ARTICLE 14 – STREETS

TABLE OF CONTENTS **Page**

TABLES **Page**

FIGURES **Page**

14.1 PURPOSE

The purpose of this Article is to:

a. Ensure that the design of streets conforms to the recommendations of the Comprehensive Plan;
b. Provide for the safety of both vehicular and pedestrian traffic;
c. Provide for livable residential and commercial environments;
d. Provide economy of land use, construction, and maintenance; and
e. Provide safe and efficient access to property.

Unlike most contemporary subdivision regulations, one (1) intent of this Article is to permit narrower street widths while requiring greater connectivity in order to more efficiently disperse traffic, protect pedestrians from high vehicle speeds and enhance the streetscape.

14.2 CIRCULATION SYSTEM DESIGN PRINCIPLES

The standards contained in this Article are based on the design principles articulated in this section. The principles are based on the priorities of the City of North Augusta and establish the rationale for the standards. Any request for an adjustment to or waiver from the provisions of this Article shall include an explanation of how the alternative approach or standards proposed by the applicant conform to the principles explained in this section.

14.2.1 Shared System

The road system shall respect the function of streets as the shared domain of drivers, pedestrians and bicyclists. Street widths shall be adequate to accommodate vehicles and emergency services, but not excessively wide so as to encourage speeding. To the extent possible the street system shall incorporate pedestrian amenities including sidewalks, center medians, landscaping strips between the curb and sidewalk, street trees and narrow intersection radii so as to improve the walkability of the streetscape.

14.2.2 Land Use Context

The street network shall respect the context of the land use and design of the neighborhood it serves. Streets in new urban and suburban neighborhoods, including conventional subdivisions, Traditional Neighborhood Developments (TNDs) and Planned Developments (PDs), shall provide a high level of access, connectivity and a sense of enclosure in urban design. Streets in rural areas and CR, Critical Areas, shall minimize negative impacts on the land and maximize the preservation of environmental resources.

14.2.3 Connectivity and Cul-de-Sacs

The street system shall balance the public goal of connectivity with market demands for privacy. While this Article does not ban cul-de-sacs, cul-de-sacs and dead-end streets shall be reserved for situations involving unique topography, environmental restrictions or similar considerations. Wherever possible, cul-de-sacs should be designed as closes.

14.2.4 System Design

The road system shall be designed to permit the safe, efficient and orderly movement of traffic; to meet, but not exceed, the needs of the present and future population served; to have a simple and logical pattern; to respect natural features and topography; and to present an attractive streetscape.

14.2.5 Residential Design

In residential subdivisions, the road system shall be designed to serve the needs of the neighborhoods while addressing the needs of the citywide circulation pattern necessary to functionally move traffic.

14.2.6 Pedestrian System Design

The pedestrian system shall be located as required for safety. In standard residential developments, sidewalks shall be placed parallel to the street, with exceptions permitted to preserve natural features or to provide visual interest. In PDs, walks may be placed away from road systems, but they may also be required parallel to the street for safety reasons.

14.2.7 Bike Paths

Bike paths shall be required only if specifically indicated to complete the city's approved Greeneway and bikeway systems.

14.3 STREET HIERARCHY

14.3.1 Classification

Streets are classified in a street hierarchy system with design tailored to function. The street hierarchy system consists of four categories that, in descending order, include arterial, collector, subcollector and local streets. These street categories may be classified further as alleys, lanes, streets, collectors and arterials in accordance with the Street Design Criteria in Table 14-2. The classification of an existing or proposed street not previously classified or identified in the Comprehensive Plan, for the purpose of determining the appropriate design of a roadway or development, or for the purpose of determining the appropriateness of a location for a proposed use, shall be made by the Director in consultation with the City Engineer. The functional description of each of the classes is set forth in Table 14-1, Street Classification.

14.3.2 Design

All streets shall conform to city standards for the street as classified and defined in Tables 14-1 through 14-4 and as established in §§14.3 through 14.19 of this Article. The projected annual daily traffic (ADT) volume of a proposed street segment shall determine the classification. The type of street section proposed under each classification shall be determined based on the land use, type of residential unit proposed and to provide a mix of the types of street developed in the city.

14.3.3 Applicability to Private Streets

The requirements of this Article apply to both public and private streets.

TABLE 14-1 STREET CLASSIFICATION

	A	B	C	D
	Street Classification	**Definition**	**Average Daily Traffic (ADT) Range**	**Subdivision-Designations**
1.	**Local**	The local street is the lowest-order street and usually carries limited through traffic. Properly designed local streets provide direct access to residential lots and short travel distances from residences to higher order streets. Traffic speeds are low, lane capacity and design speed are not controlling design factors, and minor delays are inconsequential considerations. Drivers and residents expect and accept both brief delays and the need to decrease speed. Drivers are customarily expected to drive carefully to avoid pedestrians and children.	0 to 600	Alley Lane Small Street
2.	**Subcollector**	A subcollector is a relatively low-volume street that provides passage to and between local streets and also conveys traffic to and from higher order collectors and arterials. The subcollector provides frontage and access to residential lots like a local street.	600 to 2,500	Large Street Rural Street Boulevard Street
3.	**Collector**	The collector is the principal traffic corridor within residential and commercial areas. Collectors carry relatively high traffic volumes and convey traffic from arterial streets to lower-order streets. The collector's primary function is to facilitate the free flow of traffic. Residential lots shall not front on collector streets and access to individual residential lots shall not be permitted. Deceleration lanes are required to provide access to most parcels fronting on collector streets and intersecting streets.	2,500 to 15,000	Collector 1 Collector 2

	A	B	C	D
	Street Classification	**Definition**	**Average Daily Traffic (ADT) Range**	**Subdivision-Designations**
4.	**Arterial**	An arterial is a high volume street. Its function is to conduct traffic between communities and activity centers and to connect communities and activity centers to higher level arterials including freeways and interstate highways. Residential lots shall not front on arterial streets and access to individual residential lots shall not be permitted. Deceleration lanes are required to provide access to collectors, subcollectors and parcels fronting on arterial streets. Existing arterial streets as of the effective date of this Article include Martintown Road, Knox Avenue, Georgia Avenue, Atomic Road, Jefferson Davis Highway, Edgefield Highway (US 25) and Belvedere-Clearwater Road.	Over 15,000	Arterial 1 Arterial 2

14.4 STREET TYPES AND DESIGN

14.4.1 Design Criteria

The width and design of all new streets and streets designated on a subdivision application shall be consistent with the standards established in Table 14-2, Street Design Criteria. (The notes to Table 14-2 follow Table 14-4, Pedestrian Walkway Design Criteria.)

TABLE 14-2 STREET DESIGN CRITERIA (Rev. 12-1-08; Ord. 2008-18)

		Local				Subcollector			Collector		Arterial	
	A	B	C	D	E	F	G	H	I	J	K	L
	Design Factor	Alley	Lane	Small Street	Street	Large Street	Rural Street	Boulevard Street	Collector 1	Collector 2	Arterial 1	Arterial 2
1.	Right of Way (ft)	20	17-23	24-40	36-50	42-52	38	50-156	56-78	62-100	62-180	80-200
2.	Travel Lanes	1	1	2	2	2	2	2-4	2-4	4-6	4-6	4-7
3.	Parking Lanes	0	0	0-1	0-1	0-2	0	2	2	0-2	0	0
4.	Pavement Width (ft)	12	16-18	18-24	20-30	30-36	22	30-56	38-60	44-82	44-66	44-80
5.	Corner Radius (ft)	10	10	10	15	15	15	15	15	25	25	25
6.	Centerline Radius (ft)	50	90	90	90	100	100	250	600	500	1,000	1,000
7.	Drainage	SH	CG (SH) (SW)	CG (SH) (SW)	CG	CG	CG (SH) (SW)	CG	CG	CG	CG or SH	CG or SH
8.	Median	-	-	-	-	-	-	Yes	Yes	Yes	Yes	Yes
9.	Block Length (ft)	400	200	500	650	750	-	750	850	1,000	-	-
10.	Sidewalks	-	-	2	2	2	-	2	2	2	2	2
11.	Planting Strip (ft)	-	4	4	5	5	-	-	6	8	10	10
12.	Bike Lanes	-	-	-	-	-	Yes	-	Yes	Yes	Yes	Yes
13.	Trees	-	-	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
14.	Grade (%)	6	8	12	12	12	15	8	8	8	8	8

14.4.2 Conventional Design Criteria

Conventional Street Design Criteria in Table 14-3 shall be utilized for streets that are the responsibility of the South Carolina Department of Transportation (SCDOT) for operation and maintenance and are on the SCDOT Road System. (The notes to Table 14-3 follow Table 14-4, Pedestrian Walkway Design Criteria.)

TABLE 14-3 CONVENTIONAL STREET DESIGN CRITERIA

	A	B	C	D	E	F	G
	Design Factor	**Greeneway**	**Alley**	**Local**	**Subcollector**	**Collector**	**Arterial**
1.	**Right of Way (ft)**	14	20	48	58	60	(1)
2.	**Travel Lanes**	2	1	2	2	2	(1)
3.	**Parking Lanes**	0	0	0-1	1	1	(1)
4.	**Pavement Width (ft)**	8	10	24	30	32	(1)
5.	**Corner Radius (ft)**	-	15	15	15	25	(1)
6.	**Centerline Radius (ft)**	95	50	90	90	250	(1)
7.	**Drainage**	-	-	CG	CG	CG	(1)
8.	**Median**	-	-	-	-	-	(1)
9.	**Block Length (ft)**	-	-	700	-	-	(1)
10.	**Sidewalks**	-	-	2	2	2	(1)
11.	**Planting Strip (ft)**	-	-	3	4	4	(1)
12.	**Bike Lanes**	-	-	-	Yes	Yes	(1)
13.	**Trees**	Yes	-	Yes	Yes	Yes	(1)
14.	**Grade (%)**	15	10	15	8	8	(1)

14.4.3 Pedestrian Design Criteria

The width and design of all new sidewalks and pedestrian walkways shall be consistent with the standards established in Table 14-4, Pedestrian Walkway Design Criteria.

TABLE 14-4 PEDESTRIAN WALKWAY DESIGN CRITERIA

	A	B	C	D	E
	Design Factor	**Sidewalk**	**Path**	**Promenade**	**Greeneway**
1.	**Right of Way (ft)**	N/A	5-10	30-45	20-100
2.	**Pavement Width (ft)**	5-20	0-9	18-24	10-16
3.	**Corner Radius (ft)**	-	-	15	10
4.	**Centerline Radius (ft)**	-	-	-	95
5.	**Drainage**	CG, SW-1 side	CG, SH, SW	CG, SW	CG, SH, SW
6.	**Pavement**	Hard Surface	-	Hard Surface	Hard Surface
7.	**Median**	-	-	Intermittent	Intermittent
8.	**Trees**	Determined by adjacent street	Yes	Yes	Yes
9.	**Grade (%)**	Same as street	15	8	15

Notes to Tables 14-2, 14-3 and 14-4

a. The meaning of the following terms is as set forth in the SCDOT, Standard Specifications for Highway Construction (Edition of 2000), which document is hereby incorporated by reference: Acceleration and Deceleration Lanes, Base Course, Crossover, Culvert, Median, Parking Lane, Pavement, Pavement Structure, Right of Way, Road, Roadbed, Roadside, Roadside Development, Roadway, Shoulders, Sidewalk, Skew or Skew Angle, Specifications, Street, Structures, Subbase, Subgrade, Substructure, Traffic Lane and Traveled Way.
b. Street types shall be indicated on the preliminary and final subdivision plats.
c. Where a number is stated as a range, the street may include any dimension or number within the range at the discretion of the applicant.
d. The design standards for arterial streets shall conform to the specifications required by the SCDOT.
e. Right of Way – Right of way width depends on the number of travel lanes and parking lanes provided and is expressed in a range. Right of way width shall be a minimum of the lesser of the numbers shown. The dimensions are in feet. The right of way includes the travel lanes, medians, planting strips, sidewalks and bike lanes.
f. Travel Lanes – Refers to the number of travel lanes required. Travel lanes should be a minimum of nine (9) feet in width for lanes and local streets (Traditional Street Design Criteria); ten (10) feet in width for alleys, local streets (Conventional Street Design Criteria) and rural streets; eleven (11) feet in width for subcollectors; and twelve (12) feet in width for all other streets.
g. Parking Lanes – Refers to the minimum number of parking lanes. If parking lanes are required they shall be located on the outside of the travel lanes. If two (2) lanes are required, one (1) parking lane shall be provided on each side of the street. Access, subcollector and collector streets that include a center median may provide a parking lane adjacent to each side of the median provided the design speed of the street is thirty-five (35) miles per hour or less. Parking lanes shall be a minimum of seven (7) feet in width. In accordance with Section 5.9, the Planning Commission may waive the requirement for parking lanes and the resulting pavement width may be adjusted accordingly. (Rev. 3-15-10; Ord. 2010-05)
h. Pavement Width – Refers to the minimum width of the traveled way and any parking lanes, in feet, from curb face to curb face. All streets listed in Tables 14-1, Street Classification, and 14-2, Street Design Criteria, shall be paved with a hard surface. Gravel or other loose surfacing material is not permitted. Surface material for the various pedestrian walkway types is specified in the table. Where the pavement width, curb, gutter, planting strip and sidewalk exceed the range of applicable right of way specified in Row 1, the design of right of way may be increased or the sidewalk and planting strip may be placed outside the right of way within a dedicated easement. In such cases, building setbacks may be measured from the inside edge of the sidewalk. (Rev. 12-1-08; Ord. 2008-18)
i. Corner Radius – Refers to the minimum radius, in feet, of the curb located at the street intersection of a block corner.
j. Centerline Radius – Refers to the radius described by the radius of the circle formed by a curve which is tangent to the centerline of the road.
k. Drainage – “CG” means curb and gutter. “SW” means swale. “SH” means shoulder. Where SH and SW are shown in parentheses they may be permitted by the City Engineer in consultation with the Director under circumstances specified in §14.7.2. All curbed streets shall be built in accordance with SCDOT requirements for vertical curb and gutter construction. Curb and gutters shall be at least eighteen (18) inches

in width. Curb and gutter sections for lanes and street medians shall be at least twelve (12) inches.

l. Median – Where median widths are specified, a median of not less than the designated width shall be provided and shall be landscaped at a density equivalent to a subdivision entrance as set forth in the Article 10, Landscaping. Medians shall be a minimum of seventy-five (75) square feet in size. Structures and plantings within the island shall not obscure the visibility of cars entering a cross street for a distance of twenty (20) feet back from the curb face of the cross street, unless a larger setback is required by the City Engineer due to inadequate sight distance as a result of horizontal or vertical curve alignment or other conflicts.
m. Block Length – Refers to the maximum block length permitted, in feet, for each street type. Block length is determined by the distance between the rights of way of intersecting streets. For the purposes of block length, lanes and alleys are not considered intersecting streets.
n. Sidewalks – Refers to the number of sidewalks required. Sidewalks for boulevards, avenues and collector streets shall have a minimum width of six (6) feet and a maximum width of twenty (20) feet. Sidewalks for all other classifications shall have a minimum width of five (5) feet. Sidewalks shall include additional width where required by the Americans with Disabilities Act. See §14.10 for sidewalk design requirements. For main streets, grated tree wells may be used in lieu of planting strips. For parkways, the sidewalks shall take the form of multi-use Greeneways which may meander at a distance of between six (6) to fifty (50) feet from the paved section of the roadway. A minimum six (6) foot paved shoulder shall be included on any street with a design speed of forty-five (45) miles per hour or greater where curb and gutter and sidewalk are not provided.
o. Planting Strip – This row refers to the minimum width of the planting strip, located between the curb and sidewalk parallel with the street.
p. Bike Lanes – On local and subcollector streets, bicyclists should be considered a normal part of the vehicle mix on the street and, accordingly, no separate lanes or markings are required. On collector streets, bicyclists shall be accommodated with five (5) feet wide bike lanes. Applicants may also provide separate routes for bicyclists in lieu of a bike lane. Bike lanes shall connect with segments of the Greeneway system that are within the proposed development. Bike lanes shall conform to the minimum widths specified in Table 14-5, Bikeway Design Width. In accordance with Section 5.9, the Planning Commission may waive the requirement for bikeways and pavement width may be adjusted accordingly. (Rev. 3-15-10; Ord. 2010-05)
q. Subdivision and Street Trees – Street trees shall generally be located within the right of way on both sides of and parallel to the street. Where sidewalks are installed, street trees shall be located between the sidewalk and the curb. Planting strips for street trees shall be a minimum of four (4) feet in width unless specified otherwise. Subdivision trees shall be planted in the front setback behind the right of way line and shall be in addition to other landscaping requirements contained in this Chapter. (Rev. 12-1-08; Ord. 2008-18)
r. Grade – Refers to the maximum slope of a street, expressed as the percentage (%) of the change in elevation relative to the horizontal distance.

TABLE 14-5 BIKEWAY DESIGN WIDTH

	A	B
	Type	**Minimum Width**
1.	**On-street demarcated**	5 feet including gutter
2.	**On-street unmarked**	4 feet including gutter
3.	**Off-street two-way separated**	10 feet
4.	**Off-street multipurpose**	12 feet

14.5 TRAFFIC IMPACT ANALYSIS (TIA)

14.5.1 Applicability

14.5.1.1 A Traffic Impact Analysis (TIA) is required as part of any application for approval of a rezoning, subdivision plat, site plan or general development plan (See §§8.2.1 and 8.7.1.2) where:

a. The Director determines that the proposed development will generate at least fifty (50) new peak hour trips; or
b. The applicant is requesting or is required to provide more than one (1) access location or curb cut.

14.5.1.2 See Appendix B, Application Documents, for the required scope and contents of a TIA.

14.5.2 Improvement Requirements

14.5.2.1 The improvements required to mitigate the traffic impacts of a proposed development shall be implemented in conformance with the provisions of §8.7.

14.5.2.2 Regardless of the mitigation required pursuant to the adequate public facilities provisions of Article 8, Adequate Public Facilities, within the identified impact area, the applicant shall be required to implement and pay for its appropriate share of the identified necessary traffic improvements within the project site and on all roads, streets and intersections along the boundary of the project site prior to or concurrent with the impacts of the development.

14.6 UTILITIES

All public utilities including gas, electric, cable TV, telephone, water and sewer shall be installed underground within the street or alley right of way or within a utility easement adjacent to the right of way.

14.7 CURBS AND GUTTERS

14.7.1 Purpose

14.7.1.1 Curb and gutter shall be required on all new streets in accordance with Table 14-1, Street Classification, for the purpose of providing adequate and acceptable stormwater drainage, safety, delineation and protection of the pavement edge. Curb requirements vary according to street hierarchy in accordance with the requirements

shown in Tables 14-2, Street Design Criteria, and 14-3, Conventional Street Design Criteria.

14.7.1.2 Curb and gutter shall be constructed in accordance with Appendix D, Construction Standards.

14.7.1.3 Curb and gutter shall be designed and constructed to provide ramps at all sidewalk intersections as required by the Americans with Disabilities Act of 1990 (42 U.S.C Subsection 12181 et seq., Pub. L 101-336 and implementing regulations at 28 C.F.R. parts 35 and 36).

14.7.1.4 Curbing may also be required by the City Engineer in various locations for:

a. Stormwater management;
b. To stabilize pavement edge;
c. To delineate parking areas;
d. Ten (10) feet on either side of drainage inlets to facilitate drainage; or
e. At intersections and at tight radii to protect sidewalks, landscaping and private property.

14.7.2 Flexibility Allowed

14.7.2.1 The City Engineer in consultation with the Director may waive the requirement for vertical curb and gutter where identified as a drainage alternative in Table 14-2, Street Design Criteria.

Waivers may be granted in the following situations:

a. On the sides of local and subcollector streets where property adjacent to the edge of the roadway is reserved or dedicated for use as open space, parks or for stormwater management;
b. On local and subcollector streets in conservation subdivisions;
c. In single family residential subdivisions where the minimum lot size is no less than fifteen thousand (15,000) square feet, the lot width at the frontage is no less than one hundred ten (110) feet and the average daily traffic volume on the street segment is less than two hundred fifty (250); and
d. Where Low Impact Development techniques are proposed and meet the requirements of Article 15, Stormwater Management, or other generally accepted engineering standard.

14.7.2.2 The City Engineer in consultation with the Director may approve and permit an alternative curb and gutter section where conditions warrant and there is no negative impact on the function of the street or the stormwater drainage system.

14.8 CURB CUTS, DRIVEWAYS AND OTHER ACCESS LOCATIONS

14.8.1 Applicability

Openings in concrete street curbing for vehicle ingress, egress to property adjacent to the right of way, commonly referred to as driveways or curb cuts, and other means of vehicular access to and from property shall be regulated in accordance with this section. The provisions of this section do not apply to parking areas that connect to an alley in the D, Downtown Mixed Use District, or in a TND Use Pattern or District.

14.8.2 Size of Curb Cuts and Other Access Locations

In no case shall a two-way traffic curb cut or other access location be less than twenty (20) feet or more than forty (40) feet in width. One-way traffic curb cuts or other access locations shall be no less than ten (10) feet or more than twenty (20) feet in width.

14.8.3 Number and Spacing of Curb Cuts and Access Locations

14.8.3.1 Existing Lots of Record

A lot of record which is a part of an approved plat that does not otherwise limit access and which was approved by the city and filed for record as of the effective date of this Article, and which does not have sufficient frontage to meet the driveway spacing requirements, shall be allowed one (1) driveway. A parcel of record zoned to permit one (1) single-family residence that fronts on a collector or arterial and has no frontage on another street of a lesser classification, shall be allowed one (1) curb cut; provided, however, that the development of the parcel shall include a permanent vehicular turn-around on the lot to prevent backing onto the collector and this restriction should be noted on the site plan and building permit. If the parcel has frontage on a local or subcollector street the driveway shall be located on that frontage.

14.8.3.2 Residential Access

14.8.3.2.1 Driveways from collector and arterial streets providing access to individual single family and duplex residential lots are prohibited. However, if conditions are such that vehicular access to such lots cannot be provided other than from the collector or arterial street, the Director in consultation with the City Engineer may permit the creation of a shared driveway easement to serve two (2) or more lots from one (1) curb cut. The shared driveway easement shall include as many lots as possible and shall be designed to permit access onto the street from the property without requiring a motorist to execute a backing maneuver. Shared driveway easements shall be included on the subdivision plat and site plan.

14.8.3.2.2 Many residential developments do not have access to existing or planned collector and arterial streets and are required to utilize existing subdivisions for access. To minimize the impact of new development on existing neighborhoods and to ensure adequate access and emergency access to new developments from a variety of locations, access will be permitted from existing and planned streets of different classifications with limitations. Access locations (new streets and driveways) into and within sections of a new residential development (single-family, duplex, townhouse, apartment, condominiums or other multifamily) shall provide adequate access based on the total number of trips generated in the development as shown in Table 14-6, Residential Access Requirements. The total access score shown in Column B is the minimum required for approval. Where the total access score cannot be achieved, new roads internal to the development shall be designed as collectors or arterials as necessary to provide adequate access. (Rev. 12-1-08; Ord. 2008-18)

TABLE 14-6 RESIDENTIAL ACCESS REQUIREMENTS

(Rev. 12-1-08; Ord. 2008-18)

	A	B
	Number of Trips	**Access Score Required**
1.	**Up to 250**	1
2.	**251 to 500**	2
3.	**501 to 750**	4
4.	**751 to 1,000**	5
5.	**1,001 to 1,500**	6
6.	**For each 500 trips or portion thereof in excess of 1,500, one (1) additional access point is required.**	

Notes to Table 14-6:

a. An access street or drive connecting to a local street is valued at a score of one (1) point. In no event may the projected additional traffic distribution onto an existing local street exceed two hundred fifty (250) trips per day or the total traffic on the local street subsequent to the connection exceeds seven hundred (700) trips per day.
b. An access street or drive connecting to a subcollector street is valued at two (2) points. In no event may the additional traffic distribution onto an existing subcollector street exceed one thousand (1,000) trips per day.
c. An access street or drive connecting to a collector street is valued at three (3) points.
d. An access street or drive connecting to an arterial street is valued at four (4) points.

14.8.3.2.3 Developments that cannot achieve the required access score or that contain more than one hundred fifty (150) units must be designed to include higher level streets (subcollector, collector or arterial) to provide adequate access and distribution.

14.8.3.2.4 New residential and commercial development shall connect wherever possible to existing development that has provided stubout street connections to a property line.

14.8.3.2.5 Street stubouts to provide connections to future development on adjacent unimproved property shall be provided in new commercial and residential development and shall be spaced in accordance with the block length provided for the street classification specified in Table 14-2, Street Design Criteria. Street stubouts to adjacent property lines may be considered as providing points contributing to a required access score pursuant to §14.8.3.2.2 if adequate current connections are not available.

14.8.3.2.6 Where a TIA is required for a development pursuant to Article 8, Adequate Public Facilities, or this Article, the number of required access locations shall be determined and the spacing established in such a manner as to avoid reducing the traffic LOS below that established in the TIA.

14.8.3.3 Access Separation

14.8.3.3.1 Parcels fronting on a collector or arterial street will be permitted one (1) vehicular access location unless the total number of residential and nonresidential trips generated warrants more than one (1) access location as determined in a TIA. The

number of access locations permitted may also be increased based on the following criteria:

a. For parcels with less than two hundred (200) feet of frontage on a single street, one (1) access location may be permitted.
b. For parcels with a frontage of between two hundred (200) feet and seven hundred (700) feet on a single street, two (2) access locations may be permitted.
c. For parcels with a frontage of between seven hundred (700) feet and one thousand four hundred (1,400) feet on a single street, three (3) access locations may be permitted.
d. For parcels with a frontage of more than one thousand four hundred (1,400) feet, one (1) access location plus one (1) access location for each seven hundred (700) feet may be permitted.

14.8.3.3.2 For parcels with a frontage on more than one (1) collector or arterial street, at least one (1) access location shall be provided on each street. The access locations on each street may be increased by one (1) access location for each seven hundred (700) feet of frontage on each street.

14.8.3.3.3 For development located on a corner, the access locations shall be located so as to maintain a minimum distance from the corner of the intersecting roadways equal to ninety percent (90%) of the length of the property along the roadway upon which the proposed driveway approach is to be located, or one hundred twenty-five (125) feet, whichever distance is less.

14.8.3.3.4 Parcels with frontage on both an arterial or collector street and a subcollector street may be required to provide an access location on the subcollector street if the Director in consultation with the City Engineer determines that:

a. The distribution of traffic generated by the development will be improved;
b. The reduction in LOS resulting from the development on the arterial or collector street(s) is reduced;
c. There is little or no decrease in LOS on the subcollector street; and
d. There is a nominal impact on the land uses adjacent to the subcollector street.

14.8.3.3.5 With the exception of single-family residential driveways and one-way loops or pairs, the minimum separation of any two (2) curb cuts or other access locations shall be seventy-five (75) feet.

14.8.3.4 Shared Access – All lots in the D, OC, NC, GC and TC zoning districts and in the HC overlay districts may, and are encouraged to, provide for shared cross access with adjacent lots fronting a collector or arterial street, by means of a platted common access easement across the lots or recorded deed covenants providing common access across the lot with adjacent lot(s), as a mitigation measure pursuant to a traffic impact analysis required in Article 8, Adequate Public Facilities or this Article.

14.8.3.5 Additional Access Locations – The Director is authorized to permit additional access locations under the following conditions:

a. The additional access locations are necessary to ensure the property owner beneficial use of the land; and
b. The resulting additional ingress and egress of vehicles will not seriously disrupt the flow of traffic on the street.

14.8.3.6 Location of Access Locations

14.8.3.6.1 The specific location of access locations will be determined by the Director at such time as a subdivision or site plan is reviewed prior to approval. The location shall be based on the following criteria:

a. The location shall minimize conflicts with vehicle turning movements;
b. The location shall be located as far as practicable from intersections; and
c. The location shall be not less than seventy-five (75) feet from another driveway location, however, if this is not possible, based upon the frontage of the property, the access location shall be located as far as practicable from other driveway locations.

14.8.3.6.2 Driveways providing access from a collector or an arterial street shall provide a deceleration lane with the taper and storage lengths in accordance with the design standards and specifications of SCDOT. Such deceleration lanes may be provided within the existing right of way or on the parcel being developed. The width of a deceleration lane provided outside the right of way and inside the property line of a parcel shall not be included in any required setback or landscape area unless otherwise permitted in this Chapter.

14.8.3.6.3 Driveways on a collector or an arterial street within four hundred (400) feet of an intersection with an arterial or collector street may be restricted to right turn movements.

14.8.3.7 Driveway Throat and Vehicle Storage Length

14.8.3.7.1 For purposes of this section, “Throat Length” means the distance along an entry drive from the entry into the site to the first left-turn conflict or intersection with another street, driveway or parking aisle. “Vehicle Storage Length” means the length of a driveway, service lane, bay or other passageway for motor vehicles which is designed to minimize queuing onto surrounding streets. Throat length shall be designed in accordance with the anticipated storage length for entering and exiting vehicles to prevent vehicles from backing into the flow of traffic on the public street or causing unsafe conflicts with on-site circulation. Throat length and vehicle storage length shall not be less than the standards set forth in Table 14-7, Minimum Driveway Throat Lengths, unless approved by the Director. These measures generally are applicable to the principal access drives to a property and are not intended for minor driveways.

TABLE 14-7 MINIMUM DRIVEWAY THROAT LENGTHS

(Rev. 12-1-08; Ord. 2008-18)

	A	B
	Land Use	**Throat Length and Vehicle Storage Length (in feet)**
1.	**Shopping Centers greater than 200,000 GLA**	200
2.	**Developments less than 200,000 GLA not otherwise enumerated in this table**	120
3.	**Unsignalized driveways not otherwise enumerated in this table**	40
4.	**Residential subdivision entryway including private, gated entries**	40 (The entry shall provide for vehicle turnaround capability based on the single unit design vehicle as provided in the 1990 AASHTO Green Book, or latest revision thereof.)
5.	**Single-lane drive-in banks**	100, including the service window
6.	**Drive-in banks with more than one lane**	80 per lane, including the service window
7.	**Single-lane drive-through car washes**	100
8.	**Automatic or self-serve car washes with more than one bay**	50 per bay
9.	**Fast-food restaurants with drive-in window service**	160 per lane, including the service window
10.	**Gasoline service stations with pump islands perpendicular to the pavement edge**	35 feet between pump islands and right of way
11.	**Other drive-up window service (pharmacy, laundry/dry cleaner, etc.)**	80

Comment: The throat lengths in Table 14-7 are provided to assure adequate stacking space within driveways for general land use intensities. This helps prevent vehicles from stacking into the thoroughfare as they attempt to access the site. High traffic generators, such as large shopping plazas, need much greater throat length than smaller developments or those with unsignalized driveways. These standards refer to the primary access drive.

14.8.3.8 Alignment

14.8.3.8.1 Major driveway approaches, with Peak Hour Trips (pht) greater than one hundred (100) pht, accessing major thoroughfares shall meet the following guidelines to the extent practicable:

a. Align with driveway approaches on the opposite side of the street, if any, or be offset by one hundred seventy-five (175) feet or more to provide adequate left turn storage capacity in advance of each driveway approach and to avoid the overlap of left turn lanes;
b. Shared among different property owners or users when necessary to maintain minimum spacing requirements;
c. Planned to match existing openings in medians; and

d. No cuts through the left turn storage and taper adjacent to a median shall be permitted to provide left turn movements for driveway approaches accessing collectors and arterials.

14.8.3.9 Parking Approaches

Parking aisles shall be located a minimum of forty (40) feet from the intersection of the driveway approach and the thoroughfare.

14.8.3.10 Driveway Approaches

Driveway approach materials may be asphalt, concrete or other materials as approved by the City Engineer.

14.8.4 Access Locations in the Vicinity of Street Intersections

At street intersections, no curb cuts or other access location shall be located closer than seventy-five (75) feet from the intersection of two (2) street rights of way or property lines or such lines extended in the case of a rounded or clipped corner.

14.8.5 Access Locations in the Vicinity of Grade Separated Interchanges

In no case shall any access location or other means of vehicular ingress and egress from private property onto a public street be permitted closer than two hundred (200) feet from:

a. The intersection of the street's right of way line with the right of way line of any portion of an interchange involving grade separations;
b. The intersection of the street's right of way line with the right of way line of any limited access highway; or
c. The intersection of the street's right of way line with the diverging right of way line alignment of any ramp, acceleration lane, deceleration lane, merge lane or other facility specifically designed to facilitate traffic movement onto and off of the limited access highway.

14.9 SHOULDERS

14.9.1 Requirements

Shoulder requirements shall vary according to street hierarchy and intensity of development in accordance with the requirements set forth in Table 14-2, Street Design Criteria, and Table 14-3, Conventional Street Design Criteria.

14.9.2 Materials

Shoulders shall consist of stabilized turf or other material approved by the City Engineer.

14.9.3 Width

Shoulders shall measure six (6) feet in width shall be located within the right of way as shown in Table 14-2, Street Design Criteria, and Table 14-3, Conventional Street Design Criteria. The width of swales shall be determined by the City Engineer based upon site specific conditions.

14.10 SIDEWALKS

14.10.1 Requirements
Sidewalks and graded areas within the right of way shall be required depending on road classification and intensity of development in accordance with the requirements set forth in Table 14-2, Street Design Criteria, or Table 14-3, Conventional Street Design Criteria, as appropriate, and Appendix D, Construction Standards.

14.10.2 Placement
Sidewalks should be parallel to the street and may be placed directly over a portion of the utility easement and behind the planted area provided for street trees.

14.10.3 Planned Development
In PDs, sidewalks may be located away from the road system to link dwelling units with other dwelling units, the street and on-site recreation areas and parking areas. They may also be required to parallel the street for safety and other reasons.

14.10.4 Width
Sidewalks shall measure a minimum of five (5) feet in width. Sidewalks and graded areas shall be constructed according to the specifications set forth in Appendix D, Construction Standards.

14.10.5 Connection to Greeneway or Bikeways
Subdivisions adjoining the Greeneway or a bikeway shall provide sidewalks with a minimum right of way of twenty (20) feet that connect the lots internal to the subdivision to the Greeneway or bikeway.

14.11 BIKEWAYS

14.11.1 Greeneway
Separate bicycle paths shall be required if such paths have been specified as part of the Master Bicycle and Pedestrian Development Plan or the city's official Greeneway system.

14.11.2 Placement
Bicycle lanes, if required, shall be placed in the outside lane of a roadway, or adjacent to the curb or shoulder. When on-street parking is permitted, the bicycle lane shall be between the parking lane and the outer lane of moving vehicles. Lanes shall be delineated with markings, preferably striping. Raised reflectors or curbs shall not be used.

14.11.3 Standards
Bikeways shall be constructed to complement and extend the Greeneway and shall be constructed according to the standards in Appendix D, Construction Standards, or as established by the City Engineer.

14.12 UTILITY EASEMENT
Utilities shall generally be located within the street right of way on both sides of and parallel to the street. However, in order to allow flexibility based on terrain, and to

achieve a maximum street tree canopy, utilities may be placed in a separate utility easement outside the right of way and parallel to the street.

14.13 RIGHTS OF WAY

The right of way shall be measured from lot line to lot line and shall be sufficiently wide to contain the travel lanes, curbs, shoulders, sidewalks, graded areas, utilities and street trees. Right of way requirements are shown in Table 14-2, Street Design Criteria, and Table 14-3, Conventional Street Design Criteria.

14.14 PAVEMENT SECTION, STREET GRADE AND INTERSECTION REQUIREMENTS

Street grade and intersection requirements and pavement thickness shall comply with Table 14-2, Street Design Criteria, and Table 14-3, Conventional Street Design Criteria, as appropriate, and Appendix, D, Construction Standards.

14.15 [RESERVED]

14.16 STREET LIGHTING

14.16.1 Specifications

Street lighting shall be provided in accordance with city standards and the applicable standards of the electric utility provider. (Rev. 12-1-08; Ord. 2008-18)

14.16.2 Street Lighting Plan Required

A street lighting plan is required for all new developments where additional streets are required by this section. The street lighting plan shall be included as part of the major subdivision plan. (Adopt. 5-21-12; Ord. 2012-08)

14.16.3 Spacing

Lights shall be spaced no less than two hundred eighty (280) feet and no more than three hundred twenty (320) feet apart and at all intersections. Spacing is generally established at a maximum ratio of one (1) light per four (4) single-family residential dwelling units, and a minimum ratio of one (1) light per six (6) single-family residential dwelling units. Street lights shall be placed at all intersections and at property corners and aligned parallel to the street right of way line. The design for street lighting should take into account the location and spacing of street trees.

14.16.4 Ornamental Light Standards

a. If an ornamental light standard (pole and fixture) is used, the developer shall be responsible to pay the difference between the minimum conventional light standard approved by the city and the ornamental light standard selected by the developer. The minimum conventional light standard is specified in Appendix D, Construction Standards.
b. The developer shall be responsible for securing the required number of light poles prior to approval of the final plat plus an additional one percent (1%) of light poles for the phase, not to be less than one pole. The developer may opt to purchase sufficient poles to complete the entire development at any phase. (Rev. 5-21-12; Ord. 2012-08)

14.17 UNDERGROUND WIRING

14.17.1 Placement

All electric, telephone, cable television and other communication lines, both main and service connections, servicing new developments shall be provided by underground wiring within easements or dedicated public rights of way, installed in accordance with the engineering standards in Appendix D, Construction Standards. The placement of public utilities within service lanes or alleys is encouraged as a way of promoting the installation of street trees and sidewalks in residential neighborhoods.

14.17.2 Requirements

Lots that abut existing easements or public rights of way where overhead electric or telephone distribution supply lines and service connections have previously been installed may be supplied with electric and telephone service from those overhead lines, but the service connections from the overhead utility lines shall be installed underground. In the case of existing overhead utilities, should a road widening, or an extension of service, or other such condition occur as a result of the subdivision and necessitate the replacement or relocation of such utilities, such replacement or relocation shall be underground.

14.18 VISUAL CLEARANCE AT INTERSECTIONS (SIGHT TRIANGLE)

On any corner lot except within the D, Downtown Mixed Use District, or a TND, no structures or fence, shrubbery or other plantings, or obstruction to vision higher than three (3) feet above grade shall be permitted within the limits of twenty-five (25) feet, in any direction from the curb lines of any street or road intersection.

14.19 INTERNAL CONNECTIVITY

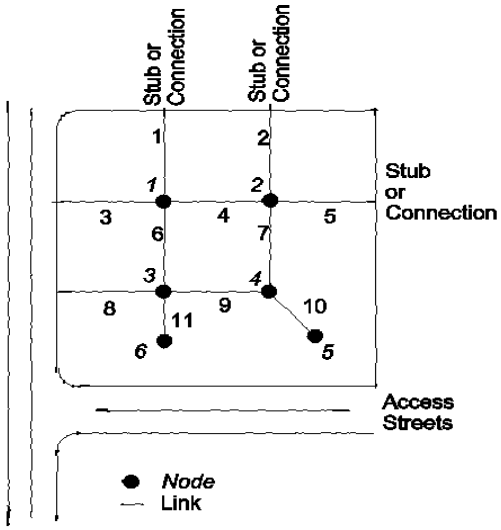
14.19.1 Connectivity Ratio

All streets within a proposed single-family residential subdivision shall achieve a connectivity ratio of not less than the amount designated in this section. For purposes of this section, “connectivity ratio” is the number of street links divided by the number of nodes. A “link” is each portion of a street defined by a node at both ends or at one end. A “node” is the intersection of two (2) or more streets, a close or cul-de-sac head or a dead-end. Connections with existing streets and stubouts for future street connections to adjacent properties shall not be considered nodes. This section shall not apply to a Conservation Subdivision.

TABLE 14-8 REQUIRED CONNECTIVITY RATIO

A		B
Type of Subdivision		**Ratio**
1.	**Traditional Neighborhood Development**	1.8
2.	**Conservation Subdivision**	Not applicable
3.	**All other Subdivisions**	1.4

FIGURE 14-1 CONNECTIVITY RATIO CALCULATION



Example: 11 links ÷ 6 nodes = 1.83 (acceptable)

14.19.2 Closes and Cul-de-Sacs

Cul-de-sacs and closes are permitted on local streets only where natural features, including topography, environmental constraints or other natural conditions, or where parcel dimensions or configuration preclude a connected street. The maximum length of a close or cul-de-sac is the maximum block length for the street type and design prescribed in Table 14-2, Street Design Criteria. Length shall be measured from the centerline of the intersecting street to the center of the cul-de-sac or centerline of the close that is parallel to the intersecting street. Wherever possible cul-de-sacs shall be designed as closes. The permissible length of a cul-de-sac or close may be increased to a maximum of one thousand (1,000) feet where the Planning Commission finds that natural features, including topography, environmental constraints or other natural conditions, or parcel dimensions or configuration preclude a connecting street design. In no event shall the average daily traffic volume generated by the uses fronting on a cul-de-sac or close exceed two hundred (200) trips. (Rev. 12-1-08; Ord. 2008-18)

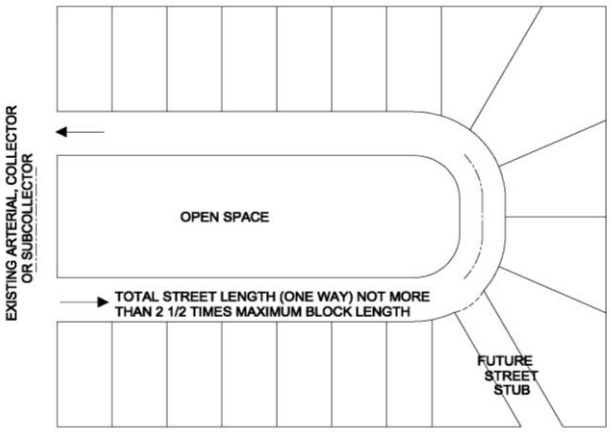
14.19.3 Small Subdivision Connectivity (Adopt. 12-1-08; Ord. 2008-18)

The Planning Commission may waive the required internal connectivity ratio for small subdivisions under the following circumstances:

a. A one access subdivision of one close where no more than two hundred fifty (250) trips are generated and the block length does not exceed the length as permitted in Table 14-2, Street Design Criteria. (Figure 14-2)

FIGURE 14-2 ONE ACCESS SUBDIVISION – CLOSE

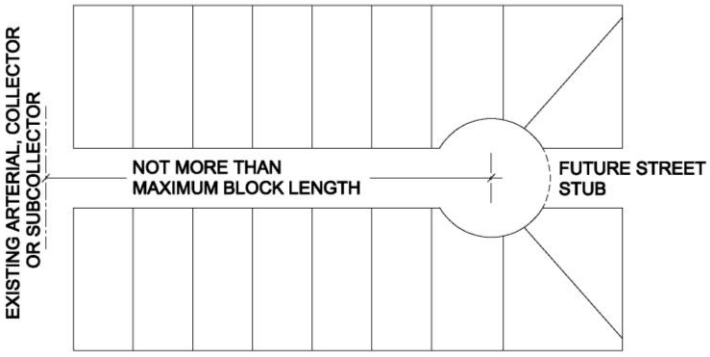
250 Trip Maximum



b. A one access subdivision of one cul-de-sac where no more than two hundred fifty (250) trips are generated and the block length do(es) not exceed the length as permitted in Table 14-2, Street Design Criteria. (Figure 14-3)

FIGURE 14-3 ONE ACCESS SUBDIVISION – CUL-DE-SAC

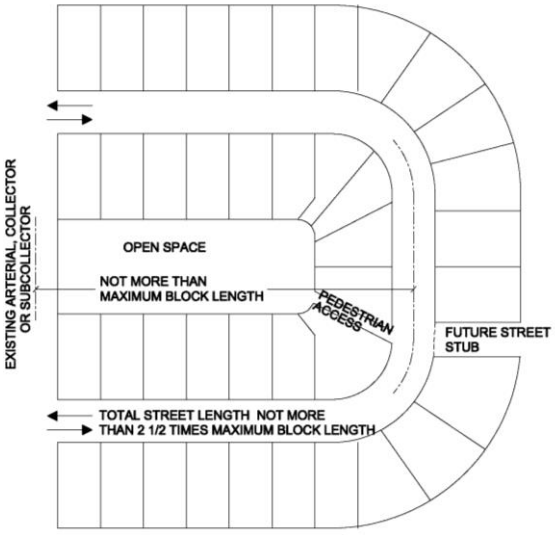
250 Trip Maximum



c. A two access subdivision that provides a loop street where no more than five hundred (500) trips are generated and the total length of the loop does not exceed two and one-half (2½) times the block length as permitted in Table 14-2, Street Design Criteria. (Figure 14-4)

FIGURE 14-4 TWO ACCESS SUBDIVISION – LOOP STREET

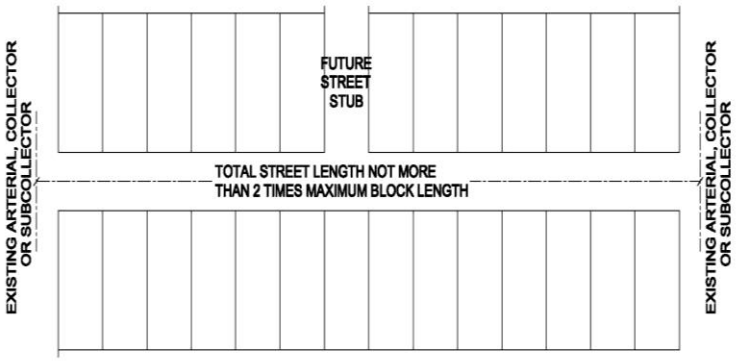
500 Trip Maximum



d. A two access subdivision that provides a single street between two other existing streets where no more than five hundred (500) trips are generated and the total length of the street does not exceed two (2) times the block length as permitted in Table 14-2, Street Design Criteria. (Figure 14-5)

FIGURE 14-5 TWO ACCESS SUBDIVISION – SINGLE STREET

500 Trip Maximum



e. Stubouts for future road connections to adjoining vacant parcels shall be provided where practicable.
f. All other provisions of this Chapter regulating the subdivision of land (open space, landscaping, etc.) are satisfied.

14.20 RESIDENTIAL DRIVEWAYS

14.20.1 Width

The maximum width allowed for a residential driveway is eighteen (18) feet.

14.20.2 Apron Required

An apron or flare shall be provided from the sidewalk through the curb to the edge of pavement consistent with the requirements of Appendix, D, Construction Standards.

14.20.3 Shared Driveways

Driveways may be shared between adjoining lots so that there is a single curb cut. Shared driveways may provide access to not more than four (4) adjoining lots.