symbols, that is displayed on a sign.
- U. **Corner Lot.** See “Lot, Corner.”
- V. **Corporate Campus 3.1C(3)i.** A development which contains a number of separate office buildings, accessory and supporting uses, and open space all designed, planned, constructed, and maintained on a coordinated basis.
- W. **Cremation Facilities 3.1C(3)j.** These establishments operate sites or structures reserved for the interment of human or animal remains (except for cemeteries), or for cremating the dead. (LBCS F6720)
- X. **Critical Root Zone (CRZ).** A circular region measured outward from a tree trunk representing the essential area of the roots that must be maintained in order for the tree’s survival. The CRZ is one (1) foot of radial distance for every inch of tree DBH, with a minimum of eight (8) feet.
- Y. **Cul-de-sac.** See “Street, cul-de-sac.”
- Z. **Cultural or Community Facility 3.1C(5)f.** Facilities designed to promote cultural advancement and serve the community such as live theater, dance, or music establishments; art galleries, studios and museums; non-profit civic or fraternal organizations; museums, exhibition, or similar facility; libraries; and community centers, such as the YMCA and YWCA. (LBCS S3800, S4400, F5110, F5210, and FS6830)
- AA. **Cutoff Fixture.** See “Fixture, Cutoff.”

15.6. “D” Definitions

- A. **Diameter at Breast Height (DBH).** The diameter of a tree measured in inches at a height of four and a half (4.5) feet above the ground.
- B. **Deciduous.** Those plants that annually lose their leaves.
- C. **Density.** The number of dwelling units on the entire area of a tract or parcel of land.
- D. **Development.** Any land-disturbing activity which adds to or changes the amount of impervious or partially impervious cover on a land area or which otherwise decreases the infiltration of precipitation into the soil. Also, any action such as subdividing that is undertaken for the purpose of making land more useful, or any area of a site where clearing, grading, parking, structures, walks or related work

- takes place for the construction, operation, storage of equipment or materials, and maintenance of a site.
- E. **Digital Flood Insurance Rate Map (DFIRM).** The digital official map of a community, issued by the Federal Emergency Management Agency (FEMA), on which both the Special Flood Hazard Areas and the risk premium zones applicable to the community are delineated.
 - F. **Direct Light.** Light emitted directly from the lamp, off of the reflector or reflector diffuser, or through the refractor or diffuser lens, of a luminaire.
 - G. **Directional Fixture.** See “Fixture, Directional.”
 - H. **Drainage, Sheet Flow (dispersed).** Drainage spread out, as opposed to collected in channels.
 - I. **Drainage Easement.** See “Easement, Drainage.”
 - J. **Drainageway.** Any natural or manmade channel or drainage structure that carries surface runoff from precipitation.
 - K. **Drip Line.** A vertical line extending from the outermost edge of the tree canopy or shrub branch to the ground.
 - L. **Drive-Thru Retail/Restaurants 3.1C(9)d.** A facility where food and other products may be purchased by motorists without leaving their vehicles. Examples include fast-food restaurants, drive-thru coffee, dairy product, photo stores, pharmacies, etc.
 - M. **Drive-Thru Service 3.1C(9)c.** A facility where services may be obtained by motorists without leaving their vehicles. These facilities include drive-through bank teller windows, dry cleaners, etc. Does not include. Automated Teller Machines (ATMs), gas stations, or other vehicle services, which are separately defined.
 - N. **Drive-Thru Window.** A window or other fenestration or other device for the delivery of goods or products from a principal or accessory structure to a vehicle or pedestrian and through which compensation for such may be exchanged, including the making of change, and the order for such goods is made from a remote on-site station rather than at a window or other fenestration or other device. (This definition includes the term "drive-in window.")
 - O. **Dry Cleaning Plant.** See “Laundry, Dry Cleaning Plant.”
 - P. **Duplex.** See “Dwelling-Duplex.”
 - Q. **Dwelling/Dwelling Unit.** A building designed, arranged, or used for permanent living quarters for one (1) or more persons.
 - R. **Dwelling-Duplex 3.1C(1)a.** Generally, a two-unit building that is divided horizontally, and each unit has a separate entrance from the outside or through a common vestibule. Buildings are typically under common ownership. (LBCS F1100 and S1121)
 - S. **Dwelling-Multifamily (2 to 4 units/bldg) 3.1C(1)c.** A dwelling unit that is part of a structure containing more than one (1) but less than five (5) units. Each unit has a separate entrance from the outside or through a common vestibule. Multi-family dwellings may include duplexes, triplexes, and quadplexes (buildings under common ownership with two [2], three [3] or four [4] dwelling units in

the same structure), as well as a condominium complex containing only three (3) or four (4) units. (LBCS S1121 and S1140)

- T. **Dwelling-Multifamily (more than 4 units/building) 3.1C(1)d.** A dwelling unit that is part of a structure containing more than four units. Each unit has a separate entrance from the outside or through a common vestibule. These structures may include apartments (five [5] or more units in a single building under common ownership); and condominium complexes containing five (5) or more units. (LBCS S1121 and S1140)
- U. **Dwelling-Single Family 3.1C(1)e.** A free-standing building designed for and/or occupied by one family. These residences may be individually owned as residences or residences owned by rental or management companies. Also includes factory-built, modular housing units that comply with the National Manufactured Housing Construction and Safety Standards Act of 1974. (LBCS F1100 and S1100)
- V. **Dwelling-Accessory 3.1C(9)e.** An attached or detached dwelling unit, designed for occupancy by one or two persons, not exceeding 1,000 square feet, and located on a lot with an existing single-family dwelling. The dwelling unit shall be a complete, independent living facility equipped with a kitchen, provisions for sanitation and sleeping, and be constructed to North Carolina Residential Building Code standards.

15.7. “E” Definitions

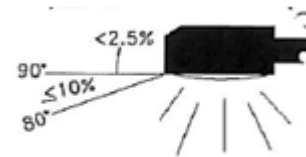
- A. **Easement.** A grant by the property owner for use of a strip of land by the public, a corporation, or person(s) for a specified purpose.
- B. **Easement, Access.** An easement which grants the right to cross property.
- C. **Easement, Conservation.** A restriction placed on a piece of property to protect the resources (natural or man-made) associated with the parcel. The easement is either voluntarily sold or donated by the landowner, and constitutes a legally binding agreement that prohibits certain types of development (residential or commercial) from taking place on the land.
- D. **Easement, Drainage.** An easement which recognizes and documents the presence of a drainageway, guarantees the passage of stormwater runoff, and may grant the right to maintain, relocate, or in such other manner utilize the easement for the improvement of drainage and stormwater flow.
- E. **Easement, Utility.** An easement which grants to the Town or other utility providers the right to install and thereafter maintain any and all utilities including, but not limited to, water lines, sewer lines, storm sewer lines, electrical power lines, telephone lines, natural gas lines, and community antenna television systems.
- F. **Eaves.** The part of a roof that projects beyond the exterior wall; including the lower edge of a sloped roof as well as the sloping edge of a gable.
- G. **Election Sign.** See “Sign, Election.”
- H. **Elementary School.** See “School, Elementary & Secondary.”
- I. **Equipment Rental 3.1C(3)k.** Establishments renting or leasing:

1. (a) office machinery and equipment, such as computers, office furniture, copiers, or fax machines;
 2. (b) heavy equipment without operators used for construction, mining, or forestry, such as bulldozers, earthmoving equipment, etc.;
 3. (c) other non-consumer machinery and equipment, such as manufacturing equipment; metalworking; telecommunications, motion picture, or theatrical equipment; institutional (i.e. public building) furniture; or, agricultural equipment without operators. (LBCS F2334)
- J. **Erosion.** The wearing away of land surface by the action of wind, water, gravity, or any combination thereof.
- K. **Evergreen.** Those plants that retain foliage throughout the year.
- L. **Existing Development.** Those projects that are built or those projects that at a minimum have established a vested right under North Carolina zoning law as of the effective date of this ordinance based on at least one of the following criteria:
1. (a) Substantial expenditures of resources (time, labor, money) based on a good faith reliance upon having received a valid local government approval to proceed with the project, or
 2. (b) Having an outstanding valid building permit as authorized by the General Statutes (N.C.G.S. §160D-1110), or
 3. (c) Having expended substantial resources (time, labor, money) and having an approved site-specific or phased development plan as authorized by the General Statutes (N.C.G.S. §160D-108).
 4. Any building and/or structure for which the start of construction commenced before the initial effective date of the floodplain management regulations adopted by the Town.
- M. **Extraterritorial Jurisdiction (ETJ).** That land lying beyond the municipal limits of the Town of Knightdale and within the extraterritorial jurisdiction boundary as delineated on the official zoning map of the Town of Knightdale in accordance with N.C.G.S. §160D-105. The authority is granted to a locality to exercise zoning powers for a specified distance outside its boundaries. It is intended to protect activities on the edge of communities from being encroached on by incompatible adjacent activities.

15.8. “F” Definitions

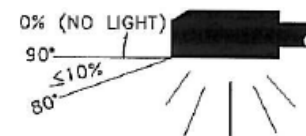
- A. **Family.** An individual, or two (2) or more persons related by blood, marriage, adoption, foster care or guardianship, together with incidental domestic servants and temporary, non-compensating guests; or a group of not more than four (4) unrelated persons living together as a single housekeeping unit.
- B. **Family Care Home 3.1C(1)f.** A home with support and supervisory personnel that provides room and board, personal care, and habilitation services in a family environment for not more than six (6) resident “persons with disabilities”. (N.C.G.S. §160D-907)
- C. **Fixture.** The assembly that houses the lamp or lamps and can include all or some of the following parts. a housing, a mounting bracket or pole socket, a lamp holder, a ballast, a reflector or mirror, and/or a refractor or lens.

D. **Fixture, Cutoff.** A luminaire light distribution where the candela per 1,000 lamp lumens does not exceed 25 (2.5%) at or above an angle of 90 degrees above nadir and does not exceed 100 (10%) at or above a vertical angle of 80 degrees above nadir. This applies to all lateral angles around the luminaire.



E. **Fixture, Directional.** An assembly that holds the lamp along with any globe, shade, or other covering surrounding the lamp that may be adjusted to concentrate or throw light in a specific direction

F. **Fixture, Full-Cutoff.** A luminaire light distribution where zero candela intensity occurs at or above an angle of 90 degrees above nadir. Additionally, the candela per 1,000 lamp lumens does not numerically exceed 100 (10%) at or above a vertical angle of 80 degrees above nadir. This applied to all lateral angles around the luminaire.



G. **Fixture, Fully-Shielded.** A light fixture constructed, installed, and maintained in such a manner that all light emitted from the fixture, either directly from the lamp or a diffusing element, or indirectly by reflection or refraction from any part of the fixture, is projected below the horizontal plane through the fixture’s lowest light-emitting part.

H. **Fixture, Non-Cutoff.** A fixture light distribution where there is no light intensity limitation in the zone above the maximum distribution of light intensity.

I. **Fixtures, Post-Mounted.** Fixtures that are mounted on a post (typically an 18-foot mounting height or less) and decorative in style and appearance for the enhancement of the pedestrian experience.

J. **Flag Lot.** See “Lot, Flag.”

K. **Flashing Sign.** See “Sign, Animated.”

L. **Flood.** A general and temporary condition of partial or complete inundation of normally dry land areas from the overflow of inland or tidal waters; and/or the unusual and rapid accumulation or runoff of surface waters from any source.

M. **Flood Boundary and Floodway Map (FBFM).** An official map of a community, issued by the FEMA, on which the Special Flood Hazard Areas and the floodways are delineated. This official map is a supplement to and shall be used in conjunction with the Flood Insurance Rate Map (FIRM).

N. **Flood Fringe.** The land area located between the floodway and maximum elevation subject to inundation by the base flood.

O. **Flood Hazard Boundary Map.** An official map of a community, issued by the FEMA, where the boundaries of the Special Flood Hazard Areas have been defined as Zone A.

P. **Flood Prone Area.** See “Floodplain.”

Q. **Flood Zone.** A geographical area shown on a Flood Hazard Boundary Map or Flood Insurance Rate Map that reflects the severity or type of flooding in the area.

- R. **Flood Insurance Rate Map (FIRM).** An official map of a community, issued by the FEMA, on which the Special Flood Hazard Areas, the Future Conditions Flood Hazard Areas, and the risk premium zones applicable to the community are delineated.
- S. **Flood Insurance Study (FIS).** An examination, evaluation, and determination of flood hazards, corresponding water surface elevations (if appropriate), flood hazard risk zones, and other flood data in a community issued by the FEMA. The FIS report includes FIRMs, Flood Boundary and Floodway Maps, if published.
- T. **Floodplain.** The relatively flat area or low land adjacent to the channel of a federally designated watercourse which has been or may be covered by floodwater during a Base Flood event.
- U. **Floodplain Administrator.** The individual appointed to administer and enforce the floodplain management regulations.
- V. **Floodplain Development Permit.** Any type of permit that is required in conformance with the provisions of this ordinance, prior to the commencement of any development activity.
- W. **Floodplain Management.** The operation of an overall program of corrective and preventive measures for reducing flood damage and preserving and enhancing, where possible, natural resources in the floodplain, including, but not limited to, emergency preparedness plans, flood control works, floodplain management regulations, and open space plans.
- X. **Floodplain Management Regulations.** This ordinance, building codes, health regulations, special purpose ordinances, and other applications of police power. This term describes federal, state or local regulations, in any combination thereof, which provide standards for preventing and reducing flood loss and damage.
- Y. **Floodproofing.** Any combination of structural and nonstructural additions, changes, or adjustments to structures which reduce or eliminate flood damage to real estate or improved real property, water and sanitation facilities, structures, and their contents.
- Z. **Flood-resistant material.** Any building product [material, component or system] capable of withstanding direct and prolonged contact (minimum 72 hours) with floodwaters without sustaining damage that requires more than low-cost cosmetic repair. Any material that is water-soluble or is not resistant to alkali or acid in water, including normal adhesives for above-grade use, is not flood-resistant. Pressure-treated lumber or naturally decay-resistant lumbars are acceptable flooring materials. Sheet-type flooring coverings that restrict evaporation from below and materials that are impervious, but dimensionally unstable are not acceptable. Materials that absorb or retain water excessively after submergence are not flood-resistant. Please refer to Technical Bulletin 2, Flood Damage-Resistant Materials Requirements, and available from the FEMA. Class 4 and 5 materials, referenced therein, are acceptable flood-resistant materials.
- AA. **Floodway.** The channel of a river or other watercourse, including the area above a bridge or culvert when applicable, and the adjacent land areas that must be reserved in order to discharge the base flood without cumulatively increasing the water surface elevation more than one (1) foot.
- BB. **Flood Lamp.** See “Lamp, Flood.”
- CC. **Flood Light.** See “Light, Flood or Spot.”

- DD. **Food Truck.** A licensed, motorized vehicle or mobile unit which is temporarily stored on a private or public owned property where food items are sold to the public.
- EE. **Footcandle (FC).** A unit of illuminance amounting to one (1) lumen per square foot.
- FF. **Footcandles, Horizontal.** A quantity of illumination (footcandles) at a given point that is measured or calculated at a specific height in a plane parallel to the line of sight when looking at the brightest light source in the field of view.
- GG. **Footcandles, Vertical.** A quantity of illumination (footcandles) at a given point that is measured or calculated at a specified height in a plane perpendicular to the line of sight when looking at the brightest light source in the field of view.
- HH. **Freeboard.** The height added to the BFE or Future Conditions Flood Elevation to account for the many unknown factors that could contribute to flood heights greater than the height calculated for a selected size flood and floodway conditions, such as wave action, bridge openings, and the hydrological effect of urbanization on the watershed. The BFE plus the freeboard establishes the Regulatory Flood Protection Elevation.
- II. **Front Yard.** See “Yard, Front.”
- JJ. **Frontage.** See “Street Frontage.”
- KK. **Full Cutoff Fixture.** See “Fixture, Full Cutoff.”
- LL. **Fully Shielded.** See “Fixture, Fully Shielded.”
- MM. **Funeral Homes and Services 3.1C(3)l.** Establishments for preparing the dead for burial or interment and conducting funerals (i.e. providing facilities for wakes, arranging transportation for the dead, and selling caskets and related merchandise). (LBCS F6700-6702)
- NN. **Future Conditions Flood.** The flood having a one percent (1%) chance of being equaled or exceeded in any given year based on future conditions hydrology.
- OO. **Future Conditions Flood Elevation.** A determination of the water surface elevations of the one percent (1%) annual chance flood based on future conditions hydrology as published in the FIS. This elevation, when combined with the freeboard, established the Regulatory Flood Protection Elevation in Future Conditions Flood Hazard Areas.
- PP. **Future Conditions Flood Hazard Area.** The land area that would be inundated by the one percent (1%) annual chance flood based on future conditions hydrology as determined in Section 9.5 of this ordinance.
- QQ. **Future Conditions Hydrology.** The flood discharges associated with projected land-use conditions based on Wake County’s June 2003 Equivalent Zoning Classification and without consideration of projected future construction of flood detention structures or projected future hydraulic modifications within a stream or other waterway, such as bridge and culvert construction, fill, and excavation. Future conditions flood discharges are published in the FIS.

15.9. “G” Definitions

- A. **Gas Station with Convenience Store 3.1C(4)c.** Establishments that primarily retail automotive fuels. These establishments may further provide services such as automotive repair, automotive oils, and/or replacement parts and accessories. Gas stations include structures that are specialized for selling gasoline with storage tanks, often underground or hidden. Bays for car washes may also be included. (LBCS F2116 and S2270)
- B. **General Retail-10,000 sf or Less 3.1C(4)d.** Premises available for the commercial sale of merchandise and prepared foods, but excluding manufacturing. Ranging in size of 10,000 square feet or less. For sizes 2,000 square feet or less, also see “Neighborhood Retail/Restaurant” (LBCS F2100)
- C. **General Retail-10,001 sf – 50,000 sf 3.1C(4)e.** Premises available for the commercial sale of merchandise and prepared foods, but excluding manufacturing. Ranging in size between 10,001 square feet and 50,000 square feet. (LBCS F2100)
- D. **General Retail-Greater than 50,000 sf 3.1C(4)f.** Premises available for the commercial sale of merchandise and prepared foods, but excluding manufacturing. Greater than 50,000 square feet. (LBCS F2100)
- E. **Glare.** The effect produced by a light source within the visual field that is sufficiently brighter than the level to which the eyes are adapted, to cause annoyance, discomfort, or loss of visual performance and ability.
- F. **Government Services 3.1C(3)m.** Includes federal, state, and local government agencies that administer, oversee and manage public programs. Does not include Cemeteries, Colleges/Universities, Hospitals, Public Safety Facilities, Schools, or Utilities. (LBCS F6210 and F6221)
- G. **Government Sign.** See “Sign, Government.”
- H. **Greenway.** Public open space owned and maintained by the Town which has been designated on the current edition of the officially adopted Trails and Greenways Plan (Appendix B).
- I. **Trails and Greenways Plan (Appendix B).** A plan, adopted by the Town Council illustrating current and future greenways and bike routes.
- J. **Ground Cover.** A prostrate plant growing less than two (2) feet in height at maturity that is grown for ornamental purposes and may help control erosion on slopes.
- K. **Group Care Facility 3.1C(7)d.** A facility with support and supervisory personnel that provides room and board, personal care, and habilitation services in a group environment to more than six (6) resident persons with disabilities of whom one or more are unrelated. This category includes facilities licensed (in whole or in part) by the North Carolina Department of Health and Human Services. Examples include but are not limited to group dwellings (all ages), day treatment facilities, halfway houses, nursing homes, resident schools, resident facilities, skilled nursing, adult care homes, and foster or boarding homes. Such facility may also include the care of 6 or fewer persons who are not covered by the N.C.G.S. §160D-907 definition of a person with disabilities, but excludes housing services for the elderly as defined within this Ordinance.

15.10. “H” Definitions

- A. **Hazardous Material.** Any substance listed as such in. SARA Section 302 - Extremely Hazardous Substances; CERCLA Hazardous Substances; or Section 311 of the Clean Water Act (oil and hazardous substances).
- B. **Heavy Manufacturing.** See “Manufacturing, Heavy.”
- C. **Highest Adjacent Grade (HAG).** The highest natural elevation of the ground surface, prior to construction, immediately next to the proposed walls of the structure.
- D. **Home Occupation 3.1C(9)f.** An occupation or profession conducted within a dwelling unit by a residing family member that is incidental to the primary use of the dwelling as a residence. Home Occupations are small and quiet non-retail businesses generally invisible from the frontage, are seldom visited by clients, require little parking, have little or no signage, and have no more than one (1) employee who is not also a resident of the dwelling. They include but are not limited to, professional services, workshops, sewing, and music instruction. Home Occupations include Day Care Homes where daytime care is provided to five (5) or fewer children who are not the legal wards or foster children of the attendant adult within an owner-occupied residence. Home occupations do not include those occupations such as vehicle repair, service or sales; animal services; theaters; massage; storage; manufacturing or fabrication.
- E. **Hospital 3.1C(7)e.** A health care facility the purpose of which is to provide for the care, treatment, testing for physical, emotional, or mental injury, illness, or disability, and overnight boarding of patients, either on a for-profit or not-for-profit basis; but not including group homes. (LBCS F6530 and S4110)
- F. **Hotels/Inns 3.1C(2)b.** Establishments providing lodging and short-term accommodations for travelers. They may offer a wide range of services including, overnight sleeping space, food services, convention hosting services, and/or laundry services. Entertainment and recreation activities may also be included. Extended-stay hotels are included in this category. (LBCS F1300 and F1330)
- G. **Housing Services for the Elderly 3.1C(1)g.** Establishments that offer housing services for the aged, not requiring a license from the North Carolina Department of Health and Human Services, such as provision of meals, monitoring of medication, personal care including bathing and dressing, housekeeping, laundry, medical services, and social and recreational activities.
- H. **Human Habitation.** The use of a building or other structure for working, sleeping, living, cooking, or restroom areas.

15.11. “I” Definitions

- A. **Illuminance.** The amount of light (luminous flux incident) at a point on a surface (measured in lux or footcandles).
- B. **Impervious Surface.** Improvements including street pavement, driveways, gravel areas, buildings, and other structures which cover the soil surface and prevent infiltration of water into the soil.
- C. **Incidental Sign.** See “Sign, Incidental.”
- D. **Indirect Light.** See “Light, Indirect.”

- E. **Indoor Recreation Facilities.** See “Recreation Facilities, Indoor.”
- F. **Infill Lot.** See “Lot, Infill.”
- G. **Internal Street.** See “Street, Internal.”
- H. **Isolux Lighting Plan.** A demonstration or topographic map of light distribution over a given area.

15.12. “L” Definitions

- A. **Laboratory-Medical, Analytical, Research, & Development 3.1C(6)d.** A facility for testing, analysis, and/or research. Examples of this include medical labs, soils and materials testing labs, and forensic labs.
- B. **Lamp.** The component of a luminaire that produces the actual light (bulb or diode).
- C. **Lamp, Flood.** A form of lighting designed to direct its output in a specific direction with a reflector formed from the glass envelope of the lamp itself. Such lamps are so designated by the manufacturers and are typically used in residential outdoor area lighting.
- D. **Land Disturbing Activity.** Any use of the land by any person(s) in residential, industrial, educational, institutional, or commercial development, highway or road construction or maintenance, that results in a change in natural cover or topography that may cause or contribute to sedimentation.
- E. **Land Use Review Board (LURB).** The Town of Knightdale Land Use Review Board, an appointed board that serves as the Town’s Planning Board, the Community Appearance Commission and the Tree Board.
- F. **Landfill.** See “Utility, Class 3”.
- G. **Landscaping.** The act of changing, rearranging, or adding to a site’s original vegetation. It may include reshaping the land by moving the earth, as well as preserving the original vegetation or adding vegetation.
- H. **Laundry, Dry Cleaning Plant.** A service establishment engaged primarily in high volume laundry and garment services, including: carpet and upholstery cleaners; diaper services; dry-cleaning and garment pressing; commercial laundries; and linen supply. These facilities may include customer pick-up but do not include coin-operated laundries or dry cleaning pick-up stores without dry cleaning equipment.
- I. **Light, Flood, or Spot.** Any fixture or lamp that incorporates a reflector or a refractor to concentrate the light output into a directed beam in a particular direction.
- J. **Light, Indirect.** Light that has been reflected or scattered off of other surfaces.
- K. **Light Manufacturing.** See “Manufacturing, Light.”
- L. **Light Trespass.** The portion of light from a luminaire that illuminates areas beyond the boundaries of the property on which the luminaire is located and measures above the permissible level regulated at the boundary line.
- M. **Live Performance Theater.** See “Theater, Live Performance.”

- N. **Live-Work Unit 3.1C(1)h.** An attached residential building type with small commercial enterprises on the ground floor and a residential unit above or behind with a common tenant in both spaces (no dual occupancy is permitted).
- O. **Loading Area.** A vehicle accommodation area, separate and distinct from any parking area, that is delineated on a plan and used for the regular and intermittent loading and unloading of supplies, equipment, or materials.
- P. **Local Street.** See “Street, Local.”
- Q. **Logo.** A type of “copy” that is a design displayed on a sign. The design may incorporate insignia, symbols, characters, letters, words and figures in order to represent a good, identity, or service.
- R. **Lot.** A portion of a subdivision or a parcel of land intended as a unit for transfer of ownership, for development or both. The word "lot" includes the word "plot" or "parcel."
- S. **Lot, Corner.** A lot which has continuous frontage at two (2) intersecting streets.
- T. **Lot, Flag** (may also be known as a pipestem lot or panhandle lot). A lot which contains a relatively narrow strip that provides street access
- U. **Lot of Record.** A lot which is a part of a subdivision, a plat of which has been recorded in the office of the register of deeds of Wake County; or a lot described by metes and bounds, the description of which has been so recorded.
- V. **Lot, Infill.** A vacant parcel of land located within Old Town. The term “infill lot” shall include, but not be limited to, any lot zoned GR3, GR8 or UR12, and having frontage along any of the following streets. Second, Third, or Fourth avenues between Smithfield Road and Pine Street; First Avenue between Smithfield Road and Sixth Street; Maple, Main, Oakwood, and Pine streets; the segments of Park Avenue, Harper Street, or Ridge Street east of Smithfield Road; Sallinger, Hester, Jutson, House and Keith streets; and Robertson Street between First Avenue and Keith Street.
- W. **Lot, Nonconforming.** See “Nonconforming.”
- X. **Lot Width.** The distance between side lot lines measured at the building line.
- Y. **Low Luminosity Lighting.** Lighting fixtures whose lumen output does not exceed 2,000 lumens.
- Z. **Low Voltage Lighting.** Lighting systems powered through a transformer such as a cable conductor that lowers the voltage supplied to the luminaires to 25 volts or less.
- AA. **Lowest Adjacent Grade (LAG).** The lowest elevation of the ground, sidewalk or patio slab immediately next to the building, or deck support, after completion of the building.
- BB. **Lowest Floor.** The lowest floor of the lowest enclosed area (including basement). An unfinished or flood resistant enclosure, usable solely for parking of vehicles, building access, or limited storage in an area other than a basement area is not considered a building's lowest floor, provided that such an enclosure is not built so as to render the structure in violation of the applicable non-elevation design requirements of this ordinance.
- CC. **Lumen.** A unit of luminous flux. The total quantity of light emitted from a light source. For the purposes of this Ordinance, the lumen output values shall be the initial lumen output ratings of a lamp.

- DD. **Luminaire.** A complete lighting unit consisting of a lamp or lamps together with the parts designed to distribute the light, to position and protect the lamps, and to connect the lamps to the power supply.
- EE. **Lux.** A unit of illuminance. One (1) lux equals one (1) lumen per square meter. One (1) footcandle equals 10.76 lux (often rounded to 10 lux for ease of use).

15.13. “M” Definitions

- A. **Maintained Foot-Candle.** Illuminance of lighting fixtures adjusted for a maintenance factor accounting for dirt build-up and lamp output depreciation. The maintenance factor used in the design process to account for this depreciation cannot be lower than 0.72 for high-pressure sodium and 0.64 for metal halide and mercury vapor.
- B. **Manufactured Housing 3.1C(1)j.** A dwelling unit, other than a modular home, fabricated in an off-site manufacturing facility for installation or assembly on the building site, which bears a seal certifying that it was built to the standard adopted pursuant to the National Manufactured Housing Construction and Safety Standards Act of 1974, 42 U.S.C. Sec 5401 et seq., which is placed upon a permanent foundation which meets the installation and foundation requirements adopted by the N.C. Commissioner of Insurance, but which is not constructed or equipped with a permanent hitch or other device allowing it to be moved other than for the purpose of moving to a permanent site, and which does not have permanently attached to its body or frame any wheels or axles. (LBCS S1150)
- C. **Manufacturing, Light 3.1C(6)e.** A non-residential use that requires a National Pollutant Discharge Elimination System (NPDES) permit for an industrial or stormwater discharge or involves the use or storage of any hazardous materials or substances or that is used for the purpose of manufacturing, assembling, finishing, cleaning, or developing any product or commodity. Facilities are typically designed to look and generate impacts like a typical office building but rely on special power, water, or waste disposal systems for operation. Noise, odor, dust, and glare of each operation are completely confined within an enclosed building, insofar as practical. (LBCS S2613)
- D. **Manufacturing, Neighborhood 3.1C(6)f.** The assembly, fabrication, production, or processing of goods and materials using processes that ordinarily do not create noise, smoke, fumes, odors, glare, or health or safety hazards outside of the building and are visually undifferentiated from an office building. This includes, but is not limited to, medical and testing laboratories, small woodworking shops, craftsman shops, and artisan shops. This use shall not include those that require frequent deliveries by truck with more than two (2) axles. (LBCS S2610)
- E. **Manufacturing, Heavy 3.1C(6)g.** A non-residential use that requires a NPDES permit for an industrial or stormwater discharge or involves the use or storage of any hazardous materials or substances or that is used for the purpose of manufacturing, assembling, finishing, cleaning, or developing any product or commodity. Typically, the uses are the largest facilities in a community and have complex operations, some of which may be continuous (24 hours a day/7 days per week). (LBCS S2620)
- F. **Map Repository.** The location of the official flood hazard data to be applied for floodplain management. It is a central location in which flood data is stored and managed; in North Carolina, FEMA has recognized that the application of digital flood hazard data products have the same authority as hard copy products. Therefore, the NCEM’s Floodplain Mapping Program websites

house current and historical flood hazard data. For effective flood hazard data the NC FRIS website (<http://FRIS.NC.GOV/FRIS>) is the map repository, and for historical flood hazard data the FloodNC website (<http://FLOODNC.GOV/NCFLOOD>) is the map repository.

- G. **Media Production 3.1C(6)h.** Facilities for motion picture, television, video, sound, computer, and other communications media production. These facilities include the following types:
 1. Back lots/outdoor facilities;
 2. Indoor support facilities
 3. Soundstages. Warehouse-type facilities providing space for the construction and use of indoor sets, including supporting workshops and craft shops. (LBCS F4212, F4220, F4231 and F4232)
- H. **Medical Cannabis Center 3.1C(4)g.** A facility owned and operated by a supplier that possesses and dispenses cannabis and cannabis-infused products to registry identification cardholders for human consumption.
- I. **Medical Services 3.1C(3)n.** Ambulatory or outpatient care establishments offer health care services directly to patients without providing inpatient services. Such facilities also include outpatient family planning services; laboratories that provide analytic or diagnostic services, and other services, such as medical imaging, and forensics; and blood and organ banks. (LBCS F6510, F6512, F6513 and F6514) Use also includes physician offices, dentists, chiropractors, optometrists, etc. (LBCS F6511)
- J. **Meeting Facilities 3.1C(5)g.** Meeting/conference facilities that include room(s) or space(s) used for assembly purposes by 50 or more persons including fraternal halls (VFW lodges, etc.) and banquet facilities. (LBCS S3800)
- K. **Metal Products Fabrication, Machine or Welding Shop 3.1C(6)i.** An establishment engaged in the production and/or assembly of metal parts, including the production of metal cabinets and enclosures, cans and shipping containers, doors and gates, duct work forgings and stampings, hardware and tools, plumbing fixtures and products, tanks, towers, and similar products. Examples of these include:
 1. Blacksmith and welding shops
 2. Plating, stripping, and coating shops
 3. Sheet metal shops
 4. Machine shops and boiler shops (LBCS F3340 and F3350)
- L. **Microbrewery 3.1C(4)b.** A facility that produces less than 25,000 barrels of beer per year and sells the majority of the beer it produces for off-site resale and consumption. The development may include other uses such as a standard restaurant or bar as otherwise permitted in the zoning district.
- M. **Mini-Warehouses 3.1C(6)j.** A building containing separate enclosed storage spaces of varying sizes leased or rented on an individual basis. (LBCS F2710 and F2720)
- N. **Monument Sign.** See “Sign, Monument.”
- O. **Movie Theater.** See “Theater, Movie.”

- P. **Multi-use Path.** A pathway, often found in conjunction with a greenway, usually intended for the use of bicycles, pedestrians, and other non-motorized means of conveyance. Usually a 10- to 12-foot wide (for two-way travel) paved surface or a surface graded with a material suitable for the types of users.
- Q. **Mural.** A painting on a building wall with any commercial copy limited to no more than 10 percent (10%) of the façade area.

15.14. “N” Definitions

- A. **Nadir.** The point directly below the luminaire.
- B. **Neighborhood Manufacturing.** See “Manufacturing, Neighborhood.”
- C. **Neighborhood Retail/Restaurant 3.1C(4)h.** A “General Retail” or “Restaurant” use that is of a size of 2,000 square feet or less. (LBCS F2100, F2510, F2520 and F2530)
- D. **Neighborhood Sign.** See “Sign, Neighborhood/Campus Entrance.”
- E. **Neuse River Buffer (NRB).** An area of natural or planted vegetation through which stormwater runoff flows in a diffuse manner so that the runoff does not become channelized and which provides for infiltration of the runoff and filtering of pollutants. The buffer is measured landward from the normal pool elevation of impounded structures and from the bank of each side of streams or rivers.
- F. **New Construction.** Structures for which the “start of construction” commenced on or after the effective date of the initial floodplain management regulations and includes any subsequent improvements to such structures.
- G. **Nightclub 3.1.C(4)i.** A business that operates primarily in the evening hours that principally provides entertainment such as live music, and/or dancing, comedy, etc.
- H. **Nonconforming.** A lot, structure (including buildings, wireless telecommunication towers, manufactured homes), sign, plan, street frontage, landscaping, screening, lighting, or use of land or structure, which does not meet the regulations and requirements of this Ordinance (either by adoption of this Ordinance or a subsequent amendment) but was lawful at the date on which it was established or became lawful at some later date.
- I. **Non-Cutoff Fixture.** See “Fixture, Non-Cutoff.”
- J. **Non-Encroachment Area.** The channel of a river or other watercourse and the adjacent land areas that must be reserved in order to discharge the base flood without cumulatively increasing the water surface elevation more than one (1) foot as designated in the FIS report.
- K. **Non-Residential Use.** See “Use, Non-Residential.”

15.15. “O” Definitions

- A. **Official Maps or Plans.** Any map or plan officially adopted by the Town Council as a guide for the development of the Town, its ETJ or its Urban Service Area as so designated by Wake County.
- B. **Off-Premise Directional Sign.** See “Sign, Off-Premise Directional.”

- C. **Off-Premise Sign.** See “Sign, Off-Premise.”
- D. **On-Premise Sign.** See “Sign, On-Premise.”
- E. **Ornamental Tree.** See “Tree, Understory.”
- F. **Outdoor Display Area.** The portion of a commercial establishment identified for the outdoor display and sale of items such as heavy equipment, recreational vehicles, automobiles, manufactured homes, and building materials.
- G. **Outdoor Animal Boarding/Equestrian Facilities 3.1C(3)o.** A use or outdoor structure such as a kennel or run intended and used for the breeding or accommodation of small domestic animals for sale or for the training or overnight boarding of animals for persons other than the owner of the lot, but not including a veterinary clinic in which the overnight boarding of animals is necessary for or accessory to the testing and medical treatment of the physical disorders of animals. This use also includes equestrian-related leisure activities including riding, mounting, horsemanship, and equestrian games, such as polo, hurdles, dressage training and show jumping; as well as the facilities for maintaining stables, feeding, caring, and housing horses. (LBCS F2700 and LBCS A7120)
- H. **Outdoor Lighting.** The nighttime illumination of an outdoor area or object by any man-made device located outdoors that produces light by any means.
- I. **Outdoor Recreation Facilities.** See “Recreation Facilities, Outdoor.”
- J. **Outparcel.** A parcel of land designated on an approved commercial group development site plan or determined as such by the Land Use Administrator. An outparcel shall be secondary in nature to the primary commercial development. It shall contain a single building and be independent of the total development in that its parking requirement for the use meets the standard set forth in Section 7.1 and its driveways, walkways, landscaping, and lighting are also unique to the building on the site.
- K. **Overlay District.** A set of zoning requirements that is described in the ordinance text, is mapped, and is imposed in addition to those of the underlying district. Developments within the overlay district must conform to the requirements of both zones or the more restrictive of the two. It usually is employed to deal with special physical characteristics such as flood plains or steeply sloping areas, but it has other applications as well.

15.16. “P” Definitions

- A. **Park and Ride Spaces.** A parking lot and/or spaces designated for drivers to leave their cars and use mass transit facilities beginning, terminating, or stopping within immediate walking distance of the park and ride facility.
- B. **Parkway.** A street bounded on one (1) side by structures and on the other by a greenway, park, or open space.
- C. **Pedestrian Walkway.** A separate, delineated, and protected path for the safe movement of pedestrians between sites or within a given site, including but not limited to sidewalks, crosswalks, multi-use paths, arcades, and pedestrian bridges.
- D. **Permeable Surface.** Although considered by this ordinance as an “Impervious Surface”, permeable surfaces possess a characteristic that allows the movement of some water and/or air around the surface material to infiltrate sub-surface areas such as a series of concrete pavers.

- E. **Permitted Use.** See “Use, Permitted.”
- F. **Person with Disabilities.** A person with a temporary or permanent physical, emotional, or mental disability including but not limited to mental retardation, cerebral palsy, epilepsy, autism, hearing and sight impairments, emotional disturbances, and orthopedic impairments but not including mentally ill persons who are dangerous to others as defined in (N.C.G.S. §160D-907).
- G. **Personal Services 3.1C(3)p.** These establishments offer a wide range of personal services. Uses include but are not limited to tailor/seamstress shops, nail salons, hair salons, barbershops, and tanning salons; which may include permanent makeup tattooing (color enhancement of eyebrows, eyeliner, and lips) as an ancillary use. This definition does not allow tattooing of the body except as identified herein for permanent makeup. (LBCS F2600)
- H. **Pilaster.** For the purposes of façade articulation (Section 6.4(G)), a decorative feature that imitates engaged piers but is not a supporting structure. May be a rectangular or semi-circular projection of at least 12 inches in width and a minimum 1.4 projection to width ratio and typically contains a base, shaft, and capital.
- I. **Planned Development District.** A zoning designation, functioning as a floating overlay district, that may be applied for by a developer as part of a re-zoning request (Section 12.2(3)(g)). These districts establish their own uses (Section 3.1C) but are otherwise subject to the requirements and regulations of the underlying district as well as any additional standards enumerated for them.
- J. **Planting Area.** The area prepared for the purpose of accommodating the planting of trees, shrubs, and groundcovers.
- K. **Point-by-Point Footcandle Grid.** A graphical representation of points placed onto a grid or layout where each point identifies the amount of luminance (light) in footcandles or lux (one-tenth of a footcandle). The spacing between points can vary depending on the size of the area to be lighted. For many typical outdoor layouts, a 10’ x 10’ spacing grid layout is used. Larger areas may utilize a 15’ or 20’ grid spacing. This type layout can also indicate luminance or reflected light instead of luminance.
- L. **Pole Sign.** See “Sign, Pole.”
- M. **Porous Surface.** Although considered by this ordinance as an impervious surface, porous surfaces possess a characteristic that allows the movement of some water and/or air through the surface material to infiltrate sub-surface areas such as porous asphalt or concrete.
- N. **Portable Sign.** See “Sign, Portable.”
- O. **Post-FIRM.** Construction or other development for which the start of construction occurred on or after the effective date of the initial Flood Insurance Rate Map.
- P. **Post-Mounted Fixtures.** See “Fixtures, Post-Mounted.”
- Q. **Post Office 3.1C(3)q.** Establishments conducting operations of the United States Postal Service. (LBCS F4170).
- R. **Pre-FIRM.** Construction or other development for which the start of construction occurred before the effective date of the initial Flood Insurance Rate Map.
- S. **Preliminary Plat.** A draft plat used to determine if the proposed development is in general conformance with Town standards and ordinances.

- T. **Primary Façade.** The building façade that shares a frontage line with a street or square. In cases where a building fronts on more than one street or square, the primary façade will be determined by the Land Use Administrator.
- U. **Principal Building.** See “Building, Principal.”
- V. **Principal Structure.** See “Structure, Principal.”
- W. **Private Street.** See “Street, Private.”
- X. **Professional Services 3.1C(3)q.** Services provided that make available the knowledge and skills of their employees to sell expertise and perform professional and technical services to others such as legal services; accounting, tax, bookkeeping, and payroll services; architectural, engineering, and related services; graphic, industrial, and interior design services; consulting services; advertising, media, and photography services; real estate services; investment banking, securities, brokerages; and insurance-related services (LBCS F2230, F2240, F2300, and F2410-2417).
- Y. **Projecting Sign.** See “Sign, Projecting.”
- Z. **Projection.** Any component, member, or part which juts out a minimum of two (2) feet from a building, or any jog in a wall that results in the wall being set forward a minimum of two (2) feet.
- AA. **Property Identification Sign.** See “Sign, Property Identification.”
- BB. **Protected Area.** The area adjoining and upstream of the critical area in a WS-IV water supply in which protection measures are required. The boundaries of the protected areas are defined as extending five (5) miles upstream and draining to water supply reservoirs (measured from the normal pool elevation) to the ridge line of the watershed (whichever comes first); or 10 miles upstream and draining to the intake located directly in the stream or river (run-of-the-river), or to the ridge line of the watershed (whichever comes first).
- CC. **Public Safety Facility 3.1C(7)f.** A facility operated by a public agency including fire stations, other fire prevention and fire fighting facilities, police and sheriff substations and headquarters, including incarceration facilities. (LBCS F6222 and F6400)
- DD. **Public Street.** See “Street, Public.”

15.17. “Q” Definitions

- A. **Quarrying and Stone Cutting 3.1C(6)k.** This category comprises establishments that dredge, quarry, mine, or develop the mine site for crushed and broken stones, sand, gravel, mining clay (e.g., china clay, paper clay, and slip clay), or other stones and nonmetallic minerals. Broken and crushed stones include granite and related rocks, such as gneiss, syenite, and diorite; and other stones (except dimension stone and limestone.) Establishments that mine or quarry bituminous limestone and bituminous sandstone are included in this category. Also included are preparation plants that beneficiate stones (e.g., by grinding and pulverizing); and that beneficiate gravel, clay, and ceramic and refractory minerals (e.g., by washing, screening, and grinding.) (LBCS F8400 and F8500).

15.18. “R” Definitions

- A. **Real Estate Sign.** See “Sign, Real Estate.”

- B. **Rear Yard.** See “Yard, Rear.”
- C. **Recessed Wall.** Any depression or jog in a wall that results in the wall being set back a minimum of two (2) feet.
- D. **Recreation Facilities, Indoor 3.1C(5)h.** Uses or structures for active recreation including gymnasiums, natatoriums, athletic equipment, indoor running tracks, climbing facilities, court facilities, and their customary accessory uses. This definition is inclusive of both non-profit and for-profit operations but exclusive of government services.
- E. **Recreation Facilities, Outdoor 3.1C(5)i.** Parks and other open space used for active or passive recreation such as ball fields, playgrounds, greenway trails, tennis courts, riding stables, campgrounds, and golf courses and their customary accessory uses including, but not limited to, maintenance sheds, clubhouses, pools, restrooms, and picnic shelters. This definition is inclusive of both non-profit and for-profit operations, but exclusive of government services.
- F. **Religious Institution 3.1C(7)g.** Any facility such as a church, temple, monastery, synagogues, or mosque used for worship by a non-profit organization and their customary related uses for education (pre-schools, religious education, etc.), recreation (gymnasiums, activity rooms, ball fields, etc.), housing (rectory, parsonage, elderly or disabled housing, etc.) and accessory uses such as cemeteries, mausoleums, soup kitchens, and bookstores. (LBCS F6600 and S3500)
- G. **Required Yard Area.** That space between the required yard setback lines and the lot lines from which the required yard setbacks are measured.
- H. **Research and Development (R&D) 3.1C(6)l.** A facility for scientific research, and the design, development, and testing of electrical, electronic, magnetic, optical and computer and telecommunications components in advance of product manufacturing, and the assembly of related products from parts produced off-site, where the manufacturing activity is secondary to the research and development activities. Includes pharmaceutical, chemical, and biotechnology research and development. (LBCS F2416)
- I. **Residential Development.** Buildings for residence such as attached and detached single-family dwellings, apartment complexes, condominiums, townhouses, cottages, etc. and their associated outbuildings such as garages, storage buildings, gazebos, etc. and customary home occupations.
- J. **Residential Use.** See “Use, Residential.”
- K. **Restaurant 3.1C(4)j.** A retail business selling ready-to-eat food and/or beverages for on or off-premise consumption. Customers may be served from an ordering counter (i.e. cafeteria or limited service restaurant); at their tables (full-service restaurant); and, at exclusively pedestrian-oriented facilities that serve from a walk-up ordering counter (snack and/or nonalcoholic bars). May also include no more than three (3) non-server based, non-internet connected sweepstakes center games as a customary accessory use for those restaurant establishments maintaining an “on-premises” retail ABC permit. For sizes 2,000 square feet or less, also see “Neighborhood Retail/Restaurant” (LBCS F2510, F2520, and F2530)
- L. **Rezoning.** See “Zoning Amendment.”
- M. **Right-of-Way.** A strip of land whose legal title has been offered for public access and is occupied or intended to be occupied by a travelway and is also available, with the consent of the appropriate governmental agency, for installation and maintenance of traffic control devices, regulatory and

information signs, water lines, sanitary sewer lines, storm sewer lines, gas lines, power lines, and communication lines.

N. **Roof Sign.** See “Sign, Roof.”

15.19. “S” Definitions

- A. **SA Waters.** The highest classification of estuarine and marine waters. This classification is applied to waters that are outstanding natural resources and that should be preserved because of their ecological, social, scenic, economic or recreational importance. No domestic discharges are permitted in these waters.
- B. **Sandwich Board Sign.** See “Sign, Sandwich Board.”
- C. **School, Elementary & Secondary 3.1C(7)h.** A public or private institution for education or learning, including associated athletic or recreational facilities, which does not include lodging. This institution includes any school licensed by the state and that meets the state requirements for elementary and secondary education. (LBCS F6100)
- D. **School, Vocational/Technical 3.1C(7)i.** A public or private institution for education or learning, including associated athletic or recreational facilities, which does not include lodging. These schools offer vocational and technical training in a variety of technical subjects and trades. Training may lead to job-specific certification. (LBCS F6100 and F6140)
- E. **Seasonal Lighting.** Holiday/temporary lighting displays that are utilized less than a total of 60 days in any one year.
- F. **Secondary School.** See “School, Elementary & Secondary.”
- G. **Sediment.** Solid particulate matter, both mineral and organic, that has been or is being transported by water, air, gravity, or ice from its site of origin.
- H. **Sedimentation.** The process by which sediment resulting from accelerated erosion has been or is being transported off the site of the land-disturbing activity or into a lake or natural water course.
- I. **Setback.** A line parallel to the property line in front of which no structure shall be erected.
- J. **Sharrow.** A shared lane marking that assists bicycles with lateral positioning within a travel lane as identified by the most recent Manual on Uniform Traffic Control Devices.
- K. **Shield.** A device that is attached onto a fixture or inserted into a luminaire to alter the direction of light being emitted.
- L. **Shopping Center-Community Center 3.1C(4)k.** Usually configured as a strip center. Sizes vary from 100,000 to 350,000 square feet on sites ranging in size from 10 to 40 acres and have a three (3) to six (6) mile primary trade area radius. Serves a wider market than neighborhood and also offers wider range of goods, especially apparel goods. Anchors include supermarkets, super drug stores, and discount department stores. Some centers may also contain off-price retail stores selling toys, electronics, sporting goods, and home improvement and furnishings. (LBCS S2520)
- M. **Shopping-Neighborhood Center 3.1C(4)l.** Sizes vary from 30,000 to 150,000 square feet on sites ranging from three (3) to 15 acres, and have a three (3) mile primary trade area radius. Typically

- serves immediate neighborhood with convenience shopping. Often anchored by a supermarket or drugstore. (LBCS S2510)
- N. **Shrub.** An upright plant growing one (1) to 20 feet in height at maturity that is planted for ornamental or screening purposes.
- O. **Sidepath.** A multi-use path that runs parallel and adjacent to a roadway. In a rural or suburban setting, a sidepath functions similar to a multi-use path or greenway. In a more urban setting, a sidepath functions similar to a wide sidewalk.
- P. **Side Yard.** See “Yard, Side.”
- Q. **Sight Triangle.** A triangular area formed by the intersection of the projected street lines (right-of-way lines) and a straight line connecting points on said street lines at distances specified by AASHTO guidelines, or in the absence of such guidelines, at a minimum distance of 25 feet along each street line from the point of intersection.
- R. **Sign.** Any form of publicity or advertising which is visible from any public way, directing attention to an individual, business, commodity, service, activity, or product, by means of words, lettering, parts of letters, figures, numerals, phrases, sentences, emblems, devices, trade names or trademarks, or other pictorial matter designed to convey such information and displayed by means of paint, bills, posters, panels, or other devices erected on an open framework, or attached or otherwise applied to stakes, posts, poles, trees, buildings, or other structures or supports.
- S. **Sign, Animated.** A sign depicting action, motion, light or color changes through electrical or mechanical means, as well as those with flashing or reflective disks, flashing lights, lights with changing degrees of intensity.
- T. **Sign, Awning.** A type of wall sign that is printed on or similarly attached to a window or door awning, or mounted on top of and supported by a window or door canopy.
- U. **Sign, Banner.** A sign of a business or organization which is temporary in nature and not part of its normal activities. Such a sign shall be limited to business events such as grand openings, going-out-of-business sales, promotions, liquidations and sales; as well as fund-raising membership drives or events of civic, philanthropic, educational, religious and other non-profit organizations.
- V. **Sign, Construction Identification.** A sign giving the name of names of building owners, architects, engineers, and/or lending institutions and principal contractors responsible for construction on the site where the sign is placed, together with other appropriate development information included thereon.
- W. **Sign, Election.** A sign advertising a candidate or an issue that is to be decided in an upcoming election or referendum.
- X. **Sign, Flashing.** See “Sign, Animated.”
- Y. **Sign, Government.** A sign posted by a local, state or federal agency, including, but not limited to, regulatory signs, welcome signs, seasonal signs, legal notices, identification signs, informational signs and traffic control signs.

- Z. **Sign, Monument.** Any monolithic sign in which the bottom (base) of the sign is flush with the ground, and the base itself is at least 10 percent (10%) larger, in both width and depth, than the body of the sign.
- AA. **Sign, Neighborhood/Campus Entrance.** A sign for a subdivision, group housing project, or a school, college, building, park, church, or other public or quasi-public facility, bearing information pertaining only to the premises on which such sign is located and not of a commercial nature.
- BB. **Sign, Nonconforming.** See “Nonconforming.”
- CC. **Sign, Off-Premise.** Any sign or structure, pictorial or otherwise, regardless of size or shape, which directs attention to a business, commodity, attraction, profession, service, or entertainment conducted, offered, sold, manufactured, existing, or provided at a location other than on the premises where the sign is located or to which it is affixed.
- DD. **Sign, Off-Premise Directional.** A real estate sign containing limited information pertaining to the consumer’s ability to locate the facility for sale, rent, lease or development.
- EE. **Sign, On-Site Traffic Directional.** A sign which carries no advertising message, is clearly incidental to other major signs on site, and is used to do one or more of the following:
1. Direct certain activities to certain areas; e.g., handicapped parking.
 2. Prohibit the parking of unauthorized vehicles.
 3. Provide other incidental information.
- FF. **Sign, On-Premise.** Any sign or structure, pictorial or otherwise, regardless of size or shape, which directs attention to a business, commodity, attraction, profession, service, or entertainment conducted, offered, sold, manufactured, existing, or provided at a location on the premises where the sign is located or to which it is affixed.
- GG. **Sign, Pole.** A free-standing sign with a visible support structure such as a pole(s) or pylon, or with a support structure hidden by a pole cover.
- HH. **Sign, Portable.** A sign designed or intended to be relocated from time to time, whether or not it is permanently attached to a building or structure, or is located on the ground. The term includes signs on wheels or on portable structures, such as tent signs, A-frame, or T-shaped signs and similar devices, and airborne signs.
- II. **Sign, Projecting.** A specific type of wall sign which extends outward for more than 12 inches from the facade of any building, but does not extend above the soffit, parapet or eave line of the building to which it is rigidly affixed.
- JJ. **Sign, Property Identification.** A sign bearing information pertaining only to the premises on which such sign is located (property identification/address numbers, post office box numbers, names of occupants, etc.) and not of a commercial nature.
- KK. **Sign, Real Estate.** A sign located on the premises and offering the premises for sale, rent or lease.
- LL. **Sign, Roof.** A sign erected, constructed, placed, or maintained upon the roof of any building.

- MM. **Sign, Sandwich Board.** A portable A-frame sign constructed with two faces which rest on the ground at an angle less than 45 degrees to each other.
- NN. **Sign, Secondary.** A type of wall sign permitted only when a primary wall sign exists on the same façade and that may not exceed 50% of the size of the façade’s primary wall sign.
- OO. **Sign, Special Event.** A sign of a business or organization which is not part of its normal activities. Such a sign shall be limited to a business “Grand Opening” or “Going Out of Business Sale,” as well as fund-raising membership drives or events of civic, philanthropic, educational, or religious organizations.
- PP. **Sign, Temporary.** A sign not permanently mounted or otherwise requiring the issuance of a permit in accordance with this Ordinance displayed for a short period of time in connection with a circumstance, situation, or event that is designed or intended to occur or to be completed within a defined time period.
- QQ. **Sign, Under Awning.** A sign which is suspended from the under-side of a canopy or awning.
- RR. **Sign, Wall.** A sign erected parallel to and extending not more than 12 inches from the facade of any building or yard wall (Section 8.6) to which it is attached, and supported throughout its entire length by the building or yard wall face. It may not extend above the roof line. This type is also known as a flat sign or flat wall sign.
- SS. **Sign, Wayfinding.** A sign meant to orient pedestrians and vehicular traffic to different sub-sections, areas, and tenants within a unified development of at least 20 acres in size.
- TT. **Sign, Window.** A sign placed or painted on the interior or exterior of a building’s glass windows or doors.
- UU. **Sign Face.** The part of the sign that is or can be used to identify, advertise or communicate information; or is used for visual representation which attracts the attention of the public for any purpose. Sign face includes any background material, panel, trim, color and direct or self-illumination used that differentiates that sign from the building, structure, backdrop, surface or object upon which or against which it is placed. The sign structure shall not be included as a portion of the sign face provided that no identifying/advertising message, symbol or any of the aforementioned sign face criteria are displayed on or designed as part of the sign structure, whether structurally necessary or not.
- VV. **Site Plan.** A diagram to scale showing the development plans for a project.
- WW. **Solar Energy Collection 3.1C(9)g-h.** The components and subsystems required to convert solar energy into electric or thermal energy suitable for use. The term applies, but is not limited to, solar photovoltaic (PV) systems, solar thermal systems, and solar hot water systems that are accessory to a principal use. Such systems include, but are not limited to, ground-mounted, roof-mounted, building-mounted, and building-integrated solar energy collection systems.
- XX. **Special Event Sign.** See “Sign, Special Event”.
- YY. **Special Flood Hazard Area.** The land in the floodplain subject to a one percent (1%) or greater chance of being flooded in any given year based on current conditions hydrology, as determined in Section 9.5C(1) of this ordinance.

- ZZ. **Special Use.** See “Use, Special.”
- AAA. **Specimen Tree.** See “Tree, Specimen.”
- BBB. **Spot Light.** See “Light, Flood or Spot.”
- CCC. **Standard Brick.** A brick that is eight (8) inches in length, two and one quarter (2¼) inches in height and three and three quarter (3¾) inches in depth.
- DDD. **Storage-Outdoor Storage Yard 3.1C(6)m.** The open storage of various materials outside of a structure other than fencing, as a principal use.
- EEE. **Storage-Warehouse, Indoor Storage 3.1C(6)n.** Facilities for the storage of furniture, household goods, or other commercial goods of any nature. Includes cold storage. Does not include warehouse, storage, or mini-storage facilities offered for rent or lease to the general public; warehouse facilities primarily used for wholesaling and distribution; or terminal facilities for handling freight. (LBCS F3600)
- FFF. **Stormwater Runoff.** The direct runoff of water resulting from precipitation in any form.
- GGG. **Stream.** A watercourse that collects surface runoff.
- HHH. **Street.** A dedicated and accepted public right-of-way for vehicular traffic which affords the principal means of access to abutting properties.
- III. **Street, Cul-de-Sac.** A short local street having one end open to traffic and the other end permanently terminated by a vehicular turnaround.
- JJJ. **Street, Internal.** In the MI District, any road or road segment that is not an arterial or collector as identified in Appendix A or B of the UDO, is not a through street with connectivity to a neighboring site, and is completely inside (not on the perimeter of) a proposed manufacturing and industrial development.
- KKK. **Street, Local.** A street whose primary function is to provide access to abutting properties.
- LLL. **Street, Private.** A vehicular travelway not dedicated or offered for dedication as a public street but resembling a cul-de-sac or a local street and providing the principal means of access to abutting properties or buildings.
- MMM. **Street, Public.** A dedicated and accepted public right-of-way for vehicular traffic. In the town limits, a public street shall be maintained by the Town of Knightdale or NCDOT. In the Town’s extraterritorial jurisdiction, a public street shall be designed and constructed to NCDOT standards, and may, or may not, have been accepted for state maintenance.
- NNN. **Street Frontage.** That portion of a single lot directly abutting a public right-of-way or private street.
- OOO. **Street Tree.** See “Tree, Street.”
- PPP. **Structure.** Anything constructed or erected, the use of which requires more or less permanent location on the ground or which is attached to something having more or less permanent location on the ground.
- QQQ. **Structure, Accessory.** A detached, subordinate structure, the use of which is customarily incidental to that of the principal structure and which is located on the same lot as the principal structure.

- RRR. **Structure, Nonconforming.** See “Nonconforming.”
- SSS. **Structure, Principal.** A structure in which the principal use(s) of the associated lot, on which said structure is situated, is conducted.
- TTT. **Stucco.** An exterior finishing system composed of Portland cement, lime and sand that is sprayed or hand applied in three (3) layers, the first layer being applied to a wire/metal lath, and the third layer sometimes containing an acrylic base.
- UUU. **Studio-Art, Dance, Martial Arts, Music, etc. 3.1C(3)s.** Small facilities, typically accommodating one (1) group of students at a time, in no more than one (1) instructional space. These establishments may include. individual and group instruction and training in the arts; production rehearsal photography, and the processing of photographs produced only by users of the studio facilities; martial arts training studios; gymnastics, yoga, and similar instruction; and aerobics and gymnastics studios with no other fitness facilities or equipment.
- VVV. **Subdivider.** Any person, firm or corporation who subdivides or develops any land deemed to be a subdivision as herein defined.
- WWW. **Subdivision.** A "subdivision" shall include all divisions of a tract or parcel of land into two (2) or more lots, building sites, or other divisions when any one or more of those divisions is created for the purposes of sale or building development (whether immediate or future) and shall include all division of land involving the dedication of a new street or a change in existing streets.
- XXX. **Sweepstakes Center 3.1C(4)m.** A business enterprise, whether principal or accessory (except where expressly permitted as a customary accessory use and according to the qualifying conditions laid out by the use definitions within this Chapter—see “Amusements, Indoor”, “Bar/Tavern/ Nightclub” and “Restaurant”), where persons may play games on on-site machines/ terminals/computers that reveal the results of sweepstakes or similar contests associated with the on-site purchase of internet time, phone time, office supply or other retail good; and where redeemable cash sweepstakes awards (government issued coins and bills in hand) in amounts of 10 dollars (\$10.00) or more may be received. This definition does not apply to any game or process prohibited by N.C.G.S. § 14-304 through 14-309 or to any game regulated by the North Carolina Education Lottery Commission.

15.20. “T” Definitions

- A. **Tasting Room 3.1C(4)n.** A principal use which serves and sells products solely produced by an off-site brewery, winery, or distillery under the same ownership.
- B. **Tattoo.** An indelible mark, figure or decorative design introduced by insertions of dyes or pigments into or under the subcutaneous portion of the skin or by the production of scars upon the body of a live human being.
- C. **Tattoo Shop 3.1C(3)t.** An establishment which is engaged to any extent in providing tattoos to customers beyond that permitted as permanent makeup within the definition of Personal Services.
- D. **Temporary Sign.** See “Sign, Temporary.”
- E. **Theater, Live Performance 3.1C(5)k.** Includes concert halls and other structures with fixed seats arranged on a sloped or stepped floor; may seat 300 to 3,000 people. (LBCS S3110)

- F. **Theater, Movie 3.1C(5)l.** A specialized theater for showing movies or motion pictures on a projection screen. This category also includes cineplexes and megaplexes, complex structures with multiple movie theaters, each theater capable of an independent performance. (LBCS S3120)
- G. **Town.** The Town of Knightdale, North Carolina.
- H. **Town Council.** Town Council of the Town of Knightdale, North Carolina.
- I. **Townhouse.** A building type consisting of units attached to one another in which each unit is located on an individually owned parcel, generally within a development containing drives, walks and open space in common areas.
- J. **Tract.** A lot, or contiguous group of lots in single ownership or under single control, and usually considered a unit for purposes of development.
- K. **Transit, Road and Ground Passenger Services 3.1C(8)b.** Services including but not limited to taxi cabs, limousines, charter buses, interurban buses, towing companies and mass transit. Also includes but is not limited to dispatch centers, stations and maintenance facilities. (LBCS F4130 and S3900)
- L. **Tree, Specimen.** Any healthy, existing tree over 12 inches DBH found in a field or open grown condition, or along the edge of a forest stand or tree stand and displaying the root zone, canopy, and structure characteristic of the particular species, excluding Sweet Gum, Catalpa, Wild Cherry, Wild Elm, Princess, Hackberry and Tree-of-Heaven.
- M. **Tree, Street.** A tree planted along the street, within a public right-of-way or public easement, and usually in a planting strip or tree well.
- N. **Tree, Understory.** A deciduous or evergreen tree or shrub planted primarily for its ornamental value or for screening purposes. Also known as an ornamental tree.

15.21. “U” Definitions

- A. **Under Awning Sign.** See “Sign, Under Awning.”
- B. **Unified Development.** A parcel, or contiguous group of parcels, developed under a uniform development scheme, receiving site plan or master plan approval as a unit. Property can be subdivided with multiple owners.
- C. **Uninterrupted Wall.** A façade section that does not contain any features such as transparent windows, doors, stairs or similar exterior features such as spandrel glass that may be approved by the DRC, or any articulations such as pilasters, projections, recesses or other vertical architectural elements as may be approved by the DRC.
- D. **Uplight.** The portion of luminous flux (light) from a luminaire emitted at angles above the horizontal.
- E. **Use, Change of.** See “Change of Use.”
- F. **Use, Nonconforming.** See “Nonconforming.”

- G. **Use, Non-Residential.** All uses not expressly included under the definition of “Use, Residential.” For the purposes of watershed or flood protection. All development other than residential development, agriculture and silviculture.
- H. **Use, Permitted.** A use permitted in a given district as a permitted use and so authorized by being listed, or referenced as a permitted use, by district, in Section 3.1(C)(1).
- I. **Use, Residential.** All uses under Section 3.1(C)(1), including single-family dwellings, duplexes, multifamily dwellings, secondary dwellings, family care homes, live-work units, manufactured home dwellings, home occupations, housing services for the elderly, along with any accessory buildings and structures thereof.
- J. **Use, Special.** A use permitted in a given district as a special use to be approved only by the Knightdale Town Council and so authorized by being listed as such in Chapter 3, Base District Specific Standards. If property exists such that an existing use which was previously allowed by right would be allowed only as a special use, that use shall become nonconforming unless and until a special use permit is issued.
- K. **Utilities.** Publicly or privately owned facilities or systems for the distribution of gas, electricity, steam, or water, the collection and disposal of sewage or refuse; the transmission of communications; of similar functions necessary for the provision of public services. Radio transmission facilities for use by ham radio operators or two-way radio facilities for business or governmental communications shall be deemed accessory uses and not utilities, provided no transmitter or antenna tower exceed 180 feet in height. Utilities are divided into three (3) classes:
 - 1. Class 1 - 3.1C(8)g. Transmission lines (above and below ground) including electrical, natural, gas, and water distribution lines; pumping stations, lift stations, and telephone switching facilities (to 200 sq. ft).
 - 2. Class 2 - 3.1C(8)g and 3.1C(9)i. Elevated water storage tanks; package treatment plants, telephone switching facilities (over 200 sq. ft), substations, grid-scale battery storage facilities co-located on substation sites, or other similar facilities in connection with telephone, electric, steam, and water facilities.
 - 3. Class 3 - 3.1C(8)h. Generation, production, or treatment facilities such as power plants, water and sewage plants, and landfills.
- L. **Utility Easement.** See “Easement, Utility.”

15.22. “V” Definitions

- A. **Vape, Tobacco, & CBD Store.** A retail establishment primarily dedicated towards the sale of tobacco, tobacco related products, vaping related products, cannabidiol/cannabis/hemp products, or cannabidiol/cannabis/hemp related products, or similar inhaled products and devices.
- B. **Variance.** An authorization granted by the BOA to vary or modify any of the regulations or provisions of the UDO, apart from the list of permitted uses established in Section 3.1(C), so that the spirit of the UDO shall be observed, public safety and welfare secured, and substantial justice done; only when practical difficulties or unnecessary hardships would result from carrying out the strict letter of the UDO.

- C. **Vehicle Accommodation Area.** Any portion of a lot that is used by vehicles for access, circulation, parking, storage, stacking while awaiting services, loading and unloading.
- D. **Vehicle/Heavy Equipment Sales 3.1C(4)o.** Establishments which may have showrooms or open lots for selling vehicles or heavy equipment. May include dealers for light trucks, buses, trucks, mobile homes, bicycles, motorcycles, ATVs, or boat and marine craft dealers. (LBCS F2110, F2111, F2112, F2113 and F2114)
- E. **Vehicle Services – Maintenance/Body Work/Repair 3.1C(3)u.** The repair, servicing, alteration, restoration, towing painting, cleaning, or finishing of automobiles, trucks, recreational vehicles, boats and other vehicles as a primary use, including the incidental wholesale and retail sale of vehicle parts as an accessory use. This includes major repair and body work which encompasses towing, collision repair, other body work and painting services, and tire recapping.
- F. **Vehicular Canopy.** A roofed, open, drive-through structure designed to provide temporary shelter for vehicles and their occupants while making use of a businesses’ services.
- G. **Vested Right.** The right to undertake and complete the development and use of property under the terms and conditions of an approved site specific development plan or an approved phased development plan.
- H. **Vocational/Technical School.** See “School, Vocational/Technical.”

15.23. “W” Definitions

- A. **Wall Art.** See “Mural.”
- B. **Wall Sign.** See “Sign, Wall.”
- C. **Water Surface Elevation.** The height, in relation to mean sea level, of floods of various magnitudes and frequencies in the floodplains of coastal or riverine areas.
- D. **Watercourse.** A lake, river, creek, stream, wash, channel or other topographic feature on or over which waters flow at least periodically. Watercourse includes specifically designated areas in which substantial flood damage may occur.
- E. **Watershed.** The entire land area contributing surface drainage to a specific point (e.g. the water supply intake.)
- F. **Wetlands.** Those areas that are inundated or saturated by surface or ground water at a frequency and duration sufficient to support, under normal conditions, a prevalence of vegetation typically adapted for life in saturated soil conditions.
- G. **Wholesaling and Distribution 3.1C(6)o.** Establishments engaged in selling merchandise to retailers; to contractors, industrial, commercial, institutional, farm or professional business users; to other wholesalers; or acting as agents or brokers in buying merchandise for or selling merchandise to such persons or companies. Examples of these establishments include:
 1. Agents, merchandise or commodity brokers, and commission merchants;
 2. Assemblers, buyers and associations engaged in the cooperative marketing of farm products;
 3. Merchant wholesalers;

4. Stores primarily selling electrical plumbing, heating, and air conditioning supplies and equipment. (LBCS F3500)
- H. **Window Sign.** See “Sign, Window.”
- I. **Wireless Telecommunication Facility.** Equipment constructed in accordance with Section 332(c)(7) of the Communications Act at a single location by a private business user, governmental user, or commercial wireless service provider to transmit, receive, or relay electromagnetic signals (including microwave). Such facilities includes antennas or antenna arrays, wireless telecommunication towers, support structures, transmitters, receivers, base stations, combiners, amplifiers, repeaters, filters, or other electronic equipment; together with all associated cabling, wiring, guy anchors, equipment enclosures, and other improvements.
- J. **Stealth/Camouflage 3.1C(8)c.** Antenna and related telecommunication equipment designed as an integral part of a permitted existing structure and unobtrusive in its appearance. Such existing structures may include, but are not limited to. flagpoles, buildings, silos, water tanks, signs, lighting standards, steeples, and electric transmission towers. This use also includes co-located facilities on a permitted existing tower not meeting the definition of “substantial modification” as defined in N.C.G.S. § 160A-400.51 (7a).
- K. **Tower 3.1C(8)d.** Any free-standing structure up to 200 feet in height designed and constructed to primarily support one (1) or more telecommunication antennas, or an attachment to a building or structure designed and constructed for previous said purpose where the attachment extends more than 20 feet above the normal height of the building or structure on which it is placed. The following shall not be included in this definition as a tower:
1. Amateur radio facilities with antennas mounted on supporting structures less than 90 feet in height;
 2. Residential antennas for receiving television or AM/FM radio broadcasts;
 3. Residential satellite dishes; or
 4. Commercial or industrial satellite dishes that are less than 20 feet in height.

15.24. “X” Definitions

- A. **Xeriscape.** A landscaping method that employs drought-resistant plants in an effort to conserve resources, especially water.

15.25. “Y” Definitions

- A. **Yard.** A space on the same lot with a principal building open, unoccupied and unobstructed by buildings or structures from ground to sky except where encroachments and accessory buildings are expressly permitted.
- B. **Yard, Front.** An open, unoccupied space on the same lot with a principal building, extended the full width of the lot, and situated between the street and that front line of the building, projected to the side lines of the lot.

- C. **Yard, Rear.** An open, unoccupied space on the same lot with a principal building, extending the full width of the lot and situated between the rear line of the lot and the rear line of the building projected to the side lines of the lot.
- D. **Yard, Side.** An open, unoccupied space on the same lot with a principal building, situated between the building and the side lot line and extending from the rear line of the front yard to the front line of the rear yard.

15.26. “Z” Definitions

- A. **Zero Lot Line.** A development approach in which a building is sited on one (1) or more lot lines with no yard. Conceivably, three (3) of the four (4) sides of the building could be on the lot lines. The intent is to allow more flexibility in site design and to increase the amount of usable open space on the lot. Virtually all zoning ordinances retain yard requirements; where zero lot line developments have been permitted, they have been handled through group development procedures, or other processes which allow for site plan review. The few ordinances which specifically authorize the zero lot line approach do so as an exception to prevailing regulations and under clearly defined circumstances. In Knightdale, GR, UR, RMX, NMX, TC and HB districts allow for zero lot line development.
- B. **Zoning.** A police power measure, enacted via ordinance and including both text and a map by general purpose units of local government, in which the community is divided into districts or zones within which permitted and special uses are established, as well as regulations governing lot size, building bulk, placement and other development standards. Zoning requirements vary from district to district.
- C. **Zoning Amendment.** An amendment to or a change in the zoning ordinance. An amendment can take three (3) forms:
 1. a comprehensive revision or modification of the zoning text and map; or
 2. a text change in zone requirements; or
 3. a change in the map, i.e., the zoning designation of a particular parcel or parcels.

Zoning amendments, like enactment of the original ordinance, are legislative acts that cannot be delegated to administrative officials. According to state law, planning boards make recommendations and town councils approve or deny zoning amendments.
- C. **Zoning District.** A section of a town designated in the zoning ordinance text and delineated on the zoning map, in which requirements for the use of land and building and development standards are prescribed.
- D. **Zoning Map.** The map delineating the boundaries of zoning districts which, along with the zoning text, comprises the zoning ordinance.