
AN ORDINANCE TO AMEND VARIOUS PROVISIONS OF THE UNIFIED DEVELOPMENT ORDINANCE (TC2100007)

Sec. 13.6: Street Connectivity Requirements

An interconnected street system is necessary in order to promote orderly and safe development by ensuring that streets function in an interdependent manner, provide adequate access for emergency and service vehicles, enhance access by ensuring connected transportation routes, provide access for people walking and bicycling, and provide continuous and comprehensible traffic routes.

13.6.1. Applicability

- A. Except in Design Districts, Block standards shall comply with Sec. 13.4 or shall comply with Sec. 13.6, Street Connectivity Standards.
- B. For Design District requirements see Sec. 16.4, Streetscape, Right-of-Way, and Block/Lot Standards.

13.6.2. Connectivity Defined

- A. Except in Design Districts, connectivity shall be defined by the ratio of links to nodes in any subdivision.
 - 1. The connectivity ratio shall be the number of street links divided by the number of nodes (Links/Nodes).
 - 2. A link shall be any portion of a street, other than an alley, defined by a node at either end. Stub-outs to adjacent property shall be considered links. For the purpose of determining the number of links in a development, boulevards, median-divided roadways, and divided entrances shall be treated the same as conventional two-way roadways.
 - a. Any portion of a street, connected by a node at either end, including sidewalks and pedestrian connections in accordance with Sec. 12.4, Stub Outs, to adjacent property, transit stops, and streets including sidewalks per paragraph 12.4.2.
 - b. For the purpose of determining the number of links in a development, boulevards, median-divided roadways, and divided entrances shall be treated the same as conventional two-way roadways.

Table 1. Connectivity Ratio Link Scoring Matrix

Type of Link	Connectivity Ratio Score (0.5-2)
Street (including required sidewalks per paragraph 12.4.2)	1: Street with required sidewalks per paragraph 12.4.2
	2: Streets with sidewalk and exclusive on-road bicycle facilities
Stub Out	0.5
Transit Stop (score received with the development of a new stop or development of ADA accessible connections to an	2: Construction of a new transit stop with ADA accessible design and pedestrian connection within 15 feet; or ADA accessible improvements and pedestrian connection within

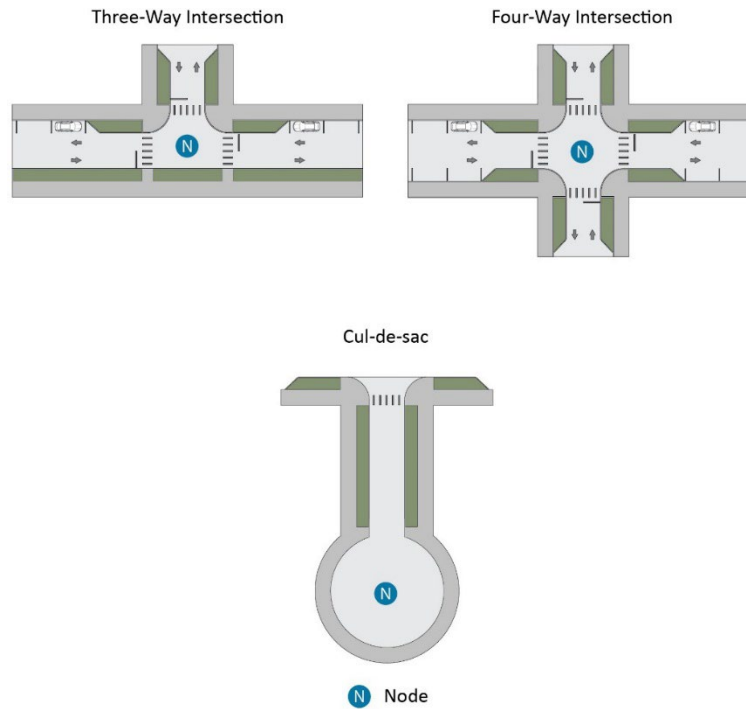
Table 1. Connectivity Ratio Link Scoring Matrix	
Type of Link	Connectivity Ratio Score (0.5-2)
existing stop within 500 feet of the development)	15 feet to an existing transit stop 500 feet or less from the subject site.
Additional Pedestrian Connections (in accordance with UDO paragraph 12.4.3C) within the development (constructed greenway trails, mid-block pedestrian passages linking parallel right of ways, cul-de-sac connection walkways)	2: All-weather pedestrian pathway of solid surface material such as concrete, asphalt, or another similar material that would satisfy the State accessibility code with a minimum of 8-foot width. Additional lighting features as described in Sec. 7.4, Outdoor Lighting. 1.5: Less than 8-foot width pedestrian pathway constructed from a naturally occurring or loose material such as mulch or gravel.
Bicycle Connections	1.5: Off-road bicycle facility as described in Sec. 12.4, Pedestrian and Bicycle Mobility.

Commentary: The different types of links and nodes have been weighted and scored differently based on how the specific infrastructure adds to connectivity and how it contributes to the ratio scoring matrix. A higher scoring link equates to a more desirable link, while a higher scoring node equates to a less desirable node.

3. A node shall be:

The terminus of a street or the intersection of two or more streets. A divided entrance shall only count once.

Table 2. Connectivity Ratio Node Scoring Matrix	
Type of Node	Score
Four-Way Intersection	1
Three-Way Intersection	1.25
Cul-de-sac	1.5

Figure 1. Types of Nodes

4. Additional Requirements

a. Pedestrian Links Required:

A (publicly accessible) pedestrian link shall be required between a neighborhood link or node including cul-de-sac bulb or street turnaround, within 500 ft or less of the next closest connection to an adjacent pedestrian connection and/or to significant pedestrian generators or destinations such as schools, parks, trails, employment centers, commercial areas, residential neighborhoods, or similar features.

- (1) Required pedestrian links shall be constructed from all-weather solid surface material such as concrete, asphalt, or another similar material that would satisfy the State accessibility code and comply with the most recent accessibility standards as published under the Americans with Disabilities Act (ADA).
- (2) The requirements contained in Table 1 shall not apply if at least one of the following conditions prevents a through connection:
 - (a) Obstacles associated with prior platting of property from another landowner;
 - (b) Construction of existing buildings or other barriers;
 - (c) Railroad or utility right-of-way; or
 - (d) Existing limited-access motor vehicle right-of-way.

b. Cross Access Required:

In addition to meeting all the requirements of paragraph 13.6.1C, Pedestrian Links Required, pedestrian links shall be provided between compatible uses such as civic, institutional, commercial, and residential uses.

B. Connectivity in Design Districts

For Design Districts, see Sec. 16.4, Streetscape, Right-of-Way, and Block/Lot Standards.

13.6.3. Required Ratio

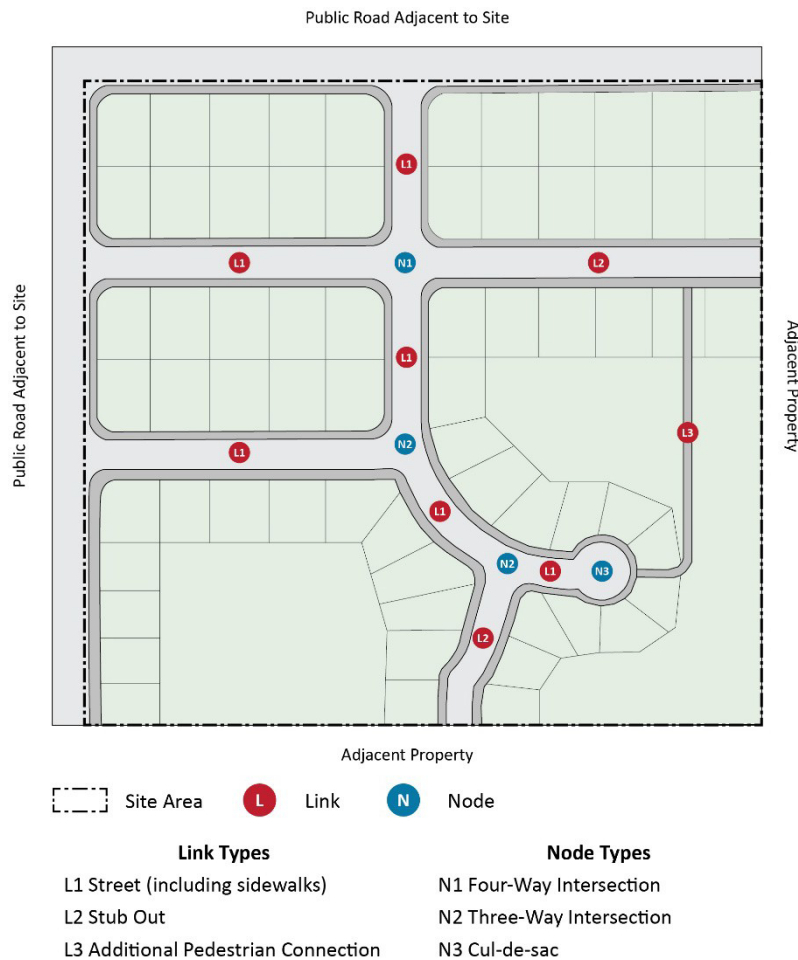
A. Street Network

The street network, including common access driveways permitted in paragraph 12.2.2B.2.b, Driveways, for any subdivision with internal roads or access to any public road shall achieve a minimum connectivity ratio of 1.15 in the Rural Tier, 1.40 in the Suburban Tier, 1.60 in the Urban and Compact Tier.

B. Street links and nodes along a collector or arterial street providing access to a proposed subdivision shall not be considered in computing the connectivity ratio.

C. Required stub-outs that cannot be constructed pursuant to paragraph 12.3.1F, Stub Outs, shall be considered as being present as a link at the ratio of one link per side as provided in paragraph 12.3.1F, Stub Outs, for purposes of determining if the required ratio has been met.

Figure 2. Connectivity Ratio Example

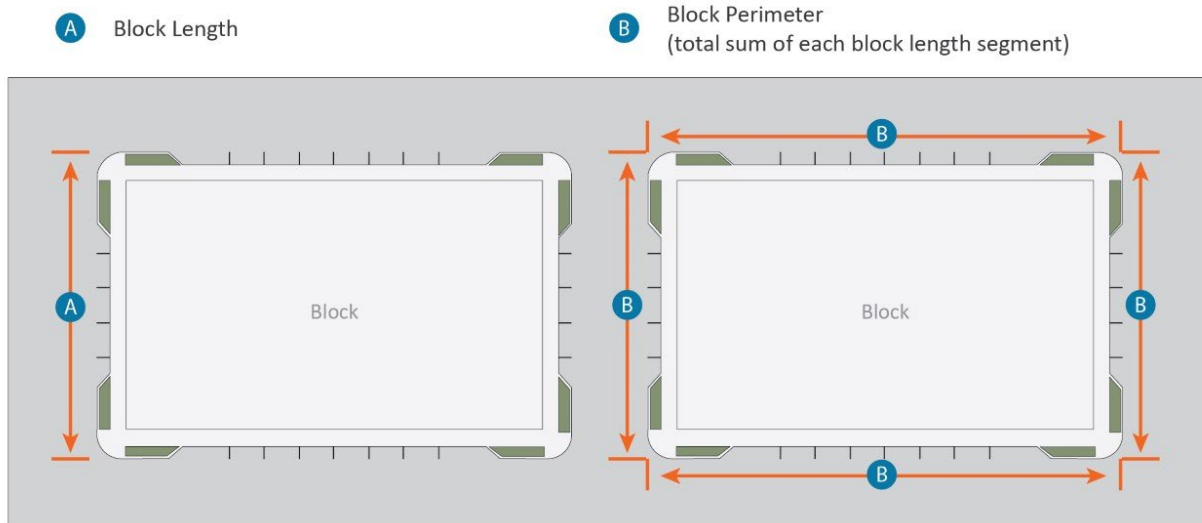


Sec. 1.3: Block Standards

1.3.1. Street blocks shall have sufficient width to provide for lots, except where widths providing single lots are required to separate residential development from arterial traffic, to separate lots from an incompatible use, to accommodate a requirement for single-loaded streets, to allow for unusual topographic conditions, or when adjacent to the outer perimeter of the subdivision.

Figure 1. Block Standards Example

Block Length and Perimeter Measurement

**1.3.2. Applicability**

- A.** Except in Design Districts, block standards shall comply with this section or shall comply with Sec. 13.6, Street Connectivity Standards.
- B.** For Design District requirements see Sec. 16.4, Streetscape, Right-of-Way, and Block/Lot Standards.

1.3.3. Block Length Requirements

- A.** Streets shall be laid out such that the requirements can be met both within and between proposed and future subdivisions on adjacent land through the use of stub out requirements within Sec. 12.3, Streets.

Table 1: Block Length Requirements			
Zoning Districts	Maximum Block Length (ft)	Maximum Block Perimeter (ft)	Minimum Site Acre Applicable (acres)
RU-M, RC (20 max); RS-M(D) (18 max); PDR (above 8.000); CSD; MU; CD; DD; CI; CN	550	1,400	2
RU-5 (8 max); RS-M (8 max); RS-8 (5 max); PDR (below 8); OI; CG; CC	920	2,880	5
RR; RS-20 (2 max); RS-10 (4 max); I; IL; IP; SRP; UC	1,200	4,000	10

Commentary: The maximum block perimeters correspond to a maximum average block length of 350 ft, 720 ft, and 1,000 ft.

- B.** Within a single phase of any subdivision or development, individual block perimeters shall be permitted to exceed the maximum by 25% provided that the average of all block perimeters in the phase does not exceed the maximum.
- C.** The requirements contained in Table 1 shall not apply if at least one of the following conditions prevents a through connection:
1. Obstacles associated with prior platting of property from another landowner;
 2. Construction of existing buildings or other barriers;
 3. Railroad or utility right-of-way; or
 4. Existing limited-access motor vehicle right-of-way.

Sec. 12.3: Streets

12.3.1. Street Layout

Within any proposed development, the proposed street layout shall be coordinated with the existing and planned street system of the surrounding area, with respect to location, alignment, and cross-section. Street design shall satisfy the minimum requirements of the City Public Works Director, City Transportation, NCDOT, or applicable designees.

[Paragraphs A through E have been omitted as they remain unchanged]

F. Stub Outs

1. Unless exempted below, stub outs shall be required on each side (as defined by each of the cardinal directions) of a development as follows:

Lineal Stub Out Requirement (Feet)	Applicable Zoning Districts
At least one stub out for every 650 linear feet on any single side of a proposed development	RU-M, RC (20 max); RS-M(D) (18 max); PDR (above 8.000); CSD; MU; CD; DD; CI; CN
At least one stub out for every 1,000 linear feet on any single side of a proposed development	RU-5 (8 max); RS-M (8 max); RS-8 (5 max); PDR (below 8); OI; CG; CC
At least one stub out for every 1,000 linear feet on any single side of a proposed development	RR; RS-20 (2 max); RS-10 (4 max); I; IL; IP; SRP; UC

2. Stub outs shall not be required if:

- a. Adjacent existing development has not made any accommodation for such connections; or
- b. Adjacent sites are permanently protected from development through conservation easements or ownership that precludes development; or
- c. The only point of access would require crossing floodplains, steep slopes, or other similar natural features; or
- d. The existing street pattern in the area of the proposed development already provides for vehicular connections at intervals no greater than one-half mile apart in the Rural Tier, one-quarter mile apart in the Suburban Tier, or one-fifth mile apart in the Urban Tier.

3. Connections

The proposed street layout in new development shall be coordinated with the existing street system with connections made at all stub outs. Stub outs shall be built to the edge of the site.

- a. Alternatives to building to the edge of the site are allowed per the following:
 - (1) A determination is made by NCDEQ that prevents the full construction of the stub; in which case the stub shall be constructed to the extent allowed by NCDEQ. The following shall also be required:
 - (a) A payment-in-lieu for the remainder of the stub out shall be provided pursuant to the requirements of the *City's Reference Guide for Development*.
 - (b) Construction and slope easements, and the right-of-way required to build the stub out, shall be dedicated.
 - (2) Any other request to modify this requirement will require a variance for the minimum modification necessary to provide relief, per Sec. 3.16, Variance. If a variance is approved, the following shall also be required:
 - (a) A payment in lieu of construction shall be required pursuant to the requirements of the *City's Reference Guide for Development*.
 - (b) Construction and slope easements, and the right-of-way required to build the stub out, shall be dedicated.
- b. Where no full connection can be made as a result of the topography of the site being developed, the developer shall install a cul-de-sac bulb or other turnout facility at the stub out constructed according to the *City of Durham Reference Guide for Development*.

Sec. 12.2: Ingress and Egress Requirements

[Paragraphs 12.2.1 through 12.2.3 have been omitted as they remain unchanged]

12.2.4. External Access Required

A. External motor vehicle access to development shall be provided as indicated below. In determining the number of access points that shall be required, the cumulative impacts of prior developments on the roads shall be considered.

B. External Access Requirements for Residential and Other Developments

Table 1: Minimum Development Access Points for Pedestrians and Vehicles		
Development Type and Size	Minimum number of Vehicular Access Points Required	Minimum Number of Pedestrian Access Points Required
Residential Uses		
90 Dwellings or Fewer	1	1
91 Dwellings or More	2	2
All Other Uses		
Less than 5 Acres	1	1
5 Acres or More	2	2

1. Single-Building Apartment Complex Exemption

Standalone apartment complexes which consist of a single building and independent of the number of dwelling units, shall require a minimum of one point of vehicular and pedestrian access.

2. External Access Exemption

The requirements for vehicular and pedestrian access points required in 12.2.4 shall not apply to Design Districts, see Sec. 16.4, Streetscape, Right-of-Way, and Block/Lot Standards.

Sec. 17.3: Defined Terms

Block Perimeter: The continuous line forming the boundary of a street block.

Street Network: A system of interconnected streets which includes vehicular, pedestrian, transit, and bicyclist infrastructure.