

13.5. - Street design.

A. *Streets required:*

1. All new development shall abut a public street as required in Chapter 4 of this ordinance.
2. New development and substantial improvements to existing development with frontages on existing public streets shall be required to upgrade all their frontages to meet the standards of this chapter.
3. New development without frontages upon a public street shall, in all cases, extend and connect to a public street. Public street extensions and improvements required for new development, including those beyond the development boundary, are the sole responsibility of the developer. Such improvements must be provided in accordance with the requirements of the Chapter 62 of Brevard City Code and this ordinance. This section shall apply to all subdivisions, the development of which is subject to the control of the city, both inside and outside the city limits.
4. Streets shall be installed by the developer and dedicated to the city prior to the approval of any final subdivision plat or development plan unless a performance guarantee is provided to the administrator in accordance with City Code, this ordinance, and procedures established by the administrator. Streets shall be installed by the developer and dedicated to the city prior to the issuance of any certificates of occupancy for any building within that phase or on that street, as applicable to the particular development.
5. City streets shall be built to the minimum specifications of this chapter and Chapter 62 of Brevard City Code, and shall comply with all standards and specifications of the public works director. New streets in the ETJ shall meet all standards and requirements of the North Carolina Department of Transportation.

B. *Streets to connect:* Streets shall interconnect within a development and with adjoining development in accordance with Chapter 8 and 10 of this ordinance. Culs-de-sac are permitted only where topographic conditions and/or exterior lot line configurations offer no practical alternatives for connection or through traffic. Street stubs shall be provided with development adjacent to open land to provide for future connections at the discretion of the administrator. Streets shall be planned with due regard to the designated corridors shown on adopted plans and policies of the city or Transylvania County.

C. *Pedestrian and bicycle infrastructure:* Pedestrian and bicycle infrastructure shall be required as set forth within this chapter and conformance with adopted plans and policies of the city or Transylvania County.

D. *Topographic considerations:* Wherever possible, street locations should account for difficult topographical conditions, paralleling excessive contours to avoid excessive cuts and fills and the destruction of significant trees and vegetation outside of street-rights-of way on adjacent lands.

E. *Private streets and reserve strips:* There shall be no private streets or reserve strips platted in any subdivision except as provided for in Chapter 4 of this ordinance.

F. *On-street parking:*

1. On-street parking may be required by the administrator.
2. When required, all on-street parking provided shall be parallel. Curb or angle parking is permitted upon approval of the administrator when the fronting buildings are more than 22 feet in height to provide spatial definition and when the posted speed limit is less than 25 mph.
3. When required, minimum right-of-way widths shall be modified to account for on street parking.

G. *Traffic calming devices:* The use of approved traffic calming measures is encouraged as alternatives to conventional traffic control measures on Neighborhood Streets and within circulation areas of commercial and mixed-use developments.

- H. *Flood elevations:* No street in an area subject to flooding shall be approved if it is more than one foot below the elevation of the 100-year flood. The administrator may require, where necessary, profiles and elevations of streets for areas susceptible to flooding. Fill may be used for streets in accordance with Chapter 34 of Brevard City Code. Drainage openings shall be designed as to not restrict the flow of water and unduly increase flood heights.
- I. *Storm drainage:* Stormwater shall not be discharged into any stream and shall be retained and treated in accordance with Chapter 6 of this ordinance, except that streets and related retention/treatment infrastructure shall be designed to accommodate a 25-year, 24-hour storm drainage standard.
- J. *Street names:* Streets shall be named and property addressing assigned in accordance with Brevard City Code, Chapter 62, Streets, Sidewalks and Other Public Ways, Article VII, Property Addressing and Road Naming. The administrator shall require evidence that road names and property addresses have been approved and assigned by the Transylvania County Property Addressing Coordinator prior to approving any development.
- K. *Blocks:*
1. The lengths, widths, and shapes of blocks shall be determined with due regard to:
    - a. The provision of adequate building sites suitable to the special needs of the type of use contemplated, and adequate public open spaces accessible and visible to residents.
    - b. District requirements and design criteria.
    - c. Needs of non-vehicular and vehicular traffic circulation and traffic control and safety.
    - d. Opportunities and constraints of topography, with convenient access to important physical and topographical features such as lakes and rivers, significant areas of trees and other natural features, and areas of high ground offering scenic views.
  2. Blocks shall not be less than 200 feet nor more than 660 feet ( $\frac{1}{8}$ -mile), as measured from edge of right-of-way, unless site and topography or other special circumstances are present as determined by the administrator. Where deemed necessary by the administrator, a pedestrian crosswalk of at least ten feet in width may be required.
  3. Blocks shall have sufficient width to allow two tiers of lots of minimum depth except where single tier lots are required to separate residential development from another type of use, or when abutting a perennial stream or lake.
- L. *Landscaping:*
1. Streets shall be landscaped with street trees. Commercial streets shall have trees which compliment the face of the buildings and which shade the sidewalk. Residential streets shall provide for an appropriate canopy, which shades both the street and sidewalk, and serves as a visual buffer between the street and the home.
  2. All street trees shall be installed in accordance with Chapter 8 of this ordinance. Large canopy trees shall be planted in a planting strip at a minimum average distance of 40 feet on-center.
  3. The minimum width of all planting strips shall be six feet. For large canopy trees such as Willow Oaks and Red Maples, a minimum of eight foot planting strip is suggested. Refer to Chapter 8 of this ordinance for additional information on landscaping.
- M. *Street markers and traffic control signs:* Street markers and traffic control signs shall be required and posted in accordance with city standards and the Manual of Uniform Traffic Control Devices. Such infrastructure shall be installed by the developer prior to the issuance of any Certificates of Occupancy for any building on that street.
- N. *Pedestrian and bicycle infrastructure:* Sidewalks, multi-use paths, or other pedestrian/bicycle infrastructure shall be constructed in accordance with the following requirements:

1. In determining the type of pedestrian/bicycle infrastructure that shall be required the Administrator shall refer to the adopted plan or policy of the city for guidance. Such plans or policies include but are not limited to: *City of Brevard Comprehensive Transportation Plan, City of Brevard Comprehensive Pedestrian Plan, City of Brevard Street Schedule, City of Brevard Comprehensive Land Use Plan, City of Brevard Recreation Plan*, other master plans and small area plans and other plans and policies.
2. Sidewalks, multi-use paths, and other pedestrian and bicycle improvements shall be installed by the developer and dedicated to the city prior to the approval of any final subdivision plat, or issuance of final zoning approval or certificate of occupancy for any development plan. Pedestrian and/or bicycle infrastructure shall be constructed within the street right-of-way. The approving authority shall require the dedication of additional street right-of-way or a pedestrian easement when sufficient right-of-way does not exist to comply with this requirement. The approving authority may accept the dedication of additional right-of-way or a pedestrian easement in order to accommodate alternative routes and designs that do not follow streets.
3. Streets shall be bordered by pedestrian/bicycle infrastructure on both sides. Exceptions to this requirement and modifications to the design of pedestrian/bicycle infrastructure may be granted by the TRC for developments in steep slope areas and where warranted by environmental or topographic conditions, or where this requirement would serve no useful purpose.
4. Without exception, pedestrian/bicycle infrastructure shall be required along all new public and private streets within new subdivisions or developments, and within new phases of existing subdivisions and any other form of development.
5. Without exception, pedestrian/bicycle infrastructure shall be required along existing streets within or abutting new subdivisions and any other form of development (except subdivisions in GR districts establishing less than eight dwelling units); or along existing streets within or abutting any form of existing development undergoing substantial improvement (except single-family and duplex residential structures in GR districts).
6. Pedestrian/bicycle infrastructure shall be required along the same side of the street upon which the development fronts, except that when a development project is located on both sides of the same street the approving authority may require that infrastructure be installed on both sides of the street.
7. When site characteristics and/or traffic patterns are such that the construction of pedestrian/bicycle infrastructure in accordance with this section would be a hardship and would not result in useful pedestrian walkways, the administrator, upon recommendation from the TRC may allow the applicant to pay the designated cost of constructing such infrastructure into the city sidewalk fund in lieu of requiring construction of the infrastructure. In determining whether to accept a fee in lieu of construction of infrastructure, the administrator shall refer to any adopted plan or policy of the City for guidance. Such plans or policies include but are not limited to: *City of Brevard Comprehensive Transportation Plan, City of Brevard Comprehensive Pedestrian Plan, City of Brevard Street Schedule, City of Brevard Comprehensive Land Use Plan, City of Brevard Recreation Plan*, other master plans and small area plans, and other plans and policies.
8. The administrator may accept a performance guarantee for the construction of sidewalks on behalf of the city in situations where no other public infrastructure is proposed in accordance with Chapter 16 of this ordinance.
9. Multi-use paths and other infrastructure:
  - a. Multi-use paths, and other pedestrian and bicycle infrastructure shall be provided instead of or in addition to sidewalks wherever called for on an adopted plan or policy of the city. Such plans or policies

include but are not limited to: *City of Brevard Comprehensive Transportation Plan, City of Brevard Comprehensive Pedestrian Plan, City of Brevard Street Schedule, City of Brevard Comprehensive Land Use Plan, City of Brevard Recreation Plan*, other master plans and small area plans, and other plans and policies.

- b. When a multi-use path is required in an area not adjacent to a public or private street, then such facility shall be credited towards the satisfaction of the open space requirements as set forth in Chapter 7 of this ordinance.
- c. All required multi-use paths shall be dedicated to the City of Brevard by means of right-of-way or pedestrian easement.
- d. On-street bicycle lanes shall be required when called for upon an adopted plan or policy of the city.

10. Pedestrian and bicycle improvements shall be as follows:

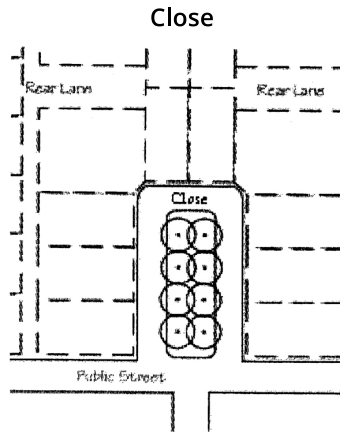
Zoning District	Facility Width	
	City Streets	NCDOT Streets*
GR	5 feet	5 feet
RMX, NMX, CMX, DMX, GI, IC	5 feet	8 feet
Public Streets	City Streets Required; Dedication to City Required	NCDOT Streets Required
Street Rights-of-Way	Required; Dedication to City Required	Required; Dedication to NCDOT Required
Multi-Use Path (where required)	10 feet	10 feet
On-Street Bike Lane (where required)	5 feet	5 feet

\*Sidewalks are not required along alleys and commercial service streets except when required as a condition of a Conditional Zoning District, Group Development, or special use permit.

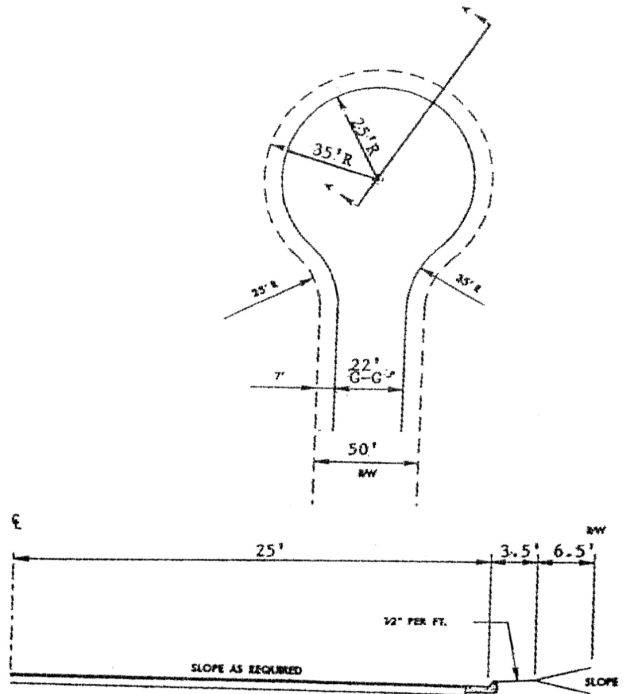
- 11. All pedestrian/bicycle infrastructure shall comply with the minimum requirements for handicapped accessibility in compliance with the North Carolina Accessibility Code or other federal, state, or local regulations. During the construction of pedestrian/bicycle infrastructure, whether new or replacement, handicapped ramps shall be placed in the sidewalk where it intersects with streets and other pedestrian and vehicular travel ways.
- 12. All sidewalks shall be made of 4,000 PSI concrete with a minimum depth of four inches, except that street and driveway crossings shall be a minimum of six inches in depth. Bike lanes and multi-use paths shall be made of asphalt, designed according to the North Carolina Bicycle Planning and Design Guidelines

published by the NCDOT and shall include all appropriate signage and pavement markings. Alternative materials and designs may be approved by the TRC in consultation with the public works director.

- O. *Culs-de-sac and closes*. Where practical, a close (see graphic, below) shall be used in place of a cul-de-sac. Culs-de-sac and closes shall be designed to facilitate the turning radius of emergency vehicles.



**Cul-de-sac with Curb and Gutter Section**

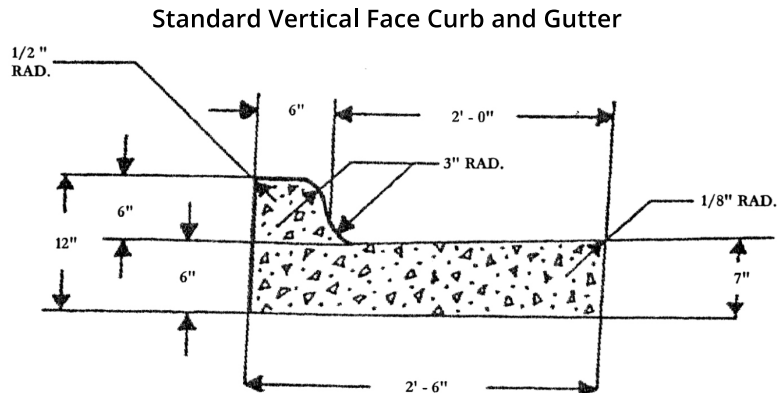


P. *Intersections:*

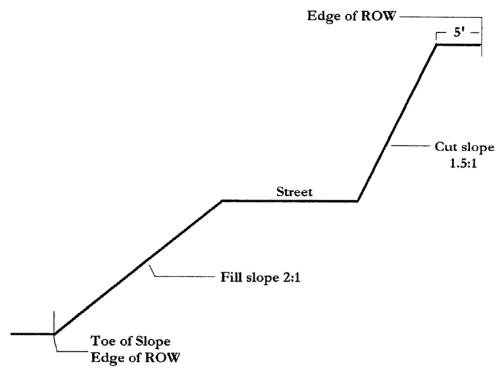
1. All streets shall intersect at right angles as nearly as possible and no street shall intersect at less than 60 degrees.
2. Where practical, intersections should be aligned to create four-way intersections.
3. Off-set intersections for local streets and neighborhood collectors should be at least 125 feet apart measured from centerline to centerline. A larger spacing in accordance with American Association of State Highway and Transportation Officials (AASHTO) standards may be required for all other streets.
4. Property lines at street intersections shall be rounded with a minimum radius of 20 feet. At an angle of intersection of less than 90 degrees, a greater radius may be required.
5. Proper sight lines shall be maintained at all intersections of streets to permit adequate sight distance. Where

the posted speed limit is less than 20 mph, the intersection sight distance may be reduced to 105 feet.

6. Bulb-outs are discouraged on narrow streets (less than 30 feet face-of-curb to face-of-curb) but encouraged on wider streets.
  7. Property lines at street intersections shall be rounded with a minimum radius of 20 feet. Where a street intersects a state highway, the design standards of the state department of transportation shall apply.
- Q. *Curb radii*: Curb radii shall be designed to reduce pedestrian crossing times along all streets requiring sidewalks. In general, curb radii should not exceed 20 feet except along NCDOT-maintained roads.
- R. *Curbs and drainage for city streets*: The following requirements shall apply to streets within the city. Streets within the ETJ shall meet all applicable requirements of the North Carolina Department of Transportation.



1. Curb and gutter shall be required on all new residential and commercial streets constructed within the city.
2. Standard vertical face curb and gutter within the city shall be two-foot, six-inch concrete with a height of six inches (see graphic, above). All curbing shall be properly backfilled.
3. Exceptions to this requirement may be made by the administrator subject to circumstances in the area under study. Such circumstances shall relate to the topography of the area, future maintainability of the streets, or other factors deemed relevant by the administrator.
4. Vertical face curbing is required along all streets with on-street parking and around all required landscaping areas and parking lots.
5. All drainage gates must be safe for bicyclists. Bicycle-safe drainage grates are types E, F, and G as approved by the NCDOT.
6. City street culvert dimensions shall be subject to the requirements of the public works director.
7. The right-of-way shall extend from a point five feet outward from the top of the bank of any cut slope to the toe of any fill slope. Maximum slope of any cut slope shall be at a ratio of no greater than 1.5 feet of horizontal run to one foot of vertical rise (1.5:1 slope), and the maximum slope of any fill slope shall be at a ratio of no greater than two feet of horizontal run to one foot of vertical rise (2:1 slope).



- S. *Centerline radius*: A 90-foot minimum centerline radius shall be used for local streets, parkside drives, and minor streets between reverse curves though they may be reduced to 45 feet for design speeds less than 20 mph. All other streets shall be in accordance with AASHTO standards.
- T. *Street lights*: Street lights shall be installed by the developer on all streets in accordance with Chapter 12 of this ordinance.
- U. *Posted speed limits*: All streets shall be posted in accordance with the Manual of Uniform Traffic Control Devices and the City of Brevard Traffic Schedule.
- V. *Street grades*: The maximum permissible street grade shall be 18 percent.
- W. *Design standards*: Design standards not specifically addressed in this ordinance must comply with the minimum design and construction criteria of the N.C. Department of Transportation.
- X. *Minimum right-of-way*: The administrator shall determine right-of-way widths based upon the characteristics of the proposed development. However, unless otherwise specified, the minimum right-of-way for all new streets within the city shall be 50 feet, and shall satisfy minimum requirements of the North Carolina Department of Transportation in the ETJ.

(Ord. No. 8-07, § 1(j), 5-21-07; Ord. No. 15-08, § 33, 12-5-08; Ord. No. 20-09, § 4(Exh. B(5)), 9-21-09; Ord. No. 2014-25, § 04(Exh. D), 12-15-14; Ord. No. 2018-25, § 1(Att. B), 9-17-18; Ord. No. 2020-23, § 1(Exh. A), 10-19-20; Ord. No. 2021-16, § 1(Exh. A), 4-19-21)