

## **ARTICLE IV: ROADS DESIGN STANDARDS**

### **Section 401: Overview Purpose**

This section provides the requirements for designing, furnishing, installing, and placing in satisfactory service all public roads. The arrangement of local streets shall permit practical patterns, shapes and sizes of development parcels. Street layout must strike a balance with proposed land use so as not to unduly hinder the development of land. All public roads shall be designed and constructed in accordance with the requirements contained in this section.

1. All public roads constructed in the City shall be shown on a set of engineering plans. The Plans shall include a plan view of the road showing the road layout to scale, adjacent property owners, right-of-way width, location of ditches and streams, location and size of culverts, location of utilities, typical road cross-section including curb and gutter, and pavement profile or specification.
2. Upon successful completion of construction of the road, the developer/builder shall provide the City with a deed (including a proper legal description and/or reference to a recorded plat). The deed must be acceptable to and accepted by the City Attorney.
3. The road must be named with a name not otherwise used in Habersham County. The road name must be acceptable to the Habersham County 911 program.
4. Road sections shall generally conform to the “Typical Section” contained herein.

### **Section 402: Traffic Analysis**

New developments that will generate a significant amount of traffic may be required to perform a traffic analysis. The City will review each proposed development on a case-by-case basis to determine if a traffic study is required. If the City deems the size of the project warrants a traffic study, then the developer's design professional who is qualified to do this type of work will be required to perform a traffic study. Three (3) copies of the Traffic analysis, if required, should accompany the applications for proposed development.

Traffic studies must describe the extent, nature, and location of traffic impacts for all property for which the application is being sought and further all contiguous property owned by the applicant. The study area shall include the entire site being developed, future phases of multi-phase development, and the surrounding roadways, which are likely to be significantly impacted. At a minimum, the surroundings roadways to be included are:

1. The expected routes of access to the site as far as the nearest major arterials serving the site from each direction nearest the site;
2. The routes and site access to major intersections expected to carry fifteen (15) percent of the project’s traffic; and

3. Other roadways expected to carry 1,000 additional daily vehicles as a result of the development.

It is recommended that a preliminary traffic assignment be performed to establish the scope of the study before beginning the inventory of existing conditions.

Traffic studies must include the following elements:

1. Conceptual plan or site plan of the proposed developers.
2. Inventory of existing conditions including adjacent land users, existing travel lanes and rights-of-way, existing pavement conditions, existing peak hour volumes and turning movement data with six (6) months of applications data, levels of service for peak hour period, and existing problems of deficiencies in curvature, sight distance, drainage, etc.
3. Trip generation;
4. Trip distribution;
5. Trip assignment;
6. Planned transportation improvements;
7. Identification of traffic impacts, problems, and deficiencies; and
8. Recommended transportation improvements and other impact mitigation measures, including but not limited to, entrance requirements, number of entrances, traffic circulation with the project, etc.

#### **A. Trip Generation**

The traffic study will include trip generation data for each phase of the overall project. Trip generation data will include the total number of vehicles computed to be entering and exiting the site on an average weekday and during a.m. and p.m. peak hours. Trip generation rates will usually be based on the peak hour of adjacent roadways described in the latest edition of Trip Generation (ITE). If the planned development includes more than 250,000 square feet of retail space, include similar trip generation data for Saturdays. If the existing site is zone for a use other than single-family residential, include trip generation data for the site developed as zoned.

Trip generation rates must be taken from the latest edition of the ITE Trip Generation publication unless suitable documented local data are provided from the least three similar developments collected within the past five (5) years. Suitable documentation includes the type, location, and size of each development; the dates and hours of data collection; the availability of public transportation; and the vacancy rate for the development. Copies of actual trip data may be required.

Vehicle trip will be computed by multiplying appropriate trip generation rates by the appropriate units for which the rates were intended. There are exceptions of this procedure:

1. When mixed-use developments are designed to encourage a significant number of internal trips, the total vehicle trips may be reduced by the estimated number of internal person trips, divided by the average auto-occupancy rate. The study must provide adequate published documentation or evidence of its assumptions concerning internal trips.
2. When retail developments are located along an arterial where a significant number of passerby traffic is reasonable, an appropriate adjustment may be made if adequate published documentation or evidence is provided in the study.

**B. Trip Distribution**

The trip distribution process will estimate the directional distribution of travel to and from the site for the approximate year of occupancy. Note that trip distribution for residential development (home-based work trip productions) and office development (home-based work trip attractions) are different. Retail distribution process may be accomplished by one of three means:

1. Use appropriate trip distribution rates from trip tables prepared by state or regional planning agencies; or
2. Prepare a custom trip distribution based on the “area of influence” method described in the American Planning Association publication Traffic Impact Analysis by Greenberg and Hecimovich (PAS Advisory Service Report No. 387, 1984); or
3. Prepare another acceptable distribution and assignment using data approved in advance by the City of Cornelia Planning Department in the Preliminary Conference.

**C. Vehicle Trip Assignment**

The traffic analysis study will prepare vehicle trip assignments for the peak hour period of periods which represent the worst case in terms of the sum of existing traffic and the traffic generated by the overall proposed development. Normally this would be the p.m. peak hour. If the trip generation for the a.m. peak hour exceeds 75 percent of the traffic generated by the p.m. peak hour, then both a.m. and p.m. peak hour trip assignments should be prepared. Two trip assignments will be prepared for each peak hour period stipulated above:

1. Generated vehicle trips added to existing traffic assigned on the existing roadway system; and
2. Generated vehicle trips added to existing traffic and to traffic from other planned developments near the site, assigned on the system of existing roadways including recommended improvements; include other nearby large developments which have been rezoned or issued a development permit during the past 24 months. When information about nearby developments is not available, growth factors may be used to inflate existing traffic from other developments. Growth

factors should be computed from the forecast population and employment of the Census tract which include the site.

These trip assignments will be prepared and illustrated for the internal roadways and driveways within the overall development, along with the surrounding roadways, intersections, and interchanges in the study area. Trip assignments will describe the peak hour directional vehicle volumes and turning movements at intersections.

**Section 403: Access**

Access to every subdivision and land development shall be provided over a public street. Private streets are prohibited. Each lot shall have access to a public street and a minimum of thirty (30) feet of lot frontage on a public street; provided, however, that the City Commission may permit one or more lots to be accessed by private streets, as more fully specified in this ordinance.

When a subdivision consists of fifty thirty (530) or more lots, it is desirable, but not absolutely required, that the subdivision have more than one entrance/exit to/from the subdivision. The City shall consider the amount of existing city street frontage and the configuration of the site in determining approving whether more than one entrance/exist is required for preliminary plat approval.

**Section 404: Conformance to Adopted Major Thoroughfare and Other Plans.**

All streets and other features of the adopted comprehensive plan shall be platted by the subdivider in the location and if any, to the dimensions indicated on the Major Thoroughfare Plan or transportation component or element of a comprehensive plan adopted by the City Commission.

**Section 405: Continuation of Existing Streets.**

Existing streets shall be continued at the same or greater width, but in no case less than the required width.

**Section 406: Street Plans for Future Phases of the Tract.**

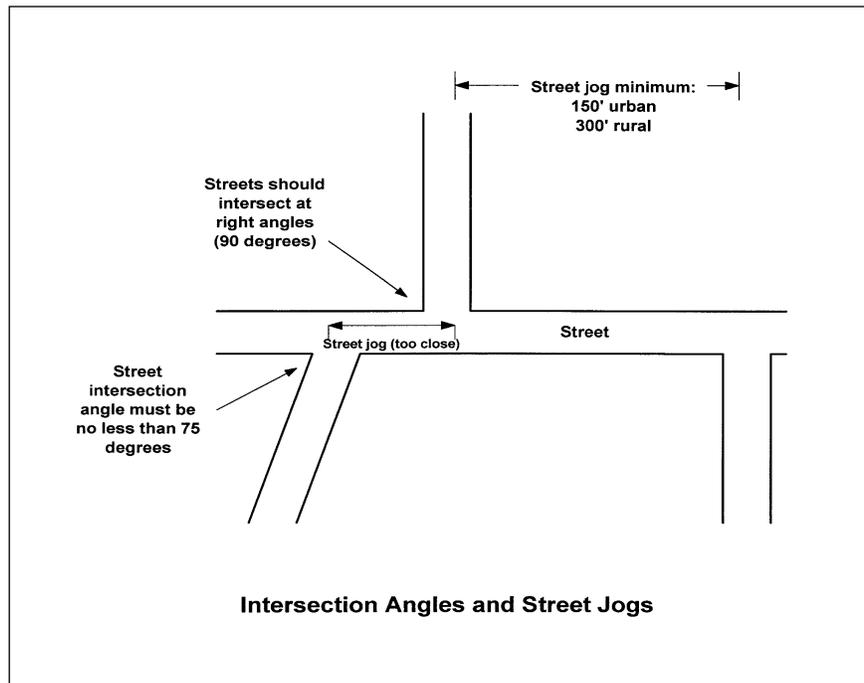
Where the plat or site plan proposed to be subdivided or developed includes only part of the tract owned or intended for subdivision or development by the subdivider or land developer, a tentative plan of a future street system for the portion not slated for immediate subdivision consideration may be required by the Administrative Officer and if required shall be prepared and submitted by the subdivider or land developer at the time of submission of an application for preliminary plat or land development plan approval, whichever occurs first.

**Section 407: Street Names.**

Street names shall be approved by the Administrative Officer. Streets that are in alignment with existing named streets shall be given the name of the existing street. Names of new streets shall not duplicate or closely approximate those of existing streets in the City or County.

**Section 408: Street Alignment, Intersections, and Jogs.**

Streets shall be aligned to join with planned or existing streets. Under normal conditions, streets shall be laid out so as to intersect as nearly as possible at right angles (90 degrees), but in no case shall such a street intersection be less than 75 degrees. Where street offsets or jogs cannot be avoided, offset "T" intersections shall be separated by a minimum centerline offset of 150 feet (i.e., the "urban" standard in the following illustration shall apply).



**Section 409: Development Along Arterial Street or Limited Access Highway.**

Where a subdivision abuts or contains an arterial street or a limited access highway, the Administrative Officer shall require a street approximately parallel to and on each side of such right-of-way either as a marginal access street or, at a distance suitable for an appropriate use of the intervening land, with a non-access reservation suitably planted. Lots shall have no access to major streets (or limited access highways) but only to access streets.

**Section 410: Alleys.**

Alleys may be required at the rear of all lots used for multi-family, commercial or industrial developments, and may be provided in one or two-family residential developments.

**Section 411: Reserve Strips.**

Reserve strips controlling access to streets, alleys, or public grounds shall not be permitted unless their control is placed in the hands of the City Commission, under conditions approved by the City Commission.

**Section 412: Cul-de-Sacs.**

Streets that dead-end shall terminate in a cul-de-sac or other approved turn-around. Streets that are planned to continue at some future date shall provide a temporary cul-de-sac. Except where topographic or other conditions make a greater length unavoidable, cul-de-sacs or dead-end streets shall not be greater in length than 750 feet and shall provide at the closed end with a turn-around radius of fifty (50) feet, and approved by the City Engineer.

**Section 413: Access to Property**

Openings for vehicular access to lots from public streets, referred to as curb cuts or driveways, shall be in accordance with the following requirements:

- A. **Size and Spacing** – In no case shall a curb cut or other access point be less than ten (10) feet or more than thirty (30) feet in width. Except in residential zoning districts no two (2) curb cuts or other access points shall be closer than 50 feet from each other.
- B. **Location** – At street intersections, no curb cut or other access points shall be located closer than 35 feet from the intersecting point of the street right-of-way lines.
- C. **Visibility** – At any street intersection or at the intersection of any private driveway with a street, no fence, wall, sign, planting or other structure or object shall be permitted that will form an impediment to the point of intersection of the driving surfaces.
- D. **Visibility at Intersections** – On corner lots, no fence, shrubbery or other obstruction to the traffic sight vision, except utility poles or traffic lights or sign standards, shall exceed a height of three (3) feet within a triangular area formed by the intersection of the right of way lines of two (2) streets or a street intersection with a railroad right-of-way line and a diagonal line which intersects the right-of-way lines at two (2) points each a minimum of 20 feet distance from the intersection of the right-of-way lines, or in the case of a rounded corner, from the point of intersection of their tangents; provided however, signs, lights or similar objects which are totally located at least ten (10) feet above the finished grade shall be permitted.
- E. **Permit Required** – No person shall be authorized to open any curb cut, grade or otherwise make any improvements upon the public right-of-way of any street, road or highway, except with approval of the City. The City reserves the right to require the applicant to indemnify and hold the City harmless for any injury or damage to public utilities and improvements existing within said right-of-way over which any driveway or other improvement is to be built. The City further reserves the right to require the property owner, at his expense, to remove any permitted improvement or to relocate or repair the same as necessary for the maintenance and future improvement of said right-of-way, including the location, relocation, repair or removal of utilities existing therein.

- F. **New Subdivision or Developments Fronting Upon the State Highway System** – Whenever a new subdivision or development is proposed, which fronts the state highway system and requires access therefrom, no final approval of the site plan shall be given by the Municipal Planning Board until the developer has submitted the final plat to the Georgia Department of Transportation, received approval and submitted this approval to the Municipal Planning Board.

**Section 414: AASHTO Standards**

Road design shall conform to AASHTO (American Association of State Highway and Transportation Officials) requirements, unless otherwise noted.

**Section 415: Minimum Design Speed and Maximum Grade**

Minimum design speeds and maximum grades for proposed streets in the City of Cornelia by street classification shall be as follows:

Street Type	Maximum Allowable Grade	Minimum Required Design Speed
Arterial	7%	55 MPH
Major Collector	10%	45 MPH
Minor Collector	14%	35 MPH
Unclassified	15%	25 MPH
Alley & Dead-End Streets	14%	Varies

Minimum grade including cul-de-sacs shall be 1.5% to maintain 1% in curb lines.

**Section 416: Sight Distance at Entrances to New Development**

The sight distance along existing city roads at proposed entrances for both subdivisions and individual commercial/industrial sites shall be designed according to "A Policy on Geometric Design of Highways and Streets", most current edition, by AASHTO. The design professional should refer to the chapter entitled "At-Grade Intersections", and the "Sight Distance" section of this chapter.

A general guide is provided below for sight distances at entrances. This guide does not relieve the design professional from complying with all aspects of AASHTO sight distance requirements for entrance designs.

Minimum sight distances shall be as follows:

	<u>Minimum Sight Distance</u>
Arterials	500 ft. @ 4 ft. above ground level
Major Collectors	300 ft. @ 4ft. above ground level
Minor collecting, Alleys & Unclassified	200 ft. @ 4 ft. above ground level

Each traffic movement through the intersection should be checked for vertical and horizontal sight distance. Any object high enough above the roadway to constitute an obstruction should be shown on the plans and noted to be removed or lowered. Such obstructions include signs, ground cover (vegetation), cut slopes, hedges, buildings, etc.

**Section 417: Minimum Length of Vertical Curves**

Interior subdivision streets — crest vertical curves K=10, sag vertical curves K=20. Curve length equals the product of the K value and the algebraic difference in the road grades. Minimum vertical curve length shall be as follows:

	<u>Minimum Length</u>
Arterials	200 ft.
Major Collectors	100 ft.
Minor collecting, Alleys & Unclassified	60 ft.

**Section 418: Widening for Development Entrances**

A. The following widening is required for new developments in both subdivision and individual commercial/industrial site development entrances.

Street Classification	Street Width (ft.)	Required R/W (ft)
Arterial	24+	50+
Major Collector	24	40
Minor Collector	20	30
Local	12	25

- B. Street width is measured from centerline to the edge of the pavement.
- C. Right-of-way is measured from the existing centerline.
- D. Lane length is measured 150 feet from tangent point of radius to beginning of taper. Tapers are 50 feet. Vertical curb and gutter is required through the radii, The additional lane can be stopped at the projected property line if there is inadequate right-of-way, excessive cut or fills to install the lane. In this case, the tapers would start at the projected property line unless excessive cut or fills would encroach on the right-of-way limits of the abutting property.
- E. Paving section shall correspond to the street classification of the existing road the entrance connects to:
  - Arterial — Industrial Paving Section
  - Major Collector — Industrial Paving Section
  - Minor Collector — Commercial Paving Section
  - Local — Commercial Paving Section

The cost of any catch basins, which must be constructed when an existing City or County road is required to be modified, will be paid by the developer.

- F. Existing storm sewers located in the area of the entrance widening shall be extended and connected to the proposed storm sewer system at the developer's expense.
- G. See Standard Detail Drawings for widening at entrances.

**Section 419: Residential Street Section**

Residential streets shall be a minimum of 22 feet of paved width within the curb and gutter. There shall be a minimum shoulder section behind both curbs as shown in the Standard Detail Drawings and based on the City's sidewalk requirements.

Pavement width shall be no less than as follows:

Street Types	Minimum Right-of-Way	Minimum Pavement Width (Ft)
Arterial	70 ft.	50 ft. or as shown in the Major Thoroughfare Plan
Major Collector	60 ft.	12-ft lanes + curb & gutter=24 ft.
Minor Collector- Residential & Dead-End	60 ft.	22-ft + curb & gutter
Alley	20 ft.	16 ft.
Cul-de-sacs	50 ft.	50 ft. radius

Cul-de-sac radius shall be as shown in the Standard Detail Drawings.

**Section 420: Industrial/Commercial Streets**

- A. Pavement width for industrial/commercial streets shall be no less than as follows:

Type Street	Minimum Right-of-way	Minimum Pavement Width (Ft)
Arterial	100 feet	52 ft. + w/13+foot lane
Major Collector	80 feet	52 ft. w/13 foot lane
Minor Collector	80 feet	28 ft. w/14 foot lane
Cul-de-sac	80 feet radius	55 ft. radius

- B. Paving standard shall be as shown in Standard Detail Drawings for industrial/commercial streets.
- C. See Typical Industrial curbing detail in Standard Detail Drawings.
- D. Cul-de-sac radius shall be as shown in the Standard Detail Drawings.

**Section 421: Horizontal Curvature**

The minimum radii of centerline curvature shall be as follows:

Type Street	Minimum Right-of-way
Arterial Streets	≥ 800 ft.
Major Collector	≥ 300 ft.
Minor Collectors, Alleys & Dead-Ends	≥ 100 ft.

**Section 422: Dam Supporting Road**

No city road shall be designed to cross an existing or proposed dam.

**Section 423: Dead Dead-End Roads**

No new developments shall have dead dead-end roads or streets.

**Section 424: Curb-Line Radius.**

The curb-line radius at street intersections shall be at least 20 feet. Where the angle of street intersection is less than 90 degrees, a longer radius may be required. For commercial and industrial subdivision streets, a minimum 25 foot curb-line radius shall be provided.

**Section 425: Bridges.**

Bridges on public rights-of-way shall meet current American Association of State Highway and Transportation Officials and the Georgia Department of Transportation standards, or as may be determined by the City Engineer.

**Section 426: Right-of-Way Clearance.**

All trees, brush, stumps, rocks, or other debris shall be cleared from the street right-of-way as required; provided, however, that efforts should be made and the city may accept proposals to save suitable vegetation in the right-of-way that will not pose a public safety hazard.

**Section 427: Grading of Streets.**

All streets shall be graded to lines, grades and cross-sections approved on the plans.

**Section 428: Street Paving and Base.**

Base and sub-base shall be installed in compliance with specifications of the City Engineer.

1. Residential streets shall be built to the following standards.
  - A. The following types of base material may be used:
    - a. Six-inch graded aggregate base meeting the requirements of Georgia State Department of Transportation specification 815.
    - b. Graded aggregate base course: The base course shall consist of mineral aggregate and may be a combination of natural deposit or a blend of the materials specified. All materials are subject to approval by the City Engineer. If a blend of materials is used, it shall be blended through a base plant which meets the latest specifications of the Georgia State Department of

Transportation specification 815. Minimum depth of base course shall be six (6) inches under a minimum of 2 inches asphaltic concrete type "E."

- c. Black base: The base course shall consist of asphaltic concrete as approved by the City Engineer and shall conform to applicable specifications of the Georgia Department of Transportation. Minimum base course shall be four inches under minimum two inches asphaltic concrete.
- B. Prime: After the base has been placed, mixed, compacted, shaped, inspected and accepted, it shall be primed with suitable asphaltic materials as specified in Georgia Department of Transportation specification 412.
- C. Roadway surfaces: After the prime has been inspected and accepted, the roadway or street shall be surfaced with a minimum 1 1/2 inches of type "E," asphaltic concrete wearing surface. No surface treatment pavement as a finished wear surface will be accepted. All asphaltic concrete will be mixed in an asphalt plant meeting the latest requirements of the Georgia Department of Transportation.

Final top course to be applied after development is approximately 95% complete.

For commercial and industrial street paving base, use 8 inches crusher run base, prime and place 3.5 inches of plant mix asphaltic binder Type "B" and surface with 1.5 inch of compact hot plant mix topping, Type "E" or "F".

### **Section 429: Curb and Gutter**

Curb and gutter shall be installed along both sides of all paving. All curb and gutter, valley, gutter, driveway aprons and sidewalks shall conform to City specifications. Concrete shall be Class "A" as defined by GDOT and have a minimum compressive strength of 3,000 psi at 28 days. All gutters shall drain positively with no areas of ponding.

1. Residential curbing:

- A. Concrete shall have a minimum strength of 2,500 psi at 28 days.
- B. Typical minimum section shall be 6" X x 24" X x 9".

2. Industrial or commercial curbing:

- A. Concrete shall have a minimum strength of 3,000 psi at 28 days.
- B. Typical section shall be 6" X x 30" X x 12".
- C. Vertical faced curbing only.

3. Construction methods:

- A. Line and grade shall be set by developer's engineer, landscape architect, or surveyor and approved by the City Engineer.
- B. One-half inch expansion joints or premolded bitumastic expansion joint material shall be provided at all radius points and at intervals not to exceed 50 feet in the remainder of the curb and gutter. When the development ties into existing curbing,

the curb and gutter shall match the existing width.

**Section 430: Street Signs.**

Street signs shall be furnished and installed at all street intersections on the rights-of-way by the developer and shall be white "scotchlite" with black legends mounted on 10 foot round square posts, or as otherwise approved by the City Engineer. Exact locations shall be approved by the City Engineer prior to installation.

**Section 431: Street Right-of-Way Improvements.**

All street right-of-ways outside of the paved portions shall be graded to conform to approved cross section and shall be soiled with a material acceptable to the City Engineer. These areas shall be landscaped as required by this ordinance.

**Section 432: Street Trees.**

Street trees and other shrubbery that may be retained or planted shall be placed or retained so as not to obstruct sight distances at street intersections.

Street tree planting is required along all new local, collector, and arterial streets in the City of Cornelia and private streets within commercial, industrial, or residential subdivisions. Street tree planting shall be required along all the property road or street frontage for each new land development in the city, except for existing lots of record developed for a detached, single-family dwelling, within the street right-of-way if sufficient room exists, or if such room does not exist, on private property within a street tree or general purpose easement.

The subdivider, owner of land to be dedicated as a public street, or the developer of a private street or land development shall at the time of preliminary plat, development permit, or building permit approval submit a plan for the provision of street trees along all said roads or road frontages. It is the intent of this section that the subdivider or land developer carefully position street trees on the plan while taking into account future driveway and sidewalk locations if not constructed simultaneously with the construction of the public or private street or land development. In the cases of subdivisions, suitable arrangements must be made for either the subdivider/ developer or individual builders to install street trees according to a plan approved by the Administrative Officer as a part of preliminary plat approval, prior to dedication or opening of said street. It is the preference of the city that the subdivider shall install said street trees prior to the dedication or opening of the public or private street; however, the Administrative Officer may accept an agreement where the responsibility for street tree planting is shifted to the owners or individual builders of the lots to be subdivided. Any such responsibility shall be legally transferred in a form acceptable to the City Attorney.

Trees must be planted within the public right-of-way or, if right-of-way width is insufficient to accommodate said street trees, then on private property abutting the public right of way within a street tree easement dedicated to the city.

The guidelines below in Table 5.1 are intended to avoid conflicts with infrastructure; they are recommendations only and are subject to the approval of the Administrative Officer. See Article XII for additional information.

**TABLE 5.1  
GUIDELINES FOR THE PLANTING OF STREET TREES**

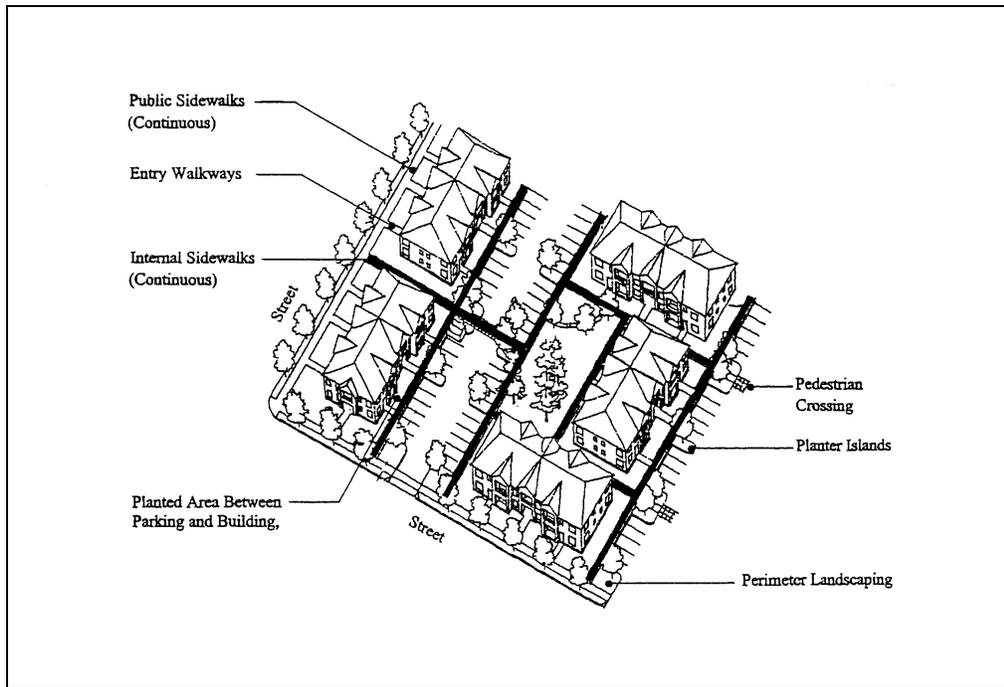
<b>MATURE SIZE</b>	<b>MINIMUM WIDTH OF TREE LAWN</b>	<b>SPACING BETWEEN TREES</b>	<b>OVERHEAD UTILITIES IF PERMITTED</b>	<b>DISTANCE FROM SIGNS, UTILITY POLES, DRIVEWAYS, FIRE HYDRANTS</b>	<b>DIST-ANCE FROM INTER-SECTION</b>	<b>DIST-ANCE FROM UNDER-GROUND UTILITIES</b>
Large 50-70 Feet	8 Feet	60 Feet	Do Not Plant	10 Feet	30 Feet	5 Feet
Medium 30-40 Feet	5 Feet	40 Feet	Okay	10 Feet	30 Feet	5 Feet
Small 15-20 Feet	3 Feet	20 Feet	Okay	10 Feet	30 Feet	5 Feet
Evergreen 40-50 Feet	Yards Only	30 Feet	Do Not Plant	30 Feet	30 Feet	5 Feet

**Section 433: Sidewalks.**

Sidewalks shall be installed in street rights-of-ways [in all residential, commercial and industrial developments along one side of the proposed street. and in] subdivisions located within a mile from an existing or proposed school on one side of any subdivision street providing access to such school. When sidewalks are required, the subdivider shall furnish and install all required paving materials without cost to the City, in accordance with City Specifications including the following

- (a) Sidewalks shall have a minimum width of five (5) feet in residential areas and seven (7) feet in commercial areas.
- (b) Sidewalks along streets in residential areas shall not be less than two (2) feet from street curbs or the edge of pavement.
- (c) All driveway aprons over sidewalk areas shall be paved with concrete by the developer or builder.
- (d) Sidewalks shall be four (4) inches thick and consist of concrete (2,500 psi at 28 days) and shall be located on the north and east sides of streets.
- (e) Sidewalk systems and multi-use trails shall be constructed in accordance with requirements of Americans with Disabilities Act (ADA).

In addition to the above requirements, on private properties, individual land developments, except for detached, single-family lots, shall provide direct pedestrian access ways to all public sidewalks or multi-use trails when located on a public street abutting the property to be developed.



Source: OTAK. 1999. Model Development Code and User's Guide for Small Cities. Salem: Oregon Transportation and Growth Management Program.

#### **Section 434: Streetlights.**

Streetlights shall be provided in accordance with City specifications by the developer of a subdivision prior to the approval of a final plat. Fixtures and standards/poles installed or used shall be approved by the utility company which will be responsible for the maintenance of the facilities and by the City. The fixtures shall be mounted no more than thirty (30) feet above the ground and shall have appropriate arm length to place the light over the street. No arm shall be less than two and one-half (2-1/2) feet long unless approved by the City Engineer. Streetlights shall be serviced by underground electrical utilities. Post top luminaries may be permitted when approved by the City Engineer. Fixtures shall be located no more than five hundred (500) feet apart, unless approved by the City Engineer, and at least one light shall be located at each street intersection within the subdivision or land development.

The developer shall pay all costs for standard poles, fixtures and any other related items or materials necessary for the installation, as well as arrange an agreement with the utility company for complete maintenance of all installations. The City of Cornelia shall assume the responsibility and make the monthly payments to the power company for electrical energy for each street light only after these requirements have been accomplished and improvements accepted. The City of Cornelia shall accept responsibility for power bills for streetlights no earlier than one year after the streetlights have been installed, and the developer or Homeowners Association will be responsible until that time.

#### **Section 435: Acceleration/Deceleration Lanes.**

For subdivisions or land developments accessing state routes, the Georgia Department of

Transportation may require the installation of acceleration/deceleration lanes.

The City Engineer may require the installation of a deceleration lane for a distance of 200 feet and a 50 foot taper from all project entrances serving commercial and industrial subdivisions, and residential subdivisions serving fifty lots or more. For all commercial properties, if an acceleration/ deceleration lane is not required, the subdivider or land developer may be required to construct a wide flare entrance according to specifications of the City Engineer.

**Section 436: Improvements to Abutting Streets.**

For subdivisions and land developments that abut and access an abutting public street, the subdivider or land developer shall install sidewalk, street lights, street trees, other road improvements, and if required a deceleration lane, according to standards and specifications of the City Engineer along all abutting public streets. When a subdivision or land development uses an unpaved public right-of-way for access, the subdivider or land developer shall improve that right-of-way to a pavement width consistent with city street design standards. Said improvements shall be from the subdivision or land development entrance to the paved city street which the City Engineer determines will be the primary direction of travel for residents of the subdivision or occupants of the land development.

Where an impact on the safety of the motoring public may be in question as determined by the Administrative Officer, the Administrative Officer may require the developer to have a traffic impact study submitted and reviewed prior to issuance of a permit.

**Section 437: Traffic Signs**

The design professional shall show the location of all required traffic signs. Unless otherwise noted, design of traffic signs shall conform to the Manual on Uniform Traffic Control Devices.

Stop signs shall be located from the signs edge six (6) feet off the back of curb or edge of gravel at the beginning of the intersection radius. The sign shall be located on the right side of the intersection. The bottom of the sign shall be at least five (5) feet above the edge of pavement or back of curb. This standard applies to typical residential interior street intersections.

All other intersections shall have stop signs located according to the Manual on Uniform Traffic Control Devices.

Stop signs shall be sized so that their overall dimensions are 30" x 30".

All other signs shall be sized according to the Manual on Uniform Traffic Control Devices.

**Section 438: Utility Locations**

All utility locations shall correspond to the typical layout shown in the Standard Detail Drawings.

**Section 439: Apartments and Condominiums**

Streets shall be constructed to residential street standards as set forth in these specifications.

**Section 440: Mobile Home Parks**

Streets shall be constructed to residential street standards as set forth in these specifications.

**Section 441: Site Design for Individual Commercial/Industrial Lots**

See above sections "Sight Distance at Entrances to New Development", "Widening for Development Entrances" and Individual. Commercial/Industrial Sites-Development Entrances.

Width of entrances shall be limited to those shown in the Standard Design Drawings. Entrances with several lanes for different traffic movement with concrete or painted islands shall be reviewed on a case-by-case basis.

Spacing of entrances and distance of entrances to property lines shall be limited to distances shown in the Standard Design Drawings.

Entrances shall comply with valley gutter requirements shown in the Standard Detail Drawings (GA DOT Standard 9031U).

**Section 442: Proposed Grading**

1. Proposed grading shall have positive drainage.
2. Swales lined with grass or stone shall be designed with a minimum 1.0% slope. Concrete lined swales shall be designed with a minimum 0.5% slope.

**Section 443: Automobile Parking**

1. Automobile parking shall be designed with maneuvering aisles and parking spaces to the minimum dimensions as shown in the Standard Detail Drawings.
2. The number of parking spaces required for each development shall be as required in the City of Cornelia Zoning Ordinance.
3. All off street automobile parking, accesses and maneuvering aisles shall be paved unless approval is given for a Low Impact Development alternative. Off street automobile parking and the access and maneuvering aisles that serve this parking shall be defined as those areas that are open to the general public.
4. Parking for the handicapped shall be designed as shown in the Standard Detail Drawings.

**Section 444: Retaining Walls**

Retaining walls shall be designed by a registered engineer qualified to do structural design.

**Section 445: Infrastructure Materials**

All materials shall comply with GA DOT Standard Specifications Construction of Roads and Bridges with Supplemental Specifications and Standard Details current edition, unless noted otherwise.

**Section 446: Streets**

1. Graded Aggregate Base Course — The base course shall consist of mineral aggregate and may be a combination of natural deposit or a blend of the materials specified. All materials are subject to approval by the City Engineer. If a blend of materials is used, it shall be blended through a base plant, which meets the latest specifications of the Georgia State Highway Department specification 815.
2. Black Base — The base course shall consist of asphaltic concrete as approved by the City Engineer and shall conform to applicable specifications of the Georgia State Highway Department.
3. Prime – After the base has been placed, mixed, compacted, shaped, inspected and accepted, it shall be primed withy suitable asphaltic materials as specified in DOT Specification 412.
4. Tack coat shall be applied on a prepared road surface according to the requirements of Georgia DOT Specification 413.
5. Roadway Surfaces — After the prime has been inspected and accepted, the roadway or street shall be surfaced with an asphaltic concrete wearing surface. No surface treatment pavement as a finished wear surface will be accepted. All asphaltic concrete will be mixed in an asphalt plant meeting the latest requirements of the Georgia State Highway Department.

**Section 447: Curbs and Gutters**

1. Residential — Concrete shall be Class "A" as defined by GA DOT and have a minimum compressive strength of 3,000 psi at 28 days.
2. Commercial/Industrial — Concrete shall be Class "A" as defined by GA DOT and have a minimum compressive strength of 3,000 psi at 28 days.

**Section 448: Storm Sewer Pipe**

1. State Highway Standard 1030D shall be used in determining class concrete or gauge of pipe under fill.
2. A certification by the supplier of the pipe specifications for each pipe shall be required before installation.

3. Concrete pipe shall be reinforced.
4. Reinforced Concrete pipe shall be used under all public streets, where pipe slopes are less than 1%, and for all live streams. Double Wall High Density Polyethylene Pipe may be used in all other instances.

**Section 449: Storm Drainage Structures(Excluding storm sewer pipe)**

The materials used for storm drainage structures shall comply with the standards of the GA DOT.

**Section 450: Construction**

All construction shall comply with GA DOT Standard Specifications Construction of Road and Bridges, with Supplemental Specifications and Standard Details, current edition, unless noted otherwise.

**Section 451: Clearing and Grubbing**

The entire area within the typical grading section shall be cleared and grubbed of all trees, bushes, stumps and debris and other objectionable materials. Grubbing depth shall be two (2) feet below subgrade. Rock shall be scarified to a depth of twelve (12) inches below subgrade. Prior to any grading, the entire right-of-way area shall be cleared of all bushes, stumps, debris and other questionable materials, as well as all trees not intended for preservation. All debris shall be disposed of in a lawful manner. There shall be no burial in the road right-of-way.

**Section 452: Grading**

Grading shall be accurately done to the lines and grades shown on the plans. Embankments shall be placed in uniform layers not to exceed six inches and compacted to a density of 95% of the maximum laboratory dry weight per cubic foot as determined by ASSHTO Method T-99. If necessary in order to obtain this compaction, the contractor shall add moisture to the material as it is placed.

Depth of Cut or Fill	Cut Slopes	Fill Slopes
2 feet or less	4 to 1	4 to 1
2 feet to 5 feet	3 to 1	3 to 1
5 feet to 10 feet	2 to 1	2 to 1
Over 10 feet	2 to 1	2 to 1

The depth of cut referred to shall be constructed to the maximum cut or fill occurring in any one section of cut or fill. The slope on cut or fill slopes shall be uniform throughout for each section of cut or fill. When a cut is made in rock that requires blasting, the slope may be changed to vertical slope upon the approval of the City's engineer. Shoulder section behind curb on typical streets shall be as shown in the Standard Detail Drawings.

**Section 453: Subgrade**

1. After the earthwork has been completed, all storm drainage, water, sanitary sewer and other underground utilities have been installed within the right-of-way, as appropriate, and the backfill in all such ditches has met all compaction requirements of this Ordinance and the City's representative (as appropriate), the subgrade shall be brought to the lines, grades and typical roadway sections shown on the plans.
2. A surveyor must certify grade within six (6) inches of final or submit an "as-graded" profile for review by the City Manager or his representative.
3. When the roadway is to be used for construction traffic before the paving work is completed, a layer of #3 stone can be laid as a traffic surface if the developer so desires. This material shall not be used as part of the base material. It may be worked into the subgrade; or it shall be removed before the base course is set up for paving.
4. Provision shall be made to drain low points in road construction when the final paving surface is delayed. A break in the berm section is required when the curbing has not been constructed. After installation, drainage under the curb is required

**Section 454: Local and Minor Collector Streets**

Any and all roadway construction shall meet the minimum specifications of the Georgia Department of Transportation, unless otherwise noted.

1. The base material for local and minor collector streets shall consist of a minimum of 8" of graded aggregate base. The base material shall be spread uniformly and with the grade of the road with a crown or super elevated depending on the cross section shown on the plans. The base shall be fine graded and compacted to 100 percent of maximum dry density. Compaction based on modified proctor in accordance with Georgia Department of Transportation (GDOT) specifications. Compaction tests will be done randomly, but not to exceed 500 feet apart. In addition, the road base shall be proof rolled in the presence of the City's authorized representative. Any areas not meeting these requirements shall be reworked until proper compaction is achieved. The cost of compaction testing shall be the responsibility of the developer.
2. After passing all compaction requirements and brought to proper section, the base shall be primed with 0.25 gallons or R.C. 70 per square yard, according to GDOT standards, the same day it is compacted. After the prime has been properly cured, two (2) inches of modified "B" binder shall be applied. Prior to applying wearing course, a tack coat shall be applied to the binder course at a rate of no less than 0.05 gallons per square yard. Type of tack shall be approved by the City's authorized representative prior to placement. After placing tack, an additional one and one-half (1 'A) inch of type "F" wearing course shall be applied.
3. After a reasonable curing time, the asphalt shall be cored for thickness a random locations, not exceeding 500 feet apart. Extraction testing shall be done on the asphalt to ensure compliance with GDOT specifications for the asphalt section

required. Areas with failing asphalt tests shall be corrected by a method approved by the City. The cost of testing shall be the responsibility of the developer.

**Section 455: Construction Standards for Major Thoroughfares and Streets**

Minor collectors and major thoroughfares shall be constructed in accordance with the designs prepared by GDOT of the City's Engineer, If no design has been prepared, the following standards shall be used:

Street Category	Base	Binder	Topping
Principal Arterial	10" GAB	5"***	1-1/2" F
Major Arterial	10" GAB	4" Modified B	1-1/2" F
Minor Arterial	10" GAB	3" Modified B	1-1/2" F
Major Collector	10" GAB	3" Modified B	1-1/2" F
Minor Collector	8" GAB	2" Modified B	1-1/2" F

1. All major thoroughfares and streets shall be subject to the same specifications listed under streets as far as clearing and grubbing, grading, subgrade, curbs and gutter, street cuts, underground utilities, shoulders and easements, foreign material on streets, storm sewers, contractor qualifications, construction inspection, testing of materials, etc.
2. If construction is to be located on the GDOT right-of-way, GDOT will supersede the City and have control with their specifications, construction methods, permits, etc.

**Section 456: Underground Utilities**

1. All utilities located within street rights-of-way within the curbs shall be installed and the trenches backfilled and thoroughly compacted before any pavement or base is installed. All utilities otherwise located within street rights-of-way, shall be installed and trenches backfilled and compacted to 95% of the maximum laboratory dry density except for the top twelve (12) inches which shall be compacted to 100%, standard proctor.
2. All utility manholes and valve boxes shall be brought to the finished grade within the roadway section.

**Section 457: Shoulders and Easements**

All shoulders and easements shall be clear of limbs and debris, graded smooth and established in grass.

**Section 458: Foreign Material on Streets**

1. The developer, builders and/or homeowners shall be responsible for keeping dirt, mud, building materials, concrete, etc., off of the pavement and curbing of existing City or County roads during construction of buildings in all developments covered by these regulations.

2. Before the streets are accepted by City of Cornelia all litter and trash shall be removed from the dedicated rights-of-way and surrounding areas,

**Section 459: Testing**

1. All tests shall comply with Standard Specifications Construction of Roads and Bridges by the GDOT, most current edition.
2. Compaction testing shall be done on road embankments, trench backfill and road subbase.
3. Asphalt testing including coring for pavement thickness and asphalt extraction tests shall be done for roads.

**Section 460: Contractor Qualifications**

1. Licensing and Safety - All contractors who work on water systems that will be owned by the City of Cornelia must be licensed in accordance with State of Georgia law and local ordinance. Compliance with applicable safety regulations is the responsibility of each company engaged in the work; the city assumes no responsibility for the actions of others on the job site. It is the responsibility of those installing water mains and related appurtenances to conform to OSHA regulations, 29 CFR Part 1926, Subpart P, Paragraph 1926.650 through 1926.653. Publications from OSHA can be obtained by contacting OSHA Publications Distribution, Washington, D.C.
2. Contractors performing road and storm sewer construction must be approved by the City and should be completely familiar with the procedures and contract requirements associated with this type project.
3. Unsatisfactory work may result in the loss of privilege to obtain a permit for future work in the City of Cornelia.

**Section 461: Construction Inspection**

1. The developer's contractor will be responsible for the quality, accuracy and workmanship of his completed work.
2. The City may employ the services of an Engineer or a Consulting Engineer for inspection of the project. If the City does so, the City has the option of billing the developer the same rate or amount that the City has been billed or invoiced by their Engineer.
3. City personnel and/or their authorized representative will visit the job site on a periodic basis and will make spot checks, as they deem appropriate. The City of Cornelia shall have the right to review and inspect all construction and may reject any work that does not meet quality control standards.
4. Authorized representatives of the City of Cornelia, which may include city employees, the city engineering consultant, state or federal agencies, shall have access to the site for inspection at any time.

5. All written communications regarding road and storm sewer construction will be to:

**City of Cornelia**  
**Mailing address: P.O. Box 217785**  
**Cornelia, GA 30531**  
**Located at: 181 Larkin Street**  
**Cornelia, GA 30531**

**Phone: 706-778-8585**  
**FAX: 706-778-2234**

The developer, contractor(s) and the developer's professional responsible for inspection will be required to attend a pre-construction conference with the City. At the pre-construction conference, the contractor will submit to the city, in writing, the date they propose to begin construction. The contractor will provide notification by phone any time the work is to be vacated and will provide notice by phone prior to resuming work,

6. The applicable Administrative Officer, staff or consultants may have informal verbal communications with the contractor foreman or superintendent at any time during construction. The City will not direct the actions of contractor's workmen.
7. The contractor shall notify the City and receive inspection approval prior to concealing certain work such as storm sewers and bedding, storm drainage structures, road fill, etc.
8. Minimum Inspection by Developer's Professional The following minimum compaction tests and inspections will be performed and certified by professionals employed by the developer and approved by the City to perform quality control checking on the construction of the project while it is in progress. The City's authorized representative shall have the right to choose locations for the tests and to determine the number of tests taken above the minimum requirements. The city shall be notified at least one day prior to testing in order to be present during testing if so desired.
9. Roadway Embankment Compaction Testing - Frequency of testing shall be determined by project conditions, The minimum test requirements are one per 5000 cubic yards of material placed, one per four feet of fill or at the discretion of the City's representative. All areas failing compaction test shall be reworked as necessary until compaction is achieved.
- *Sub-base Compaction Testing and Test Rolling* Compaction tests of the sub-base should be done randomly not exceeding 500 feet apart. In addition, the road sub-base shall be test rolled with the City inspector present. Areas failing compaction testing shall be reworked until compaction is achieved.

- *Asphalt Pavement* — The asphalt shall be cored for thickness at random locations not exceeding 500 feet apart. Extraction testing shall be done on the asphalt to ensure compliance with GA DOT Specifications for the asphalt section required. Areas with failing asphalt tests shall be corrected by a method approved by the City.
- *Concrete* — Testing for concrete shall be done where concrete is used on the project for retaining walls, culverts and headwalls and bridges, Testing shall include slump tests, compressive strength tests and air entrainment tests. Testing shall comply with GA DOT testing standards for concrete.

#### **Section 462: Final Inspection and Conditional Acceptance**

The developer's design engineer shall furnish the City with as-built drawings and easements. An affidavit shall be furnished to the City stating the work on the project has been completed in accordance with the approved plans and specifications. After receipt of this affidavit, the City will schedule a final inspection. A representative of the developer's professional and the contractor will be present during this final inspection, This final inspection will generally include spot checks of storm sewers, drainage system, drainage easements, roads, water system and sanitary sewer system and a complete overview of the project,

After any discrepancies are corrected, the city will issue a letter certifying conditional acceptance of the water system. This letter shall commence the start of the 24-month warranty period, which is required of the contractor.

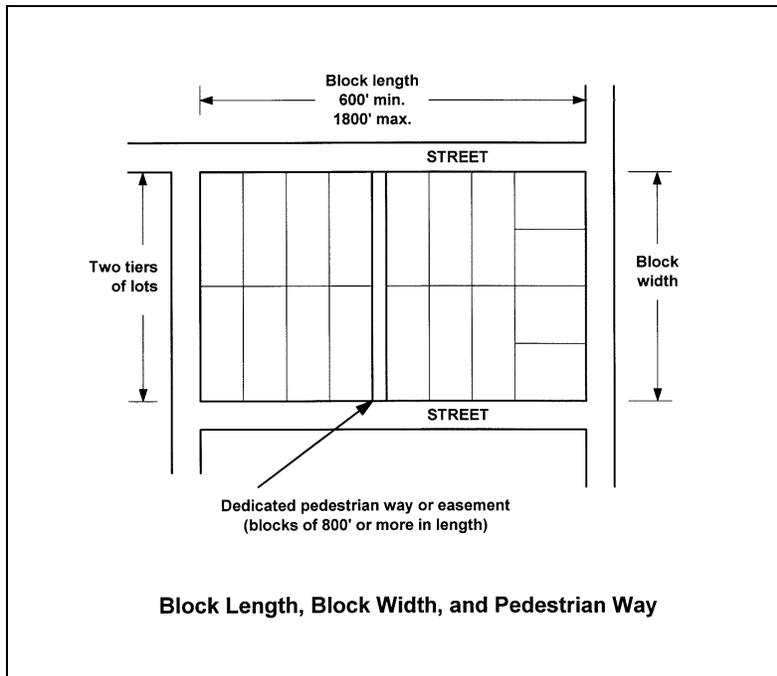
On projects having phased development, this letter will allow the developer to apply for a permit for the next phase of development.

At the end of 24 months, the City will re-inspect the entire development. When any discrepancies have been corrected, the city will issue an acceptance letter and will begin perpetual maintenance and operation of the roads and storm sewer system within the right-of-way.

#### **Section 463: Block Lengths and Widths.**

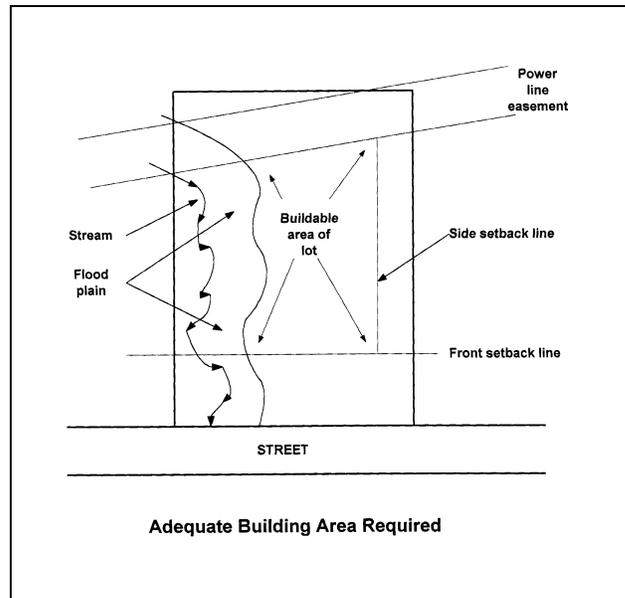
Intersecting streets shall be provided at such intervals so as to provide adequate cross traffic. Blocks in residential subdivisions should not exceed one thousand eight hundred (1800) feet nor be less than six hundred (600) feet in length, except where topography or other conditions justify a departure from these standards. In blocks longer than eight hundred (800) feet, pedestrian ways and/or easements through the block shall be required by the Administrative Officer near the center of blocks.

The width of the block shall normally be sufficient to allow two (2) tiers of lots of appropriate depth. Blocks intended for business or industrial use shall be of such width as to be considered most suitable for their respective use, including adequate space for off-street parking and deliveries.



#### Section 464: Lot Width and Size.

1. Residential lots shall meet the lot width and lot area requirements of the Zoning Ordinance of the City of Cornelia. Residential lots should have a depth not greater than 3 times the width of the lot at the building line, unless unusual circumstances make these limitations not practicable. Residential corner lots shall have adequate width to meet building setback requirements from both abutting streets.
2. Where individual septic tanks are used, the Habersham County Health Department shall approve minimum lot sizes to conform to health standards of the Georgia Department of Public Health.
3. Commercial and industrial lots shall be adequate to provide service areas and off-street parking suitable to use intended.
4. Each lot shall contain an adequate building site not subject to flooding and outside the limits of any existing easements or required yards/ building setback lines.



### **Section 465: Lot Lines.**

All lot lines shall be perpendicular or radial to street lines, unless not practicable because of topographic or other features.

### **Section 466: Building Lines.**

A building line meeting the front yard/ building setback requirements of the Zoning Ordinance, as a minimum, shall be established on all lots.

### **Section 467: Double and Reverse Frontage Lots.**

Double (or multiple) frontage and reverse frontage lots shall be avoided except where essential to provide separation of residential development from traffic arteries or overcome specific disadvantages of topography or orientation. A planting screen easement of at least ten (10) feet, across which there shall be no right of access, shall be provided along the line of lots abutting such a traffic artery or other disadvantageous use.

### **Section 468: Flag Lots.**

Flag lots which meet minimum lot area requirements and meet the minimum lot width at the front building setback line where the building is placed may be allowed where terrain makes standard design or frontage impossible or impractical. Where such lots are allowed, the street frontage of each panhandle portion of the lot shall not be less than thirty (30) feet wide, and the panhandle portion of the lot shall be not more than two hundred (200) feet long. Not more than two (2) such panhandle access points shall about each other.

**Section 469: Lot Remnants Not Permitted.**

All remnants of lots below any minimum lot size which may be required, left over after subdividing of a larger tract, must be added to adjacent lots, rather than allowed to remain as unusable parcels. The Administrative Officer may permit a lot remnant for a specific purpose such as a detention pond, provided that access and design is appropriate and the lot remnant is restricted to specific non-building use.

**Section 470: Monuments.**

For all subdivisions, a Georgia registered land surveyor shall install permanent survey monuments at all property corners and land lot lines, prior to final plat approval. Lot corners shall be marked with metal rods not less than 1/2" in diameter and 18" in length and driven so as to be stabilized in the ground. Permanent survey monuments shall also be installed in accordance with the most recent edition of Section 180-7-.05 Monument of the Rules of State Board of Registration for Professional Engineers & Land Surveyors and the Georgia Plat Act (O.C.G.A. 15-6-67).

**Section 471: Additional Technical Specifications.**

As provided in Section 303 of this ordinance, the City Engineer is authorized to prepare and enforce technical specifications for various improvements, including streets. Unless otherwise indicated in such technical specifications, all of the materials, methods of construction, and workmanship for the work covered in reference to street construction shall conform to one or more of the following as appropriate and applicable:

- (a) The latest standard specifications of the Georgia Department of Transportation;
- (b) The latest edition of AASHTO *Policy on Geometric Design of Highways and Streets*; and/or
- (c) The *Manual on Uniform Traffic Control Devices for Streets and Highways* published by the Federal Highway Administration of the U.S. Department of Transportation.

**END OF ARTICLE IV**