Proposed Text Amendment – Report to City Council

Case No. T-2010-01

Meeting Date: April 26, 2010

Staff Contact: William Meyer, AICP, Planning & Development Director

INFORMATION

Applicable Sections: Article 7: Subdivision Standards, and Article 10: Definitions and Rules for Interpretation.

Application Date: February 2, 2010

Applicant: Rock Hill Planning Commission

As part of the continuing review of the Zoning Ordinance, staff has been discussing the Subdivision Standards in Article 7 for almost two years. Various standards and practices have been explored in conjunction with construction documents and Planned Development approvals, culminating in the proposals being brought forth at this time.

Staff held initial workshops to solicit input from the Planning Commission and City Council in February and March, respectively. We have circulated a draft of the proposed amendments to members of the development community, and received comments in mid-March.

EXPLANATION FOR AMENDMENT

Most of the standards in the 2005 Zoning Ordinance were carried over from the previously approved development regulations. Experience in administering these regulations, and the increasing percentage of alley loaded residential development suggested the need to re-evaluate some of the standards.

There were several goals for this set of amendments including incorporation of more urban-style design elements, modifications to the required pavement standards, and clarifying language.

To this end, the draft ordinance includes changes in the following areas:

- Street cross-sections, including alleys provision of “bump-outs” at intersections where parking is to be provided.
- Requirements for second access points have been clarified and fine tuned to be more traffic based.
- Requirements for bicycle facilities have been more fully incorporated.
- Public improvement warranty requirements have been clarified, and extended from 2 to 3 years for subdivisions that have not quickly built out.
- Road construction standards have been changed to reflect recent practice and specify a minimum standard for parking lot construction.

The attached memo to the Planning Commission dated Jan. 25, 2010, discusses the amendments in greater detail. Since the March City Council workshop, we have proposed some additional modifications in Table 7-100(B)(1) Street Specifications, and we have fine tuned some of the other language for clarity.

PUBLIC NOTIFICATION

The following public notification actions have been taken:

- March 7 & 21, 2010 - Planning Commission public hearing advertisements published in *The Herald*.

PUBLIC HEARING

The Rock Hill Planning Commission held a public hearing on this proposal on April 6, 2010. There were no comments from the public.

STAFF RECOMMENDATION

Staff recommends approval of the proposed amendments for forwarding to the City Council.

PLANNING COMMISSION RECOMMENDATION

Following the public hearing at their April meeting, the Planning Commission voted 5-0 to recommend approval of the proposed amendments.

ATTACHMENTS:

- Memo - Summary of draft ordinance – January 25, 2010
- Proposed text amendment language with editorial notations

ROCK HILL
SOUTH CAROLINA

Memorandum

To: Rock Hill Planning Commission

From: Bill Meyer, Planning & Development Director

Subject: Request to Sponsor Zoning Ordinance Amendments to Article 7 – Subdivision Standards

Date: January 25, 2010

The attached proposal is offered as an update of the City's subdivision regulations, to address several emerging issues. We are asking the Planning Commission to sponsor these amendments. The standards of Article 7 are somewhat drier than the previously-discussed design standards of Article 6, but they are extremely important because the infrastructure that is guided by these standards is usually in place much longer than the building facades, signs, landscaping and other details covered in the previous Article.

There are three overarching goals in this update. The first is to incorporate more of the concepts of "Complete Streets" into the standards, including facilities to serve pedestrians and cyclists that also help calm motor vehicle traffic for a more balanced accommodation of all three modes. Many of the concepts proposed here have evolved out of the plan review of the first phases of Riverwalk, and the research that has been done in approaching that project.

The second goal is to increase some of the construction standards to reduce long term maintenance. Many of these standards have been tested in recent projects and a series of practices have evolved to remedy some of the greatest maintenance issues identified from recent development.

Finally, as with every effort of this type, there are many clarifications and tweaks of the language and standards proposed based on our experience of administering this Code over the last four years.

The major features of the proposal are summarized as follows:

1. 7-100(A)(3) (New) Provides general language to allow the Planning Commission to approve deviations to the standards of this Article. Our experience has shown us that there are many considerations in designing streets for various mixes of land use. In addition, they are many alternative paving, landscaping and other urban design details that can be incorporated to meet the same basic quality

standard, while injecting variety into neighborhoods and commercial streets. We think that the Planning Commission, with research and recommendations from staff, can maintain design quality and intent, while allowing for creative solutions that will yield a more unique overall community.

2. Table 7-100(B)(1) This table has been proposed for significant amendments to incorporate our experience and latest research, including Complete Streets, as follows:
    a. We have required that on-street parking be defined by curb "bump-outs" on most streets. These will help define the appropriate parking side when only one side parking is designated. More importantly, the bump-outs help reduce street crossing distances and calm traffic, even when the parking is not being utilized.
    b. Travel lanes have been narrowed to 10 or 11 feet on most lower-volume streets. This reduces pavement and calms traffic as well.
    c. We have added a recommended curb radius for streets, but we acknowledge that design must balance the needs of public service vehicles. Again, in general, the smaller radius makes streets more pedestrian friendly by reducing crossing distances and calming traffic.
    d. The City's new alley standard is a 14 foot paved width, with a one-foot wide ribbon curb on each side to stabilize the pavement edge. This provides a visually constrained width to reduce speeds but provides a 16 foot driveable area for service vehicles and passing of cars. Alleys have an inverted crown draining water away from lots and down the middle of the pavement
    e. We have provided design flexibility for residential collector roads, which represent the transition between higher-volume roads that provide separate bike paths and those that can accommodate bicycles mixed in with low-speed, low-volume vehicle traffic.
3. In Table 7-100(B)(2), we have converted the requirements for the number of access points to non-residential sites to be based upon estimated traffic generation rather than raw acreage.
4. In that same section, we have redefined the criteria allowing single access to a project based on restricting the first driveways in the project based on traffic volumes rather than a fixed distance.
5. We have clarified the situations where the use of private streets may be considered, and based the decision on a combination of the function and need for public control with the reasonable ability for the road to be maintained with private funds over its lifetime.
6. Figure 7-100(B)(6) has been improved to better explain the concept of approaching and departing sight distance and the relationships to driver position. It also incorporates the explanation of sight triangles at intersections where obstructions are prohibited. Table 7-100(B)(7) regarding sight triangles has been

modified to provide the specific calculated distances at various speeds in order to meet the adopted standard. The current table provides only the variables that then require calculation.

7. We have added specific language in paragraph 7-100(B)(4) regarding bike paths and trails, which cross-references other language in this Article as well as language in the design standards of Article 6 that implements the Trails and Greenways Master Plan.
8. We have added language in paragraph 7-100(B)(6) specifically encouraging low impact development design and authorizing design flexibility to allow these techniques to be used.
9. We have modified the language regarding the warranty for new infrastructure improvements to specifically include any stormwater facilities to be dedicated to the City. The current two year warranty period is extended to up to two years after the issuance of 80% of the certificates of occupancy, or a maximum of three years.
10. We have recommended some increased road construction standards, which includes codifying some details that have been previously required during plan review. These include:
    a. Updating the sidewalk construction standard to currently accepted practice. This includes the latest SCDOT required wheelchair ramp details and flexibility of the inspection of sidewalks built with individual single family homes.
    b. Eliminating the current “Light Industrial” standard in lieu of one overall standard for all collectors and commercial/industrial roads that can stand up to anticipated truck traffic.
    c. Establishment of a minimum private parking lot standard that has a reasonable use life. The designer is responsible for identifying the need for heavier duty pavement to accommodate trucks or other special needs on private property.

We will be presenting this to you and be prepared to answer your questions. Again, we request that the Planning Commission agree to sponsor these amendments, allowing us to begin the process of advertising for public hearing. During the two months until these amendments come back to you for your formal consideration, we will continue to refine the language based on Planning Commission, City Council and development community input.

Please feel free to call prior to the meeting if you have any specific questions.

ROCK HILL
SOUTH CAROLINA

ZONING ORDINANCE

Article 7: Subdivision Standards

Adopted: December, 2005
Effective Date: March 1, 2006
Modified May 14, 2007

ARTICLE 7: SUBDIVISION STANDARDS

7-100 SUBDIVISIONS

7-100(A) Applicability

(1) General
Unless exempted by Section 2-300(I)(3), *Exemptions,* the standards in this section shall be minimum standards that apply to all subdivisions of land in the City.

(2) Installation of Required Public Improvements
Unless subject to the standards in Section 2-300(I)(5)(e)(4), *Deferral of Sidewalk Installation*, all required public improvements shall be installed prior to the approval of a Final Plat for Subdivision (see Section 2-300(I)(5)(f)), in accordance with the standards in this section.

(3) Deviations
The Planning Commission may approve deviations to the construction standards of this article where it is determined that a proposed design, detail or material is equivalent in quality, durability and functionality, and meets the overall design intent.

7-100(B) Required Public Improvements

(1) Streets

(a) *Consistency with Transportation Plan*

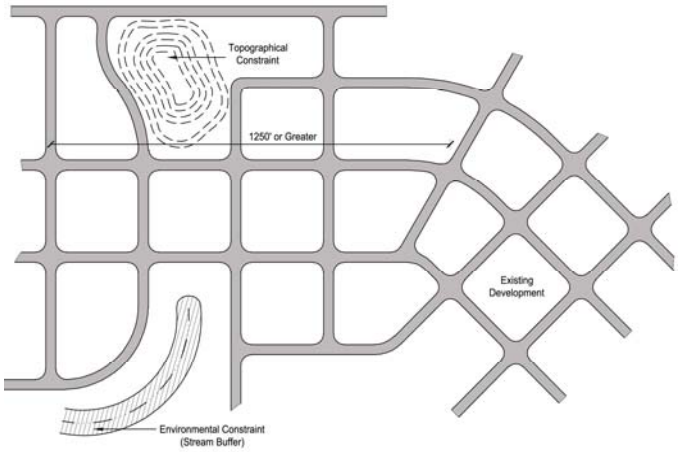
1. Public street design shall conform to the arrangement, width, and location standards specified in the City's official *Transportation Plan* and *Functional Classification Map*.

2. Proposed public streets not identified on the official *Transportation Plan* or *Functional Classification Map*, shall be designed and located in accordance with Section 7-100(B)(1)(b), *Street Design Standards*, and Section 6-800(A)(2), *General Community Design Standards*.

(b) *Street Design Standards*
All streets not depicted on the City's official *Transportation Plan* or *Functional Classification Map* shall comply with the following standards:

1. *Grid Pattern*
Development should support a grid or modified grid street network to the maximum extent practicable. Curvilinear street networks should only be used when topographic or environmental constraints prevent use of the grid pattern, when established development patterns on adjacent lands make the grid pattern infeasible, or in conjunction with a grid pattern to limit exceptionally long vistas exceeding one thousand two hundred (1,200) feet down straight streets.

FIGURE 7-100(A): MODIFIED GRID PATTERN



2. *Arterial and Collector Street Location*
If an arterial or collector street is located on or adjacent to a development, the development shall continue the street to a logical termination point.

(c) ***Street Specification Standards***
The determination of the street specification to be used will be based on the density and intensity of development and function of the street. Staff will recommend and the Planning Commission shall approve the final cross-section design of all streets, including the provision of on-street parking. The requirement for on-street parking will be based on density and intensity of development, ability to accommodate guest parking needs off-street, and the parking history of similar development types. The minimum public street specifications shall be in accordance with the Construction Standards of Appendix 7-A, and Table 7-100(B)(1), *Street Specification Standards*:

TABLE 7-100(B)(1): STREET SPECIFICATION STANDARDS

Street Type	Minimum Pavement Width (ft) [1]			Minimum Right of Way Width (ft) [2]	Max. Grade	Max. Volume (trips/ day) [3]	Sidewalk Require-ments [4]	Curb and Gutter Width (ft) [5]	Rec. Curb Radius (ft.)[11]
	No On-Street Parking	On-Street Parking 1 Side [7]	On Street Parking Both Sides [7]						
Alley (~~One~~Two-Way) [~~6~~8]	~~12~~14	~~16~~N/A	~~20~~N/A	~~12-20~~20	12%	N/A	None	~~None~~2 [8]	25
One Way	12	~~18~~18	~~22~~24	35-~~45~~43	12%		1 side	4	20
Place [~~7~~6]	~~20~~18	~~22~~24	~~26~~30	~~43~~41-~~49~~53	12%	Up to 100	1 side	4	20
Lane [~~7~~6]	~~22~~20	~~24~~26	~~28~~32	~~50~~48-~~56~~60	12%	Up to 250	Both sides~~,~~ [10]	4	20
Sub-Collector or Mixed Use Local [~~7~~6]	~~24~~22	~~26~~28	~~30~~34	~~52~~50-~~58~~62	12%	Up to ~~800~~1000		4	20
Residential[9] Collector	24	~~26~~30	~~30~~36	52-~~58~~ 64 [4]	10%	Up to ~~1,500~~2,000		4	25
Commercial Collector	~~26~~ 28	~~28~~34	~~32~~40	~~54~~56-~~60~~ 68 [4]	8 – 10%	More than ~~1,500~~2,000	Both sides	4	25
Arterial/Major Collector	As determined by SCDOT							4	Per SCDOT

NOTES:
[1] The number of travel and turn lanes to be provided shall be in accordance with the Official *Transportation Plan*, and Section 6-1000, *Traffic Impact Standards*.
[2] The minimum right-of-way width includes the minimum pavement width, curb & gutter width, as well as sidewalks and seven- (7) foot street tree planting areas. The amount of ROW to be dedicated increases by ~~twelve (12) feet.~~ the width of the lane for each additional lane added.
[3] Residential volumes shall be estimated based on the following traffic generation: single family detached – 9.6 trips per day (tpd); single family attached/townhouse – 5.9 tpd; low-rise apartments – 6.6 tpd; high-rise apartments - 4.2 tpd. ~~Where traffic volumes exceed these levels, the street may no longer be considered as a local street, and shall be required to meet the standards for sub-collector, collector or arterial streets based on the street's average daily traffic volume.~~
[4] Minimum sidewalk widths shall be eight (8) feet along collectors and arterials in the DTWN and NC Districts, and five (5) feet along all other streets. Sidewalks shall be tapered by one (1) foot in width for every five (5) feet in length in areas where an eight (8) –foot section meets a five (5) –foot section. Sidewalks shall be separated from the back of the curb by the street tree planting area.
[5] When required, curb and gutter shall be placed on both sides of a street with a minimum span of two (2) feet per side.
~~[6] Alley width shall be limited to a maximum of twelve (12) feet within twenty linear (20) feet of an intersection with any other street or alley.~~
[6~~7~~] The operating speeds for these streets shall not exceed twenty-five (25) miles-per-hour.
[7] On street parking shall be delineated by striping and curb bulbs at intersections and mid-block crossings for all two-sided parking streets, and for all one-sided parking on streets classified as sub-collector or higher.
[8] Alleys shall be constructed with an inverted crown with a one foot ribbon curb on each side.
[9] Based on road network considerations, four (4) feet of additional pavement may be required to allow for two 10-foot travel lanes and two 4-foot bike lanes, or two 14-foot lanes.
[10] Sidewalks only required on 1 side of lanes and sub-collectors in conservation subdivisions.
[11] These are recommended radii based on expected traffic volumes and vehicle types. Where streets of two different types intersect, the larger radius is required. These dimensions may be modified by the Development Services Director where unusual traffic or land use conditions warrant.

(d) ***Street Cross Section Diagrams***

Figure 7-100(B)(1), *Street Cross Section for One Way and Place Street Types*, and Figure 7-100(B)(2), *Street Cross Section for Lane, Sub-Collector, and Collector Street Types* summarize the standards established in Table 7-100(B)(1), *Street Specification Standards*. In the event that Figures 7-100(B)(1) or 7-100(B)(2) conflict with the standards in Table 7-100(B)(1), or other standards in this Ordinance, the standards

in Table 7-100(B)(1) or the other standards in this Ordinance shall control.

FIGURE 7- 100(B)(1): STREET CROSS SECTIONS

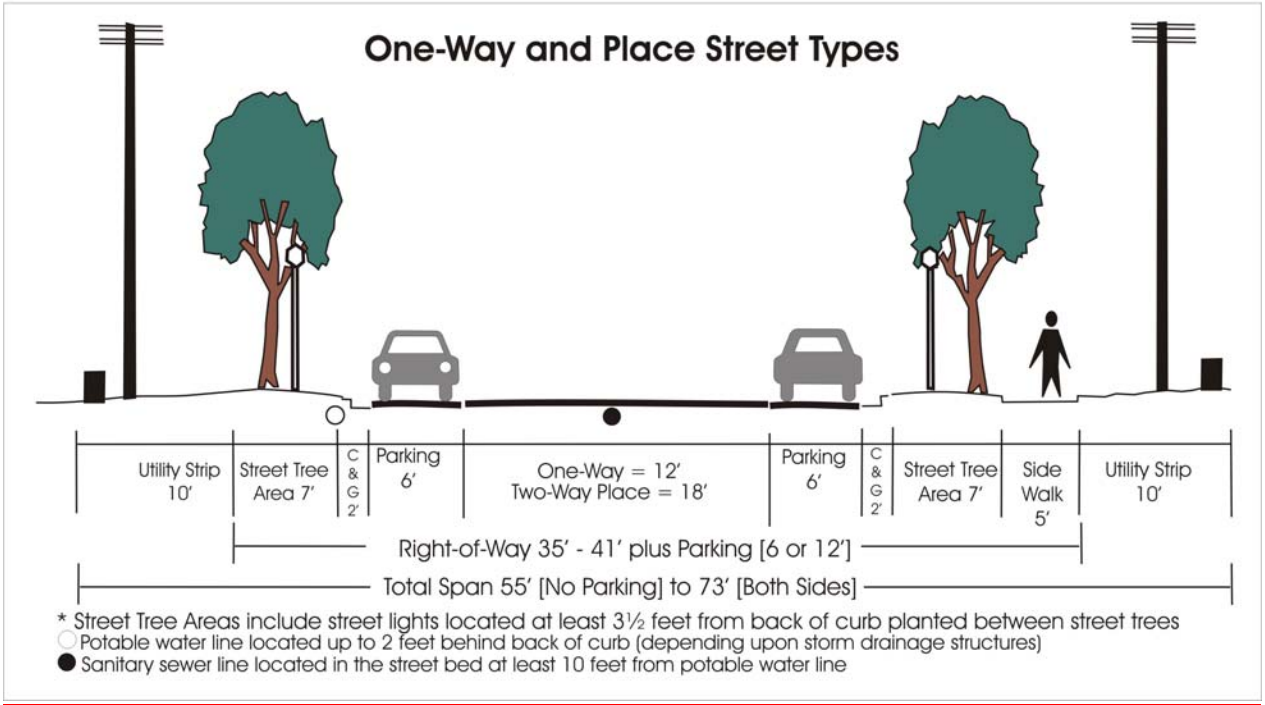
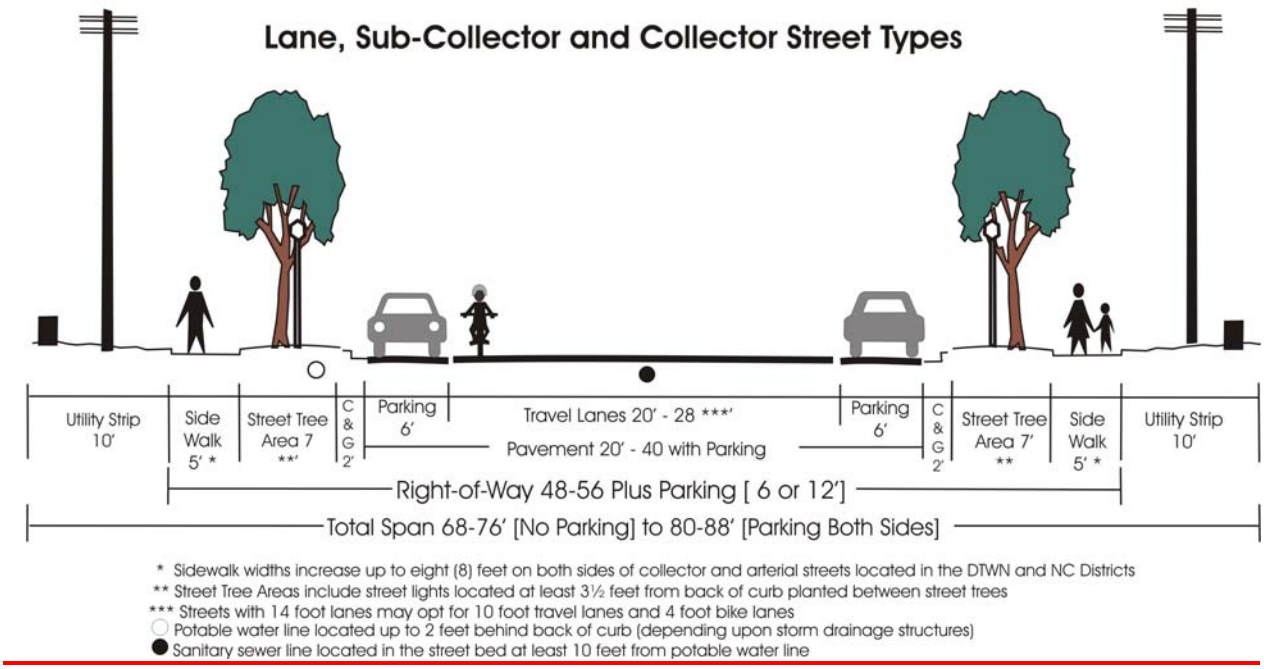
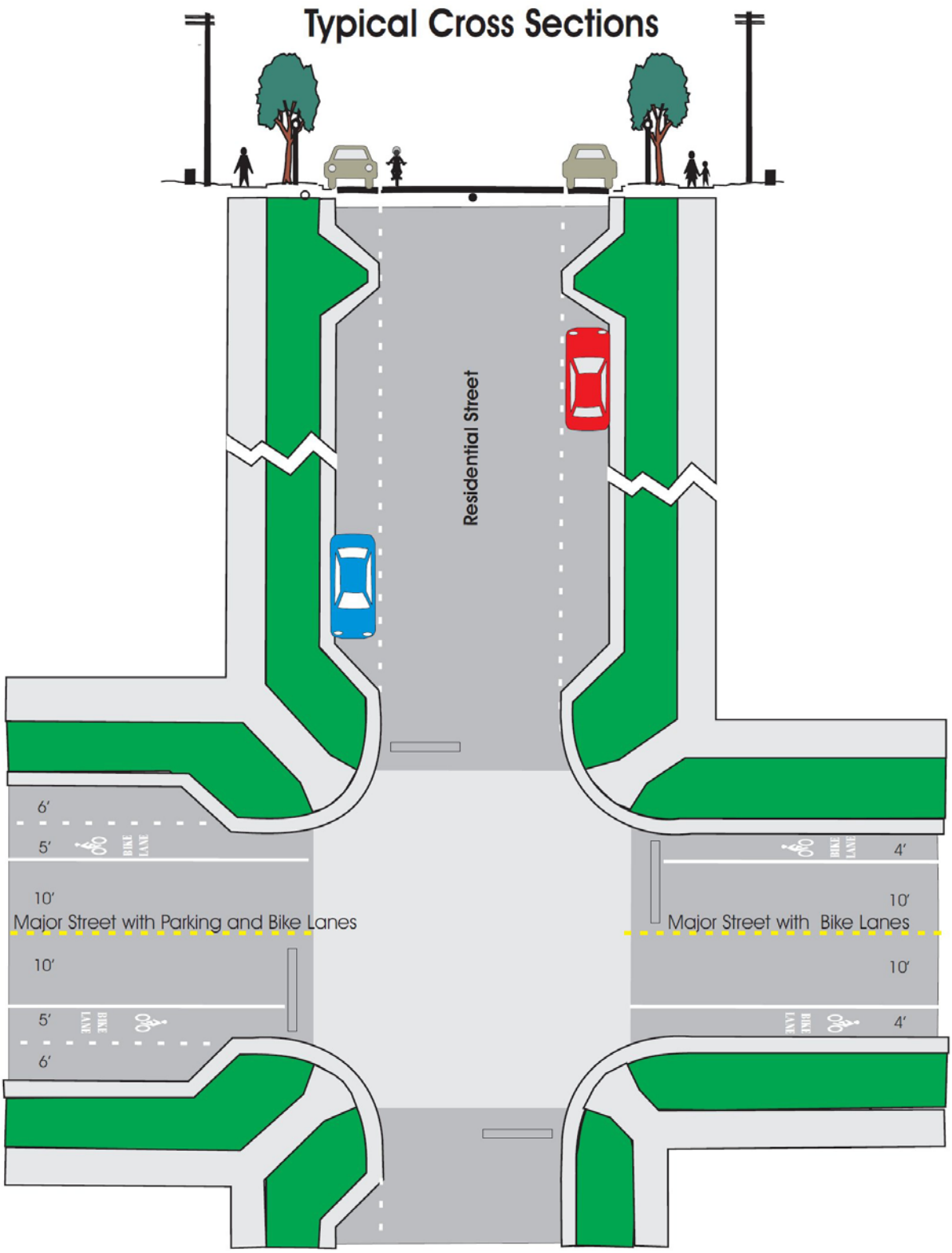


FIGURE 7- 100(B)(2): STREET CROSS SECTIONS




Typical Cross Sections
Residential Street
6′
5′
BIKE LANE
10′
Major Street with Parking and Bike Lanes
10′
5′
BIKE LANE
6′
BIKE LANE
4′
10′
Major Street with Bike Lanes
10′
BIKE LANE
4′

(e) ***Subdivision and Site Accessibility***

1. Unless exempted by subsection (3) below, all subdivisions and site plans shall provide access from the development to the Greater City Street System in accordance with Table 7-100(B)(2), *Required Subdivision Access*.

TABLE 7-100(B)(2): REQUIRED SUBDIVISION AND SITE ACCESS

USE CATEGORY	MINIMUM REQUIRED NUMBER OF ACCESS POINTS
Residential Use Categories (in Number of Units)	
80 or fewer	1
81-159	2
160 or more	3
All Other Use Categories (~~in Total Subdivision Size~~by estimated trips per day)	
~~Less than 20 Acres~~Less than 2500	1
~~20 or more Acres~~2500 or greater	2 + 1 for every additional ~~20 acres~~5000 trips over 5000

2. Nothing in this subsection shall limit the total number of streets accessing the Greater City Street System, or exempt a development from meeting the applicable external street connectivity requirements in Section 6-800(A)(2)(c).

3. *Exceptions*
Access to a subdivision or site may be limited to one (1) access point if it is demonstrated all the following conditions apply:

a. No other access points can be obtained or located due to parcel configurations, absence of connecting streets, or environmental or topographic constraints;

b. The subdivision is designed with no access until a point where the road layout disperses traffic so that anticipated traffic on any given link with lot or parking lot access drops below 800 trips per day in residential projects and 2500 trips per day in other projects; and

c. The entrance street has a dedicated left turn lane sufficient to accommodate peak left turn traffic, and is unlikely to be blocked by vehicles turning left to leave the development.

(f) ***Cul-de-sac and Temporary Dead End Streets***

1. *Temporary Dead End Streets*
Dead end streets shall be allowed only on a temporary basis to serve a phase or portion of a subdivision. In the event that a Final Plat (Section 2-300(I)(5)(f)) for the phase or portion of a

subdivision served by a temporary dead end street is submitted for approval and/or recording, the Final Plat shall include a notation that the street is temporary, and that additional modifications to the street will occur as additional phases or portions of the subdivision are developed.

2. *Total Road Footage*

a. Residential Development
Cul-de-sac streets shall be limited to a maximum of fifteen percent (15%) of the total road footage in a residential development.

b. Non-residential and Mixed Use Development
Cul-de-sacs streets shall be limited to no more than ten percent (10%) of the total road footage in a non-residential or mixed use development.

3. *Maximum Length*

a. Cul-de-sac streets shall not extend for more than five hundred (500) feet as measured from the center of the cul-de-sac turn around to the nearest right-of way boundary of the adjoining street right-of-way intersection.

b. Temporary dead-end streets shall not extend for more than ~~three hundred fifty~~five hundred (~~350~~500) feet. ~~and~~ Temporary dead-end streets of over one hundred fifty (150) feet in length shall be provided with a temporary paved turn around.

c. In no case shall a cul-de-sac or temporary dead end street serve more than twenty (20) lots in a development.

~~d.For the purposes of calculation of the connectivity index (see Section 6-800(A)(2)(b), *Internal Street Connectivity*), temporary dead end streets terminating at the perimeter of a development shall be counted as a link. In no case shall a temporary dead end street terminating at a point internal to the development be counted as a link.~~

4. *Termination*

a. Cul-de-sac streets shall terminate in a circular turn around having a right-of-way radius of at least fifty (50) feet, and a paved turning radius of at least forty (40) feet.

b. Cul-de-sac streets shorter than one hundred ~~twenty~~ fifty (~~120~~150) feet may utilize a "T-Head" cul-de-sac, which shall terminate in a twenty (20) foot paved section that is at least seventy (70) feet wide to provide ample turning room.

c. Cul-de-sac bulbs or "T-Heads" shall be built to the Collector/Commercial/Industrial road section design.

5. *Deviations for Existing Development and Topographic Conditions*

When the Planning Commission determines that existing development patterns or topographic conditions preclude avoiding a cul-de-sac or dead end area meeting the above restrictions, they may approve a deviation to these standards. Any deviation shall only be granted after reasonable design modifications have been made to reduce the number of isolated lots and maintain connectivity to the greatest extent feasible.

(g) ***Half Streets***
The construction of half streets is prohibited.

(h) ***Private Streets and On-site Improvements***

1. All streets constructed as part of conventional subdivisions shall be public streets. Private streets may be approved when internal to a master planned commercial area, or in limited cases as part of a Planned Development-Residential district or multi-family development. In determining whether private streets are to be approved, the Planning Commission shall consider the rationale for private versus public maintenance, the financial mechanism for and viability of private maintenance and potential future need for public control of the streets.

~~1.~~2. ~~All~~ Any private streets shall be built to City standards in accordance with Table 7-100(B)(1), *Street Specification Standards* and all other applicable City standards.

~~2.~~3. ~~All~~ Any approved private streets shall be identified on the Detailed Construction Plans, Intermediate Field Survey Plat, and Final Plat for Subdivision (see Section 2-300(I)(5)(c), (d), and (f)).

4. All private driveways and parking areas, except for those serving four dwelling units or less, shall be built in accordance with Appendix 7-A: Construction Standards

(i) ***Alleys***

1. Alleys may be used in residential, business, and planned development districts.

2. ~~Alleys serving twenty-five (25) or fewer residential dwelling units may be private streets.~~All alleys shall be private roads, with a homeowners or property owners association formed with sufficient scope and authority to provide maintenance.

3. Alleys shall be provided in accordance with the standards in Section 6-800(A)(2)(d), *Access to Individual Lots*. Alleys shall be maintained so as to allow for access to public utilities and the provision of public services.

~~4.Alleys shall be limited to a maximum width of twelve (12) feet within twenty (20) linear feet of an intersection with any other street or alley.~~

4. No dead end alleys shall be permitted, except limited extensions off of through alleys where services can be provided. Intersections of alleys or turns in alleys shall be discouraged,

and approved only where existing development precludes a through route, or where road configuration or a significant urban design feature (i.e. public square or other open space) justifies a turn or intersection. All such intersections or turns shall be configured to accommodate a 25 foot turning radius within the pavement where necessary to provide City service access.

5. All alleys shall be built to city standards in accordance with Table 7-100(B)1, Street Specification Standards and all other applicable city construction and design standards.

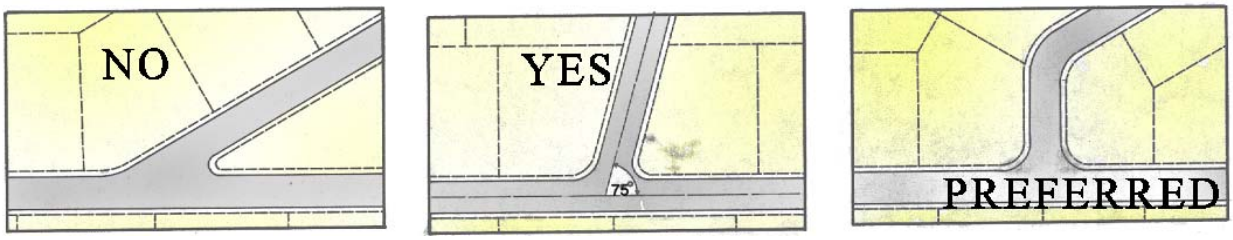
~~5.Alleys shall not be included within the connectivity index calculation in Section 6-800(A)(2)(b)(1), *Connectivity Index*.~~

(j) ***Intersections***

1. The centerline of no more than two (2) streets shall intersect at any one (1) point.

2. Streets shall be laid out so as to intersect as nearly as possible at right angles, and no street or driveway shall intersect any other street at any angle of less than seventy-five (75) degrees (see Figure 7-100(B)(4), *Intersection Standards*).

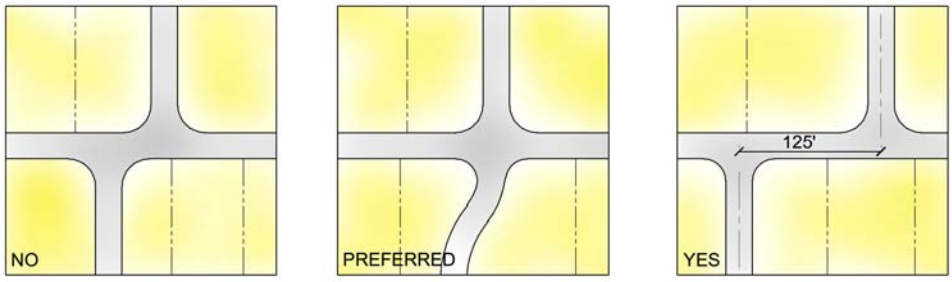
FIGURE 7-100(B)(4): INTERSECTION STANDARDS



3. The property line at street intersections shall be either rounded with a radius of ten (10) feet on local and sub-collector roads and twenty (20) feet minimum where one or both roads are collector or arterial roads, or chamfered at the equivalent chord. When determining setback lines, the setbacks shall be measured as if using the rounded ten (10) or twenty- (20) foot radius regardless of the method used. This standard may be reduced by the Development Services Director when the angle of intersection is less than eighty-five (85) degrees, or increased when the intersection includes an arterial or collector street, to provide a minimum of ten (10) feet between the property line and the curb line.

4. Street jogs or offsets shall be avoided to the maximum extent practicable except where needed to interrupt or terminate long vistas on streets in residential developments (see Section 7-100(B)(1)(b)(1)). Where unavoidable, street jogs at the intersection of two (2) streets shall have a centerline offset of at least one hundred twenty-five (125) feet (see Figure 7-100(B)(5), *Street Jogs or Offsets*).

FIGURE 7-100(B)(5): STREET JOGS OR OFFSETS



(k) ***Reverse and Horizontal Curves***

1. Tangent distances of at least one hundred (100) feet on places and lanes and one hundred-fifty (150) feet on collector streets shall be provided between reverse curves.

2. Tangent distances on arterial streets shall conform to the requirements of SCDOT.

3. The minimum centerline radius of ~~a~~ curvature for horizontal curves shall be in accordance with Table 7-100(B)(5), *Horizontal Curve Minimum Centerline Radius Standards*.

TABLE 7-100(B)(5): HORIZONTAL CURVE MINIMUM CENTERLINE RADIUS STANDARDS

STREET TYPE	MINIMUM RADIUS OF CURVATURE (FT)	DESIGN SPEED (MPH)
Place	100	15-20
Lane	125	20
Sub-Collector	150 [1]	20-25
Residential Collector	175 [1]	25-35
Major Collector	255 [2]	35
Arterial	As determined by SCDOT	

NOTES:
[1] A maximum super-elevation of four percent (4%) (corresponding to a radius of two hundred five (205) feet, degree of curvature of twenty-eight (28) degrees, and a design speed of twenty-five (25) mph) will be permitted.
[2] A maximum super-elevation of four percent (4%) (corresponding to a radius of four hundred twenty (420) feet, degree of curvature of thirteen and six-tenths (13.6) degrees, and a design speed of thirty-five (35) mph) will be permitted. Tangent length between horizontal curves shall be related to the required length of tangent runout, as governed by AASHTO design standards.

4. A minimum tangent of fifty (50) feet shall be provided between curves and intersections.

~~4.~~5. A curve of reasonable radius shall be introduced wherever a deflection angle occurs in the alignment of a place, lane, sub-collector, collector, or arterial street.

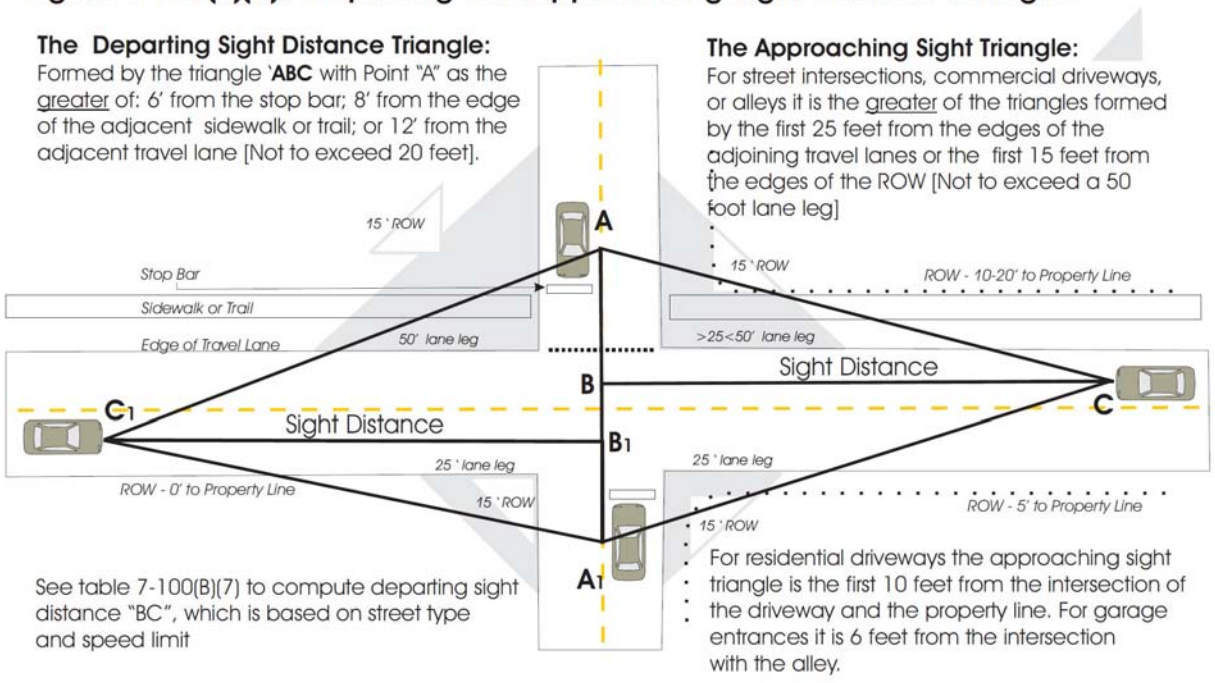
(l) ***Sight Obstruction***

1. *Sight Distance Triangle*

   a. No object or sign shall interfere with visibility within the Sight Distance Triangle of an intersection of public

streets (assuming eye level at three-and-one-half (3½) feet to six (6) feet from a distance of fifteen (15) feet from the edge of the pavement) (see Figure 7-100(B)(6): *Sight Distance Triangle*).

Figure 7-100(B)(6): Departing and Approaching Sight Distance Triangles



NOTE: All sight triangles prohibit objects or plants from obscuring visibility of objects between 3 ½ and 8 feet in height [accounting for vertical or horizontal curves]. The departing sight distance triangle will apply to alleys, driveways and garage entrances - except that [where no ROW for additional lanes or tree planting strip is available) point 'A' may be six (6)' from the edge of the adjacent sidewalk, trail or travel lane whichever is greater.

b. The length of the sight distance triangle shall be calculated in accordance with Table 7-100(B)(7), *Sight Distance Triangle Determination*.

TABLE 7-100(B)(7): SIGHT DISTANCE TRIANGLE DETERMINATION

# OF LANES	MINIMUM SIGHT DISTANCE (BC) (IN FEET)							
	20MPH	25MPH	30MPH	35MPH	40MPH	45MPH	50MPH	55MPH
2	200	250	300	350	400	450	500	550
3	220	275	330	385	440	495	550	605
4	240	300	360	420	480	540	600	660
5								

6

2. *Sight Triangles*

Wherever an alley, private drive, or driveway intersects with a public street, the following standards apply:

a. Street/Alley Sight Triangle

No visual obstruction over three and one half (3½) feet in height shall be permitted within the approaching or departing sight triangles as depicted in Figure 7-100(B)(6). ~~the twenty-five- (25) foot sight distance triangle created at the intersection of an alley and street. As depicted in Figure 7-100(B)(8), *Sight Triangles*, the triangle is measured from a point where the curb line and the center line of the alley meet. The distance from this point shall be twenty-five (25) feet along the street curb line ("B") and twenty-five (25) feet along the alley center line ("A"). The third side of the triangle ("C") connects these two (2) sides, creating the sight distance triangle.~~

~~FIGURE 7-100(b)(8) SIGHT TRIANGLES~~

b. Garage Entrance/Alley Sight Triangle

No visual obstruction over three and one half (3½) feet in height shall be permitted within the six- (6) foot sight distance triangle created at the intersection of a garage entrance and alley.

c. Driveway/Street Sight Triangle

No visual obstruction over three and one half (3½) feet in height shall be permitted within the ten- (10) foot sight distance triangle created at the intersection of a driveway and street.

3. *Vertical Curves*

Minimum stopping sight distance shall be in accordance with Table 7-100(B)(9), *Minimum Sight Stopping Distance Standards*:

TABLE 7-100(B)(9): MINIMUM SIGHT STOPPING DISTANCE STANDARDS

STREET TYPE	REQUIRED MINIMUM SIGHT STOPPING DISTANCE (FT)	DESIGN SPEED (MPH)
Place, Lane, Sub-collector, and lower order streets	150	25
Residential And Major Collector	225	35

TABLE 7-100(B)(9): MINIMUM SIGHT STOPPING DISTANCE STANDARDS		
STREET TYPE	**REQUIRED MINIMUM SIGHT STOPPING DISTANCE (FT)**	**DESIGN SPEED (MPH)**
Arterial	As determined by SCDOT	
NOTES: [1] All vertical curves are required to be designed using a minimum K=30 per AASHTO standards. [2] When a vertical curve intersects another street, a minimum 50' vertical curve is required to be installed.		

(m) ***Street Names***

1. Streets that are extensions of, or in alignment with, existing named streets shall bear the name of the existing street.

2. The names of new streets shall be approved as part of the Preliminary Plat for Subdivision (see Section 2-300(I)(5)(b)).

3. The names of new streets shall not duplicate or be phonetically similar to existing street names in the City or York County, irrespective of the use of the suffix (e.g., street, avenue, circle, way, boulevard, drive, place, court, etc.).

(n) ***Street Signs***

1. Prior to the approval of the Final Plat for Subdivision (see Section 2-300(I)(5)(f), the owner/developer shall determine the type and number of required street signs, and shall provide a payment to the city, who shall then purchase and install all required street signs.

2. The design, construction, materials, and placement of all street name, regulatory, warning, and guide signs shall conform to the standards of this Ordinance and be shown on the construction drawings.

3. Any program for decorative street signs must be specifically approved by the City as part of the construction drawings, and an agreement regarding ongoing maintenance must be completed prior to approval of the Final Plat.

~~3.~~4. The owner/developer shall be required to provide a payment to the City for repair or replacement of any street sign that is damaged during construction.

(o) ***Street Trees***

Street trees shall be provided in accordance with Section 6-800(A)(2)(g), *Street Trees*.

(p) ***Utility Strips***

Utility strips shall be provided on both sides of every street (except alleys) in the City, and shall comply with the following requirements:

1. Utility strips shall have a minimum width of at least ten (10) feet;

2. Street trees and required landscaping shall be located outside of utility strips;

3. Utility strips shall be planted with grass or other appropriate ground cover;

4. Sidewalks shall be located outside of utility strips to the maximum extent practicable; and

5. Utility strips shall be located inside utility easements adjacent to the street right-of-way unless an alternative configuration is approved by the Development Services Director.

Minimum utility strip width may be reduced on a case-by-case basis where utilities are placed within easements located in or adjacent to alleys.

(q) ***Gated Streets***

For the purposes of preserving access to public and private lands by utility companies, emergency service providers, and other agents of the City, gates, barriers, or other devices intended to obstruct vehicular or pedestrian traffic along a public or private street right-of-way shall be prohibited.

(2) Curb and Gutter

~~Except for alleys, c~~Concrete curbing and gutters shall be installed on all streets in accordance with the construction standards established in Appendix 7-A of this Ordinance.

(3) Sidewalks

(a) ***Where Required***

1. Except as specifically exempted by subsection (b) below, sidewalks shall comply with the construction standards in Appendix 7-A, and shall be provided in accordance with Table 7-100(B)(1), *Street Specification Standards* regardless of whether the street they serve is new or existing.

2. In cases where the block length exceeds eight-hundred (800) linear feet, sidewalks meeting the construction standards of Appendix 7-A shall be provided mid-block if practicable to connect parallel streets on the long side of the block.

(b) ***Exemptions***

Sidewalks shall not be required when:

1. An alternative pedestrian pathway can serve the same function as a sidewalk;

2. A pedestrian pathway internal to a block provides access to each lot in the block; or

3. The Development Services Director determines it is impractical due to environmental or topographical constraints.

4. On the non-loaded side of a single loaded road, where the Development Services Director determines that access to the

non-loaded side is not necessary or desirable and that overall connectivity of the surrounding network is not affected.

(c) ***Connection Required***
All required sidewalks shall connect with existing or planned sidewalks at property boundaries.

(4) Bike Lanes, Paths and Trails

Bike lanes, paths and trails shall be constructed as follows:

(a) Bike lanes shall be constructed on all new arterial and collector streets, based on SCDOT standards. The requirement to construct bike paths on residential and commercial collectors may be waived, when the anticipated traffic count is less than 2000 vehicles per day, the road does not connect to or have prospects of connecting to other existing or planned bike facilities, bicycle traffic has been accommodated on a parallel off-road facility, or other factors suggest that bicycle traffic can be safely accommodated in the design street section.

(b) Bike paths and trails shown on the designated Trails and Greenways Master Plan shall be constructed as required in section 6-600(C)(2).

(c) Bike lanes constructed adjacent to on-street parking shall be a minimum of 5 feet in width.

~~(4)~~(5) Public Water and Sanitary Sewer

(a) ***Timing***
Prior to the approval of the Final Plat for Subdivision (see Section 2-300(I)(5)(f), all potable water mains, valves, and sanitary sewer lines shall be installed by the owner/developer in accordance with city and SCDHEC policies, standards, and specifications.

(b) ***Configuration***
When a water main or sewer line is installed in a street right-of-way, connections shall be stubbed out to the property lines of each lot.

(c) ***Easements***
~~In cases where public water and sewer lines can not be placed within the public right-of-way, easements shall be provided, and shall be centered along or adjacent to lot lines to the greatest extent practicable. Easements shall be sized in accordance with City and DHEC standards.~~ See Section 7-100(C)2 for easement requirements.

~~(5)~~(6) Storm Drainage

(a) ***General***
Prior to approval of a Final Plat for Subdivision (see Section 2-300(I)(5)(f), the owner/developer shall install storm drainage facilities in accordance with this subsection, City Design Standards, and the City Code of Ordinances. Storm drains shall include, but not be limited to necessary open ditches, pipes, culverts, storm sewers, intersectional drains, drop inlets, retention ponds, detention ponds, stormwater Best Management Practices, and other necessary appurtenances.

(b) ***Use of Low Impact Development Design***
The use of Low Impact Development design concepts is strongly encouraged, and greater design flexibility is available for such designs

that still meet the basic criteria of the Code. Staff may grant deviations from other design criteria to accommodate low impact development practices, where the over all design intent of the infrastructure improvements are still met.

Low Impact Design is a strategy which has the goal of maintaining or replicating the pre-development hydrologic regime by trying to create a functionally equivalent hydrologic site design through:

1. Maintaining or replicating the hydrologic functions of storage, infiltration and ground water recharge on the site, as well as the volume and frequency of discharges through the use of integrated and distributed micro-scale stormwater retention and detention areas, reduction of impervious surfaces, and the lengthening of run-off flow paths and flow time.

2. Incorporating the preservation and protection of environmentally sensitive site features such as riparian buffers, wetlands, steep slopes, valuable (mature) trees, floodplains, woodlands, and highly permeable soils.

~~(b)~~(c) ***Standards***

Storm drainage facilities shall meet the following standards:

1. *No Release into Sanitary Sewer*
   No surface water drainage from a development shall empty into a sanitary sewer.

2. *Conform with City Standards*
   The size, design, and construction of drainage structures shall conform with the standards in Section 10-442 of the City Code of Ordinances.

~~(6)~~(7) Functional Fire Protection

Development shall include functional fire protection, including but not limited to adequate street access and water supplies for fire-fighting equipment, prior to commencing construction on structures within the development. Any required waterline extensions must be issued a permit to operate from SCDHEC in order to be included as part of the required protection.

~~(7)~~(8) Monuments

(a) All lot corners, street corners, and points of change of directions in exterior boundaries of a development shall be marked with a metal rod at least twenty-four (24) inches long with an outside diameter of one-half (½) inch driven to within four (4) inches above the finished grade, or flush, as conditions require.

(b) Monuments identifying individual lot corners shall remain in place until the structure on the lot has received a Certificate of Occupancy.

7-100(C) Subdivision Configuration Standards

(1) Lots

Lots shall comply with the following standards:

(a) ***General Requirements***
The size, shape, and location of lots shall be established with due regard to topographic conditions, environmental constraints, allowed uses, and the established character of the surrounding area.

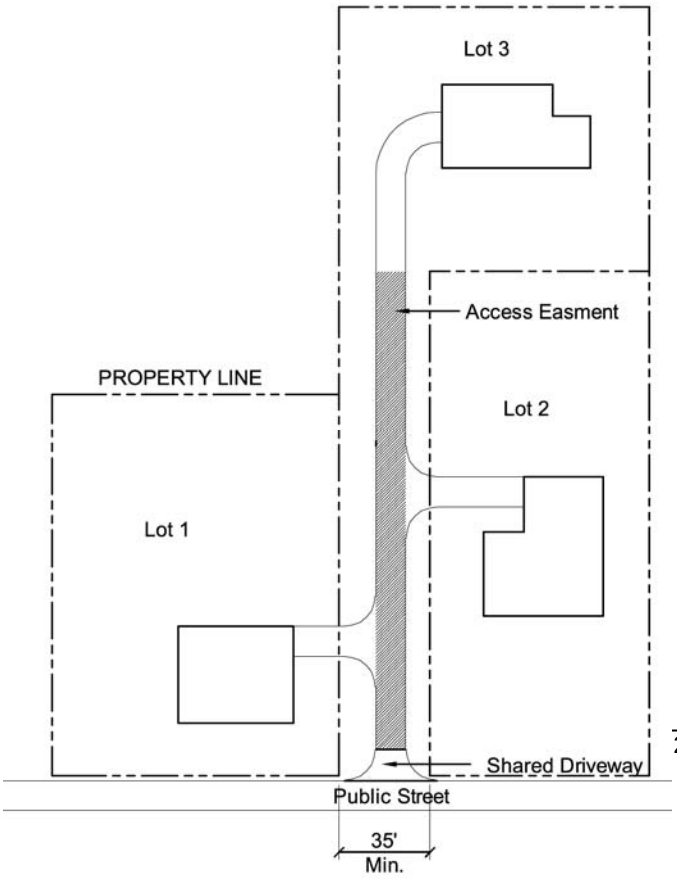
(b) ***Lot Sizes and Building Setback Lines***
Lot sizes and building setback lines shall conform to the minimum lot area, minimum lot width, and minimum yard standards established in Article 5*: Density, Intensity and Dimensional Standards*, and the design standards of Section 6-800, *Design Standards,* unless otherwise expressly exempted by this Ordinance.

(c) ***Lot Lines***
To the maximum extent possible, side lot lines shall be at right angles to straight street lines and radial to curved street lines. Property lines at street intersections shall be rounded with a minimum radius of ten (10) feet on local and sub-collector roads and twenty (20) feet where one or both intersecting roads are collectors or arterials.

(d) ***City Limit and Zoning District Lines***
A new lot shall not be created such that it is divided by city limit or zoning district lines.

(e) ***Corner Lots***
Corner lots shall be wide enough to accommodate the required setbacks on both streets.

(f) ***Through Lots***
Through lots shall be prohibited except where deemed essential to provide separation of Household and Group Living uses from railroad or arterial street right-of-way, or where they are necessary due to topographical conditions.



(g) ***Flag Lots***

1. *General*
Flag lots shall be prohibited except where they are necessary to eliminate access onto arterial or collector streets.

2. *Minimum Width*
A flag lot shall have a minimum lot width at the edge of the street right-of-way of at least thirty-five (35) feet.

3. *Consolidate Access*
Use of a single driveway, granted through an easement to serve existing adjoining flag lots or to serve a flag lot and an existing adjoining conventional lot, is permitted and encouraged to reduce access points on public streets as depicted in Figure 7-100(C)(1), *Consolidation of Access*.

FIGURE 7-100(C)(1): CONSOLIDATION OF ACCESS

(h) ***Individual Lot Access***

Every lot shall front or abut upon a street that meets the standards of this Ordinance and the City Code of Ordinances.

(i) ***Authority of the Department of Health and Environmental Control (SCDHEC)***

Nothing in this section shall be construed as preventing SCDHEC from requiring that all or any portion of a development not be built upon, or from requiring minimum lot sizes to be increased for protection of the public health.

(2) Easements

Easements shall comply with the following standards:

(a) ***Utility Easements***

1. Easements for storm drainage, potable water and sanitary sewer shall be located within the street right-of-way, where practicable.

2. Easements for electrical lines shall be located within an easement adjacent to a street right-of-way to the maximum extent practicable.

3. In situations where utilities are located outside of a street right-of-way, the following standards shall apply:

   a. Utility easements for storm drainage, public water, sanitary sewer mains, and electrical lines shall be dedicated to the City;

   b. Existing utility easements for storm drainage, potable water, sanitary sewer, and electrical service shall be shown on the Preliminary Plat for Subdivision, Detailed Construction Plans, and the Intermediate Field Survey Plat (see Section 2-300(I)(5)(b), (c), and (d));

   c. Proposed utility easements for storm drainage, potable water and sanitary sewer shall be shown on the Preliminary Plat for Subdivision, Detailed Construction Plans, and the Intermediate Field Survey Plat (see Section 2-300(I)(5)(b), (c), and (d));

   d. All utility easements for storm drainage, potable water, sanitary sewer, and electrical service shall be shown on the Final Plat for Subdivision (see Section 2-300(I)(5)(f));

   e. Utility easements shall be centered along or adjacent to

lot lines, to the maximum extent practicable;

f. Utility easements for sanitary sewers shall be a minimum of thirty (30) feet in width;

g. Easements for storm drainage, electric and potable water shall be a minimum of twenty (20) feet in width; and

h. Easements for electrical service running parallel and adjacent to public right-of-way shall be a minimum of ten (10) feet in width.

4. No owner/developer shall place any part of a structure, permanent equipment, permanent retaining wall, or impoundment within a public utility or drainage easement dedicated to the City. Fences and walls may be permitted within public utility or drainage easements with approval from the ~~Public Services~~Utilities or Public Works Directors, respectively.

(b) ***Watercourse and Drainage Easements***

1. Where a subdivision is traversed by a watercourse, drainage way, channel, or stream, a stormwater or drainage easement shall be provided that substantially conforms with the lines of such watercourse, plus additional width that is adequate and necessary to convey expected storm flows and/or stormwater drainage facilities. Streets paralleling such easement may be required in connection therewith.

2. The City shall accept no responsibility to maintain any storm drainage structures, except for those lying within a public right-of-way or traversing City-owned land.

(3) Open Space

Open space set-aside shall be provided in accordance with the standards in Section 6-600, *Open Space Standards*.

~~**(4)Oversizing and Reimbursement**~~

~~**(a)*Oversized Improvements***~~

~~Wherever a development contains public improvements that are required by the City to be larger than that necessary to serve the development, the owner/developer shall negotiate with the appropriate city departments to determine the proportionate shared costs for the required improvements. Negotiated costs will be in accordance with existing City policy in place at the time of installation.~~

~~**(b)*Reimbursements***~~

~~Reimbursements to the owner/developer on oversized public improvements shall be in accordance with existing city policy in place at the time of installation.~~

7-100(D) Improvement Guarantees for Public Improvements

(1) General

Improvement guarantees, posted in accordance with the requirements of this

subsection, shall be required for the following activities:

(a) A warranty period commencing upon approval of the final plat and lasting either two (2) years from the date when eighty percent (80%) of the lots in the plat, have been issued Certificates of Occupancy (CO's), or three (3) years ~~The mandatory two (2) year warranty period following~~ from the date of approval of the Final Plat for Subdivision (see Section 2-300(I)(5)(f)), whichever is least, for any street proposed for dedication to the City and its associated stormwater drainage facilities; and

(b) Deferral of the installation of sidewalks within street rights-of-way in a single-family residential development for the purpose of installation with the individual homes.

(2) Bonding Prohibited

No bonding ~~of~~ for the overall installation of required public improvements shall be accepted. Bonding of certain minor improvements or portions of improvements may be permitted by the Development Services Director when appropriate to coordinate with imminent or ongoing adjacent public or private construction.

(3) Performance Guarantees

(a) ***Form of Performance Guarantee***

Where required, the owner/developer shall furnish a performance guarantee in any of the following acceptable forms:

1. Cash deposit with the City;

2. Certified check from a South Carolina lender based upon a cash deposit, in a form acceptable to the City Attorney;

3. Irrevocable letter of credit from a South Carolina banking institution in a form acceptable to the City Attorney; or

4. Any other financial security found acceptable by the City Attorney. Performance bonds will not be accepted.

(b) ***Amount of Performance Guarantees***

1. Performance guarantees associated with a street proposed for dedication to the City shall be at least one hundred fifty percent (150%) of the cost of the final lift of asphalt (including materials and labor) associated with each public street being dedicated to the City when the final lift is not installed at the time of the final plat recording. When the final lift is installed at the time of the final plat recording, the performance guarantees shall be at least fifty percent (50%) of the cost of the final lift of asphalt (including materials and labor).

2. Performance guarantees required for deferral of public sidewalks shall equal one hundred twenty-five percent (125%) of the cost of the materials and labor associated with sidewalks being deferred. When the sidewalks are installed at the time of the final plat recording, the performance guarantees shall be at least twenty-five percent (25%) of the cost of the sidewalk installation (including materials and labor).

3. In cases where deferred installation of sidewalks is approved,

sidewalks shall be installed with a minimum four- (4) inch section as depicted in Appendix 7-A.

4. Whenever guarantees are renewed, the City may require the guarantee be updated based on a standard engineering cost index to reflect increases in construction costs over time.

(4) Release of Guarantees for Public Improvements

(a) *Release*

1. Release of a performance guarantee associated with a public street shall occur after passing a final inspection of the pavement, curb, gutter, storm drainage, detention facilities and or Best Management Practices (BMPs), and other relevant features within the right-of-way. A final inspection of a dedicated street shall ~~not~~ occur within 60 days prior to the expiration of the ~~two (2) year~~ warranty period following issuance of a Final Plat for Subdivision (see Section 2-300(I)(5)(f).

2. Release of a performance guarantee associated with the deferral of a sidewalk shall occur following passing final inspection of the sidewalk. In no event shall a final inspection be scheduled for a date exceeding one (1) year from the approval of the Final Plat for Subdivision (see Section 2-300(I)(5)(f)) without approval from the Development Services Director.

(b) *Partial Release*

Partial releases of performance guarantees shall only be ~~prohibited~~made under special circumstances and must be approved by the Development Services Director.

(c) *Releases Shall be Recorded*

The City shall record all releases of financial guarantees, or in the alternative, shall record a notice of the City's final acceptance of the public improvements in the Register of Deeds Office.

(5) Statement of Guarantee

In cases where a subdivider seeks to defer the installation of sidewalks in accordance with Section 2-300(I)(5)(e), the Final Plat for Subdivision shall include the following Statement of Guarantee:

> "THIS FINAL PLAT IS SUBJECT TO A PERFORMANCE GUARANTEE, WHICH MEANS THAT ALL REQUIRED PUBLIC IMPROVEMENTS ARE NOT COMPLETED. ISSUANCE OF BUILDING PERMITS PRIOR TO COMPLETION OF PUBLIC IMPROVEMENTS SUBJECT TO THE PERFORMANCE GUARANTEE SHALL OCCUR AT THE SOLE DISCRETION OF THE CITY OF ROCK HILL. IN THE EVENT THE DEVELOPER DEFAULTS AND THE CITY MUST COMPLETE THE IMPROVEMENTS, THE DEVELOPER WILL BE ASSESSED ANY DIFFERENCE BETWEEN THE AMOUNT OF THE PERFORMANCE GUARANTEE AND ACTUAL CONSTRUCTION COST."

(6) Forfeiture of Security

(a) *Notice of Failure to Install or Complete Improvements*

If a subdivider fails to properly install, repair, and/or maintain all required public improvements within the time-frames established by this section, the City shall give thirty- (30) days written notice to the subdivider by certified mail, after which time the City may draw on the security and use the funds to complete the required improvements.

(b) ***City Completion of Improvements***

After completing the required public improvements, the City shall provide a complete accounting of the expenditures to the subdivider and, as applicable, refund all unused security deposited, without interest.

7-300 APPENDIX 7-A CONSTRUCTION STANDARDS

All improvements required by this Ordinance shall comply with the standards specified by the City of Rock Hill. The notes contained herein are not a complete list of those standards but are intended to clarify certain standards and policies that impact development. The complete construction standards for water and sewer construction may be obtained from the ~~City Engineer's office~~Development Services Department. Roadway/drainage standards must comply with current applicable SCDOT construction standards. All concrete construction (including sidewalks and curb & gutter shall be a minimum strength of 3500 PSI.

FIGURE 7-A(1): STANDARDS FOR SIDEWALKS

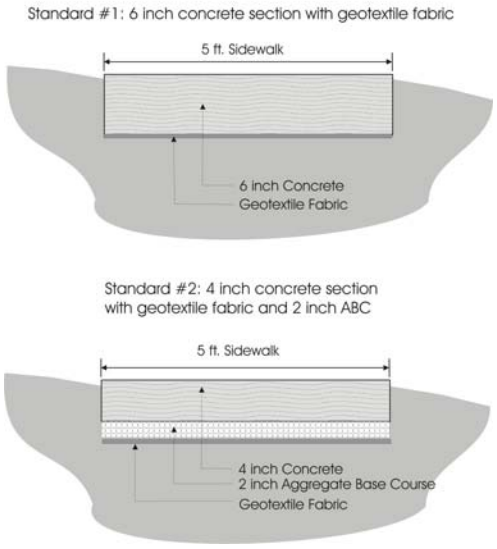


FIGURE 7-A(2): STANDARDS FOR TRAILS

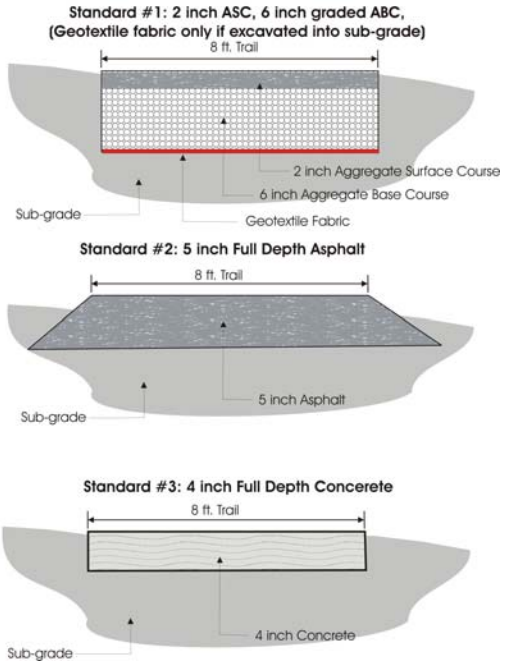


FIGURE 7-A(1): STANDARDS FOR SIDEWALKS

A. Sidewalks

Sidewalks should be designed for site or soil conditions. Sidewalks shall be located seven (7) feet from the back of curb as shown in Figure 7-100(B)(2)~~must leave sufficient room for mailboxes, utility strips, and at least three (3) feet of landscaping~~, but need not be a uniform distance from the curb. When sidewalks meander as part of a design concept or to avoid obstructions, there must be sufficient room for mailboxes, utility strips, and at least three (3) feet of landscaping They should not cause design or drainage problems in relation to the curb. Wheelchair ramps with detectable warnings shall be installed at all intersections and pedestrian crossings. The developer may choose from the standards shown in Figure 7-A(1), *Standards for Sidewalks*, and note such on all plat and construction plans.

B. Trails

Trails may be provided as an alternative to sidewalks in some cases (see Section 7-100(B)(3)(b)). Trails designated in the adopted Trails and Greenways Master Plan shall be constructed based on the descriptions in that document. Trails that will be publicly used ~~and maintained~~shall be a minimum of 8 feet in width ~~shall~~and shall be constructed to one of the standards shown in Figure 7-A(2), *Standards for Public Trails*. The final surface and width of the trail will be determined by the City based on approved plans, anticipated use, and connectivity with existing facilities:

C. Road Section and Materials

The minimum road section for all streets shall meet all SCDOT standards and at least one (1) of the following standards (see Figure 7-A(3), *Street Standards*). Soil conditions and traffic loading may warrant a stronger road section.

1. Residential Subdivisions, Private Streets

Eight- (8) inch Aggregate Base Course, one-and-one-half- (1½) inch Surface ~~or Type IV~~ Asphalt Course, and one-and-one-half- (1½) inch Surface Asphalt Course.

~~**2. Light Industrial**~~

~~Eight- (8) inch Aggregate Base Course, two- (2) inch Surface or Type IV Asphalt Course, and two- (2) inch Surface Asphalt Course.~~

~~3~~2. ~~Heavy~~ Residential Collector & Commercial/Industrial Streets & Cul-de-sac Bulbs ~~Commercial/Industrial~~

Ten- (10) inch Aggregate Base Course, two- (2) inch Surface ~~or Type IV~~ Asphalt Course, and two- (2) inch Surface Asphalt Course. Design Engineer must submit traffic counts, design and recommended section that meets or exceeds minimum requirements.

~~4~~3. ~~Special~~ Minimum Parking Lot Standard

~~Four~~Six- (~~4~~6) inch ~~Asphalt Binder~~Aggregate Base Course, and two- (2) inch Surface ~~or Type IV~~ Asphalt Course~~, and one-and-one-half- (1½) inch Surface Asphalt Course~~. ~~Use of this standard requires pre-approval from the Public Works Department.~~ Design engineer is responsible for providing upgraded pavement where necessary to accommodate sanitation truck and loading/unloading access.

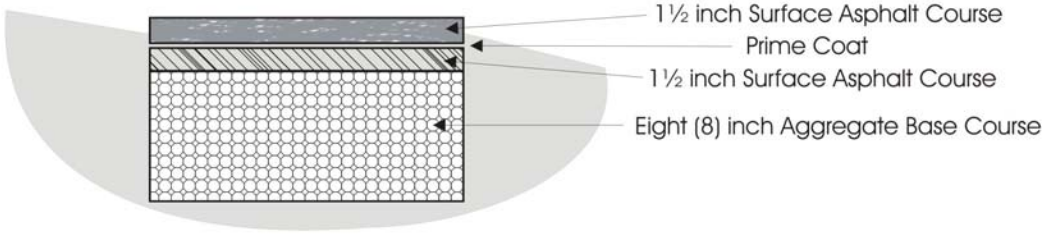
~~5~~4. Entrances

Eight- (8) inch Asphalt Binder Base Course, two- (2) inch Surface ~~or Type IV~~ Asphalt Course, and one-and-one-half- (1½) inch Surface Asphalt Course. The ~~R~~required length of entrance section is to be determined by the ~~Public Works~~Planning & Development ~~D~~Department, with a minimum length of fifty (50) feet required at all intersections. This requirement applies to any access point (e.g. streets, driveways) that provides a connection to the existing street network. All entrances shall meet SCDOT standards.

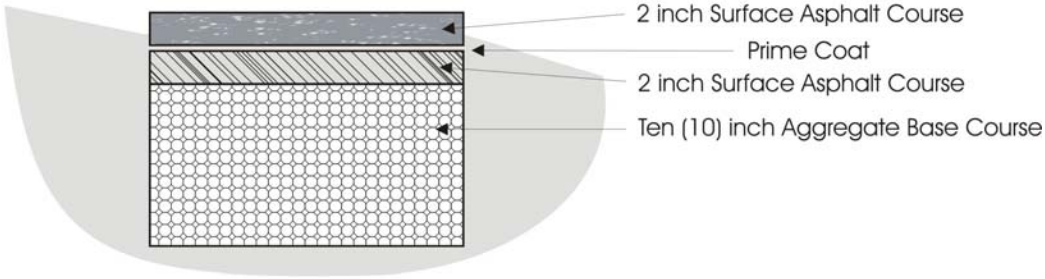
FIGURE 7-A(3): STREET STANDARDS

FIGURE 7-A(3):STREET STANDARDS

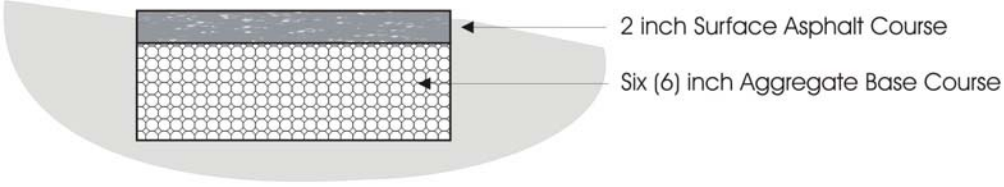
Residential Subdivisions or Private Streets



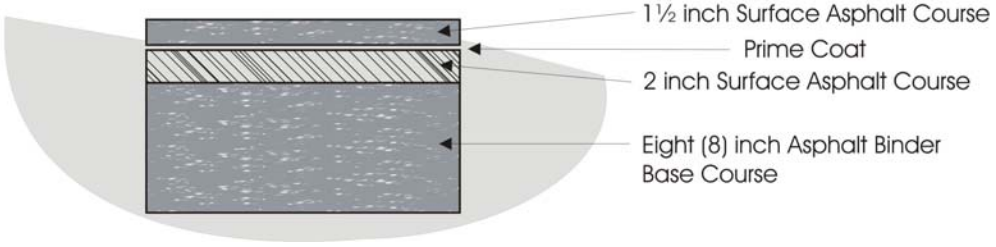
Residential Collector& Commercial/Industrial Streets & Cul-de-sac Bulbs



Minimum Parking Lot Standards



Entrances



10-200 DEFINITIONS

LOW IMPACT DEVELOPMENT (LID): The use of site and subdivision design techniques in coordination with stormwater management engineering to mimic the hydrologic conditions associated with an undeveloped site to the greatest extent practicable.