

ARTICLE IV

GENERAL REQUIREMENTS AND DESIGN STANDARDS

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4-101 GENERAL REQUIREMENTS

4-101.1 Compliance

Unless otherwise specified in these regulations, all subdivisions shall comply with the requirements of this Article.

4-101.2 Conformance to Applicable Rules and Regulations

In addition to the requirements established herein, all subdivision plans shall comply with all applicable laws, ordinances, resolutions, rules, or regulations, including, but not limited to:

1. All applicable provisions of Tennessee Law, regulations, or policy;
2. All applicable provisions of the zoning ordinance, any building and housing codes, and all other applicable laws or policies of the governing body;
3. The adopted Town Development Plan and Major Street (thoroughfare) Plan;
4. The rules of the County Health Department and the Tennessee Department of Environment and Conservation;
5. The rules, as applicable, of the Federal Highway Administration or Tennessee Department of Transportation, if the subdivision or any lot contained therein abuts a non-local highway; and

6. The standards and regulations adopted by all other boards, commissions, and agencies of the governing body, where applicable.

Plan approval may be withheld if a subdivision is not in conformity with the above rules or with provisions set forth in Section 1-104, POLICY AND PURPOSE, of these regulations.

4-101.3 Self-Imposed Restrictions

If the owner places restrictions on any of the land contained in the subdivision greater than those required by any zoning ordinance or these regulations, such restrictions or reference thereto shall be required to be recorded along with the final subdivision plat with the County Register on a separate form.

4-101.4 Debris and Waste

No cuts trees, timber, debris, earth, rocks, stones, soil, junk, rubbish, or other waste materials of any kind shall be buried in any land or left or deposited on any lot or street at the time of the issuance of a certificate of occupancy for the lot, and removal of such waste shall be required prior to issuance of any certificate of occupancy. Nor shall any such waste be left nor deposited in any area of the subdivision at the time of expiration of the performance bond or dedication of public improvements, whichever is sooner.

4-101.5 Fencing

Each subdivider or developer shall be required to furnish and install all fences wherever the Planning Commission determines that a hazardous condition may exist. Such fences shall be constructed according to standards established by the Planning Commission, as appropriate, and shall be noted as to height and material on the final plat. No certificate of occupancy shall be issued until such fence improvements have been installed.

4-102 GENERAL LOT REQUIREMENTS

4-102.1 Suitability of the Land

Land which the Planning Commission finds to be unsuitable for subdivision or development due to flooding as shown on FEMA maps, steep slopes as shown on topographical maps, rock formations, problem soils, sinkholes, other adverse earth formations or topography, utility easements, or other features which may be harmful to the safety, health, and general welfare of inhabitants of the land and surrounding areas shall not be subdivided or developed unless adequate methods to solve the problems created by the unsuitable land conditions are formulated by the developer and approved by the Planning Commission. Additional technical evaluation, plans, and analysis of a proposed subdivision by a professional engineer specializing in geotechnical evaluations, soils, hydrology, and/or structures may be required.

4-102.2 Critical Lots

When a proposed lot contains natural or manmade features that affect the feasibility of construction, it shall be designated a critical lot during the conceptual plan or partition review process and subsequent subdivision submittals.

1. A lot shall be designated critical when the lot is created on a natural slope of twenty (20) percent or greater or when it contains natural floodplain.

2. A lot may be designated critical on the basis of any other lot feature(s) that affects the feasibility of construction as listed in Subsection 4-102.1.
3. Lots on steep slopes shall be subject to the hillside development standards of Subsection 3.140.1, C, Hillside Development Standards, of the Zoning Ordinance.
4. Lots in floodplains shall be subject to the floodplain/floodway development standards of Subsection 3.140.1, D, Development Standards for Flood Hazard Areas, of the Zoning Ordinance.
5. Lots with problem soils shall be subject to the development requirements of Subsection 3.140.1, E, Development Standards for Areas of Problem Soil, of the Zoning Ordinance.
6. A star symbol shall be used to identify critical lots on the face of the conceptual plan, development plan, and final plat.

4-102.3 New Critical Lots

Any lot that will be created as a result of the grading process that meets the definition of a critical lot, shall also be identified as such on the final plat, and shall be subject to the applicable development standards of Subsections 4-102.9, Grade Changing, and 4-102.10, Grade Changing Devices.

4-102.4 Prior to Conceptual Plan Approval

Prior to approval of a Conceptual Plan for a subdivision that includes lots designated as critical, the applicant shall provide the Enforcing Officer with a preliminary grading study and a description of the measures to be taken:

1. To protect the natural features of the critical lots.
2. To minimize changes in grade, cleared area, and volume of cut or fill, and to control adverse impacts on the critical lots during and following the period of site disturbance.
3. To align streets to minimize disturbance of slopes.
4. To identify easements along property lines to meet future drainage needs.

4-102.5 Critical Lot Plan Required

Prior to application for a building permit on a lot designated as critical, a plan shall be submitted to the Enforcing Officer for approval as described in Appendix B. The Enforcing Officer may direct a critical lot plan to the Planning Commission for decision.

4-102.6 Conformity to Major Street Plan and Town Development Plan

Subdivisions shall conform to the adopted Major Street Plan and the Town Comprehensive Plan.

4-102.7 Preservation of Natural Cover

Land to be subdivided shall be laid out and improved in reasonable conformity to existing topography, in order to minimize grading, cut and fill, and to retain, insofar as possible, the natural contours, limit storm water runoff, and conserve the natural cover and soil. No topsoil shall be removed from any lots shown on any subdivision plat, except for the purpose of improving such lots and for the layout out of streets shown thereon. Topsoil so removed shall be restored on areas of such lots not occupied by buildings or structures.

4-102.8 Preservation of Existing Features

Existing features which would enhance the attractiveness of the site or the community as a whole, such as meadows, fields, woodlands, hedgerows, individual trees, watercourses, ponds, wetlands, vernal pools, stone walls, historic buildings or sites, scenic viewsheds (into the property) and vistas (from the property), and similar irreplaceable assets, shall be preserved insofar as possible through harmonious design of the subdivision.

4-102.9 Grade Changing

Where grade changing is required in any subdivision, contour grading techniques shall be used, where practicable, to provide a natural-appearing transition between grades. The angle of any graded slope shall be gradually transitioned to the angle of the natural terrain. Slopes of thirty-three (33) percent or less may contain turf but, wherever practicable, vegetation other than turf that increases the natural appearance shall be used. All vegetated embankments shall have a check swale at the top. No reinforced embankment shall exceed sixty-six (66) percent.

4-102.10 Grade Changing Devices

Where development of the land requires grade-changing devices such as retaining walls, they shall be designated on the preliminary grading study and a description, including illustrations, of each device shall be included. For interlocking walls, vines and groundcover to provide a more natural finish to coarse walls is encouraged. Grade changing devices shall:

1. Avoid obstructing driveway connections between building lots for non-residential development.
2. Avoid creating precipitous grade changes, including through the use of retaining walls, that could result in safety hazard(s) to occupants of the development or to the general public.
3. Generally limit the height retaining walls in or abutting residential development. Excessive grade changes shall be managed with terraces formed by a series of low retaining walls or by a combination of contoured slopes and low retaining wall(s).

4-102.11 Monuments

Permanent reference monuments of non-degradable material shall be placed in all subdivisions where new streets are to be constructed. All monuments shall be placed on property corners or referenced to property lines or street alignments. Certification by a licensed surveyor of placement of monuments shall be required. Monuments will generally not be required within minor subdivisions (as defined by these regulations) when the

subdivision occurs along existing streets. The Planning Commission retains the right, however, to require monuments within minor subdivisions where flooding or other extraordinary conditions are found to exist. Monuments shall be located and set as follows:

1. Control Monuments

At the discretion of the Enforcing Officer, a minimum of three (3) permanent control monuments, containing both vertical and horizontal data, shall be located within each subdivision where new streets are to be constructed. Such monuments shall be constructed of concrete not less than thirty (30) inches in length; or less than four (4) inches square or five (5) inches in diameter; and marked on top with a cross, brass plug, iron rod, or other durable material securely embedded. Iron Bar Monuments may be used and shall be no less than five-eighths (5/8) inch in diameter and not less than twenty-four (24) inches in length. Both shall have a permanent metal cap with a minimum diameter of two and one-half (2 1/2) inches with the Land Surveyor's name and license number. Monuments shall have horizontal coordinates and vertical elevations shown on the final plan. Reference notes (field ties) defining magnetic bearings and distances to the nearest established street line or official benchmark shall be accurately described on the plan. All control monuments shall be located within dedicated right-of-way along curve points or lot lines and within line of sight of one another. All horizontal and vertical data shall be referenced to TN NAVD83 4100 State Plan Coordinates and North American Vertical Datum 1988 (NAVD88) or current acceptable equivalent. These monuments are to be placed near the entrance to the subdivision and, if possible within a non-fill area or be affixed to natural rock outcrops. The location of all control monuments shall be described on the final plan with words and symbols that facilitate locating them at the site.

2. Internal Monuments and Lot Pins

One (1) internal monument for each four (4) lots located within the subdivision shall be placed within line of sight of one another. Such monuments shall be placed within dedicated right-of-way, when possible, and shall be located within non-fill areas or affixed to rock natural outcrops. An internal monument shall be constructed to the same standards as a control monument minus the elevation data. In all subdivisions, lot corners and all lot line breaks shall be staked by iron rods, pipes, or pins at least eighteen (18) inches long and five-eighths (5/8) inch in diameter. Placement of iron pins under sidewalks should be avoided.

3. Along Rivers and Streams

The lines of lots that extend to rivers or streams shall be monumented in the field by iron pins at least eighteen (18) inches long and five-eighths (5/8) inch in diameter or by round or square iron bars at least eighteen (18) inches long. Such pins shall be placed at the point of intersection of the river or stream and lot line, with a meander line established not more than forty (40) feet back from the bank of the river or stream. At the discretion of the Planning Commission, a control monument meeting the specifications of Subpart 1, above, may be required upon any lot affected by the 100-year floodplain of any stream.

4-102.12 Driveways/Access to Lots

4.102.1201 Minimum Separation Between Residential Driveways

For each permitted residential driveway there shall be a corresponding minimum road frontage of:

- a. at least two hundred (200) feet along routes designated in the Major Thoroughfare Plan as rural arterial highways and six (6) lane urban arterial highways; and
- b. at least one hundred fifty (150) feet along routes designated in the Major Thoroughfare Plan as five (5) lane and three (3) lane urban arterial highways; and
- c. at least one hundred (100) feet along routes designated in the Major Thoroughfare Plan as four (4) lane urban arterial highways; and two (2) lane collector routes.

There shall be not more than one (1) driveway for all other residential lots except circular driveways shall be permitted.

4-102.1202 Minimum Corner Clearance

The minimum corner clearance between proposed new non-residential driveways shall be two hundred-eighty (280) feet for streets designated as “local access” and three hundred-thirty-five (335) feet for streets designated as “secondary and primary collector” streets. In order to ensure adequate storage space for vehicles stopped at a signalized intersection, the Town Engineer may require additional corner clearance. All residential driveways shall be a minimum of fifty (50) feet from the nearest point of curvature.

4-102.1203 Design Standards for Nonresidential Driveways

For access to thoroughfares where the posted speed limit is 35 mph or less, all nonresidential driveways shall be constructed with a minimum horizontal width of twenty-five (25) feet. All drives serving nonresidential property shall be paved with concrete or an asphalt surface. Lanes shall be clearly designated and lane uses shall be clearly and permanently marked. The minimum separation from an intersection and between drives shall be two hundred (200) feet along places and three hundred-thirty-five (335) along all other streets.

Where the posted speed limit is 45 mph or greater, nonresidential driveways shall be constructed with a right turn deceleration lane.

The Town Engineer will review proposed driveway designs for access to other thoroughfares on a case by case basis.

The centerline of every nonresidential two (2) way driveway shall intersect the centerline of the public way at an angle between seventy-five (75) and ninety (90) degrees.

For other nonresidential driveways, the intersection angle shall be subject to the approval of the Planning Commission

4-102.1204 Design Standards for Residential Driveways

Where permitted, residential driveways fronting collector and arterial routes designated in the Major Street Plan shall be designed so as to avoid requiring vehicles to back onto these highways. Any driveway should be constructed in a manner such that the drive has a maximum slope of eight (8) percent for the first fifteen (15) feet (measured from the back of the Town approved sidewalk). Driveways greater than eight (8) percent slope shall be reviewed and approved by the Town Engineer prior to a building permit being issued. In no case shall the driveway slope exceed ten (10) percent in the first fifteen (15) feet from the street. Where the potential exists for gravel or soil to be washed from a driveway onto the public right-of-way such driveways shall be paved or otherwise stabilized for a distance sufficient to prevent material from migrating onto public property.

4-103 REQUIREMENTS FOR DEDICATIONS, RESERVATIONS, OR IMPROVEMENTS

Where a proposed subdivision adjoins or encompasses either a substandard street, or a route depicted upon the Major Street Plan that is to be opened, widened or realigned, the following shall apply.

4-103.1 Undeveloped Property

4-103.101 Substandard Streets

Substandard streets encompassed by or adjacent to the proposed subdivision shall be improved by the developer in accordance with the minimum standards set forth in Table 4-1, General Design Standards for Streets, for the portion of such street that is located within the boundaries of the subdivision or the abutting street half.

4-103.102 Planned Routing

When applicable, the layout of a street(s) within a subdivision shall conform to the routing depicted upon the Major Street Plan. The amount of right-of-way for the required street type shall be dedicated up to a maximum of that required for construction of "collector" routes. Where any street so depicted requires a right-of-way greater than that required for construction of a collector route, the developer shall show on the face of the Final Plan an additional area "**reserved for future right-of way**" and any required yard area shall be measured from such reservation line.

Regardless of the proposed width or functional character of the planned streets adjacent to or encompassed by a proposed subdivision, the developer will not be required, (except as may be necessitated as a result of an approved traffic impact study), to improve or construct any street greater than that of a "collector street" as defined and depicted in these regulations.

4-103.103 Developed Property

When property containing existing structures is being divided simply to place each structure on a separate lot and a future right-of-way will fall within the footprint of

an existing structure, then the subdivider shall be required to note on the face of the plan: **“reserved for future right-of-way”** any additional area necessary for compliance with the Major Street Plan. The Final Plan shall also contain a note stating, when any existing structure is demolished, the setback requirements for any new structure shall be measured from this reservation line.

4-103.104 Required Improvements or Dedications

All on-site traffic improvements identified as being required in a traffic impact study prepared in accordance with the requirements of Subsection 4-105.2, Traffic Impact Study, shall be made by the developer upon land the developer controls. Any off-site improvements identified in such study shall be made on a pro-rata basis to the extent the subdivision contributes to the requirement for such improvement(s).

4-104 REQUIREMENTS FOR PEDESTRIAN WAYS

4-104.1 Sidewalks Along New Streets

Sidewalks shall be required along both sides of all streets.

4-104.2 Sidewalks Along Existing Streets

Sidewalks shall be required along the proposed subdivision’s frontage on existing public streets.

4-104.3 Sidewalk Width

The width of sidewalks shall be as follows. Width shall be exclusive of encroachments such as utility poles, fire hydrants, parking meters, sign standards, street furniture, etc.

SIDEWALK WIDTH

Street Classification	Land Use Classification		
	Residential	Commercial	Industrial
Local Access	5 feet	5 feet	5 feet
Secondary Collector	5 feet	5 feet	5 feet
Primary Collector	5 feet	6 feet	6 feet
Arterial Public Way	5 feet	6 feet	6 feet

4-104.4 Design Criteria

Sidewalks shall be included within the dedicated non-traffic way portion of the right-of-way or public access easement. A grassed “tree lawn” at least five (5) feet wide shall separate all sidewalks from adjacent streets.

1. Where extraordinary difficult topographic conditions exist, other design solutions, such as a wider separation, may be used.

2. Where necessary, the Planning Commission may require pedestrian access ways from a public way to schools, parks, playgrounds, or other nearby public ways. To accomplish this purpose, the Planning Commission may require perpetual unobstructed easements at least twenty (20) feet in width.
3. Sidewalks shall be designed and constructed so as to comply with ADA Standards for Accessible Design as published by the U.S. Department of Justice and excerpted from 28 CFR Part 36 (Revised July 1, 1994) and any subsequent amendments or supplements.

4-104.5 Waivers and Alternative Pedestrian Ways

Developers and the Planning Commission may reach alternative arrangements concerning sidewalks where strict compliance with the provisions of this section would be unfair or cause an undue hardship due to previously approved plats and/or development plans. Such alternative provisions may include: (1) payment to a Town fund for construction of the sidewalks by the Town at this location at a later date; (2) the construction of elsewhere, or (3) the actual construction of sidewalks at another location. In the absence of mutual agreement, the developer shall construct the sidewalks in the manner provided herein.

4-104.6 Maintenance

The lot owner shall maintain grass and vegetation between the roadway and the property line.

4-105 STREETS

4-105.1 General Requirements

4-105.101 Street Names

All streets shall be named and such names shall be subject to the approval of the Planning Commission. Names shall be sufficiently different in sound and spelling from other street names in the Town to avoid confusion. A street which is a continuation of an existing street shall bear the same name. As general policy, the use of personal names for new roads is discouraged. Historical names are preferred or names appropriate to the particular development or general neighborhood.

4-105.102 Grading and Improvement Plan

Streets shall be graded and improved to conform to the standards required by this section and shall be approved as to design and specification by the Town Engineer in accordance with the specifications required herein.

4-105.103 Streets in Floodable Areas

The finished elevation of proposed streets subject to flood shall be no more than one (1) foot below the regulatory flood protection elevation. All drainage structures shall be sufficient to discharge flood flows without increasing flood height. Where fill is used to bring the finished elevation of any street to the required elevation, such fill shall be protected against erosion by rip-rap, vegetative cover, or other methods deemed acceptable by Town Engineer.

4-105.104 Reserve Strips

The creation of reserve strips adjacent to a proposed street in such a manner as to deny access from adjacent property to such street shall not be permitted.

4-105.2 Traffic Impact Study

The purpose of a traffic impact study shall be to identify what improvements, if any, are necessitated to offset the additional traffic generated by a proposed level of development. Such improvements might include the provision of traffic signals, turning lanes or road widenings.

4-105.201 Requirements for a Traffic Impact Study

A traffic impact study (TIS) may be required by the Planning Commission or zoning administrator for any development that contains:

- Residential developments with more than one hundred (100) dwelling units;
- Nonresidential developments of more than fifty thousand (50,000) square feet; or
- Combinations of residential and nonresidential uses that would be expected to generate one thousand (1,000) vehicle trips or more per day, or one hundred (100) or more peak-hour trips;
- Or in the opinion of the Town engineer a TIS is needed.

4-105.202 Levels of Traffic Impact Study Required

Three levels of traffic impact studies have been identified based on the number of trips that a development is projected to generate in a twenty-four (24) hour period (See Table 4-105.2).

TABLE 4-105.2

LEVEL OF TRAFFIC IMPACT STUDY REQUIRED	
Twenty-Four Hour Trip Generation	Level of Study Required
1,000 to 3,000 average daily trips	Level 1
3,000 to 6,000 average daily trips	Level 2
6,000 and higher average daily trips	Level 3

- **Level 1**, studies require analysis of each access that the development has to an existing roadway. Access points to be analyzed include public roads, joint permanent access easements, and private driveways.
- **Level 2**, studies require the analysis of each access that the development has to an existing roadway, and to the first control point beyond those access points. A control point is an intersection controlled by a traffic signal or stop sign on the existing roadway onto which the development has access. For

cases where a traffic-control device does not exist, the Town Engineer will determine the extent of the study. If a freeway interchange is near the property to be developed and is not signalized, the Town Engineer will determine if ramps need to be included in the study.

- **Level 3**, studies require a complex traffic access and impact study, addressing each access point, the first control point beyond each access point, and the nearest collector/collector intersection or street of higher classification or as determined by the Town engineer. The exact area to be studied will be determined by the Town Engineer with input from the individual who is to prepare the study.

4-105.203 Approval of Traffic Impact Study

The traffic impact study shall be approved by the Planning Commission, with all applicable performance requirements incorporated into any site and building plans.

4-105.204 Implementation of a Traffic Impact Study

The traffic impact study may take into account the capital improvements budget and may rely on improvements for which the Town has adopted a resolution appropriating funds. Any required traffic improvements that have not been funded or otherwise completed by the Town shall be completed by the developer prior to the issuance of a use and occupancy permit. When it can be demonstrated that a development will only partially contribute to the need for additional off-site improvements, the Planning Commission may require a pro-rata contribution. The Town Engineer will certify that all traffic improvements to be provided by the developer or property owner have been properly bonded prior to building permit issuance and completed before a use and occupancy permit shall be issued.

4-105.3 Arrangement of Streets

1. Streets shall be related appropriately to the topography. Minor streets shall be curved wherever possible to avoid conformity of lot appearance. All streets shall be arranged so as to obtain as many as possible of the building sites at or above the grades of the streets. Grades of streets shall conform as closely as possible to the original topography. A combination of steep grades and curves shall not be avoided.
2. All streets shall be properly integrated with the existing and proposed system of streets and dedicated rights-of-way as established on the Major Street Plan or the Town Development Plan.
3. All streets shall be properly related to special traffic generators, such as industries, business districts, schools, churches, and shopping centers; to population densities; and to the pattern of exiting and proposed land uses.
4. Minor streets shall be laid out to conform as much as possible to the topography; to discourage use by through traffic; to permit efficient drainage and utility systems; and to require the minimum number of streets necessary to provide convenient and safe access to property.

5. The use of an interconnected street system shall be encouraged to broadly disperse internal traffic and provide maximum alternatives for access to property.
6. The use of curvilinear streets, cul-de-sac, or "U"-shaped streets shall be encouraged where such use will result in a more desirable layout.
7. Street designs such as loop streets or closes shown in Figure 4-1, are preferred to the use of a cul-de-sac design. Cul-de-sacs shall be permitted where topographic features or configuration of property boundaries prevent street connections.
8. Proposed streets shall be extended to the boundary lines of the tract to be subdivided, unless prevented by topography or other physical conditions or unless, in the opinion of the Planning Commission, such extension is not necessary or desirable for the coordination of the layout of the subdivision with the existing layout or the most advantageous future development of adjacent tracts. Where streets are extended to property lines, temporary turnarounds shall be required unless the street segment is less than three hundred (300) feet in length. In all cases drainage and utility easements shall be extended to the property lines.
9. In business and industrial developments, the streets and other access routes shall be planned in connection with the grouping of buildings, location of rail facilities, and the provisions of alleys, truck loading and maneuvering areas, and walks and parking areas, so as to minimize conflict of movement between the various types of traffic, including pedestrian traffic.

4-105.4 Access to Arterial and Collector Routes

Where a subdivision borders on or contains a proposed arterial or collector route, the Planning Commission may require that access to such streets be limited by one of the following means:

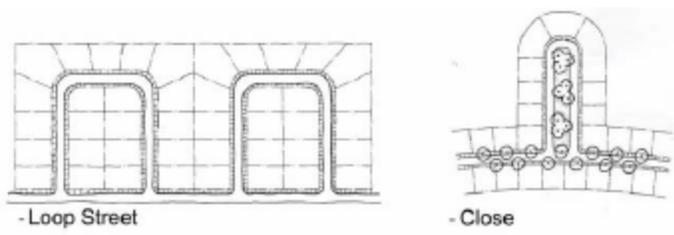
4-105.401 In Residential Areas

Where a subdivision abuts or contains an existing or proposed arterial or collector street, the Planning Commission may require marginal access streets, reverse frontage with screen planting contained in a non-access reservation along the rear property line, or such other treatment as may be necessary for adequate protection of residential properties and to afford separation of through and local traffic. In general, in open field situations, reverse frontage lots with screen planting are to be employed only when it can be demonstrated that it is completely infeasible to construct a "single-loaded" street set back from the existing thoroughfare, with homes facing the thoroughfare across a "foreground meadow".

4-105.402 In Business Areas

In areas zoned or designed for commercial use, or where a change of zoning is contemplated for commercial use, the Planning Commission may require that the street width be increased or that a service road be constructed to assure the free flow of through traffic without interference by parked or parking vehicles, and to provide adequate and safe parking space for such commercial area.

Figure 4-1
ALTERNATIVES TO CUL-DE-SACS



4-106 STREET DESIGN STANDARDS

4-106.1 Purpose

The public way design standards set forth in this section are hereby required in order to provide public ways of suitable location, width, and improvement to accommodate prospective traffic and afford satisfactory access to police, fire-fighting, sanitation, and road-maintenance equipment, and to coordinate public ways so as to compose a convenient and safe system and avoid undue hardships to adjoining properties. These provisions are intended to establish appropriate standards for the design of streets in residential subdivisions that will:

- Promote the safety and convenience of vehicular traffic,
- Protect the safety of neighborhood residents,
- Minimize crime in residential areas,
- Protect the residential qualities of neighborhoods by limiting traffic volume, traffic speed, noise and fumes,
- Encourage the efficient use of land,
- Promote construction methods and criteria that provide high quality and efficient design; to provide for initial cost concerns, future maintenance cost and general liability cost for the community.
- Minimize the construction of impervious surface thereby protecting the quantity and quality of the community's water resources.
- Provide satisfactory access for emergency vehicles.

4-106.2 General Design

The design of all streets shall conform to the general design standards presented within this section and to the detailed criteria found in Tables 4-1 and 4-2 (below).

1. New streets proposed to be created as a part of any development proposal shall be integrated closely with the Town's Major Street Plan. The Major Street Plan shall show the realignment and redesign of certain intersections and road segments to facilitate traffic flow and improve safety.
2. Rectilinear street layouts are generally preferred, with occasional diagonal elements to enhance visual interest, although curvilinear layouts shall be acceptable when designed to interconnect and to produce terminal vistas of protected open space or prominent structures.
3. Residential streets shall be aligned so that their terminal vistas are of greens, other open space, or civic or institutional buildings, wherever possible. Where this is not possible, every effort shall be made to terminate those streets with buildings of above-average size, whose architecture shall be encouraged to be special in one way or another.

TABLE 4-1

**MINIMUM RIGHT-OF-WAY OR EASEMENT AND
PAVEMENT WIDTH (in feet) BY STREET TYPE AND
INTENSITY OF DEVELOPMENT**

	Total Lanes	Parking Lanes	Pavement Width	Shoulders	R.O.W
Primary Collector					
No Parking	2	0	20' (22' curbed)	4' grassed	50'
Lots 80'+	2	0	22' (24' curbed)	4' grassed	50'
Lots 40' - 80'	3	1	28' (30' curbed)	4' grassed	50'
Lots <40'	4	2	34' (36' curbed)	4' grassed	50'
Secondary Collector					
Lots 80'+	2	0	20' (22' curbed)	4' grassed	50'
Lots 40' - 80'	3	1	26' (28' curbed)*	4' grassed	50'
Lots <40'	4	2	32' (34' curbed)*	none	60'
Local Access					
Lots 80'+	2	0	20 (22' curbed)	3' grassed	50'
Lots 40' - 80'+	3	2	24' (26' curbed)	4' grassed	50'
Lots <40'	3	2	26' (28' curbed)*	4' grassed	50'
Lanes or Alleys	1	0	12'	2' grassed	20'
Shared Drives	1	0	10'	3' grassed	N/A

* The paved width may be reduced by 6 feet when streets are "single-loaded" (lots on one side only), or when driveways are accessed only from rear service lanes or alleys.

TABLE 4-2
GENERAL DESIGN STANDARDS FOR STREETS

	<u>RESIDENTIAL STREET</u>	<u>NONRESIDENTIAL STREET</u>	<u>K_c</u>	<u>K_s</u>
<u>Design Speed (MPH)</u>				
Local Access Street	30	30	30	40
Sub-Collector Street	35	35	45	50
Collector Street	40	40	70	65
Arterial	*	*	*	*
<u>Maximum Percentage Grade</u>				
Local Access Street	12%	10%		
Sub-Collector Street	10%	7%		
Collector Street	7%	7%		
Arterial	6%	6%		
<u>Minimum Percentage Grade</u>				
All Streets	1%	1%		
<u>Maximum Super-Elevation</u> (foot/foot)	0.08	0.08		
<u>Minimum Stopping Sight Distances</u> (in feet)				
Local Access Street	200	200		
Sub-Collector Street	250	250		
Collector Street	300	300		
<u>Minimum Radius of Return at Intersections</u>				
At Right-of-Way	25 ft.	40 ft.		
At Pavement	30 ft.	45 ft.		
<u>Maximum Grade at Intersections</u>				
Local Access Street (Within 50 ft. from E.O.P.)	6%	6%		
Sub-Collector Street	3%	3%		
Collector Street (Within 100 feet from E.O.P.)	3%	3%		
* = As determined by the Major Road and Street Plan				
<u>Pavement Crown</u>				
The paved surface shall slope downward from the centerline of the street outward to the edge of the paved surface on each side at a rate of two (2) percent or as defined in the Hendersonville Construction Manual.				
<u>Stopping Sight Distance</u>				
Measured from a driver's eye (three and one-half (3 1/2) feet above pavement) to a point six (6) inches above the pavement at a required distance based on miles per hour				

4. Streets shall be interconnected as far as practicable (employing cul-de-sacs only where essential), and they may also be supplemented with back lanes or alleys. Where cul-de-sacs are deemed to be unavoidable, continuous pedestrian circulation shall be provided by connecting sidewalks that link the end of the cul-de-sac with the next street (or open space).
5. To the greatest extent practicable, streets shall be designed to have maximum lengths of six hundred (600) feet between intersections, and maximum lengths of twelve hundred (1,200) feet before terminating at three-way "T" intersections or angling off in a diagonal direction. Blocks greater than six hundred (600) feet long shall generally be provided with cross-block pedestrian connections at mid-block locations.
6. Streets shall be laid out to promote pedestrian circulation and ease of access from all points in the residential areas to commercial or institutional facilities.
7. Easements shall be reserved to permit streets to be extended to allow adjoining properties to be connected in the future, if so desired.
8. The street width standards listed below take into account the need for on-street parking spaces, which generally increase as lot widths decrease.

4-106.3 Street Trees

1. The coordinated planting of deciduous shade trees within the right-of-way of all streets is a central unifying feature of development in villages and hamlets.
2. Such trees shall be 2" to 2.5" in diameter, measured at chest height, when planted, and shall be spaced at intervals no greater than forty feet along both sides of each street, including arterial roads, but not including rear access lanes or alleys.
3. Species shall be selected according to the following criteria:
 - (a) cast moderate shade to dense shade in summer;
 - (b) long-lived (over sixty (60) years);
 - (c) mature height of at least fifty (50) feet;
 - (d) be tolerant of pollution and direct or reflected heat;
 - (e) require little maintenance, by being mechanically strong (not brittle) and insect-and disease-resistant;
 - (f) be able to survive two (2) years with no irrigation after establishment; and
 - (g) be of native origin, provided they meet the above criteria

Among the species that are recommended are sycamore or London Plane, sweet gum, red maple, green ash, Shademaster golden locust, littleleaf linden and Village Green Zelkova. For further relevant information, readers are specifically referred to Street Tree Factsheets, Henry Gershold, Editor, School of Forest Resources, Pennsylvania State University, 1989.

4-106.4 Intersections

1. Pavement shall intersect as nearly as possible to a ninety (90) degree angle for a minimum of one hundred (100) feet from the stop bar. A proposed intersection of two (2) new public ways at an angle of less than seventy-five (75) degrees shall not be permitted. Not more than two (2) public ways shall intersect at any one point, unless specifically approved by the Planning Commission.
2. Centerline off-sets of less than three hundred fifty (350) feet between T-type intersections within public ways shall not be permitted, except where the intersected public ways have separated dual drives without median breaks at either intersection. Where public ways intersect arterial or collector routes, the alignment of such streets shall be continuous. Intersections of arterial or community collector streets shall be at least eight hundred (800) feet apart.
3. Minimum curb or edge of pavement radius shall be determined according to the specifications for the street of higher classification in the street system hierarchy, as specified below.
4. Whenever a proposed street intersects an existing or proposed street of higher order in the street hierarchy, the street of lower order shall be made a stop street. The street of lower order shall also be designed to provide a minimum corner sight distance as specified in Table 4-3. The Town Engineer reserves the right to revise sign placement.
5. Where a public way intersection will involve earth banks or existing vegetation inside any lot corner that would create a traffic hazard by limiting visibility, the sub-divider shall cut such ground or vegetation (including trees) in connection with the grading of the public right-of-way to the extent necessary to provide adequate sight distance. The developer shall provide assurance of continuing maintenance for sight triangle concerns.
6. Intersections shall be designed as shown in Table 4-2, with a grade of one to six percent (1% - 6%).
7. The cross-slope on all public ways, including intersections, shall be two (2) percent or otherwise specified in this document.

TABLE 4-3

MINIMUM INTERSECTION SIGHT DISTANCE “Y”

<u>Major Road Type</u>	<u>Design Speed</u>	<u>Y (in feet)</u>
Higher Order Street	55 mph	610
Higher Order Street	50 mph	555
Higher Order Street	45 mph	500
Primary Collector	40 mph	445
Secondary Collector	35 mph	390
Residential Access Street	25 mph	280

NOTE: The entire area of the clear sight triangle, shall be designed to provide an unobstructed view across it from three and one-half (3 1/2) to all points three and one-half (3 1/2) feet above the roadway along the centerline.

4-106.5 Acceleration and Deceleration Lanes

1. Deceleration or turning lanes may be required by the Town Engineer along existing and proposed streets as determined by a traffic impact study.
2. Deceleration Lanes Shall Be Designed to the Following Standards:
 - (a) On a State Route, the lane shall be designed in conformance with the requirements of the Tennessee Department of Transportation or as approved by the Town Engineer, whichever is greater.
 - (b) The lane width shall be the same as the required width of the roadway moving lanes for its full stacking length.
 - (c) A taper shall begin at the end of the deceleration lane and shall be 8:1 up to thirty (30) mph and 15:1 up to fifty (50) mph.
 - (d) The minimum lane length shall be as follows:

<u>Design Speed of Road</u>	<u>Minimum Deceleration Lane Length</u>
30 mph	235 feet
40 mph	315 feet
50 mph	435 feet

3. Acceleration lanes are also required when indicated as needed by a traffic impact study. The design shall be as per the recommendation of the Town Engineer. As necessary, a paved taper shall be provided for right turns.

4-106.6 Frontage Streets and One-Way Streets

1. Classification and Design of Marginal Access Streets

Frontage or marginal access streets may be utilized as an alternative to creating a row of lots along existing or proposed collector or higher order streets. Marginal access streets shall be classified and designed to conform to the design standards of “Local Access Streets”.

- (a) Intersection Spacing

The minimum distance between intersections of the marginal access street with collector streets shall be three hundred-thirty-five (335) feet. Minimum distances with higher order streets shall be determined by the Town Engineer based upon the traffic characteristics of the higher order street.

- (b) Distance Between Travelways

A minimum green space of thirty (30) feet shall be provided between the right-of-way of the marginal access street and the right-of-way of the higher order street.

2. Utilization and Design of One-Way Streets

One-way streets may be permitted as loop streets or marginal access streets where there is need to separate the directional lanes to preserve natural features and/or to avoid excessive grading for street construction on steep slopes. One-way streets shall have a minimum of a twenty (20) foot paved surface and a forty (40) foot right-of-way. Pavement and curb transitions shall be designed and constructed in accordance with standards provided by the Town Engineer.

4-106.7 Arrangement of Dead-End Streets

1. Temporary Stub Streets

(a) Temporary Turnarounds

A temporary turnaround, approved by the Town Engineer, shall be provided on all temporary stub streets exceeding three hundred (300) feet in length, with a notation on the final plat that land outside the normal street right-of-way shall revert to abutting property owners whenever the street is continued. The reconstruction of the temporary turnaround into the normal right-of-way shall be the responsibility of the attaching developer. Temporary turn-arounds shall have a minimum slope of one (1) percent as measured from the center. Additionally, a sign shall be placed, in accordance with the requirements of Section 4-107, STREET NAME, REGULATORY AND WARNING SIGNS, at the terminus of the temporary cul-de-sac that reads as follows: "Temporary Dead-End Street, Street to be extended by the authority of the Town of Kingston Springs"

(b) Local Access Stub Streets

Local Access stub streets may be required, or, such may be permitted but only within subsections of phased development for which the proposed street extension in its entirety has been approved as part of a conceptual plan.

(c) Collector and Lane Stub Streets

Stub streets may be permitted or required by the Town on collector streets provided that the future extension of the street is deemed desirable by the Town and conforms to the adopted Major Street Plan.

2. Permanent Dead-End Public Ways

(a) General Design Standards

Where a public way does not extend beyond the boundary of the subdivision and its continuation is not required by the Planning Commission for access to adjoining property, its terminus shall normally not be nearer to such boundary than one hundred-fifty (150) feet. The Planning Commission may require the reservation of an appropriate easement to accommodate drainage facilities, pedestrian traffic, or utilities. A cul-de-sac turnabout shall be provided at the end of a dead-end public way in accordance with the design standards of these regulations.

(b) Design of Turn-A-Rounds

Permanent dead-end or cul-de-sac streets shall normally not serve more than twenty-four (24) residences. A depth suitable for an adequate building lot may be required to be retained between the terminus of the road and adjoining property. The Planning Commission may require the reservation of a twenty (20) foot wide easement through this property to facilitate pedestrian traffic or utilities. Central planting islands shall be located within the turnarounds of permanent culs-de-sac. These planting islands shall contain plantings of canopy shade trees. The design of the cul-de-sac shall be such that storm water drains to this central planting island. No curbs are required along the perimeter of these turnarounds. The Planning Commission will consider alternative shapes for terminations when the street is located upon steep slopes and excessive cut or fill will be required to meet the design standards of the typical sections.

4-106.8 Alleys

Alleys may be required where appropriate in all commercial and industrial districts. Alleys are appropriate in residential districts to improve lot access, reduce the number and frequency of driveways entering public or private streets, or reduce the need for topographic disturbance.

4-106.9 Railroads and Limited Access Highways

Railroad right-of-way and limited access highways, where so located as to affect the subdivision of adjoining lands, shall be treated as follows:

1. In residential areas, a buffer strip at least twenty-five (25) feet in depth in addition to the normally required depth of the lot may be required adjacent to the railroad right-of-way or limited access highway. This strip shall be part of the platted lots and shall be designated on the plat: "This strip is reserved for screening. The placement of structures hereon is prohibited."
2. In business, commercial or industrial areas, the nearest street extending parallel or approximately parallel to the railroad shall, wherever practicable, be at a sufficient distance therefrom to ensure suitable depth for commercial or industrial sites.
3. Streets parallel to a railroad, when intersecting a street which crosses the railroad at grade, shall to the extent practicable, be at a distance of at least one hundred fifty (150) feet from the railroad right-of-way. Such distance shall be determined with due consideration of the minimum distance required for future separation of grades by means of appropriate approach gradients.

4-106.10 Bridges

Bridges of primary benefit to the subdivider, as determined by the Planning Commission, shall be constructed at the full expense of the subdivider without reimbursement from the Town. The sharing of expenses for the construction of bridges not of primary benefit to the subdivider, as determined by the Planning Commission, shall be fixed by special agreement between the Board of Commissioners and the subdivider. .

4-107 STREET NAME, REGULATORY AND WARNING SIGNS

4-107.1 Signs for Public Streets

4-107.101 Signage Requirements

All signage shall conform to the current edition of the Manual of Uniform Traffic Control Devices published by the United States Department of Transportation. Temporary signs may be installed and maintained in lieu of permanent signs until curbs are installed and backfilled. Such signs shall meet the same standards for mounting height, size, and legibility as permanent signs but may be mounted on temporary structures. The installation of temporary street name signs shall be verified by written developer/contractor certification to the Enforcing Officer before authorization for building permits may be granted.

4-107.102 Street Name Signs

a. Street Names

All new street names shall be verified with local 911 officials prior to recording the Final Plan.

b. Installation Requirements

The developer shall purchase and install appropriate signs. Written confirmation of this placement shall be required from the Town Engineer prior to recording a Final Plan.

c. Bond

The developer may post a performance bond in lieu of the improvements prior to the recording of the final plat. Street sign bonds may be a part of the original bond covering streets, drainage, water, sewer, etc.

d. Notes

All subdivision plats that require street name signs, or temporary dead-end street signs shall require a note stating: **“No building permit shall be issued for any lot until street name, regulatory and warning signs are installed and verified on all streets on which such lot depends for access.”**

4-107.103 Regulatory and Warning Signs

a. Installation Requirements

The developer shall purchase and install appropriate signs. Written confirmation of this placement shall be required from the Town Engineer prior to recording a Final Plan.

b. Bond

The developer may post a performance bond in lieu of the improvements prior to the recording of the Final Plan. Street sign bonds may be a part of the original bond covering streets, drainage, water, sewer, etc.

4-107.2 Street Names, Regulatory and Warning Signs for Private Streets

1. Installation Requirements

The developer shall purchase and install appropriate street name and traffic control signs. Written confirmation of this action shall be required prior to issuance of any building permit or filing of a Final Plan.

2. Bond

The developer may post a performance bond in lieu of the improvements prior to the recording of the Final Plan. Street sign bonds may be a part of the original bond covering streets, drainage, water, sewer, etc.

3. Notes

All subdivision plats that require street name signs, or temporary dead-end street signs shall require a note stating: **“No building permit shall be issued for any lot until street name, regulatory and warning signs are installed and verified on all streets on which such lot depends for access.”**

4-108 PRIVATE STREETS

4-108.1 Generally

Where the ownership, control and maintenance of any street is proposed to remain in private ownership, such street shall be designed and constructed to the standards provided in these regulations. A permanent access easement over such streets shall be provided to each and every parcel or lot that is to gain access therefrom. All such private improvements shall be maintained by the developer/owner or by a legally established Homeowner's Association or similar group approved by the Planning Commission. The legal documents establishing ownership and maintenance of the easement shall be submitted with the Final Plan for review and approval and shall be recorded with the Final Plan. A bond may be posted to guarantee such improvements in a like manner as required for public streets.

4-108.2 Additional Regulations for Private Streets

Private streets may be included in any subdivision in conformity to these standards so long as the subdivision is included within a PUD, or Conservation Subdivision as defined in Section 8-102, WORDS AND TERMS DEFINED. The private street (or street) shall be identified on the face of the plat as an easement for lot access and as a public utility easement.

1. Unless otherwise approved by the Planning Commission, private streets shall conform to the provisions of Subsection 4-106.2, General Design, of these regulations and in addition the following:

- (a) All hardware such as catch basins, inlets, etc. and all drainage structures shall meet the requirements of these regulations.
 - (b) Up to eight (8) side-by-side parking spaces may be allowed to back directly into the travelway of a loop or permanent dead-end roadway provided that:
 - (i) Such parking is located a minimum of twenty-five (25) feet from any other parking spaces backing into the travelway.
 - (ii) The sight distance along the travelway is adequate for the design speed of the street.
 - (iii) All other parking shall be provided with adequate off-street maneuvering to allow forward entry to the street.
 - (c) All vehicular access to the private street shall be shown on the Development Plan and Final Plan.
 - (d) A bond may be posted in lieu of completion of the required improvements in accordance with the provisions of Article III.
2. The Master Deed, or declaration of covenants, shall contain, in its description of the common element(s), a specific designation of the private street as the responsibility of the Owner's Association and not the Town or County. The Master Deed, or declaration of covenants, shall also provide for a sufficient level of funding to offset the reasonable and foreseeable costs of maintaining the private street.

4-108.3 Private Streets in Rural Areas

Private streets in subdivisions within rural areas (as defined in Section 8-102, WORDS AND TERMS DEFINED, shall conform to the following:

- 1. No more than ten lots may be served by a private street or network of private streets.
- 2. All drainage improvements required shall be completed and certified to be in compliance with the approved drainage plan before the Planning Commission will approve the Final Plan of the proposed subdivision. The Planning Commission may permit a performance bond to be posted in lieu of completion for Final Plan approval.
- 3. When an existing parcel is being subdivided to create two lots, the permanent easement for access to and egress from the new building site shall have a minimum width of twenty (20) feet.
- 4. All private streets serving two lots shall have an all-weather surface not less than eight (8) feet in width.

5. All private streets serving at least three (3) but not more than five (5) lots shall have an all-weather surface consisting of eight inches of gravel, compacted, or any more durable surface.
6. All private streets serving six (6) to ten (10) lots shall be paved with an eight-inch rock base with a double penetration, asphalt surface, or any more durable surface.
7. If a public water supply is available, the Planning Commission may require fire hydrants to be placed to serve the development.
8. The Planning Commission shall require proof that a joint maintenance agreement mutually enforceable and running with the land has been entered into and recorded for the lots served by the private street, prior to final approval of the Final Plan. The joint maintenance agreement shall provide that each owner is jointly and severally liable for the maintenance of the private street and that each owner can enforce contributions to offset the cost of that maintenance, based proportionately on the units served by the private street. The joint maintenance agreement shall also provide that if any owner must pursue legal action to enforce its provisions, he shall be allowed to recover reasonable attorney's fees and associated costs.

4-109 BLOCKS

In blocks longer than eight hundred (800) feet the Planning Commission may require the establishment of easements or public ways through the block to accommodate utilities or pedestrian access. In general, each normal block shall be planned to provide two (2) rows of lots, but irregularly shaped blocks indented by cul-de-sac streets and containing interior parks will be acceptable when properly designed and covered by agreements as to maintenance of interior parks.

4-110 LOT REQUIREMENTS

4-110.1 Lots to be Buildable

The lot size, width, depth, shape and arrangement shall be appropriate for the type of development and use contemplated, and shall be such that there will be no foreseeable difficulties, for reasons of topography or other conditions, in securing building permits to build on all lots in compliance with the Zoning Ordinance, or in providing access to buildings on such lots from an approved street. Dimensions of corner lots shall be large enough to allow for erection of buildings, observing the minimum front yard setback from both streets.

4-110.2 Side Lot Lines

Side lot lines, so far as practicable, shall be at right angles or radial to street lines unless a variation from this rule will give, in the opinion of the Planning Commission, a better street or lot plan. Lot lines shall coincide with Town boundaries rather than cross them. Where extra width has been dedicated for widening an existing street, lot lines shall begin at such extra width line.

4-110.3 Access from Major Streets

Lots shall generally not have their vehicular access from a major street. Where driveway access from a major street may be necessary for several adjoining lots, the Planning Commission shall require that such lots be served by a combined access drive in order to limit possible traffic hazard on such street. (See Subsection 4-105.4, Access to Arterial and Collector Routes.)

4-110.4 Access Across a Watercourse

Where a watercourse separates the buildable area of a lot from the access street, provision shall be made for the installation of a culvert or other structure, of a design approved by the Town Engineer.

4-110.5 Designation of Frontage for Corner Lots

A frontage for a house shall be designated on all corner lots located within any residential subdivision.

4-110.6 Lot Drainage

4-110.601 General

Lots shall be designed so as to provide positive drainage away from all buildings. Drainage of individual lots shall be coordinated with the existing or proposed general storm drainage pattern for the area. Drainage shall be designed so as to avoid concentration of storm water from each lot to adjacent lots, except within drainage easements or street rights-of-way. Surface water drainage patterns for each and every lot shall be shown on the street and drainage plans. Drainage flow and conveyance arrows shall be indicated on the topographic grading and drainage plan.

It shall be the responsibility of the builder of any building or other structure to design and construct a suitable drainage scheme that will convey surface water, without ponding on the lot or under the building, to the drainage system constructed within the subdivision.

Any sinkhole or natural channel serving as a means of moving ground water into the subterranean system shall be identified on the Final Plan and shall be protected by a structure as approved by the Stormwater Division and the Tennessee Department of Environment and Conservation.

4-110.602 Erosion and Sediment Control

An erosion and sediment control plan shall be presented with the Construction Plans submitted in conformance with Section 2-107, CONSTRUCTION PLANS, of these regulations. All properties adjacent to the site of land disturbance shall be protected from sediment disposition. The developer shall submit copies of any required permits issued by other government agencies such as, but not limited to Notices of Intent and Aquatic Resource Alteration Permits. Copies of supplemental information such as Storm Water Pollution Prevention Plans that are used to obtain these permits shall also be submitted.

4-110.603 Water Bodies and Watercourses

Generally, if a tract being subdivided contains a water body, or portion thereof, such area shall be within jointly held open space. However, the Planning Commission may approve an alternative plan whereby the ownership of and responsibility for safe maintenance of the water body is so placed that it will not become a governmental responsibility. No portion of the minimum area of a lot required under any zoning ordinance may be satisfied by land that is underwater. Where a watercourse separates the buildable area of a lot from the public way to which such lot has access, provisions shall be made for installation of a culvert of adequate overflow size or other structure approved by the Planning Commission.

4-111 OPEN SPACE REQUIREMENTS

4-111.1 Reservation of Land for Recreational Purposes

Areas for parks and playgrounds of reasonable size for neighborhood playgrounds or other recreational uses shall be required. No arbitrary percentage of area shall be insisted upon by the Planning Commission, but in general the developer should set aside not less than ten percent of the area for these purposes. In lieu of a reservation of land, a recreation fee may be paid per the fee schedule established by the governing body, upon a determination by the Planning Commission that a park of suitable size or location cannot be located in the development or is otherwise not practical.

4-111.2 Basic Criteria.

The configuration of proposed Open Space Lands set aside for common use in residential subdivisions shall:

1. Be free of all structures except historic buildings, stonewalls, and structures related to the open space uses. The Planning Commission may grant approval of structures and improvements required for storm drainage, sewage treatment and water supply within the open space provided that such facilities would not be detrimental to the intended use of the open space. The Planning Commission may also grant permission to construct small, modest buildings for recreational uses, such as park shelters, etc.
2. Generally not include parcels smaller than three (3) acres, have a length-to-width ratio of less than four to one (4:1), or be less than seventy-five (75) feet in width, except for such lands specifically designed as neighborhood greens, playing fields or trail links.
3. Be directly accessible to the largest practicable number of lots within the subdivision. Non-adjoining lots shall be provided with safe and convenient pedestrian access to Open Space Land.
4. Be suitable for active recreational uses to the extent deemed necessary by the Planning Commission.
5. Be interconnected wherever possible to provide a continuous network within and adjoining the subdivision.

6. Provide buffers to adjoining farmland, parks, preserves or other protected lands.
7. Open Space Lands shall provide for pedestrian pathways for use by the residents of the subdivision. Consideration shall be given to providing for public access on such trails if they are linked to other publicly-accessible pathway systems within the Town. Provisions should be made for access to the Open Space Lands, as required for land management and emergency purposes.
8. Be undivided by public or private streets, except where necessary for proper traffic circulation.
9. Be suitably landscaped either by retaining existing natural cover and wooded areas and/or landscaping with native trees, shrubs, and wildflowers.
10. Be made subject to such agreement with the Town and such conservation easements duly recorded in the office of the County Recorder of Deeds as may be required by the Planning Commission for the purpose of preserving the common open space for such use, and
11. Be consistent with the Town's Development Plan and its Open Space Plan.

4-111.3 Open Space Land Ownership and Maintenance Standards

4-111.301 Permanent Protection

All Open Space Land shall be permanently restricted from future subdivision and development. Under no circumstances shall any development be permitted in the Open Space at any time, except for those uses listed in Subsection 4-111.2, Basic Criteria, above.

4-111.302 Ownership Options

The following methods may be used, either individually or in combination, to own common facilities. However, Open Space Land shall be initially offered for dedication to the Town. Common facilities shall not be transferred to another entity except for transfer to another method of ownership permitted under this section, and then only when there is no change in the common facilities or in the open space ratio of the overall development. Ownership methods shall conform to the following:

a. Fee Simple Dedication to the Town

The Town may, but shall not be required to, accept any portion of the common facilities that the applicant may wish to offer voluntarily, provided that:

- i. There is no cost of acquisition to the Town; and,
- ii. The Town agrees to and has access to maintain such facilities.

b. Condominium Association

Common facilities may be controlled through the use of condominium agreements. Such agreements shall be in accordance with relevant state law. All open land and common facilities shall be held as "common elements".

c. Homeowners' Association

Common facilities may be held in common ownership by a Homeowners' Association, subject to all of the provisions for homeowners' associations set forth in the following regulations:

- i. The applicant shall provide the Town a description of the organization of the proposed association, including its by-laws, and all documents governing ownership, maintenance, and use restrictions for common facilities.
- ii. The proposed association shall be established by the owner or applicant and shall be operating (with financial subsidization by the owner or applicant, if necessary) before the sale of any dwelling units in the development.
- iii. Membership in the association shall be automatic (mandatory) for all purchasers of dwelling units therein and their successors in title.
- iv. The association shall be responsible for maintenance and insurance of common facilities.
- v. The by-laws shall confer legal authority on the association to place a lien on the real property of any member who falls delinquent is his dues. Such dues shall be paid with the accrued interest before the lien may be lifted.
- vi. Written notice of any proposed transfer of common facilities by the association or the assumption of maintenance for common facilities must be given to all members of the association and to the Town no less than thirty days prior to such event.
- vii. The association shall have adequate staff to administer, maintain, and operate such common facilities.

4-111.303 Private Conservation Organization or the Town

With permission of the Town, an owner may transfer fee simple title of the open space or easements on the open space to a private non-profit conservation organization or to the Town provided that:

- The conservation organization is acceptable to the Town and is a bona fide conservation organization intended to exist indefinitely;
- The conveyance contains appropriate provisions for proper reverter or retransfer in the event that the organization or the Town becomes unwilling or unable to continue carrying out its functions.
- The Open Space Land is permanently restricted from future development through a conservation easement and the Town is given the ability to enforce these restrictions; and,
- A maintenance agreement acceptable to the Town is established between the owner and the organization or the Town.

4-111.304 Dedication of Easements to the Town

The Town may, but shall not be required to, accept easements for public use of any portion of the common land or facilities voluntarily offered by the Applicant. In such cases, the facility remains in the ownership of the condominium association, homeowners' association, or private conservation organization while the Town holds the easements. In addition, the following regulations shall apply:

- There shall be no cost of acquisition to the Town.
- Any such easements for public use shall be accessible to the residents of the Town.
- A satisfactory maintenance agreement shall be reached between the owner and the Town.

4-111.4 Open Space Land Maintenance

4-111.401 Responsibility for Maintenance

Unless otherwise agreed to by the governing body, the cost and responsibility of maintaining common facilities and Open Space Land shall be borne by the property owner, condominium association, homeowners' association, or conservation organization.

4-111.402 Open Space Maintenance Plan

The applicant shall, at the time of Development Plan submission, provide a Plan for Maintenance of Open Space Lands and Operation of Common Facilities in accordance with the following requirements. (This Plan may be based on the model by the Natural Lands Trust, Media, PA.)

- a. The Plan shall define ownership;
- b. The Plan shall establish necessary regular and periodic operation and maintenance responsibilities for the various kinds of open space (i.e., lawns, playing fields, meadow, pasture, cropland, woodlands, etc.);

- c. The Plan shall estimate staffing needs, insurance requirements, and associated costs, and define the means for funding the maintenance of the Open Space land and operation of any common facilities on an on-going basis. Such funding plan shall include the means for funding long-term capital improvements as well as regular yearly operating and maintenance costs;
- d. At the Town's discretion, the applicant may be required to escrow sufficient funds for the maintenance and operation costs of common facilities for up to one year; and,
- e. Any changes to the maintenance plan shall be approved by the Planning Commission

4-111.403 Failure to Maintain

In the event that the organization established to maintain the Open Space Lands and the common facilities, or any successor organization thereto, fails to maintain all or any portion thereof in reasonable order and condition, the Town may assume responsibility for maintenance.

4-111.404 Corrective Action in Event of Failure to Maintain

The Town may enter the premises and take corrective action, including extended maintenance. The costs of such corrective action may be charged to the property owner, condominium association, Homeowners' Association, conservation organization, or individual property owners who make up a condominium or Homeowners' Association and may include administrative costs and penalties. Such costs shall become a lien on said properties.

4-112 RESERVATIONS AND EASEMENTS

4-112.2 Easements for Utilities and Drainage

4-112.201 Basic Requirement

Where topography or other conditions are such as to make impractical the inclusion of utilities or drainage facilities within street rights of way, perpetual unobstructed easements at least twenty (20) feet in width for such utilities shall be provided across property outside the street lines and with satisfactory access to the street. Such easements shall be centered on rear or side lot lines.

4-112.202 Explanation of Drainage Easements

In any instance where drainage easements are indicated upon a final plat the following notation shall appear:

"The drainage easements (or the drainage discharge points) shown hereon establish the perpetual right to discharge storm water runoff from the highway and from the surrounding area onto and over the affected premises by means of pipes, culverts, or ditches, or a combination thereof, together with the right of the holder of fee title to the highway, or his authorized

representatives, to enter said premises for purposes of making such installations and doing such maintenance work as said holder of fee title may deem necessary to adequately drain the highway and surrounding area."

4-112.3 Easements for Pedestrian Access

The Planning Commission may require, in order to facilitate pedestrian access from streets to schools, parks, playgrounds, or other nearby streets, perpetual unobstructed easements at least twenty (20) feet in width. Where blocks exceed 800 feet in length, such pedestrian facilities shall be installed by the developer as mid-block connectors.

4-112.4 Easements for Maintenance of Slopes

4-112.401 Basic Requirement

Where steep slopes beyond the street right of way may require maintenance, an easement may be required for such purpose.

4-112.402 Explanation of Slope Easement

In any instance where drainage easements are indicated upon a final plat the following notation shall appear:

"The slope easements shown hereon convey to the Town of Kingston Springs the right to enter said premises for the purpose of cutting and maintaining a stable earth slope."

4-112.5 Easements for Maintenance of Visibility Triangles

4-112.501 Basic Requirement

Where conditions beyond the street right of way may require protection of visibility triangles, an easement may be required for such purpose.

4-112.502 Explanation of Slope Easement

In any instance where sight easements are indicated upon a final plat the following notation shall appear:

"The slope easements shown hereon establish the perpetual right of the holder of fee title of the highway, or his authorized representatives, to clear, regrade and maintain the area within these easements at such elevation that there is a clear line of sight anywhere across the area between an observer's eye at an elevation of three and one-half (3 1/2) feet above the surface at the nearest edge of the road and an object one (1) foot above the nearest edge of pavement on the intersecting road."

4-112.6 Responsibility for Ownership of Reservations

Title to all reservations, if vested in interests other than the subdivider, shall be clearly indicated on the plat. An explanation of such reservations reading as follows shall appear upon the final plat: "Reserved for highway purposes (or recreation purposes, or other approved purpose)"

4-113 DRAINAGE AND STORM SEWERS

4-113.1 General Design Concept

It is the intention of these regulations that both the rate and **the total amount** of stormwater run-off from development sites be minimized. In general, the primary design concept for stormwater management within new developments is to be premised on use of open space for detention, retention and aquifer recharge. This approach is intended to maximize on-site infiltration of stormwater directly into the community's aquifer recharge system and thereby reduce the need for costly, large-scale stormwater collection systems while simultaneously making dual use of open area as "rain gardens" and bio-retention areas.

4-113.2 Nature of Storm Water Facilities

4-113.201 Location

The subdivider may be required by the Planning Commission to carry away by pipe or open ditch any spring or surface water that may exist either or prior to or as a result of the subdivision. Such drainage facilities shall be located in the street right-of-way, where feasible, or in perpetual unobstructed easements of appropriate width and shall be constructed in accordance with the approved Construction Plans.

4-113.202 Accessibility to Public Storm Sewers

- a. Where a public storm sewer is accessible, the developer shall install storm sewer facilities, or if no outlets are within a reasonable distance, adequate provision shall be made for the disposal of storm waters, subject to the specifications of the Town.
- b. If a connection to a public storm sewer will eventually be provided, as determined by the Planning Commission, the subdivider shall make arrangements for future storm water disposal by a public utility system at the time the plan receives final approval. Provision for such connection shall be incorporated by inclusion in the performance bond required for the Final Plan.

4-113.203 Accommodation of Upstream Drainage Areas

A culvert or other drainage facility shall in each case be large enough to accommodate potential runoff from its entire upstream drainage area, whether inside or outside the subdivision. The engineer designing the subdivision shall determine the necessary size of the facility, based on provisions of the Town's construction specifications and assuming conditions of maximum potential watershed development permitted by applicable zoning regulations.

4-113.204 Effect on Downstream Drainage Areas -- The Town also shall study the effect of each subdivision on existing downstream drainage facilities outside the area of the subdivision. Where it is anticipated that the additional runoff incident to the development of the subdivision will overload an existing downstream drainage facility, the Planning Commission may withhold approval of the subdivision until provision has been made for adequate improvement of such drainage facilities. No subdivision shall be approved unless adequate drainage will be provided to an adequate drainage watercourse or facility.

4-113.3 Dedication of Drainage Easements

4-113.301 General Requirements

Where a subdivision is traversed by a watercourse, drainageway, channel, or stream, there shall be provided a storm water easement or drainage right-of-way conforming substantially to the lines of such watercourse and of such width and construction as will be adequate for the purpose. Where open drainageways are utilized they shall be designed for the twenty-five (25) year design flood.

4-113.302 Drainage Easements

- a. Where topography or other conditions are such as to make impracticable the inclusion of drainage facilities within a street right-of-way, perpetual unobstructed easements at least ten (10) feet in width for such facilities shall be provided across property outside the street lines and with satisfactory access to streets. Easements shall be indicated on the Development Plans and Final Plans. Drainage easements shall be carried from the street to a natural watercourse or to other drainage facilities.
- b. When a new drainage system is to be constructed which will carry water across private land outside the subdivision, appropriate drainage rights must be secured and indicated on the Final Plans.
- c. The applicant shall dedicate, when required by the Planning Commission, either in fee, or by drainage or conservation easement, the land on both sides of existing watercourses to a distance to be determined by the Planning Commission.
- d. Along watercourses, low-lying lands within any floodway, as has been determined by the Planning Commission pursuant to these regulations, whether or not included in areas for dedication, shall be preserved and retained in their natural state as drainage ways.

4-113.303 Ditching

All drainage ditches shall be constructed adjacent to the roadway shoulders and shall feed to and from culverts under or adjacent to the roadway. All such ditches shall be graded in their entirety during the time in which roadways are being graded and such grading is to be completed prior to final inspection of the roadways.

4-113.304 Concrete Ditch Paving

Concrete ditch paving shall consist of the construction of paved ditches on a prepared subgrade. The subgrade shall be shaped and compacted to a firm even surface. All soft material shall be removed and replaced with suitable material and compacted. Concrete ditch pavement shall be four (4) inches in thickness throughout and shall be backfilled immediately after the concrete has set and the forms removed. The backfill material shall be thoroughly compacted. Expansion joints shall be appropriately located.

4-113.305 Culverts and Storm Drains

Pipe culverts and storm drains shall be installed as shown on the subdivision plat and Construction Plans. No metal pipe shall be used without specific approval of the Planning Commission and the Town Engineer. Reinforced concrete pipes shall conform to minimum standards for Class III Reinforced Pipe, ASTM C76. Concrete headwalls shall be constructed at both ends of cross drains.

4-114 WATER FACILITIES

4.114.1 General Requirements

Necessary action shall be taken by the developer to extend a water supply system capable of providing domestic water use and fire protection in all cases, other than in certain prescribed conditions, as outlined in the R1-A, Zoning District as follows: The installation of servicing fire hydrants shall only be required in all one (1) and two (2) lot subdivisions within R1-A, Zoning Districts, whenever a 6 inch water line is located within five hundred (500) feet of the boundary of any such subdivision. However, all subdivisions of over two (2) lots in the R1A Zoning District shall be served by a public water supply system.

4.114.2 Construction Criteria

All water facilities including fire hydrants shall be subject to the construction standards, material specifications established by the Town. All plans and materials are subject to approval by the Town Engineer and the Tennessee Department of Environment and Conservation. Where required for fire protection water mains shall not be less than six (6) inches in diameter; where water mains are not to be utilized for fire protection, the Planning Commission may approve smaller lines, as necessary, to meet potable water demand.

4.114.3 Special Criteria for Flood Prone Areas

All water systems, whether public or private, located in a flood prone area shall be floodproofed to the regulatory flood protection elevation. All water supply facilities located below the regulatory flood protection elevation shall be designed to prevent the infiltration of floodwaters into the water supply system and discharges from the system into floodwaters.

4.114.4 Fire Hydrants

Fire hydrants shall be required in all subdivisions. Hydrants shall be located no more than one thousand (1,000) feet apart by road and be within five hundred (500) feet of all residential, commercial, or industrial building envelopes or structures, whichever is applicable. This distance shall be measured by road or street. However, the Planning Commission may require closer spacing where physical conditions or types of structures so warrant. To eliminate future public way butting or openings, all underground utilities for fire hydrants, together with the fire hydrants themselves, and all other water supply improvements shall be installed before any final paving of a public way. (NOTE: For fire protection requirements within the Town of Kingston Springs, see Ordinance No. 06-005, entitled, "An Ordinance Hereby Establishing the Use of Automatic Sprinkler Systems in the Construction of Buildings within the Corporate Limits of the Town of Kingston Springs, Tennessee". Within the unincorporated portion of the Kingston Springs Planning Region, the provisions of Resolution No. 5, "Resolution Establishing the Use of Automatic Sprinkler Systems in the Construction of Buildings Within Cheatham County, Tennessee", shall apply.)

4-115 SEWAGE FACILITIES

4-115.1 General Requirements

The applicant shall install sanitary sewer facilities in a manner prescribed by the regulations of the Tennessee Department of Environment and Conservation and by any other applicable standards and specifications. All plans shall be designed and approved in accordance with the rules, regulations, specifications, and standards, of any applicable governmental agency or appropriate unit thereof.

4-115.2 Mandatory Connection to Public Sewer System

1. When public sanitary sewers are accessible to the subdivision, as determined by the Planning Commission, the subdivider shall provide such facilities to each lot therein and shall connect the facilities to the public system. The subdivider shall provide sewers that meet standards set forth in the regulations of the Tennessee Department of Environment and Conservation.
2. All sanitary sewer facilities located in a flood hazard area shall be floodproofed to the regulatory flood protection elevation. All sewer facilities located below the regulatory flood protection elevation shall be designed to prevent infiltration of floodwaters into the sewer system and discharges from the system into floodwaters.
3. All public sanitary sewer systems shall be constructed utilizing materials that are A.S.T.M. and/or A.W.W.A. approved.

4-115.3 Individual Disposal System Requirements

If public sewer facilities are not available and individual disposal systems are proposed the individual disposal system, including the size of the septic tank and size of the tile fields or other secondary treatment device shall be approved by the County Health Department. Unless located within a Conservation Subdivision approved under the authority of Article VI, of these regulations, the entire individual disposal system, including all drainage fields associated therewith, shall be located on the lot with the principal structure such system is to serve.

The Planning Commission may prohibit installation of sewage disposal facilities requiring soil absorption systems where such systems will not function due to high groundwater, flooding, or unsuitable soil characteristics. The Planning Commission may require that the subdivider note on the face of the final plat and any deed of conveyance that soil absorption fields are prohibited in designated areas.

4-115.4 Design Criteria for Sanitary Sewers

The design criteria as well as material and construction standards shall be as specified in the Cheatham County Infrastructure Manual.

4-116 PUBLIC USES

4-116.1 Plat to Provide for Public Uses

Except when a developer utilizes planned unit development or density zoning, in which land is set aside by the developer as required by provisions of the zoning ordinance, whenever a

tract to be subdivided includes a school, recreation use, a portion of a major street, or other public uses, as indicated on the adopted Town Development Plan and Major Street Plan or any portion thereof, such tract shall be suitably incorporated by the developer into the design of his subdivision when first presented for review by the Planning Commission. After proper determination of its necessity by the Planning Commission and the appropriate Town official or other agency involved in the acquisition and use of such site and after a determination has been made to acquire the site by the public agency, the site shall be suitably incorporated by the developer into the plat prior to final approval by the Planning Commission and recording of the Final Plan.

4-116.2 Referral to Public Body

The Planning Commission shall refer any plan presented in accordance with Subsection 4-116.1, to the public body concerned with acquisition for its consideration and report. The Planning Commission may propose alternate areas for such acquisition and shall allow the public body or agency sixty (60) days for reply.

4-116.3 Notice to Property Owner

Upon receipt of an affirmative report, the Planning Commission shall notify the property owner and shall designate on all plats any areas proposed to be acquired by public body.

4-116.4 Duration of Land Reservation

The acquisition of land reserved by a public body on the Final Plan shall be initiated within twenty-four (24) months of notification, in writing, from the owner that he intends to develop the land. Such letter of intent shall be accompanied by a plat of the proposed development and a tentative schedule of construction. Failure on the part of the public agency to initiate acquisition within the prescribed twenty four (24) months shall result in the removal of the "reserved" designation from the property involved and the freeing of the property for development in accordance with these regulations.

4-117 NONRESIDENTIAL SUBDIVISIONS

4-117.1 General

If a proposed subdivision includes land that is zoned for a commercial or industrial purpose, the layout of the subdivision with respect to such land shall make such provisions as the Planning Commission may require. A nonresidential subdivision shall be subject to all the requirements of these regulations; as well as such additional standards as set forth by the Planning Commission.

4-117.2 Standards

In addition to the principles and standards in these regulations which are appropriate to the planning of all subdivisions, the developer shall demonstrate to the satisfaction of the Planning Commission that the public way, parcel, and block pattern proposed is specifically adapted to the uses anticipated and takes into account other uses in the vicinity. The following principles and standards shall be observed:

1. Proposed industrial parcels shall be suitable in area and dimensions to the types of nonresidential development anticipated;
2. Special requirements may be imposed by the governing body with respect to any public way, curb, gutter, and sidewalk design and construction specifications;
3. Every effort shall be made to protect adjacent residential areas from potential nuisances from the proposed nonresidential subdivision, including provision of extra depth in parcels backing on existing or potential residential development and provisions for permanently landscaped buffer strips, when necessary; and
4. Public ways carrying nonresidential traffic, especially trucks, normally shall not be extended to the boundaries of adjacent existing or potential residential areas.