

Article 12. INFRASTRUCTURE IMPROVEMENT REQUIREMENTS

12.1 General Provisions

It is hereby declared to be the policy of the Town of Fletcher 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 other menace. Proper provisions shall be made for drainage, water supply, sewerage, and other appropriate utility services.
- B. 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. Streets shall be of such width, grade, and location as to accommodate prospective traffic, as determined by existing and probable future land uses. Streets shall be detailed to compliment neighborhoods and commercial centers and shall be pedestrian in scale.
- C. Buildings, lots, blocks, and streets shall be so arranged as to afford adequate light, view, and air, and to facilitate fire protection.
- D. 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.

12.2 Required Improvements for all Development Plans

- | | |
|--|---------------------------|
| A. Water Supply Distribution and Fire Hydrants | G. Street Lights |
| B. Sanitary Sewer | H. Underground Wiring |
| C. Public Streets (Paved) and other Public Rights-of-Way | I. Dedicated Open Space |
| D. Utility Easements | J. Landscaping |
| E. Sidewalks | K. Storm Drainage Systems |
| F. Curb and Gutter | |

12.3 Street Design – General Provisions

The Town views streets as the most important public space and therefore, in an effort to protect this investment, has developed a set of principles which permit this space to be used by both motorized vehicles, non-motorized vehicles (bicycles), and pedestrians.

- A. Streets shall be bordered by sidewalks on both sides.
- B. Within any subdivision, no private driveway shall be allowed to provide access to more than two (2) lots.
- C. Streets shall be landscaped with trees. Commercial streets shall have trees which compliment the face of the buildings 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.

- D.** 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.** All streets shall be constructed in accordance with the design and construction standards of the most current NCDOT “Subdivision Roads-Minimum Construction Standards” Manual and shall permit public access whether by easement or by public dedication. The Town may accept streets for ownership and maintenance.
- F.** If requested by the developer and at the option of the Town Council, streets may be accepted by the Town for ownership and maintenance in stages as planned by the developer in order to save undue expense to both the developer and Town.
- G.** Streets that provide access to no more than four lots, of no less than one (1) acre each, may be private.
- H.** All on-street parking provided shall be parallel. Curb or angle parking is permitted upon approval of the Planning Board when the fronting buildings are more than 22 feet in height to ensure a safe and usable pedestrian realm.
- I.** 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.
- J.** Proposed streets which are obviously in alignment with existing streets shall bear the assigned name of the existing streets. In no case shall the name of the proposed street duplicate or be phonetically similar to existing street names, irrespective of the use of the suffix street, avenue, boulevard, drive, place, court, etc.

12.4 Street Types

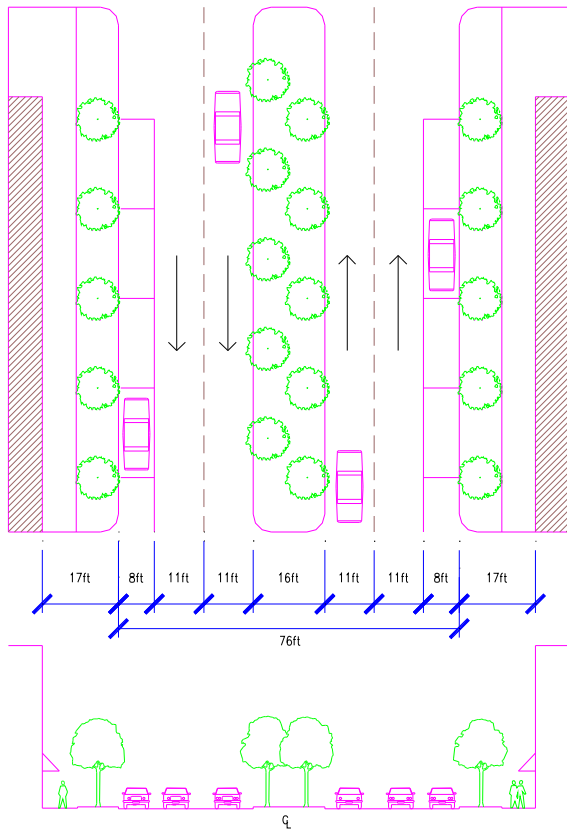
Street designs shall permit the comfortable use of the street by cars, bicyclists, and pedestrians. Pavement widths, design speeds, and the number of vehicle lanes should be minimized without compromising safety. The specific design of any given street must consider the building types which front on the street and the relationship of the street to the Town’s street network.

Minor variations and exceptions to street cross-sections may be permitted with approval by the Administrator or the Planning Board. Such exceptions include variations to the pavement width, tree planting areas, street grade, and centerline radii in accordance with principles above. Right-of-way widths should be preserved for continuity.

In lieu of using the NCDOT Standards, the Town may permit the use of the following standards in accordance with the street hierarchy detailed as follows:

A. BOULEVARD
110 ft ROW

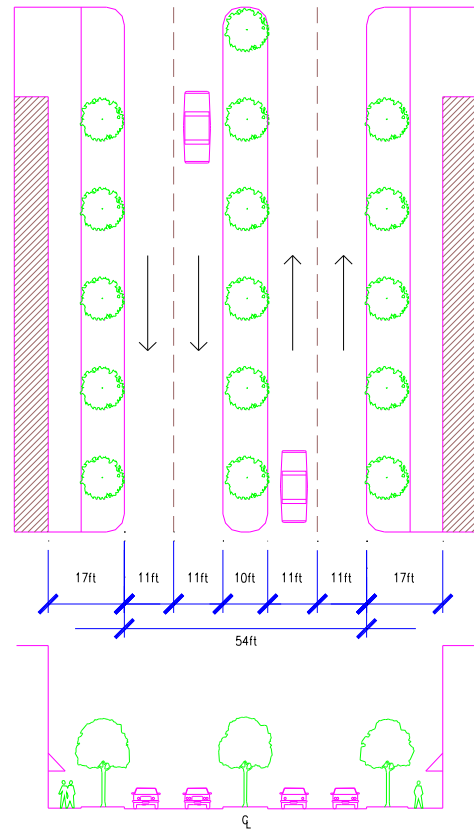
The boulevard serves as a long-distance, medium-speed vehicular corridor which traverses an urbanized area. It is usually lined by parallel parking, wide sidewalks, or side medians planted with trees. Center medians may be continuously planted or have trees in individual planting areas. Buildings uniformly line the edges.



Design Speed	25-35 mph
Min. Centerline Radius	90 ft
Pavement Width (F-F)	30-16-30 ft
ROW Width	110 ft
Curb Radius	15 ft
Drainage	Curb & Gutter
On Street Parking	Yes
Street Trees	Yes
Sidewalks	Yes

B. BOULEVARD
100 ft ROW

The boulevard serves as a long-distance, medium-speed vehicular corridor that traverses an urbanized area. It is usually lined by wide sidewalks or side medians planted with trees. Center medians may be continuously planted or have trees in individual planting areas. Buildings uniformly line the edges.

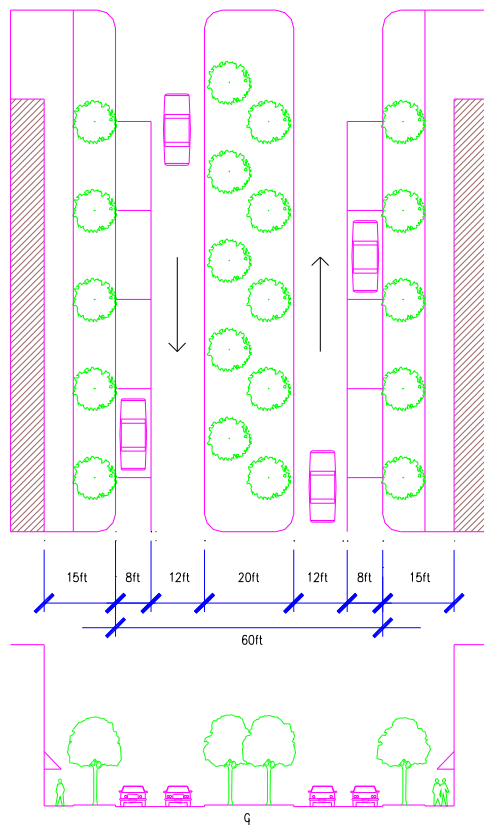


Design Speed	25-35 mph
Min. Centerline Radius	90 ft
Pavement Width (F-F)	22-10-22 ft
ROW Width	100 ft
Curb Radius	15 ft
Drainage	Curb & Gutter
On Street Parking	No
Street Trees	Yes
Sidewalks	Yes

C. AVENUE

90 ft ROW

The avenue is a short-distance, medium-speed connector which transverses an urbanized area. It is unlike a Boulevard, in that its axis is terminated by a civic building or monument. The avenue is typified by carefully landscaped edges including three or more individual rows of street trees within the ROW.

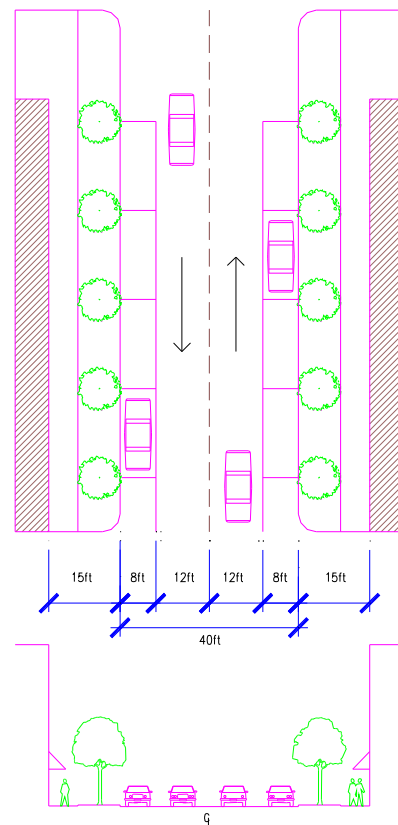


Design Speed	25-30 mph
Min. Centerline Radius	260 ft
Pavement Width (F-F)	18-14-18 ft
ROW Width	90 ft
Curb Radius	15 ft
Drainage	Curb & Gutter
On Street Parking	Yes (Marked)
Street Trees	Yes
Sidewalks	Yes

D. MAIN STREET

70 ft ROW

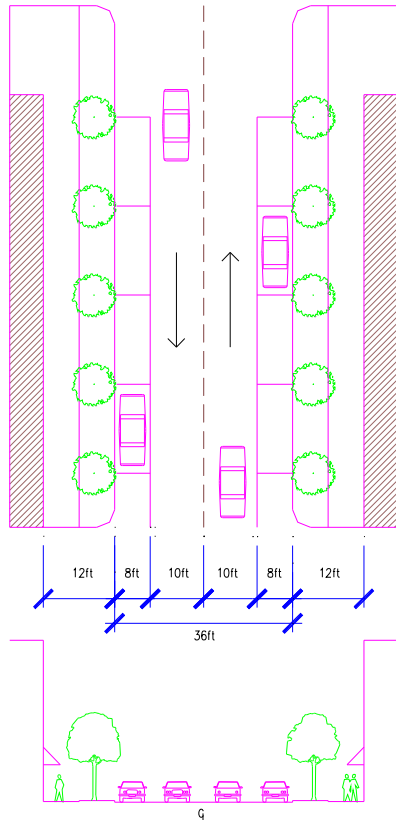
The main street serves as a small-scale, low-speed connector. Main streets provide frontage for high-density buildings such as offices, shops, apartment buildings, and rowhouses. A main street is urban in character, with raised curbs, closed drainage, wide sidewalks, parallel parking, trees in individual planting areas, and buildings aligned on short setbacks.



Design Speed	25-30 mph
Min. Centerline Radius	260 ft
Pavement Width (F-F)	38 ft
ROW Width	70 ft
Curb Radius	15 ft
Drainage	Curb & Gutter
On Street Parking	Yes (Marked)
Street Trees	Yes
Sidewalks	Yes

E. RESIDENTIAL MAIN STREET
60 ft ROW

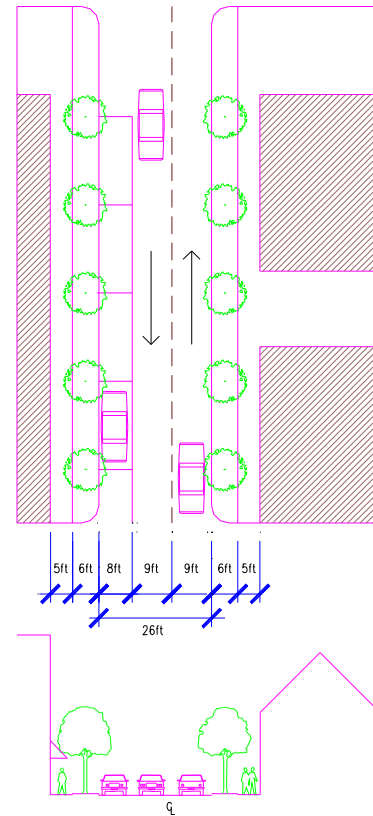
The residential main street serves as a small-scale, low-speed connector. Residential main streets provide frontage for high-density residential buildings such as apartment buildings and rowhouses. A residential main street is urban in character, with raised curbs, closed drainage, wide sidewalks, parallel parking, trees in individual planting areas, and buildings aligned on short setbacks.



Design Speed	20-25 mph
Min. Centerline Radius	90-165 ft
Pavement Width (F-F)	36 ft
ROW Width	60 ft
Curb Radius	15 ft
Drainage	Curb & Gutter
On Street Parking	Yes (Marked)
Street Trees	Yes
Sidewalks	Yes (6 ft min)

F. LOCAL STREET
50 ft ROW

The local street serves as a small-scale, low-speed connector. Local streets provide frontage for medium-to-low-density residential buildings such as detached homes and duplexes. A local street is urban in character, with raised or rolled curbs, closed drainage, sidewalks, occasional parallel parking on one side, trees in continuous planting areas, and buildings aligned on medium setbacks.

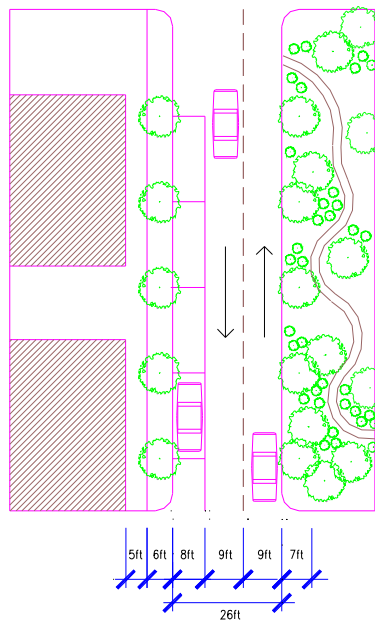


Design Speed	20-25 mph
Min. Centerline Radius	50-90 ft
Pavement Width (F-F)	26 ft
ROW Width	50 ft
Curb Radius	15 ft
Drainage	Curb & Gutter
On Street Parking	Yes (Expected but not marked)
Street Trees	Yes
Sidewalks	Yes (5 ft min)

G. PARKSIDE DRIVE

42-50 ft ROW

The drive defines the natural edge between an urban and a natural condition, usually along a waterfront, a park, or a greenbelt. One side of the drive has the urban character of a main street with sidewalk, parallel parking, and buildings, while the other has the natural qualities of a rural road with naturalistic plantings and rural detailing.

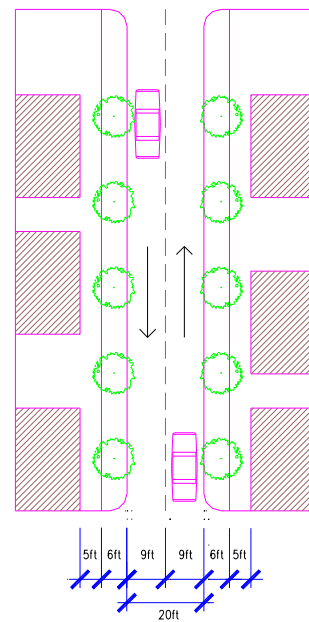


Design Speed	20 mph
Min. Centerline Radius	50-90 ft
Pavement Width (F-F)	26 ft
ROW Width	42-50 ft
Curb Radius	15 ft
Drainage	Curb & Gutter / Open Swale
On Street Parking	Yes (Expected but not marked)
Street Trees	Yes (One Side)
Sidewalks	Yes (One Side)

H. MINOR STREET

40-50 ft ROW

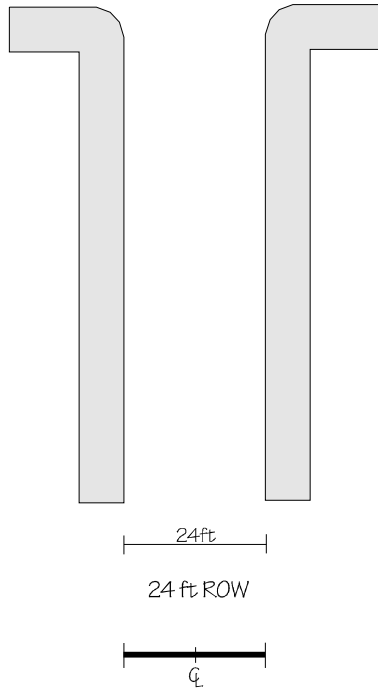
The minor street is a small-scale, low-speed connector. It serves low-density residential buildings which accommodate all parking on-site. A minor street tends to be more rural in character with rolled curbs, open or closed drainage, narrow sidewalks, continuous plantings, and buildings set way back though this condition may also be appropriate for short urban blocks where on-street parking is not expected



Design Speed	15 mph
Min. Centerline Radius	50-90 ft
Pavement Width (F-F)	18-24 ft
ROW Width	40-50 ft
Curb Radius	15 ft
Drainage	Curb & Gutter / Open Swale
On Street Parking	Yes (One way streets only)
Street Trees	Yes
Sidewalks	Yes

I. REAR ALLEY
24 ft ROW

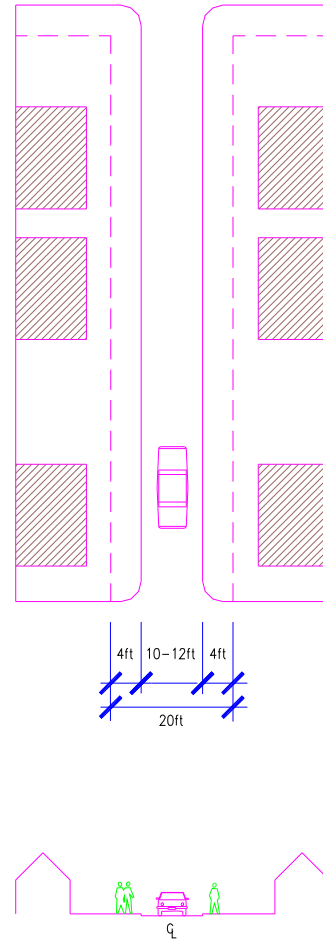
The alley is a narrow access route which services the rear of buildings on a street. Alleys have no sidewalks, landscaping or building setbacks. Alleys are used by trucks and must accommodate dumpsters. They are usually paved to the edges, with center drainage via an inverted crown.



Design Speed	N/A
Min. Centerline Radius	N/A
Pavement Width	24 ft
ROW Width	24 ft
Curb Radius	5 ft
Drainage	Curb & Gutter
On Street Parking	Yes
Street Trees	No
Sidewalks	No

J. REAR LANE
20 ft ROW

The rear lane is a narrow access route behind neighborhood streets. Lanes generally have a narrow strip of paving in the center and serve as areas for underground utilities.



Design Speed	N/A
Min. Centerline Radius	N/A
Pavement Width	10-12 ft
ROW Width	20 ft
Curb Radius	20 ft
Drainage	Open Swale / Closed Inverts
On Street Parking	N/A
Street Trees	No
Sidewalks	No

12.5 Specific Development Standards

A. Trees

All street trees shall be installed in accordance American Association of Nurseryman standards. Large canopy trees shall be planted in a planting strip at a minimum average distance of 40 feet on-center.

B. 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.

C. Sidewalks & Greenways

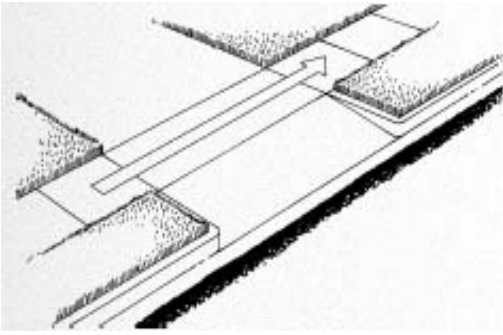
The purpose of the sidewalk regulation for new major subdivisions is to create attractive neighborhoods that are safe for pedestrians and to facilitate pedestrian connections that link neighborhoods to the Town's Transportation Plan and Greenway Master Plan.

1. The developer of any new construction with new or existing street frontage shall provide a network of sidewalk or greenway trails to serve all lots associated with the development. The total length of these facilities shall be equal or greater to the linear roadway frontage for all such lots abutting a roadway (new or existing). These sidewalks or greenway trails shall be constructed to the minimum specifications of this section.
2. In cases where required sidewalk is potentially unsafe or impractical, the developer may request consideration from the Town for approval of payment of the financial equivalent (or "fee-in-lieu-of") for the required sidewalks.
 - a. Upon such approval by the Planning Board, the developer would then be required to pay the financial equivalent to the Town in order to develop sidewalks along other streets with pedestrian needs (as identified in the Town's Transportation Plan where possible) or greenways in accordance with the Town's Greenway Master Plan (subject to availability of easements for such trails).
 - b. The estimated costs of these sidewalks shall be provided by the project engineer and must include an itemized list (signed and sealed) outlaying project costs that include design, staging, mobilization, labor, and materials. This list will then be reviewed by a Town-contracted engineer, after which, the item will be placed on the next Planning Board agenda. The developer shall be responsible for the cost of review by the Town-contracted engineer.
 - c. The financial sum paid to the Town shall be placed in a restricted fund that will be reserved for construction of sidewalks and/or greenways.

- d. If approved, the fee would be paid prior to issuance of the Certificate of Occupancy (C/O) for the development.
- e. If approved, the developer will also ensure that adequate right of way is provided ensuring that a sidewalk could be installed in the future.
- f. No variances to this section shall be permitted.

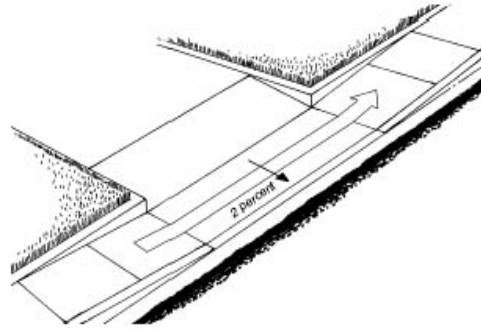
3. Design Standards

- a. The location and specifications of sidewalks shall be shown on site development and grading plans for a new structure under consideration by the building official for issuance of a building permit, and the same shall be approved by the Administrator prior to issuance of a building permit.
- b. Whenever practical, the construction of a sidewalk shall be on a line parallel with the edge of the public right-of-way of a street, highway or road, and that the edge of a sidewalk will be separated from the curb or street edge by a planting strip in accordance with E below.
- c. Sidewalks shall be constructed of four (4) inch thick, three thousand (3,000) pound per square inch Portland cement concrete poured on a compacted base. Sidewalks shall be a minimum of four (4) feet in width within subdivisions, a minimum of five (5) feet in width on adjacent or arterial roads, and a minimum of ten (10) feet where a proposed sidewalk adjacent to a road overlaps the Town's approved Greenway Master Plan.
- d. Sidewalks shall be installed with a maximum cross slope of 2% toward the center of the right-of-way and constructed to the grades specified by an Engineer. Portions of sidewalks crossed by driveways shall be a minimum of six (6) inches in thickness. Contraction joints shall be spaced every five (5) feet and expansion joints shall be spaced every forty (40) feet. One-half inch thick, six (6) inch wide expansion joints shall be constructed where a sidewalk touches a street.
- e. Minor sidewalk repairs which do not exceed one square foot in any single place or ten (10) square feet in total combined area adjacent to a lot or premises may be performed by the Town of Fletcher, the property owner or his contractor without the necessity of obtaining a permit.
- f. Where a driveway crosses a sidewalk, appropriate ramps and flares shall be installed to avoid changes in cross slope on the sidewalk. Wheelchair users and pedestrians are more prone to stumble or fall on surfaces with rapidly changing cross slopes. Driveway crossings that result in sidewalk cross slopes in excess of 2% shall not be permitted. *(see illustration)*



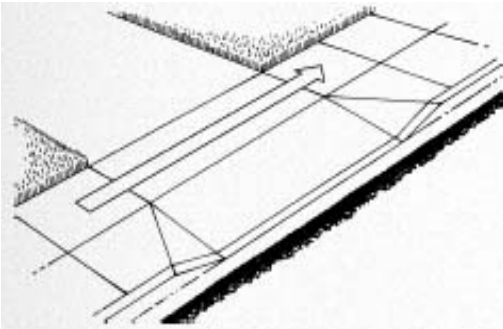
Driveway Crossing with a Level Sidewalk

ACCEPTABLE



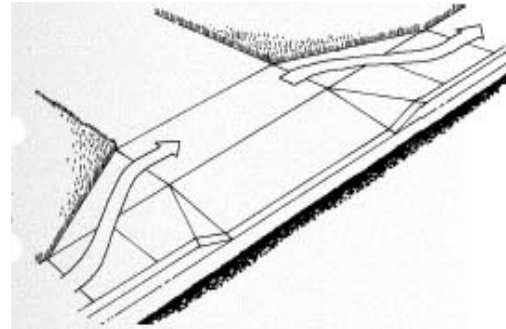
Driveway Crossing with Parallel Ramps

ACCEPTABLE



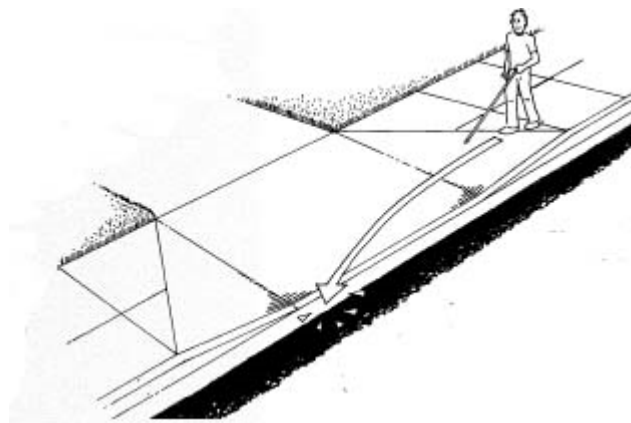
Driveway Crossing w/ Curb Flares & Level Sidewalk

ACCEPTABLE



Driveway Crossing w/ Jog to Provide Level Sidewalk

ACCEPTABLE



Driveway Crossing Without a Level Sidewalk

UNACCEPTABLE

- g. Greenway Trails shall be designed within the design specifications of the relevant plan phase and in consistency with the Greenway Master Plan.

D. Bikeways

1. Bike lanes or separate off-street multi-use paths shall be installed by all development with frontage along streets as designated in any approved bicycle master plan. Paths shall be a minimum of ten (10) feet wide.
2. Bike lanes and bike paths shall be designed according to the North Carolina Bicycle Planning and Design Guidelines published by the NCDOT and shall include all appropriate signage and pavement markings.

E. Planting Strips

The minimum width of all planting strips shall be 6 feet. For large canopy trees such as Willow Oaks and Red Maples, a minimum of 8 foot planting strip is suggested. For additional information on landscaping, please refer to Chapter 8.

F. Cul-De-Sacs & Closes

Where practical, a close (as defined by Article 18) should be used in place of a cul-de-sac. Cul-de-sacs, if permitted, shall not exceed 500 feet in length from the nearest intersection with a street providing through access (not a cul-de-sac). Cul-de-sacs and closes shall be designed to facilitate the turning radius of emergency vehicles. The Administrator and/or the Fire Marshall shall have authority to use discretion in the application of these provisions.

G. 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, Parkside Drives, and Minor Streets 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. The Administrator and/or the Fire Marshall shall have authority to use discretion in the application of these provisions.
5. Proper sight lines shall be maintained at all intersections of streets to permit adequate sight distance. See Section 4.5 for sight distance requirements.

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. Where a street intersects a state highway, the design standards of the State Department of Transportation shall apply.

H. 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.

I. Utility Location

Underground utilities should be located in alleys and lanes. If no alley or lane is provided, then a 5-foot (minimum) utility easement shall be provided behind the sidewalk located within either the right-of-way or a public utility easement.

J. Easements

Utility and other easements shall be provided as follows:

1. Utility easements, as necessary, shall be determined by the developer or utility provider.
2. Where a subdivision is traversed by a water course, drainage way, channel, or stream, there shall be provided a stormwater easement or drainage right-of-way conforming substantially with the lines of such water course, and such further width or construction, or both, as may be adequate for the purpose of drainage.
3. Lakes, ponds, creeks, and similar areas within a subdivision will not be accepted for maintenance by the Town Council.

K. Curbs and Drainage

Curbs shall be constructed in accordance with the following standards:

1. All curbs shall be constructed in accordance with the design and construction standards of the most current NCDOT "Subdivision Roads-Minimum Construction Standards" Manual
2. Drainage shall be provided using curb and gutter piped systems along all streets unless specific approval for use of open swales is granted by the appropriate review board.
3. All drainage grates must be safe for bicyclists, with slots running perpendicular or diagonal to the direction of travel. Bicycle-safe drainage grates are Types E, F, and G as approved by the NCDOT.

L. Centerline Radius

A 90 foot minimum centerline radius between reverse curves shall be used for Local Streets, Parkside Drives, and Minor Streets 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.

M. Street Lights

Street lights shall be installed by the developer on all streets in accordance with Article 10.

12.6 Storm Water Drainage

- A.** Each proposed development shall meet the storm water criteria of Sections 6.4 (Stormwater Runoff) and 6.5 (Water Quality Protection).
- B.** All developments and subdivision projects must comply with the North Carolina Sedimentation Pollution Control Act and all attendant regulations.

12.7 Water and Sewer Systems

- A.** The preliminary subdivision plat must be accompanied by satisfactory evidence as to the proposed method and system of water supply and sanitary sewage collection and disposal. Connections to public water and sewer systems within 500 feet (if there are existing lines for new subdivisions) is mandatory. Where feasible, connections shall be made to the water system owned by the City of Hendersonville and the sewer system owned by the Cane Creek Sanitary District. The installation of all said systems except wells or septic tanks serving only one connection shall be required prior to final plat approval. Said systems may be owned and operated by a public or private entity. Any well or septic tank serving only one connection shall be approved by the Henderson County Health Department. For all new systems or expansion of existing systems serving two or more connections, approval shall be according to state statutes.
- B.** The preliminary plat shall be accompanied by written assurance from the developer that plans for said new or expansion of existing systems will be submitted to the appropriate state and/or local agencies. The final plat shall be accompanied by written approval of the installation of said systems by the appropriate state and/or local agencies.

12.8 Improvement Guarantees

Upon approval of the preliminary plat by the Planning Board, the developer may proceed with preparation of the final plat and the installation of roads, utilities, and other improvements as specified in the approved preliminary plat.

- A. Agreement and Security Required:** Prior to the filing of an application for final plat approval, the developer shall have installed all of the improvements as shown on the

approved preliminary plat; except that, the Town may enter into an agreement whereby the developer shall agree to complete the pavement surface course, sidewalks, and shade trees as specified on the approved preliminary plat, for that portion of the development to be shown on the final plat, within a reasonable time to be determined in said agreement. Once said agreement is signed by both parties and security herein is provided, and all other improvements have been installed and approved, the final plat may be approved as provided herein.

To secure this agreement, the developer shall provide, subject to the approval of the Town Council either one or a combination of the following guarantees not exceeding 1.5 times the entire cost as provided herein:

1. **Surety Performance Bond(s):** The developer shall obtain a performance bond(s) from a surety bonding company authorized to do business in North Carolina. The bond(s) shall be made payable to the Town of Fletcher and shall be in an amount 1.5 times the entire cost as estimated by the Administrator of installing all required improvements as specified on the approved preliminary plat for that portion of the subdivision to be shown on the final plat. The duration of the bond(s) shall be until such time as the improvements are approved by the Town Council. The Town Council shall not give said approval until it has been satisfied that all required improvements have been installed.
2. **Cash or Equivalent Security:** The developer shall deposit cash or other instrument readily convertible into cash at face value, either with the Town or in escrow with a financial institution designated as an official depository of the Town. The amount of deposit shall be equal to 1.5 times the cost, as estimated by the Administrator, of installing all required improvements as specified by the preliminary plat for that portion of the subdivision to be shown on the final plat.

If cash or other instrument is deposited in escrow with a financial institution as provided above, then the developer shall file with the Town Council an arrangement between the financial institution and himself guaranteeing the following that:

- a. Said escrow shall be held in trust until released by the Town Council and may not be used or pledged by the developer in any other matter during the term of the escrow; and,
 - b. In the case of a failure on the part of the developer to complete said improvements, the financial institution shall, upon notification by the Town Council and submission by the Town Council to the financial institution of the Administrator's estimate the amount needed to complete the improvements, either pay to the Town the funds estimated as needed to complete the improvements immediately up to the full balance of the escrow account, or deliver to the Town any other instruments fully endorsed or otherwise made payable in full to the Town.
3. **Letter of Credit:** A satisfactory, irrevocable letter of credit as approved by the Town Attorney and Town Council and deposited with the Town Clerk shall be

submitted. When a letter of credit is submitted, the following information shall be contained in said letter:

- a. Shall be entitled "Irrevocable Letter of Credit"
 - b. Shall indicate the Town of Fletcher as the sole beneficiary
 - c. The amount of the letter of credit (1.5 times the estimated cost) as approved by the Town
 - d. Account number and/or credit number that drafts may be drawn on
 - e. List of improvements that shall be built that the letter is guaranteeing
 - f. Terms in which the Town of Fletcher may make drafts on the account
 - g. Expiration date of the letter
- B. Default:** Upon default, meaning failure on the part of the developer to complete the required improvements in a timely manner as spelled out in the agreement in Section 12.8.A, then the surety, or the financial institution holding the escrow account shall, if requested by the Town Council, pay all or any portion of the bond or escrow fund to the Town of Fletcher up to the amount needed to complete the improvements based on the Administrator's estimate. Upon payment, the Town Council in its discretion, may expend such portion of said funds as it deems necessary to complete all or any portion of the required improvements. The Town shall return the surety or escrow account any funds not spent in completing the improvements.
- C. Release of Guarantee Security:** The Town Council may release a portion of any security posted as the improvements are completed and recommended for approval by the Administrator. At such time, the Town Council approves all improvements placed in the subdivision as recommended by the Administrator, all security posted shall be immediately released.

12.9 Nonconforming Infrastructure

- A.** If there is a change of use or an expansion to the heated square footage, or to the parking area or loading areas which increase the total area more than 40 percent, of an existing non-residential or multi-family use, the lot shall fully comply with all street improvement requirements of this Chapter along the fronting public streets including, but not limited to turning and traffic storage lanes, sidewalks, bike lanes, and curb and gutter.
- B.** New developments shall be required to comply with all street improvement requirements of this Chapter along the fronting public streets for the length of their frontage including, but not limited to turning and storage lanes, access management, sidewalks, bikeways, and curb and gutter.