

# **NCGTPA**

## **Exclusive Development Ordinance**

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Committee August 6, 2010

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North Carolina  
**Global TransPark®**

The Wooten Company  
Raleigh/Greenville/Hickory/Asheboro, NC

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## SECTION 1 PURPOSE AND AUTHORITY

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### 1.1 AUTHORITY

This Development Ordinance is intended to guide the growth and development of the North Carolina Global TransPark Authority-owned and controlled properties in general conformance with the NCGTP Master Plan. This Ordinance shall be known and may be cited as the 'North Carolina Global TransPark Authority Exclusive Development Ordinance', except as referred to herein, where it shall be known as 'this Ordinance'. The provisions of this Ordinance are adopted under express authority granted by the North Carolina General Assembly in Chapter 63A of the North Carolina General Statutes and Article V, Section 13 of the North Carolina Constitution. This Ordinance may be amended from time to time.

### 1.2 PURPOSE

This Ordinance is established for the purpose of directing development of property and to ensure that the general integrity and aesthetic quality of the North Carolina Global TransPark (NCGTP) is protected. The primary objective of the Development Ordinance is to ensure that a well-planned, attractive, functional industrial community develops over time.

This Ordinance is intended to further define and illustrate design parameters and the plan approval process for all development on properties owned or controlled by the NCGTP Authority. This Ordinance is to be used by property owners and their agents in the planning, design, construction, operation and maintenance of improvements on properties owned or controlled by the NCGTP Authority.

This Ordinance is intended to educate property owners, developers, and the general public and plan reviewers on what is expected and desired for development in the NCGTP. The Ordinance presents clear policies, priorities and design principles to be used by property owners in helping to achieve the vision of the NCGTP.

### 1.3 Development Review Committee (DRC)

As established in Section 2, the Development Review Committee (DRC) shall review and approve all plans for development within the NCGTP. No improvements shall be constructed, erected, placed, altered, remodeled, demolished, or permitted on any property within the territorial jurisdiction of this Ordinance until plans and specifications, in such form and detail as the DRC may deem necessary, have been submitted and approved by the DRC.

#### 1.4 Master Plan

The NCGTP Master Plan ('Plan') establishes a general development scenario for the NCGTP. The Plan is intended as a conceptual plan to serve as a guide for approving future development proposals. Actual development may vary from the Plan. The Authority, at its discretion, may at any time revise or amend the Plan, in whole or in part.

#### 1.5 Definitions

Words not defined in this Ordinance shall be given their ordinary and common meaning. Appendix B provides a listing of definitions.

#### 1.6 Property Subject to Development ORDINANCE

The provisions of this Ordinance shall apply to all properties owned or controlled by the North Carolina Global TransPark Authority (Authority) within the territory for which the Authority has been authorized by NCGS 63-31, 63A-4(a)(19), 63A-6(d), 63A-7, and 63A-18 to exercise exclusive zoning regulations.

#### 1.7 Amendment

The Authority may amend the Development Ordinance at any time. Site improvements are to be constructed in accordance with this Ordinance in existence as of the date construction plans are approved. Subsequent changes to this Ordinance shall not require changes in existing construction or plans previously approved by the DRC.

#### 1.8 Enforcement

The Authority, and the Executive Director as its agent, shall have the right to enforce this Ordinance. Enforcement shall be by any proceeding at law or in equity against any person or persons violating or attempting to violate this Ordinance or any supplementary guidelines either to restrain violation or to recover damages. Failure by the Authority or the Executive Director to enforce any such provisions shall in no event be deemed a waiver of the right to do so thereafter. With respect to any litigation hereunder, the prevailing party shall be entitled to recover reasonable attorney's fees and court costs from the non-prevailing party. Pursuant to NCGS 63A-7(a), any person who violates an ordinance of the Authority is guilty of a Class 3 misdemeanor.

#### 1.9 Liens/Severability

Violation of or failure to comply with this Ordinance shall not affect the validity of any mortgage, lien, or other similar security instruments, which may then be existing as an encumbrance on any part of the property. Should any Section, sentence, clause, phrase, or word of this Ordinance be held invalid or unconstitutional by a Court of competent jurisdiction of either the State of North Carolina or the United States, such decision shall not affect, impair, or invalidate the validity of the remaining parts of this Ordinance which can be given effect without the invalid provision.

#### 1.10 Approvals

The Executive Director shall have the sole right to interpret and to make all subjective decisions regarding this Development Ordinance. No approval by the DRC or Executive Director, pursuant to the provisions of this Ordinance, shall be effective unless in writing, except as otherwise expressly provided herein.

#### 1.11 Restatement of Intent

Neither this section of this Ordinance, nor this Ordinance as a whole, is to in any way supersede any local government, state, or federal specifications, requirements, ordinances, rules or other applicable requirements, but to implement compliance with all applicable laws.

This Ordinance is intended for the establishment and maintenance of aesthetic compatibility and enduring quality of the NCGTP. This Ordinance requires, whenever possible, the consultation of professional consultants to ensure the safety and protection of all concerned parties who might in any way have any visitation or affiliation with the NCGTP.

The Development Review Committee (DRC) in no way holds itself responsible for the knowledge and/or verification of professional services by licensed and knowledgeable engineers, architects, landscape architects or other specialized professional parties.

#### 1.12 FEES

Each owner submitting plans to the DRC for review shall pay a review fee as established from time to time by the Authority. The Executive Director may, at the Director's discretion, hire professional consultants on a case-by-case basis. The owner whose plans are being reviewed will reimburse the Authority for costs associated with the review including the costs of any such consultants. The owner will be informed as to the amount of any such costs and the owner's approval obtained before any consultants are hired.

## Section 2

### ADMINISTRATION AND REVIEW PROCEDURES

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#### 2.1 DEVELOPMENT REVIEW COMMITTEE

There is hereby created a technical advisory committee known as the North Carolina Global TransPark Authority Development Review Committee (DRC) consisting of persons appointed by the Executive Director as deemed necessary to ensure a thorough review and approval of site development plans as well as other tasks assigned to the DRC.

##### 2.1.1. General Duties of the Development Review Committee

The DRC shall have the following duties:

- a) To review and make recommendations to the Executive Director concerning proposed site development plans and specifications for all proposed improvements.
- b) To monitor the construction of improvements for compliance with approved plans and specifications.
- c) To assure compliance with the technical aspects of this Ordinance.
- d) To provide, for transmission to the Executive Director, reports and recommendations regarding requests for approval.
- e) To perform any other related duties that this Ordinance may authorize or that the Executive Director may direct.

##### 2.1.2. Meetings

- a) The DRC shall meet at the direction of the Executive Director and frequently enough so that it can take action in conformance with the review procedures delineated in this Ordinance.
- b) The DRC may adopt rules and regulations governing its procedures and operations not inconsistent with the provisions of this Ordinance.

##### 2.1.3. Ex Officio Members

The Executive Director is authorized to appoint persons deemed necessary to assist the DRC in carrying out its responsibilities. Such members shall sit as nonvoting members of the DRC and shall lend their talents, energies, and expertise to the DRC. The Executive Director is also authorized to enter into contracts with planning, engineering, architectural, landscape architectural

and other such professionals as determined appropriate to provide required technical assistance to the DRC.

#### 2.1.4. Review Procedures

Consistent with the following general procedures, the DRC shall determine specific procedures for the review and approval process.

- a) Plans and specifications for all proposed improvements shall be submitted to the DRC for approval before work is started on such improvements. Ordinary maintenance, replacements in kind, or interior modifications which do not modify the exterior appearance or color, or jeopardize or impair the safety, soundness, or structural integrity of any improvements do not require DRC approval.
- b) During the design process, a designated representative of the DRC shall be available on a reasonable basis (during normal business hours) to answer questions regarding the intent of the Development Guidelines.
- c) The DRC approval process shall consist of one to three stages of review depending on the complexity of the proposed development. After consultation with the DRC or its designated agent regarding the intended use and the proposed location, the following information, as appropriate, shall be submitted to the DRC for approval:

- 1) Concept Plan

The concept plan shall be a plan of sufficient detail to convey the following information:

- (i) Location and dimensions and acreage of the property proposed for development.
- (ii) A description of the proposed use(s).
- (iii) General location of proposed building(s), parking areas, driveways, service areas, utility easements and connections to existing or new public utilities.

- (iv) An architectural sketch of the proposed building(s) along with general notes on building materials.

## 2) Preliminary Site Plan

Once the concept plan has been approved, the applicant shall submit a preliminary site plan for approval. The site plan shall include information on existing site conditions, proposed site layout, utilities, lighting, grading, landscaping, building elevations, and construction details. In particular, the site plan shall, at a minimum, include all that information specified in Appendix C of this Development Ordinance. The information submitted shall also include:

- (i) A description of proposed operations in sufficient detail to permit judgment of whether or not they are permitted uses under the terms of this Ordinance. The description shall include the extent of any noise, odor, glare, vibration, smoke, dust, gases, hazard of fire and explosion, radiation, radioactivity, electrical radiation, liquid wastes or other performance characteristic that may be specified in this Ordinance.
- (ii) Any other information required by the DRC in order to ensure compliance with the requirements of this Ordinance.

## 3) Site and Building Construction Plans

- (i) DRC-approved site and building construction plans shall be submitted for review, approval and permitting to the applicable local, State, and Federal government jurisdictions. Any deviations from the DRC-approved construction plans

shall be submitted to the DRC for review and approval prior to construction.

- (ii) Prior to the commencement of site work, the owner/general contractor shall submit a construction schedule to the DRC for approval.

#### 4) As-Built Plans

As-built plans for all architectural, mechanical, electrical, and plumbing floor plans, site utilities, and other site improvements shall be submitted to the DRC within three (3) months of issuance of the Certificate of Compliance and/or Certificate of Occupancy, as applicable, by the appropriate permitting authority.

## 2.2 EXECUTIVE DIRECTOR

The Executive Director, or designee, of the North Carolina Global TransPark Authority, as authorized in NCGS 63A-3(k), shall have the following responsibilities in the administration of this Ordinance:

1. To appoint the Authority staff members to the Development Review Committee.
2. To contract with other persons deemed necessary to assist the DRC in carrying out its responsibilities.
3. To make the final decision on the approval of all land development plans.
4. To issue certificates of compliance.
5. To modify or waive the minimum requirements of this Ordinance, provided that such waiver will not have the effect of nullifying the interest and purpose of this Ordinance.
6. To carry out other functions as specifically delineated in this Ordinance or to perform any other related duties that the Authority Board of Directors may direct.

## 2.3 EXECUTIVE COMMITTEE

The North Carolina Global TransPark Authority Board of Directors Executive Committee shall be responsible for adopting, amending, and rescinding this Ordinance.

## 2.4 CERTIFICATE OF COMPLIANCE

1. No building shall be occupied, no land shall be used, and the use of any land shall not be changed until a certificate of compliance has been issued by the Executive Director.
2. The certificate shall state that the building and/or proposed use of land complies with the provisions of this Ordinance.
3. The certificate of compliance shall be presented by the applicant to the Lenoir County Building Inspector prior to the county's issuance of a Certificate of Occupancy.
4. A temporary certificate of compliance may be issued by the Executive Director, for a period not to exceed six months, during alteration or construction for partial occupancy of a building pending completion. Such temporary certificate shall bear the dates of issuance and expiration on the certificate, shall be clearly marked, 'Temporary', and shall stipulate such conditions and safeguards as will protect the safety of the occupants and the public.

## Section 3

### DESIGN STANDARDS

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#### OBJECTIVE

The overall purpose of Design Standards is to ensure a well-designed, unique place is achieved through the incremental development of individual sites within the NCGTP.

#### PURPOSE

Design Standards are intended to establish site design principles to protect the visual integrity of the NCGTP. The standards are also intended to contribute to the overall sense of coordination and continuity within the NCGTP.

The structure and content of the Design Standards are intended to give prospective tenants and their design team a general perspective to use in tackling the unique conditions of each site. The Design Standards are intended to provide guidelines and flexibility while requiring each development to meet the intent, principles, and spirit of this Ordinance.

#### PHYSICAL CHARACTERISTICS OF AREA

The topography in the vicinity of the NCGTP is generally flat to gently sloping. This type of topography reveals large expanses of landscape with little opportunity to frame or screen one site from another.

Scenic views of stands of trees, especially natural stands along riparian areas, significant stands of mature trees and specimen trees should be protected to help create a sense of space on a grand scale. Masses of trees should be used to define areas, give a sense of arrival and departure and generally contribute to the overall character of the NCGTP. Preservation of natural woodlands or scenic views is encouraged.

## CHARACTERISTICS OF LAND USE CLASSIFICATIONS

Within the NCGTP, there are six land use classifications with corresponding general development types.

### 1. Central Cargo Industrial

This classification accommodates cargo-handling facilities that are imperative for the efficient operation of the NCGTP. The Central Cargo-classified area is located generally in the area between the existing runway and the planned runway located north of the existing runway. This area consists of high intensity, airport-dependent uses. These sites will generally be intensely built with a high percentage of impervious surface coverage.

### 2. Airside Industrial

This classification includes general aviation uses and aviation-dependent assembling, fabricating, manufacturing, warehousing, and transportation uses. The Airside Industrial classification is established for the purpose of providing industrial areas in close proximity to the existing runway and planned second runway. These uses will be generally medium-size industrial sites with access to and dependency on direct airport access.

### 3. General Industrial

This classification includes a wide range of assembling, fabricating, manufacturing, warehousing, and transportation uses. The General Industrial classification is established for the purpose of providing appropriate locations and development regulations for uses that may require special measures to ensure compatibility with adjoining properties. General industrial sites will tend to be larger campus-type sites ranging from 10 to 100 acres in size. Massive buildings with large parking lots characterize these uses.

#### 4. Educational and Administrative Services

This classification includes educational, governmental, institutional, and administrative uses and facilities that relate directly to the NCGTP operations or that support and augment the NCGTP operations. Uses in this classification will range from small to medium-size sites with moderately scaled buildings located in campus-type settings with fairly intense parking requirements.

#### 5. Commercial

This classification includes selected retail; business, professional and personal services; and office uses that provide support commercial services to the employees of and visitors to the NCGTP. Commercial-classified areas are typically clustered at major gateway entrances to the NCGTP and surrounding region. Commercial centers will consist of a number of small to medium-size uses interconnected around a core activity area. Commercial uses will need to create detailed environments that provide for both vehicular and pedestrian traffic into and within the sites.

#### 6. Agricultural/Open Space

This classification includes land used for agricultural and open space purposes and land used for wetlands mitigation purposes.

The boundaries of the various land use classifications are delineated on the map entitled, *Land Use Classification Map for the NCGTPA Exclusive Development Ordinance*, which is on file in the offices of the Executive Director.

The specific use of a parcel or tract must be consistent with the purpose and objective of the general land use classification within which it is located and with the NCGTP Master Plan.

## SITE DESIGN PRINCIPLES

To set a high standard for development and to ensure that the NCGTP is established as a landmark location, it is necessary to establish design principles and a quality standard to ensure that all development contributes to the overall vision of the NCGTP.

The majority of the NCGTP will consist of large lot development with buildings and parking lots of relatively massive scale. Most development will also require large-scale loading, maneuvering, and service areas to accommodate semi-trailers and, in some cases, airplane access, loading, and unloading.

The majority of NCGTP users will be employees who travel to work, remain at work during their shift and then return to a home located outside the NCGTP. Few, if any, employees will live inside the NCGTP as residential use is generally considered incompatible with heavy vehicular and air traffic. Residential uses within the NCGTP are to be discouraged except for hotel/motel and other short-term occupancy residential uses.

As the NCGTP develops, commercial enterprises will be attracted to serve the large number of primarily daytime workers. Hotels, motels, and residence inns will be built to serve both short-term visitors and company employees on training or site visits.

### 3.5.1. Characteristics

The NCGTP will consist primarily of large-scale sites connected by a network of streets, rail spurs, cargo transport facilities, and airport taxiways and taxilanes. The main vehicular circulation system will consist of large right-of-way controlled access and limited access streets. Most persons will form their most lasting impressions of the NCGTP while traveling these main transportation routes.

The combined large-scale dimensions of land use and vehicular circulation will dominate the public landscape. Other modes of

transportation – airport and rail – will figure strongly in the operation of the NCGTP but will, as a general rule, not be widely visible to the general public.

In a large-scale environment, landscaping must be massed to define spaces. Mass groupings of large canopy trees to create buffers are encouraged along main transportation routes and at major intersections and interchanges. Smaller plant groupings including ornamental trees, shrubs and public art should be used at street intersections, driveway access points, and other key locations within the NCGTP.

### 3.5.2. Site Design

Individual sites will vary in size from small-scale retail sites to large-scale industrial building sites. Regardless of the size of the site, the siting of buildings, parking and landscaping should be used to create human-scale environments. On-site landscaping should define spaces that accommodate slow speed vehicular traffic and provide for safe movement of people from cars to building entrances. Overall site design should create a unique environment in which employees and visitors feel comfortable. Street trees and buffers should be used to enclose and define streetscapes, to frame views of major buildings, and to screen parking and service areas.

Structures, sidewalks, and landscaping should be arranged to enclose and define human-scale places. There should be buffering between large buildings, parking lots, and pedestrian sidewalks. Building entrances should be well defined with design details and architectural elements that create a sense of scale for people using the space.

### 3.5.3. Integrity of Street System

As the NCGTP develops it will be important to maintain the integrity of the transportation system for vehicular movement while providing an attractive, positive impression of the NCGTP for the traveling public. The attractiveness of streets will be crucial to the overall impression, as the street system will be the primary venue from which persons will experience the NCGTP.

Buildings should be oriented towards public streets and sidewalks. Parking should be convenient to building entrances but should not dominate or interfere with the visual integrity of the site from either public streets or internal circulation drives.

In commercial centers, pedestrian links from nearby adjacent office and industrial areas should be provided to encourage pedestrian use. A well-defined, well-lighted pedestrian system will encourage people to come, to visit more than one shop and to stay longer if the environment feels comfortable, safe, and inviting.

#### 3.5.4. Reduction of Parking and Loading Area Impacts

The careful placement and design of parking areas will reduce the impact of large-scale parking lots on the visual landscape of the NCGTP. Parking should be broken up into smaller units with major parking areas being placed to the rear or sides of buildings. Buildings, not parking lots, should dominate the site image.

Plantings and pedestrian sidewalks should be used to divide large lots into a series of smaller lots. Parking lots should be screened from public streets and from buildings by low walls and plantings and should be shaded with a sufficient number of canopy trees to create a comfortable environment.

#### 3.5.5. Commercial Centers

These key locations will provide shopping opportunities primarily for daytime workers and overnight hotel/motel guests. For convenience, commercial uses should be grouped around key intersections and at interchanges where services are conveniently located but do not interfere with major industrial areas. Commercial centers will contain the highest concentration of activities in the NCGTP and will serve as social focal points. The design of the commercial centers will make a strong contribution to the visual identity of the NCGTP.

Commercial centers should accommodate retail, service, and office uses. The various land uses should be organized around a central core with all elements connected by a convenient, logical, and connected pattern of streets, sidewalks, and open spaces. Strong connections should be provided between outparcel buildings and main buildings in the center core by streets, sidewalks, landscape amenities, and architectural design.

Commercial centers will attract primarily small-scale commercial establishments such as day care centers, convenience stores, service stations, car servicing centers, drug stores, retail stores, specialty shops, hotels/motels, and restaurants. Hotels/motels should be located on the outer perimeter of commercial areas with shops and services forming the core of the commercial center.

Before the first development at a commercial center occurs, a general development plan should be prepared to include elements such as architectural style, materials, colors, landscaping, signage, roof styles, wall colors, and other design details. The goal should be to provide a coordinated look to the overall development without dictating a single architectural style.

Commercial centers should be organized to create a human scale environment with building heights, setbacks, and landscaping used to

create pleasant people environments. Architectural details will be more important than in larger industrial settings, particularly on the first floor level where buildings are viewed and used by pedestrians.

Trees, shrubs, sidewalks, canopies, and other entry features should be used to define and articulate pedestrian areas. Larger overflow parking lots to accommodate employees and shoppers during high usage times should be located to the rear of the site and further away from the main buildings.

Prior to the development of any site within a designated commercial center, care should be taken to consider how large the center will eventually be, what types of uses are likely to be located there, and how the uses should be connected to each other and to adjacent employment areas.

In commercial areas, pedestrian access and connectivity should be a high priority. Sidewalks should connect buildings to each other and to public sidewalks. On public streets, safe and frequent crosswalk locations should be provided.

Amenities such as street furniture, shade trees, and shelter should be provided for pedestrians where a high volume of usage is expected. As a general rule, pedestrian sidewalks should be continuous for at least ½ mile in any direction along public streets as well as continuous within the commercial areas.

## Section 4

### DEVELOPMENT STANDARDS

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#### 4.1 ARCHITECTURAL STANDARDS

##### 4.1.1. Objective

The objective of Architectural Standards is to obtain consistency and quality of site development. In order to maintain consistency, yet permit interest and variety and the use of new materials as they may develop, all architectural design, including those for alterations, additions, or remodeling, are subject to review and approval of the DRC.

Buildings are three-dimensional objects and attention should be given to the compatible treatment of all exterior surfaces. It is the goal and purpose of the DRC that each project be compatible with existing development on adjacent sites and with the overall established character and quality of the NCGTP.

##### 4.1.2. Construction Regulations

###### a) Building Permits

For all structures erected on any site within the exclusive zoning jurisdiction of the NCGTP, the building owner and/or the owner's agent shall be responsible for contacting the Lenoir County Building Inspections Department to obtain a grading permit in compliance with the NC Department of Environment and Natural Resources Division of Land Quality standards and to obtain a building permit in compliance with the construction requirements of the North Carolina State Building Code. No permit applications shall be submitted to federal, state or local agencies without preliminary site plan approval from the DRC. The DRC will determine whether application for such permit is to be made by GTP or the tenant.

During the course of construction, all efforts shall be made to keep the construction site as visually attractive as possible. This includes, but is not limited to:

1. Proper use of dumpsters with disposal of refuse on a regular basis and in a professional and licensed manner;
2. Use of a stabilized construction entrance;
3. Provision of acceptable off-street parking capable of keeping all construction workers, vehicles and materials on site and outside of the public street right-of-way:
4. Acquisition of a temporary construction easement, if applicable, from adjacent property owners for any off-site construction activities;
5. Application and maintenance of a suitable architectural finish on all temporary construction barricades (painting of plywood, etc.); and
6. Compliance with all other standards required by the DRC or any local, State or Federal government agency.

b) Building Requirements

All structures shall also comply with the following requirements:

Article I. Elevations

Elevations of all buildings shall be finished in pre-approved masonry, stone, brick, stucco, prefabricated architectural panels, or glass construction, its equivalent or better, and

no building may be covered with sheet or corrugated asbestos, iron, or steel, except as otherwise specifically approved in writing by the DRC. Unfinished concrete or exposed concrete block that is not a specific aesthetic architectural treatment is not to be considered as finished masonry. Concrete masonry units or metal liner panels shall be used to protect walls in warehouse impact areas.

Article II. Roofs

Building roofs shall be designed and constructed with positive drainage to prevent water ponding and to shed storm water within a reasonable time. The roof slope shall meet or exceed the minimum slope to achieve proper drainage as recommended by the manufacturer of the proposed roofing system.

Article III. Roof Appearance

Roof color shall be of a color range approved by the DRC. All rooftop equipment, piping, flashing, and other items exposed shall blend with the roof surface and building aesthetic.

Article IV. Roof Maintenance

Built-up roofs and rooftops which include equipment, piping, flashing, and other items behind parapet walls shall be periodically painted and maintained for continuity of the roof appearance.

Article V. Roof Equipment

1. Cooling towers, fans, air conditioners, vents, and any other structures or equipment either located on the roof or elsewhere shall be architecturally compatible with the building and shall be screened from view from any public street by a method approved in writing by the DRC prior to construction or placement.
2. All communication equipment, whether a tower or dish, shall be approved by the DRC as to design, location, and screening prior to installation.

#### Article VI. Grading, Roof, and Surface Drainage

1. All structures will be equipped with roof drains, interior downspouts, and/or other drainage conveyances. All such roof drains, interior downspouts, and other drainage conveyances shall be at a location and of a material approved by the DRC.
2. Conveyance of water from downspouts shall be via underground storm sewers, concrete flumes, or paving. Downspout water shall be managed to maximum infiltration and minimum impacts to surface waters. All surface drainage, including roof drainage of buildings, shall be designed to conform to the Stormwater Control and Watercourses Buffer Ordinance (see Appendix C-1-5) and the overall drainage system of the NCGTP as required by the DRC. The above notwithstanding, the design of a “natural” stormwater system as a site amenity is encouraged. [Q from Ron: Does this section do enough to encourage use of grassed swales as a means of reducing velocity and volume of surface runoff?]

#### Article VII. Trash and Waste Disposal

1. Each building, complex of buildings or separate commercial business enterprise shall have a designated storage area for trash and waste items generated, manufactured, or acquired by such commercial activities.
2. The sorting, handling, moving, storing, removing, and disposing of all such waste materials must be housed or screened in a manner approved in writing by the DRC.
3. Each kitchen facility shall contain a water-flushing garbage grinder disposal. All facilities and plans for the disposal of wastes other than by public sewage methods (such as shredding, compacting, incineration, or chemical dissolution) must be approved in writing by the DRC.
4. All outdoor refuse containers shall be visually screened, by evergreen vegetation or masonry or other structure compatible to the exterior of the building so as not to be visible from adjacent lots or sites, neighboring properties, or public streets. No refuse collection areas shall be permitted between a street and the front of a building. Refuse collection areas shall be effectively designed to contain all refuse generated on-site and deposited between collections. Deposited refuse must not be visible from outside the refuse enclosure. Refuse collection areas must be so located upon the lot as to provide clear and convenient access for refuse deposition and collection, thereby minimizing wear and tear on driveways and streets.

#### Article VIII. Grading and Excavation

No grading or excavation shall be made except in conjunction with approved construction drawings. When grading or excavation work is completed, all exposed openings shall be back-filled, graded, and returned to finish landscape conditions. During grading and excavation, all work must adhere to the approved construction drawings.

#### 4.1.3. Construction Completion

Once commenced, all construction shall be diligently pursued to completion. Such construction may not be left in a partially completed condition any longer than is reasonably necessary. During construction, all work must adhere to the approved construction drawings, unless prior written permission is obtained from the DRC and the Lenoir County Building Inspections Department.

#### 4.1.4. Ongoing Maintenance

Upon the completion of construction of facilities and site work, the property owner shall maintain the facilities in substantially the same condition that exists at the time of completion of the facilities. Subject to ordinary wear, tear and deterioration, each property owner shall have the duty and responsibility, at the owner's sole cost and expense, to keep the property and all unpaved right-of-way adjacent to the property, buildings, and improvements thereon in a well-maintained, safe, clean, neat, orderly, and attractive condition at all times.

Such maintenance shall include, but not be limited to:

1. Righting and straightening of all tilting or leaning structures;
2. Returning any damaged or dilapidated structures to a state of original condition;
3. Prompt removal of all litter, trash, refuse, and wastes;

4. Lawn mowing, tree and shrub care, watering, and other landscaping maintenance;
5. Keeping exterior lighting and mechanical facilities in working order;
6. Keeping driveways and private roads in good repair;
7. Keeping all signs in good repair;
8. Complying with all government, health, police, and fire requirements;
9. Repairing exterior damage to improvements;
10. Striping of parking areas and repainting of improvements;
11. Maintaining taxilanes and any other airport access ways that connect into the airport runways and facilities; and
12. Maintaining single user railroad tracks and spur tracks that connect into lead tracks in railroad access areas.
  - (i) In an effort to maintain a reasonably consistent appearance of all unpaved right-of-way and front paving setback areas, each owner shall be required to maintain the unpaved right-of-way and the front yard setback area on and adjacent to their site.
  - (ii) Each owner shall maintain in good operating condition all aircraft obstruction lights and other government required lighting on the owner's property.

- (iii) If the property owner should fail to properly maintain a site, the NCGTP Authority, after written notice to the property owner, shall have the right to perform maintenance, repair, or replacement of any site amenities. Site amenities shall include, but not be limited to, landscaping, signs, screening or decorative walls, surface parking areas, ponds, lakes, fountains, pools, exterior lighting, sculptures, utilities, drainage systems, lighting, and park/recreational facilities and equipment on a site or the adjacent unpaved right-of-way. The NCGTP Authority shall give the property owner a minimum of seven (7) days written notice to cure the maintenance problem prior to taking action. At its own discretion, the DRC may give a longer notice period if the DRC determines that the nature of the deficiency warrants additional time.
  
- (iv) It is the responsibility of the owner to secure damaged areas until timely repairs can be executed, as well as to take all possible measures to make said areas visually acceptable, as determined by the DRC, during the time of repair.

## 4.2 Material Guidelines

### 4.2.1. Objective

The objective of the Material Guidelines is to specify a palette and finish range for all construction throughout the NCGTP. The guidelines do not suggest or require that any given manufacturer shall be used. A property owner may use a comparable material in color, finish, durability, and quality that satisfies the requirements set forth within the Material Guidelines.

### 4.2.2. Paving

1. Asphalt or composite asphalt is acceptable.

2. Excessive use of tar for repairs will not be allowed as substitution for re-paving or for new pavers.
3. As appropriate, concrete must match admix color of public roads. No concrete coloring, dying, or admix coloring will be allowed.
4. Molded or stamped pavement pattern finish shall be allowed for pedestrian crosswalks with written permission from the DRC.
5. Use of grass crete/turf crete for fire lanes, visitor parking, or other low traffic areas is encouraged.
6. Use of concrete pavers shall meet the following requirements:
  1. A minimum substructure of 4" - 6" of concrete with a minimum of a 1" paver bed must be used in all circumstances.
  2. Pavers shall meet or exceed ASTM-C936.
  3. Pavers shall be manufactured using integral water repellents, with homogeneous, single cast, single layer units.
  4. All materials shall be manufactured as to produce a homogeneous matrix in the produced unit (face mix/surface mix production not allowed).
  5. Pavers shall meet or exceed ASTM standard C-140 for compressive strength.
  6. Pavers shall be placed with a minimum of one vertical 1/16" spacer bar to facilitate a uniform 1/3" joint dimension.

#### 4.2.3. Masonry

1. All brick masonry must adhere to ASTM-C216-87 for FBS brick and ASTM C90. All mortar must adhere to ASTM-270. Weep holes must be clear, with full head and bed joints. No exterior panels may be 1/2" glued, or exterior faux brick (all brick must be full modular). Glazed brick or high light brick may not exceed 1% of exterior non-glazed surface. All joints must be concave tooled (non-raked) and meet or exceed ASTM-C744.

Masonry and mortar color must be compatible with surrounding building finished. Colors are to be approved by the DRC.

2. The use of glazed brick and glazed tile shall be for accent and fine details only. Glass block shall not be considered highlight brick and may be used as a masonry product at the owner's discretion.
3. Structural units with glaze will be considered as glazed bricks in terms of colors and usability. Tiles are to be approved by the DRC.
1. Concrete Masonry Units are an acceptable construction material when the masonry units have an architectural finish. Split face block is the suggested finish (fluted block is not an acceptable masonry unit). A smooth finished block is subject to DRC approval or may be used up to 10% of an accent block.
2. All load bearing units must comply with ASTM C-90 specs for load bearing, and ASTM C-129 for non-load bearing. All aggregate must conform to ASTM C-33 or ASTM C-331. All masonry blocks and mortar must have an integral built-in water repellent agent.

#### 4.2.4. Metals

1. All metals, whether miscellaneous, roofing, flashing or other, shall be factory finished or have DRC approved field finishes. All systems (roofing or siding) must have hidden mechanical fasteners if at all possible. Any exposed fasteners must use neoprene insulators.
2. A 20-year guaranteed and warranted paint system must be utilized, with at least a 70% Kynar resin and mix in the paint. All exterior metals shall be either galvanized or galvalumed. Minimum gauge on metal roofing shall be 24 gauge and minimum gauge on all roofing shall be 24 gauge. All metal building fabricating manufacturers must be MBMA approved. All metal buildings shall have CMU block with cells filled up to 12 inches or metal liner panels in all warehouse space and other impact areas.

#### 4.2.5. Wall Panel Systems

The use of wall panel systems in architectural finishes is an acceptable method of construction. No reflective surfaces or corrugated metal systems are permitted.

#### 4.2.6. Spandrel Wall Systems

All Spandrel wall systems must use clear, dark bronze, black anodized or previously specified Kynar color finished. Glass panels may use grey, clear blue or green shades of glass. Any glass with direct sun exposure must have a maximum 31% emicitivity and be insulated glass (or 33% grey). Reflective glass must not interfere with airfield operations. Touch-up painting to the wall spandrel system will be the only acceptable in-field painting.

#### 4.2.7. Cast Stone/Pre-Cast Concrete

1. Cast stone caps, highlights, and panels are acceptable construction materials. Cast stone colors shall be light and the texture finish shall be appropriate to abutting materials.
2. Precast concrete systems are acceptable construction materials. Precast systems shall be light in color and consistent with the intentions of the Development Guidelines this Ordinance.
3. Tilt-slab concrete buildings shall have no greater than 1/2" exposed aggregate (which applies to all concrete surfaces). Tilt-slab construction walls may have no more than 150 square feet of surface area without reveals. Concrete color and aggregate shall be similar to samples submitted by owner and accepted in writing by the DRC. Applied stains and paint must be of a consistent architectural finish and maintained as required. Accent stains and paints must not exceed 1% of building surface.

#### 4.2.8. Exterior Insulation Finish System (EIFS)

No EIFS using plywood is acceptable. If such a finish is desired, material that will not deteriorate shall be used. Stucco on masonry backup or a mechanically fastened system is suggested.

#### 4.2.9. Stone Veneering

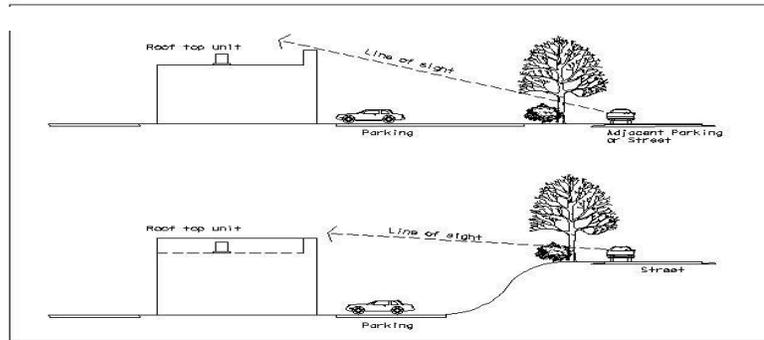
Use of stone as a veneer is acceptable. The full variety of finishes on all stone surfaces is encouraged. Diamond 8 and all polish finishes shall remain below 25% of non-glazed surface.

#### 4.2.10. Roofing

1. All roofing shall be light in color (except when roof membrane is metal).
2. All roofing shall be visually homogeneous.
3. All roof apparatus, whether ventilation equipment, HVAC equipment or other, shall be screened as required, as well as be compatible in color with the roof finish (see Figure 4.2.A).

#### **Figure 4.2.A**

#### *Rooftop Equipment Screening Schematic*



4. All roofing systems must have positive drainage at all times.
5. If metal standing seam or other metal systems are used they must meet or exceed the UL 580 test for uplift, UL 90 rating, having at least a 70% Kynar resin mix in the paint, and have all neoprene covered mechanical fasteners hidden. A 20-year guaranteed warranty paint system must be used. Roof pavers are acceptable and suggested but roof pavers shall be harmonious in color with the roof.

#### 4.2.11. Wood

1. Wood siding and wood shingles are not acceptable as a permanent veneering material.
2. Wood as brick molding, soffits, window jambs and other miscellaneous details is acceptable with written DRC approval.
3. All exterior wood must be treated and all exterior plywood must be marine grade.

#### 4.2.12. Fencing, Retaining Walls, and Landscape Features

1. All chain link fencing (outside the airfield security fence) is to be black PVC coated or painted black or dark green, as approved by the DRC. Use of barbed wire or electric fences is subject to DRC approval.
2. Use of concrete block is acceptable in both 3-way split and straight split. Concrete and mortar must conform to the same specifications and colors as the CMU Block for non-load bearing walls, as well as ASTM-C90-85 and ASTM C33.
3. All block walls must be either grout filled with reinforcement or use interlocking clips.
4. Natural stone is acceptable construction material.

5. Pre-engineered interlocking concrete and masonry systems must be aesthetically compatible with the project and shall be approved by the DRC.
6. The use of evergreen vegetation or a combination of evergreen and deciduous vegetation is the preferred form of screening (see Appendix A for list of recommended plant materials).
7. For screen walls, masonry materials must match the building both in color, design and spirit and in durability and construction of the product.
8. Sculptures and art on display as part of the landscape must be pre-approved by the DRC.
9. All site furniture must relate in color and material to the spirit of the landscape design for each specific project.
10. Cast iron fencing and all metal site features shall be black or dark green unless a written exception is received from the DRC.

#### 4.2.13. New Technologies and Materials

1. The use of new technologies and materials, as well as the use of known technologies and materials in new ways and for new uses, is encouraged. These materials and methods will require significant evidence of testing, research and development. A minimum 5' X 5' sample panel with material finish and colors and showing significant and critical joints shall be submitted for review and approval by the DRC.
2. All materials, sample boards and any required literature must be submitted to the DRC for approval. Any existing materials and technologies not covered in the Development Guidelines are subject to similar requirements. All exterior synthetic plastics must maintain a 15-year manufacturer's guaranteed warranty against decolorization, decomposition or decay from Ultraviolet (UV) rays (must be UV stabilized).

## 4.4 Site Planning

### 4.3.1. Taxiways and Taxilanes

1. Federal Aviation Administration (FAA) definitions for taxiways and taxilanes are as follows:

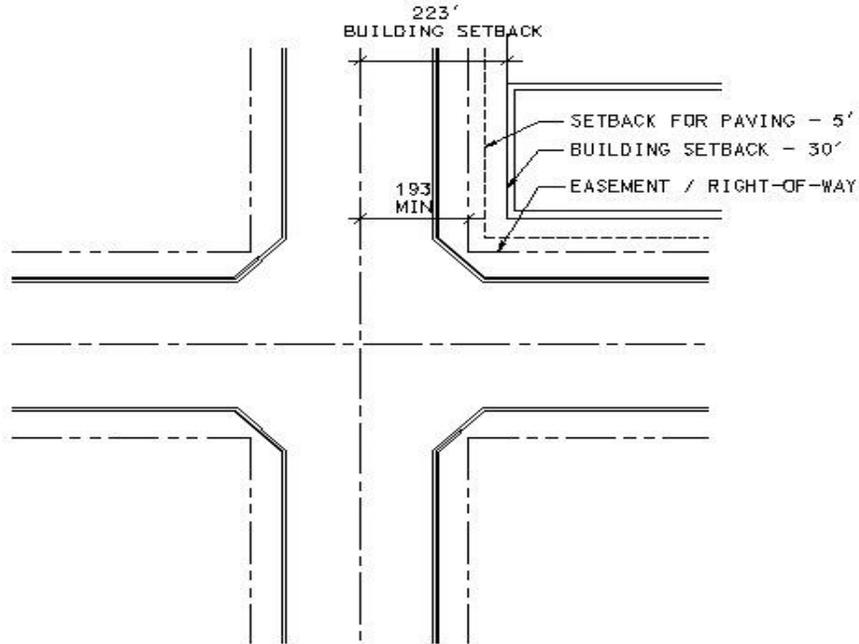
- a) Taxiway

A taxiway is a defined path from one part of an airport to another, selected or prepared for the taxiing of aircraft. The clearance is the wingspan of the aircraft times 0.7 plus ten (10) feet from the taxiway centerline to any fixed object (Figure 4.3.A).

b) Taxilane

A taxilane is a defined path, to and from aircraft parking positions, selected or prepared for the taxiing of aircraft. The clearance is the wingspan times 0.6 plus ten (10) feet from the taxilane centerline to any fixed object, building or parked aircraft (Figure 4.3.B).

**Figure 4.3.A**  
 Taxiway Schematic  
 Airplane Design Group VI



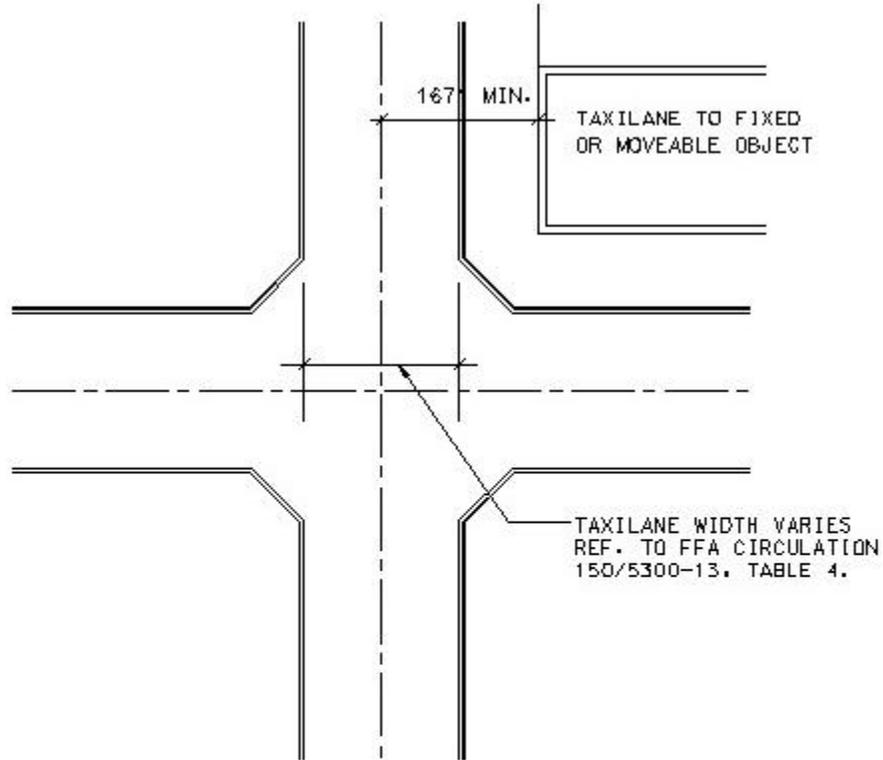
Easement / Right-of-way - 386'

Setback from Right-of-way  
 Paving - 5'  
 Building - 30'

**Drainage**

Shoulder, Reference to FFA  
 Circular 150/5300-13

**Figure 4.3.B**  
 Taxilane Schematic  
 Airplane Design Group VI



Easement - Not applicable -Taxilanes are on private property

Total Width - Varies according to airplane design group

Setback from Centerline  
 Varies according to airplane design group

Drainage  
 Shoulder, Reference to FFA  
 Advisory Circular 150/5300-13

2. Clearances

For added safety, taxiway criteria rather than the taxilane criteria shall be used where buildings, fences or other immovable objects are in close proximity to the taxiway/taxilane. The taxilane criteria are acceptable for determining the space between parked aircraft at tie down positions on the apron.

Table 4-1 shows representative wingspans for taxiways and taxilanes for various types of aircraft.

Table 4-1  
Total Width of Clear Area

Taxiway Clear Width (in feet)	Taxilane Clear Width (in feet)	Maximum Wingspan (in feet)	Aircraft Types
101	89	57.3	Cessna, Lear jets, Beech Super King
110	97	64.0	Dolphin 1A-50
119	105	70.7	Gulf Stream II
129	113	77.3	Gulf Stream II-77, Fokker F-28
138	121	84.0	Gulf Stream I & II
147	129	90.7	DC9/DC15
157	137	97.3	Boeing 737
166	145	104.0	Lockheed P-3
175	153	110.7	DC9, 727
188	164	120.0	Convair 880, 990
295	170	124.5	Boeing 757
204	177	130.8	Boeing 707-200
293	254	195.0	Boeing 747-200

Source: FAA Circular 150/5300-13.

The FAA classifies aircraft in six design groups, based on the wingspan of the aircraft (Table 4-2). Based on these classifications, a specific physical separation must be maintained between the centerline of a taxiway and a fixed or moveable object and a property line.

*Table 4-2*  
*Airplane Design Groups*

Design Group	Wingspan (in feet)
I	< 49
II	49 - < 79
III	79 - < 118
IV	118 - < 171
V	171 - < 214
VI	214 - < 262

*Source: FAA Circular 150/5300-13.*

There must also be a specified separation between the centerline of taxiways and fixed or moveable objects (Table 4-3). Refer to FAA Advisory Circular 150/5300-13 and any other pertinent documents for additional airport design standards which will affect the development of sites in proximity to or served by the airport.

*Table 4-3*  
*Separation Standards*

Separation Standards	Airplane Design Group					
	I	II	III	IV	V	VI
Taxiway						
• Distance (in feet) from centerline of taxiway to fixed or movable object or to property line	44.5	65.6	93.0	129.5	160.0	193.0
Taxilane						
• Distance (in feet) from centerline of taxilane to fixed or movable object	39.5	57.5	81.0	112.5	138.0	167.0

*Source: FAA Circular 150/5300-13.*

3. Taxiway Apron Restrictions and Building Setbacks

The Apron Restriction Line for airport taxiways shall be three hundred (300) feet. Minimum building setbacks from airport taxiways shall be five hundred (500) feet.

4. Construction of Taxiways

All construction must adhere to minimum standards as set forth in FAA Advisory Circulars 150/5321-6C and 150/5300-13, and any other pertinent documents.

## 5. Heliport and Vertiport Requirements

Any heliport and vertiport construction must abide by minimum standards as set forth by Circular Advisory 150/5390-2 and 150/5348-3. In case of a contradiction, the appropriate Circular Advisory shall be followed.

### 4.3.2. Street Types

The NCGTP vehicular transportation system depends upon a number of existing and proposed streets. Both new streets on new alignments and widening and improvement of existing streets are planned. Upgrades will accommodate growing capacity needs by widening street widths, improving intersection areas and adding aesthetic enhancement as the NCGTP develops.

#### 1. Objective

To ensure that views from public streets contribute to the overall impression of quality of the NCGTP. (For street locations and types refer to the Global NCGTP Master Plan.)

#### 2. Hierarchy of Street Types

##### a) Major Arterials (Controlled Access – Figure 4.3.C)

Controlled access arterials are primary, high volume, multi-lane traffic routes that may accommodate rail and utility corridors as well as vehicular traffic. The following major arterials are shown on the Master Plan:

- Global NCGTP Loop Freeway
- Portions of Central Spine Road

##### b) Primary Streets (Limited Access – Figures 4.3.D and 4.3.E)

Limited access streets will function as collectors to funnel traffic from local access streets to major arterials. The following primary streets are shown on the Master Plan:

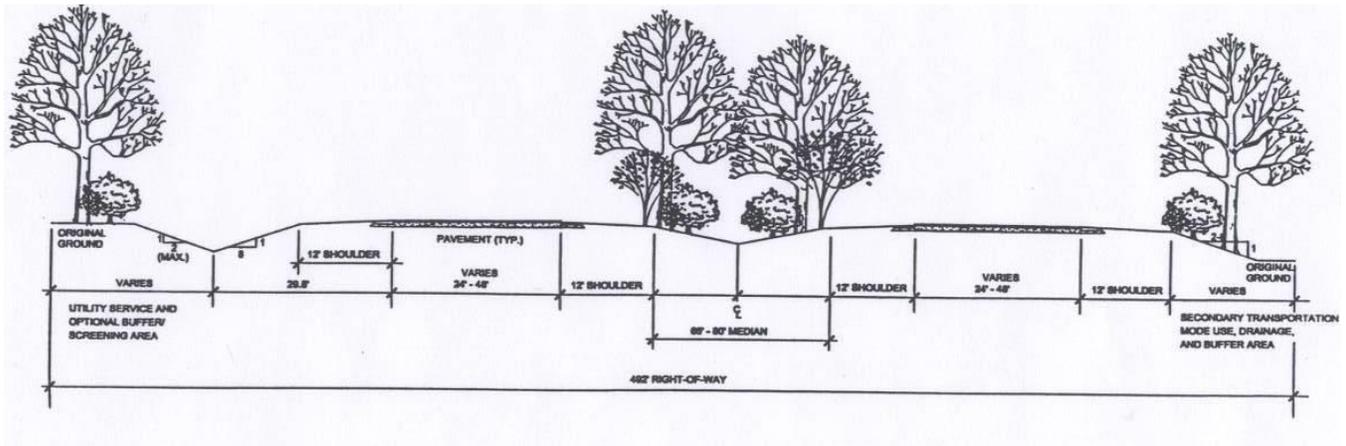
- Felix Harvey Parkway (Internal Loop)
- Central Spine Road
- NC 58
- Eastern Loop Road
- Scarborough Road

- Northern Connector
- Airport Entrance/Airport Loop

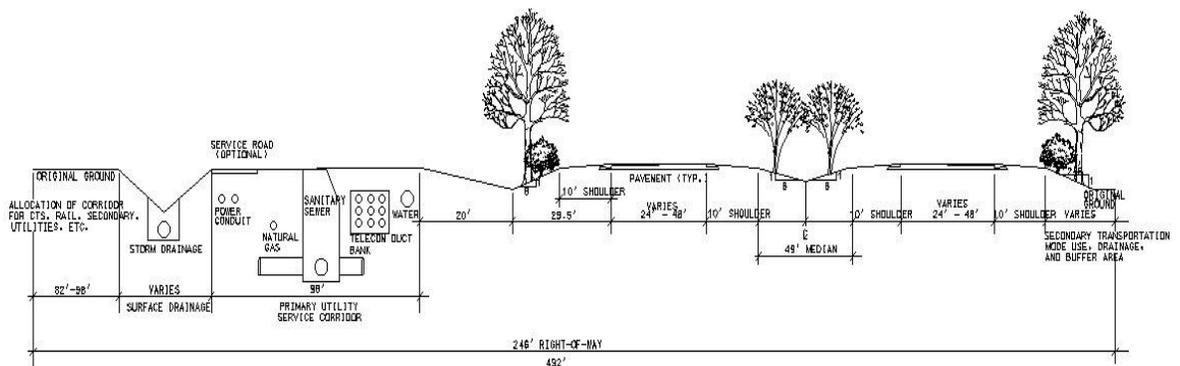
c) Secondary Streets (Local/Driveway Access – Figures 4.3.F and 4.3.G)

Local/driveway access streets will primarily serve a land service function by connecting individual sites with higher-level streets. Secondary streets consist of existing and future internal subdivision/access streets whose primary function is to serve adjoining land uses.

**Figure 4.3.C**  
Global NCGTP Loop Freeway (Controlled Access)

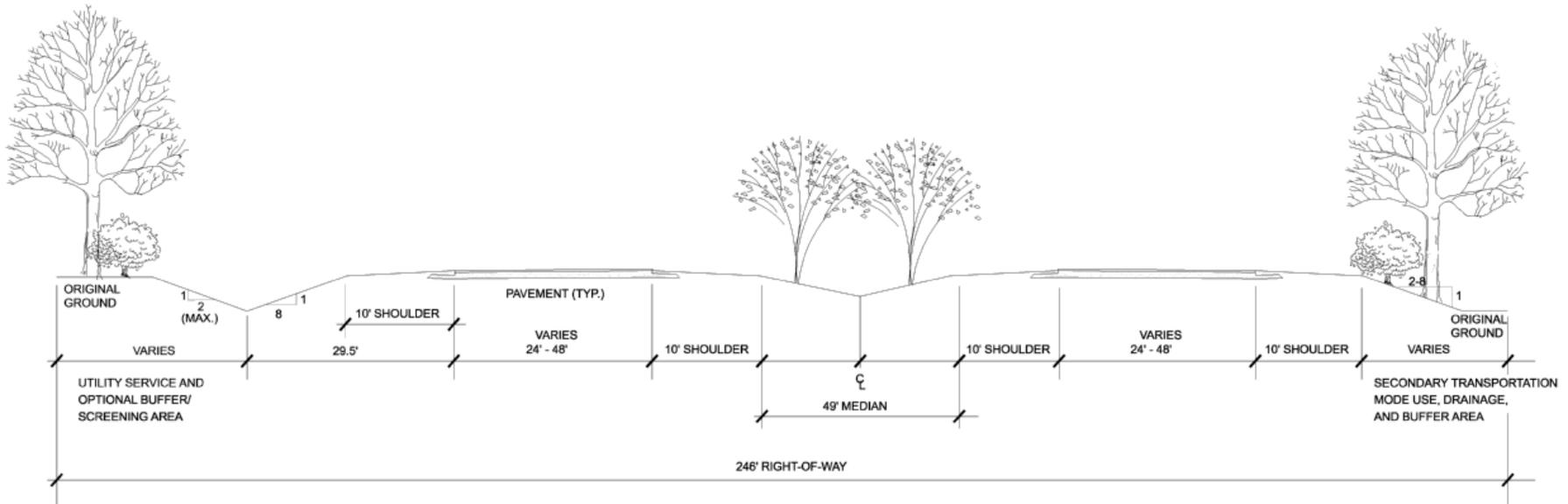


**Figure 4.3.D**  
Primary Internal Streets (Limited Access)

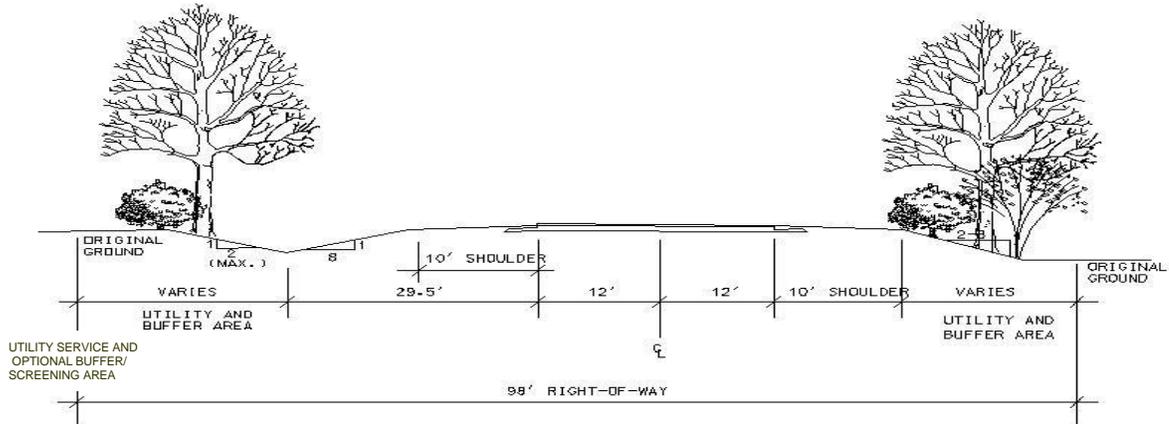




**Figure 4.3.E**  
 Primary Internal Streets (Limited Access)



**Figure 4.3.F**  
**Streets (Local / Access)**  
**3-Lane Section**



**Figure 4.3.G**  
**Streets (Local / Access)**  
**2-Lane Section**

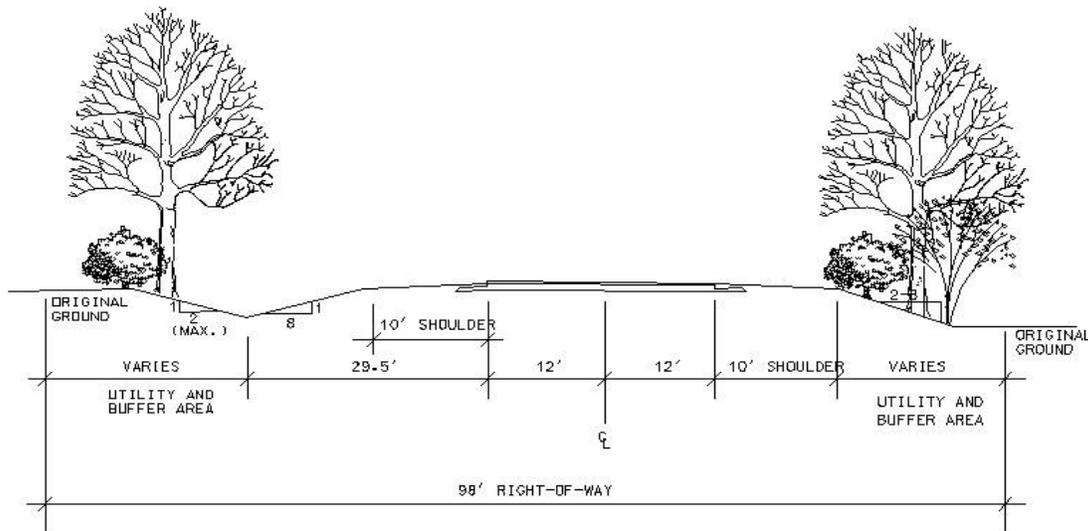


Figure 4.3.F  
 Streets (Local / Access)

3. Setback Lines

- a) Minimum front, side and rear yard paving and building setbacks shall be as specified in Section 4.7.4.
- b) Parking structures are prohibited in front of buildings along median divided streets or highways.
- c) All setback areas shall be landscaped unless otherwise approved by the DRC. This provision does not apply to truck docking/loading areas or taxiway/taxilane approaches.

4. Building Orientation

- a) Buildings erected along major access roads will face those roads, unless other wise approved by the DRC. (Face of building defined as the greatest glazed area and/or main entry.)
- b) If a site is adjacent to more than one public road, the owner, with DRC approval, may orient the building to face either of such roads, provided the setback requirements of each adjacent road are met.

4.4 Parking and Loading

4.4.1. General Requirements and Standards

- 1. When any building or structure is erected, modified, enlarged or increased in capacity, or any open use is established, modified or enlarged, the requirements of this Ordinance shall be met. For enlargements, modifications, or increase in capacity, the requirements of this Ordinance shall apply only to such enlargements, modifications or increases in capacity.
- 2. The minimum number of required off-street parking, stacking and loading spaces is indicated in Section 4.4.3 (Parking and Stacking Areas) and Section 4.4.7 (Loading Areas). In cases of mixed occupancy, the minimum number of off-street parking, stacking and loading spaces shall be the cumulative total of individual use requirements unless otherwise specified.
- 3. Unless there is a change in use requiring fewer spaces, the number of spaces shall not be reduced below the minimum requirements of this Ordinance.

4. All parking, stacking and loading facilities shall be permanently maintained by the owners or occupants as long as the use they serve exists.
5. All parking, stacking and loading facilities shall have vehicular access to a public street, approved private street, or approved private easement.
6. Land used to provide required parking, stacking, and loading shall not be used for any other purposes, except for temporary events. If such land is devoted to any other purpose, the Certificate of Compliance of the affected principal use shall immediately become void.
7. The construction of or modification to (i) open parking lots containing 1,500 or more spaces or (ii) parking decks and garages containing 750 or more spaces shall comply with the concentrated air emissions standards of the NC Division of Environmental Management.
8. Parking areas shall be sufficient to accommodate all parking needs for employees, overlapping shifts, company vehicles and visitors without the use of on-street parking.
9. If parking needs increase, the owner shall provide additional off-street parking. Owners shall promptly advise the DRC in writing of any change or intensification of use that will increase the number of vehicles accessing the site. All parking on the property shall comply with the standards set forth in this Ordinance. Any retrofit of a building must provide parking to meet the minimum standards required for the new use of the building.
10. 

Plans and Specifications

All parking plans and specifications submitted to the DRC shall include specific information as to construction materials, construction methods to be used, diagrams of the number, type, size, and configuration of parking spaces and the basis for the calculation of the number of parking spaces.
11. 

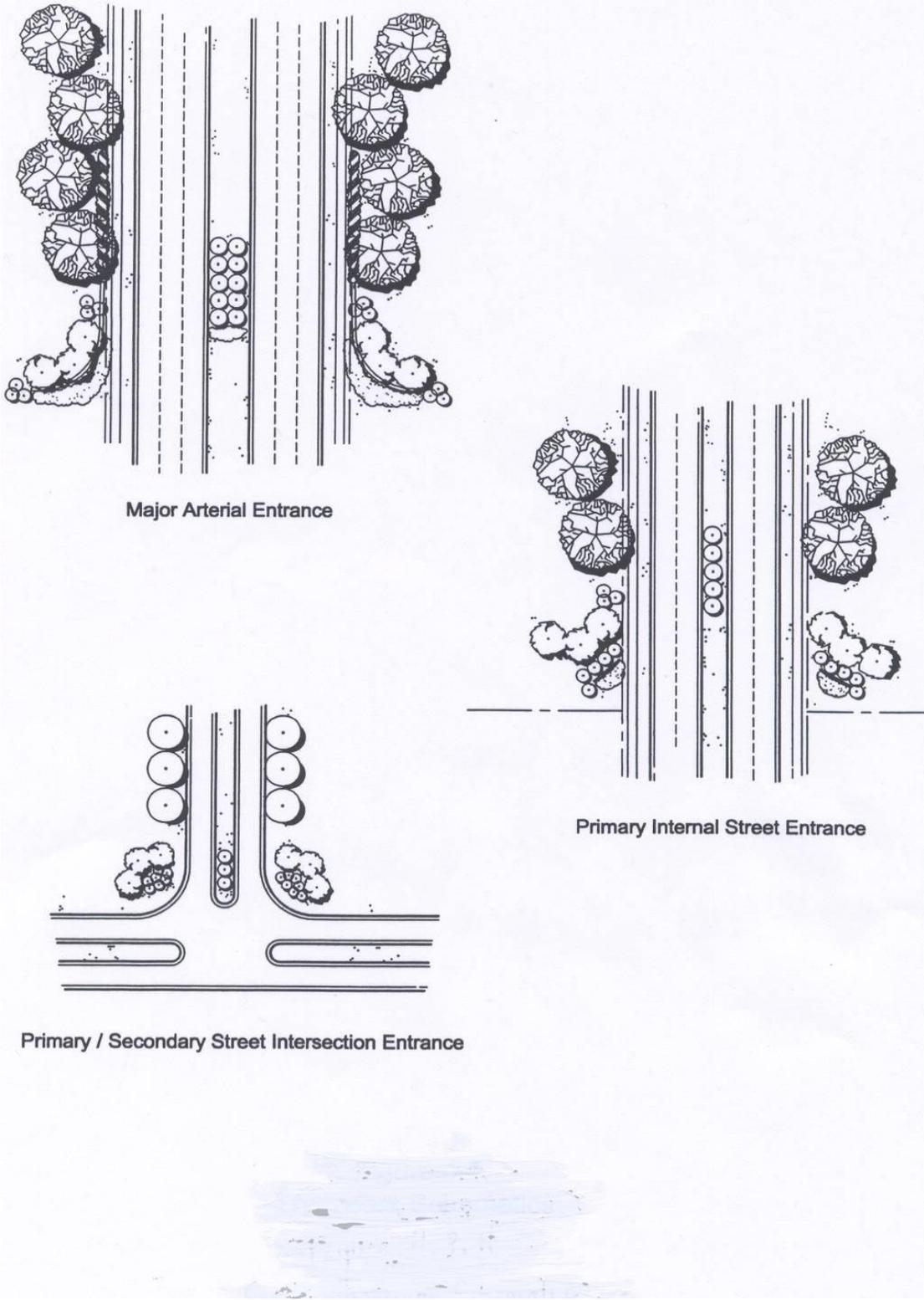
General Design and Layout

All parking areas shall be designed and landscaped to eliminate the monotony of large single-paved areas.
12. 

Screening (Figure 4.3.H)

All parking must be screened from public streets and adjacent property as specified in Section 4.6.2.

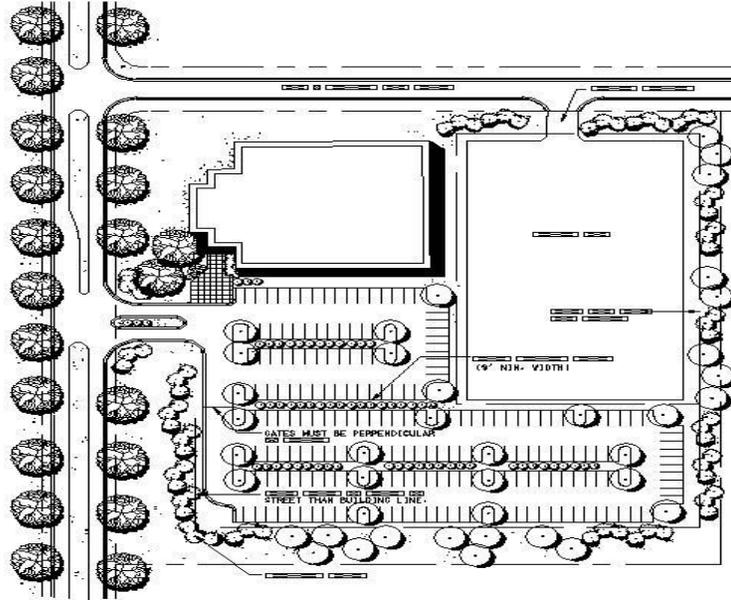
**Figure 4.3.H**  
Street Landscape Schematic



13. Figure 7 Internal Parking Lot Landscape Standards (Figure 4.3.I)

All parking must have internal landscaping as specified in Section 4.6.2, subsection 3.

**Figure 4.3.I**  
Parking Lot Schematic



14. Service Areas

Adequate area shall be required on site for all service functions, including the loading and maneuvering of trucks and other service vehicles. No service functions are to be carried out in public streets. The proposed location of service areas (including dumpster or private garbage facilities) will be reviewed and approved by the DRC. Service areas shall be located and screened as follows:

- a) Sites Adjacent to Major Arterials

Service areas shall not be permitted between the building(s) and the public street right-of-way. Service areas may be located at the rear or sides of the building, except that all side loading and maneuvering shall be screened from public rights-of-way.

- b) Sites Adjacent to Primary Streets

Service areas may be located on the rear or sides of the building(s). With appropriate screening as approved by the DRC, front loading is acceptable on non-median divided streets.

c) Sites Adjacent to Secondary Streets

Service areas may be located on the rear or sides of the building(s). Front loading is acceptable with appropriate screening.

d) Service Areas Next to Service Areas on Adjacent Sites

No screening is required.

e) Service Areas Next to Parking, Building(s), or Landscaped Areas on Adjacent Sites

Loading and maneuvering areas shall be screened with fence, wall, evergreen plantings, or combination evergreen/deciduous plantings.

f) Service Areas on Sites Visible from Major Arterials and Primary Streets

Loading doors and maneuvering areas shall be screened with a fence, wall, evergreen plantings or combination evergreen/deciduous plantings.

15. Handicapped Parking Spaces

The location, size and number of handicapped parking spaces must comply with the NC State Building Code and the Americans with Disabilities Act for parking layouts and acceptable dimensions as well as with all exterior handicap requirements (i.e., ramps, rails, etc.).

16. Emergency Lane Markings

All emergency lane markings shall be clearly marked in accordance with the most stringent of applicable building and use codes. All lane markings must be properly maintained.

4.4.2. Parking Requirements for a Change in Use

If a change in use causes an increase in the required number of off-street parking, stacking or loading spaces, such additional spaces shall be provided in accordance with the requirements of this Ordinance; except that if the change in use would require an increase of less than five percent in the required number of parking spaces, no additional off-street parking shall be required.

4.4.3. Number of Parking and Stacking Spaces Required

1. The minimum number of required off-street parking and stacking spaces is indicated in Table 4-4.
2. Whenever the number of parking spaces required by Table 4-4 results in a requirement of a fractional space, any fraction of one-half or less may be disregarded while a fraction in excess of one-half shall be counted as one parking space.
3. For any use not specifically listed in Table 4-4, the parking and stacking requirements shall be those of the most similar listed use, as determined by the DRC.
4. All developments shall provide a sufficient number of parking spaces to accommodate the number of vehicles that ordinarily are likely to be attracted to the development in question.
5. The Authority Board of Directors recognizes that, due to the particularities of any given development, the inflexible application of the parking standards set forth in Table 4-4 may result in a development either with inadequate parking space or parking space far in excess of its needs. Therefore, the DRC may permit deviations from the requirements of Table 4-4 and may require more parking or allow less parking whenever it finds that such deviations are more likely to satisfy the general standard delineated in subsection 4. The DRC may allow deviations, for example, when it finds that a business or service is primarily oriented to walk-in trade. Whenever the DRC allows or requires a deviation from the requirements of Table 4-4, it shall note on the approved site plan the parking requirement that it imposes and the reasons for allowing or requiring the deviation.

**Table 4-4  
Off-Street Parking and Stacking Requirements**

USE	SPACES REQUIRED
<b>Educational and Institutional Uses</b>	
1) Emergency medical services; fire stations; law enforcement stations	1/employee on the largest shift
2) Day care, child or adult	1/employee plus 1/client served with parking located on-site
3) Elementary and middle schools	3/room used for offices plus 3/classroom
4) Government offices; post offices	1/150 square feet of public service area plus 2/3 employees on largest shift
5) Conference/training center	1/5 persons based on design capacity of building
6) College, university, technical institute	7/classroom plus 1/250 square feet of office space plus 1/4 beds in dorm rooms plus 1/5 fixed seats in assembly halls and stadiums
<b>Business, Professional and Personal Services</b>	
1) Equipment rental and leasing	1/200 square feet gross floor area
2) Hotels and motels containing...	
a) 5,000 square feet or less ancillary space, i.e. restaurant, meeting rooms, lounge or lobby or a restaurant/lounge containing 3,000 square feet or less	1.1/rental unit
b) more than 5,000 square feet of ancillary space, i.e. restaurant, meeting rooms, lounge or lobby or a restaurant/lounge containing over 3,000 square feet	1.25/rental unit
3) Offices not otherwise classified	1/250 square feet of gross floor area
4) Vocational, business or secretarial school	1/100 square feet of classroom space plus 1/250 square feet of office space
5) Services not otherwise classified	1/250 square feet gross floor area plus 1/vehicle used in the operation
Drive-throughs not otherwise classified	*Stacking for 4 vehicles at each bay, window, lane, ordering station or machine in addition to the use requirement
<b>Retail Trade</b>	
1) Convenience stores	*1/200 square feet gross floor area plus 4 stacking spaces at pump islands
2) Restaurants	*1/4 seats plus 2/3 employees on the largest shift &

USE	SPACES REQUIRED
	11 total stacking spaces with minimum 5 spaces at or before ordering station
3) Retail sales not otherwise classified	1/200 square feet gross floor area
4) Service stations, gasoline sales	*3/service bay plus 1/wrecker or service vehicle plus 2/3 employees on largest shift plus 4 stacking spaces at pump islands
<b>Wholesale Trade</b>	
1) Wholesale uses	2/3 employees on the largest shift plus 1/200 square feet of retail sales or customer service area plus 1/vehicle used in the operation
<b>Transportation, Warehousing and Utilities</b>	
1) Communications towers; utility lines or substations	No required parking
2) Self-storage warehouses	1 space/5,000 square feet devoted to storage
3) Airport or air transportation facility	1/4 seats plus 2/3 employees on the largest shift
4) Transportation, warehousing and utility uses not otherwise classified	2/3 employees on the largest shift plus 1/vehicle used in the operation
<b>Manufacturing and Industrial Uses</b>	
	2/3 employees on the largest shift plus 1/200 square feet of retail sales or customer service area plus 1/vehicle used in the operation
<b>Other Uses</b>	
1) Shopping Centers	
a) < 250,000 square feet gross floor area	1/200 square feet gross floor area in main building(s) (excluding theaters) plus parking as required for outparcels or theaters
b) > 250,000 square feet gross floor area	1,250 spaces plus 1/225 square feet gross floor area above 250,000 square feet

/ = Per

\* = NCDOT may require additional stacking spaces on state or federal highways.

#### 4.4.4. Design Standards for Parking, Stacking and Loading Areas

1. Parking facilities shall be designed and constructed so as to:
  - a) Allow unobstructed movement into and out of each parking space without interfering with fixed objects or vehicles;
  - b) Minimize delay and interference with traffic on public streets and access drives;

- c) Maximize sight distances from parking lot exits and access drives; and
- d) Allow off-street parking spaces in parking lots to have access from parking lot driveways and not directly from streets.

## 2. Dimensional Requirements

Parking facilities shall be designed and constructed to meet the minimum parking space dimensions, aisle dimensions and other standards found in Table 4-5.

## 3. Improvements

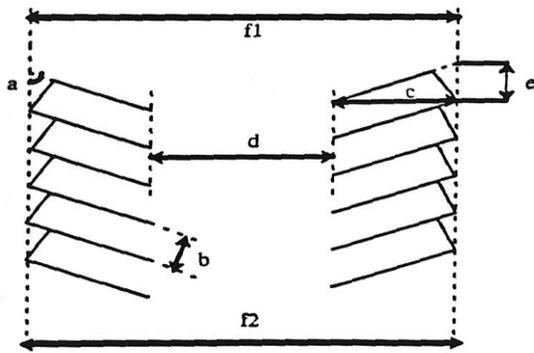
- a) Required parking spaces, access drives, and loading areas shall be paved and maintained with concrete, asphalt, or similar material of sufficient thickness and consistency to support anticipated traffic volumes and weights.
- b) Access drives shall be paved and maintained from the curblines to a point at least ten feet beyond the public right-of-way line for all parking and loading facilities, whether paved or unpaved.
- c) Paving shall not be required for:
  - (i) Parking facilities for any use where six or fewer spaces are required.
  - (ii) Parking areas for agricultural uses.
  - (iii) Parking areas for tracked heavy construction equipment, skid-mounted equipment and similar equipment, provided they are constructed with an all-weather surface.
- d) All facilities shall be graded, properly drained, stabilized and maintained to minimize dust and erosion.
- e) All paved parking spaces and stacking lanes shall be clearly identified with paint lines, bumper guards, curbs, or similar treatment.
- f) All parking spaces shall be provided with wheel guards or curbs located so that no part of the parked vehicle will extend beyond the property line or encroach more than two feet into a required planting area.
- g) Concrete pads for stationary refuse containers shall be provided beneath and in the approach to each container.

### 4.4.5. Location

When required off-street parking is permitted to be located off-site, it shall begin within four hundred feet of the lot containing the principal use. Required off-street parking shall not be located across an intervening major or minor thoroughfare.

**Table 4-5  
Parking Space Geometric Design Standards**

a	b	c	d	e	f1	f2
PARKING ANGLE (degrees)	STALL WIDTH (*)	STALL TO CURB (ft.)	AISLE WIDTH (ft.)	CURB LENGTH (ft.)	CENTER-TO-CENTER WIDTH OF TWO ROWS WITH ACCESS AISLE BETWEEN (ft)	
					CURB-TO-CURB	OVERLAP C-C
0	7.5	7.5	12.0	23.0	27.0	--
	8.5	8.5	12.0	23.0	29.0	--
	9.0	9.0	12.0	23.0	30.0	--
	9.5	9.5	12.0	23.0	31.0	--
	10.0	10.0	12.0	23.0	32.0	--
30	7.5	16.5	11.0	17.5	44.0	41.0
	8.5	16.9	1.0	17.0	44.8	37.4
	9.0	17.3	11.0	18.0	45.6	37.8
	9.5	17.8	11.0	19.0	46.6	38.4
	10.0	18.2	11.0	20.0	47.8	38.7
45	7.5	17.0	11.0	10.5	43.0	48.1
	8.5	19.4	13.5	12.0	52.3	46.3
	9.0	19.8	13.0	12.7	52.6	46.2
	9.5	20.1	13.0	13.4	53.2	46.5
	10.0	20.5	13.0	14.1	54.0	46.9
60	7.5	17.7	14.0	8.7	47.4	44.0
	8.5	20.7	18.5	9.8	59.9	55.6
	9.0	21.0	18.0	10.4	60.0	55.6
	9.5	21.2	18.0	11.0	60.4	55.6
	10.0	21.2	18.0	11.5	61.0	56.0
90	7.5	17.0	20.0	7.5	54.0	--
	8.5	19.0	25.0	8.5	63.0	--
	9.0	19.0	24.0	9.0	62.0	--
	9.5	19.0	24.0	9.5	62.0	--
	10.0	19.0	24.0	10.0	62.0	--
(*) 9'-0" Recommended (*) 8'-6" Minimum (*) 7'-6" Compact Cars Only, for non-required spaces only.						
Stacking Space Geometric Design Standards Stacking Spaces shall be twelve feet (12) by twenty (20) feet.						



#### 4.4.6. Combined Parking

1. Separate Uses

The required parking for separate or mixed uses may be combined in one facility.

2. Shared Parking

A maximum of fifty percent of the parking spaces required for an auditorium or assembly hall or other similar use may also serve as required spaces for another use located on the same lot. Shared spaces may also be located off-site as allowed in Section 4.4.5. In either case, the DRC must determine that the various activities will have peak parking demand at different periods of the day or week. Otherwise, no off-street parking required for one building or use shall be applied toward the requirements of any other building or use.

3. Reassignment

Required off-street parking spaces shall not be leased or otherwise assigned to another use except as provided in subsection 2.

#### 4.4.7. Loading Areas

1. Location

Off-street loading areas shall be located on the same lot as the use they serve.

2. Design Standards

a) Minimum Number of Loading Spaces Required for Nonresidential Uses:

Gross Floor Area (FT <sup>2</sup> )	Number of Spaces
0 - 20,000	0
20,001 - 40,000	1
40,001 - 75,000	2
75,001 - 150,000	3
150,001 - 250,000	4
For each additional 250,000 square feet or	1

fraction thereof	
------------------	--

- b) Each loading area shall be at least twelve feet wide, sixty-five feet long and fourteen feet in clearance.
- c) All off-street loading areas shall be arranged and marked to provide for orderly and safe unloading and loading, and shall not hinder the free movement of vehicles and pedestrians. All loading and unloading maneuvers shall take place on private property. No backing in from a street or maneuvering on the street right-of-way shall be permitted.

#### 4.4.8. Parking and Loading Area Landscaping

All parking lots containing ten or more spaces shall provide landscaping and screening in accordance with the standards delineated in Section 4.6.2.

#### 4.4.9. Excessive Illumination in Parking Lots and Loading Areas

Lighting within any parking and loading area that unnecessarily illuminates any other lot and substantially interferes with the use or enjoyment of such other lot is prohibited.

### 4.5. SIGNAGE

#### 4.5.1. General Requirements

##### 1. General

All signs, including temporary signs, must be approved in writing by the DRC prior to installation and must meet the standards established in this Ordinance and all other applicable governmental regulations and permit requirements. The location, size, color and construction of signs will be in keeping with NCGTP standards as determined by the DRC.

##### 2. Submittal

Site signage plans shall be submitted to the DRC as part of the site plan submittal. Signage plans shall include any signs proposed to be placed on site as permitted by this Ordinance. Sufficient renderings to show size and placement, materials, colors and preliminary details of sign construction shall be submitted.

##### 3. General Standards

- a) Rooftop signs are not permitted nor may any sign extend above the roof line or parapet wall.

- b) Sign typeface and color shall be approved by the DRC.
- c) No wall signage shall be roof mounted or protrude higher than the roof line or parapet line of the building.

4. Construction/Leasing Signs

- a) During construction of a project, one construction/leasing sign per public street frontage is allowed. The size of the sign shall conform to the standards in Section 4.5.
- b) If a construction sign is to be supported by unfinished posts, the sign shall be framed out to give a finished appearance. Double-faced signs shall be framed on both sides as well as the top and base.

4.5.2. Definitions

Unless otherwise specifically provided, or unless clearly required by the context, the words and phrases defined in Section 4.5 should have the meaning indicated when used throughout this Ordinance.

1. Sign

Any words, lettering, numerals, parts of letters or numerals, figures, phrases, sentences, emblems, devices, designs, or tradenames or trademarks by which anything is known (including any surface, fabric or other material or structure designed to carry such devices such as are used to designate or attract attention to an individual, firm, an association, a corporation, a profession, a business, or a commodity or product) which are exposed to public view and used to attract attention.

2. Advertising Sign (Billboard)

A sign which publicizes and directs attention to a business, profession, commodity, activity, product, service or entertainment not conducted, sold or offered upon the premises where such sign is located.

3. Animated Sign

Any sign which flashes, revolves, rotates or swings by mechanical means, or which uses a change of lighting to depict action, or to create a special effect or scene.

4. Banner

A temporary sign of light weight fabric or similar material that is rigidly mounted to a pole or a building by a rigid frame at two or more edges. National, state or municipal flags, or the official flag of any institution or business shall not be considered banners.

5. Building Marker

A sign indicating the name of a building and date and incidental information about its construction, which sign is cut into a masonry surface, or made of bronze or other permanent material.

6. Canopy Sign

Any sign which is a part of or attached to an awning, canopy or other fabric-like or plastic protective structure which is extended over a door, window, or entranceway. A marquee is not a canopy.

7. Commercial Message

Any sign wording, logo, or other representation that directly or indirectly, names, advertises, or calls attention to a business, product, service, or other commercial activity. This definition does not include company nameplates or logos on instructional signs.

8. Construction Sign

A sign on a construction site during the period of construction on which is printed or written the name of the owner, developer, contractor, architect, planner, engineer, or development title.

9. Electronically Controlled Message Sign

A sign on which the copy changes automatically on a lampbank, such that the message or display does not run continuously in the travel mode, and any message or display remains stationary for a minimum of two seconds. Any sign on which the message or display runs continuously in the travel mode and/or on which any message or display does not remain stationary for a minimum of two seconds shall be considered a flashing sign.

10. Flashing Sign

A type of animated sign which contains an intermittent, blinking, scintillating, or flashing light source, or which includes the illusion of intermittent or flashing light, or an externally mounted intermittent light source. An electronic changeable copy sign is not a flashing sign.

11. Freestanding Sign

Any sign which is supported by structures or supports which are placed on, or anchored in the ground, and which structures or supports are independent from any building or other structure.

12. Governmental Sign

Any sign erected by or on behalf of a governmental body to post a legal notice, identify public property, convey public information, and direct or regulate pedestrian or vehicular traffic.

13. Identification Sign

A permanent sign announcing the name of a subdivision, campground/RV park, church, school, park, or quasi-public structure or facility.

14. Incidental Sign

A sign that provides only information for the convenience and necessity of the public. Company logos may be displayed on such signs but must not occupy more than 25% of the sign area. Incidental signs include directories, entrance, exit and other necessary directional signs.

15. Menu Sign

A permanent on-premises sign located at businesses that provide drive-up or drive-through services such as fast food restaurants, banks, laundries, etc. Menu signs shall be located so as not to create vehicle stacking problems that will interfere with the flow of traffic.

16. Nonconforming Sign

Any sign that does not conform to size, height, location, design, construction, or other requirements of this Ordinance. The nonconformity may result from adoption of this Ordinance or any subsequent amendment.

17. On-Premises Sign

A sign that publicizes and directs attention to a profession, commodity, activity, product, service or entertainment conducted, sold or offered upon the premises where such sign is located. On-premises signs include pole and ground mounted signs.

18. Portable Sign

A sign not permanently attached to any surface.

19. Professional or Occupational Sign or Name Plate

A sign that publicizes and directs attention to a home occupation or to a profession.

20. Projecting Sign

Any sign that is end mounted or otherwise attached to an exterior wall of a building which forms an angle with said wall.

21. Real Estate Sign

A sign that advertises the sale, rent, or lease of property.

22. Sign Area

The area of a sign shall be measured in conformance with the following:

- a) The area of the face of a sign shall be calculated to include the outermost part that forms the shape or display. Necessary supports and trim moldings shall not be included when calculating the area of the sign. Aprons below advertising signs shall not exceed 3' in height. Aprons serve an aesthetic function and shall not be used for any purposes other than to identify, by name, the sign company responsible for the sign.
- b) In computing the area of a sign, standard mathematical formulas for common regular geometric shapes (triangle, parallelogram, circle and ellipse, or combinations thereof) shall be used.
- c) In the case of an irregularly shaped sign or a sign with letters and/or symbols affixed to or painted, displayed or incorporated into or upon a wall, canopy, awning or decorative facade of a building, the area of the sign shall be the area within the singular continuous perimeter, outlining the limits of the writing, representation, emblem, or any figure of similar character.
- d) Back-to-back and V-type signs mounted so as to be connected and not spread more than 15 feet will be considered as one sign location when calculating horizontal separation between signs. Advertising signs (billboards) shall not be stacked, horizontally or vertically.

23. Sign Height

The vertical distance measured from the ground elevation where the sign is located, to the highest point of the sign except as follows: When the ground elevation is different from the elevation of an adjacent street, the height of a sign shall be measured from the street elevation of the adjacent street, at the edge of the pavement.

24. Temporary Signs

Temporary signs are those signs that relate to such events as elections, auctions, yard sales, agricultural production sales, annual charitable, civic or fraternal events, bona fide grand openings, and home show openings.

25. Wall Sign

A sign that is attached to a wall or facade of a building or canopy.

26. Warning Sign

Any sign with no commercial message that displays information pertinent to the safety or legal responsibilities of the public such as signs warning of 'high voltage', 'no trespassing,' and similar directives.

4.5.3. Sign Standards

1. All freestanding pole signs shall be constructed to withstand minimum wind loads as specified by the NC State Building Code. Sufficient documentation shall be submitted to the DRC for review to assure that wind and stress requirements have been met prior to any permit being issued. Such documentation shall be signed and sealed by a registered North Carolina Architect or Engineer.
2. All signs shall be installed and maintained in compliance with the North Carolina State Building Code and the National Electrical Code and shall have appropriate permits and inspections. Electrical signs and fixtures shall bear labels of a nationally accepted testing laboratory.
3. All signs shall be maintained in a state of good repair, in compliance with all building codes, electrical codes, and this Ordinance, and shall present a neat, well-kept appearance.
4. All lights used for the illumination of a sign shall be shielded so that the light will not shine directly on surrounding areas or create a traffic hazard or distraction to operators of motor vehicles on the public thoroughfares. The Executive Director shall have the authority to order a change in the illumination of any sign that becomes a hazard or a nuisance.
5. Illuminated signs that are located within 300 feet of a residence shall not be illuminated between the hours of 12 midnight and 6 a.m.
6. The Executive Director shall have the authority to order the painting, repair, alteration or removal of a sign, at the expense of the owner of such sign, which shall constitute a hazard to safety, health or public welfare by reasons of inadequate maintenance, dilapidation or obsolescence. The existence of a sign or its support structure with no message display for a period of 90 days shall be justification to declare the sign abandoned and require its removal.
7. Any sign erected without proper permits or in violation of this Ordinance shall be brought into compliance within 30 days of notification of such violation or said sign shall be removed immediately.

8. No sign or sign structure shall be erected, constructed, or maintained so as to interfere with vision clearance along any street or highway or at any intersection of two or more streets or highways. No sign or sign structure may be located within a street or street right-of-way.

#### 4.5.4. Exempt Signs

The following listed signs are subject to all placement and dimensional requirements of this Section and shall comply with the North Carolina Department of Transportation sight distance and street rights-of-way clearances. The following listed signs shall, however, be exempt from submittal to the DRC for approval and from fee requirements. Exempt signs shall be maintained in good condition and shall not constitute a hazard to safety, health or public welfare. Exempt signs that are found to be in violation shall be ordered corrected or removed.

1. Any warning signs; utility signs; signs for public use; and 'no trespassing,' 'no hunting', or 'neighborhood watch' signs containing no commercial message.
2. Any sign that is required by law or erected at the direction of a governmental agency.
3. Signs erected to regulate traffic.
4. Mailboxes, building numbers, nameplates, and building markers not exceeding 4 square feet in area.
5. Construction signs having a maximum area of 32 square feet and a maximum height of 6 feet and limited to one sign per construction site per street frontage. Exempt construction signs must be removed within 15 days following the completion of the project.
6. Real estate signs having a maximum area of 4 square feet in areas classified as agricultural/open space and 32 square feet in area and a maximum height of 6 feet in all other use classifications. Real estate signs are limited to one per site or one per 300' of street frontage.

Temporary real estate signs associated with the marketing of a subdivision shall be limited to one sign per subdivision entrance and 32 square feet in area and 6 feet in height. This type of sign must be set back a minimum of 2 feet from all exterior property lines of the subdivision and shall remain clear of the street sight distance easement. An additional directory-type sign of the same dimension, height and setback requirements may be located within the interior of a subdivision. Real estate signs must be removed within 30 days following completion of the project or transaction.

7. Temporary signs shall not be placed more than 30 days prior to the event, election or grand opening and must be removed within 10 days following

the event, election or grand opening. Such signs are limited to 32 square feet in area and 6 feet maximum height.

#### 4.5.5. Prohibited Signs

The following signs shall not be permitted, erected or maintained within the jurisdictional area of this Ordinance:

1. Portable signs, including signs painted on or displayed on vehicles or trailers used to serve primarily as a sign.
2. Billboards (advertising signs).
3. Signs erected, maintained, painted or drawn on any tree, rock or other natural feature.
4. Signs with lights or illuminations which flash, move, rotate, scintillate, blink, flicker, vary in intensity, vary in color or use intermittent electrical pulsations, except for: time, temperature, date signs; traditional barber poles; and electronically controlled message signs.
5. Strings of light bulbs used in connection with commercial premises for commercial purposes other than traditional holiday decorations, during the appropriate holiday period.
6. Signs with moving, revolving or rotating parts, optical illusions or movement or mechanical movements by any description or other apparent movement achieved by electrical, electronic or mechanical means, except for time, temperature, date signs; traditional barber poles; and electronically controlled message signs.
7. Signs that extend vertically above the highest portion of the roof of any structure.
8. Signs which obstruct any fire escape, required exit, window, door opening, or wall opening intended as a means of ingress or egress or signs which interfere with any opening required for ventilation.
9. Signs which imitate traffic control devices or interfere with any warning or instructional sign.
10. Signs which project over a public or private street right-of-way.

#### 4.5.6. Sign Placement, Size, Height, Setback, Separation, Clearances and Construction by Sign Type

1. On-Premises Signs (freestanding pole or ground mounted on-premises signs)

- a) Maximum height: 8 feet in agricultural/open space-classified areas and 15 feet in all other use classifications.
  - b) Maximum Sign Size: In agricultural/open space-classified areas, 32 square feet of sign area per adjoining public street frontage. In all other use classifications, 100 square feet of sign area per adjoining public street frontage.
  - c) Maximum number of freestanding or ground mounted on-premises signs per parcel: 1 sign per adjoining public street frontage.
  - d) Minimum separation from rights-of-way, property lines and structures: 10 feet.
  - e) Minimum separation from utility lines shall be in compliance with the requirements of the utility having jurisdiction.
  - f) No unfinished surfaces or structures shall be exposed on on-premises signs.
2. Wall Signs (including canopy, awning and building facade signs)
- a) Maximum area: 1 square foot of sign area per linear foot of building, canopy or awning per building side. Sign footage permitted per building side may not be used on other than that building side (no transfers or cumulative totals).
  - b) Minimum guaranteed wall signage area at any individual premises is 32 square feet.
  - c) The maximum projection of a wall sign shall not exceed 12 inches.
  - d) The height of a wall sign shall not exceed the height of the building or canopy facade.
3. Professional or Occupational Name Plates and Incidental Signs
- a) Maximum sign area: 6 square feet.
  - b) Maximum height: 30 inches if ground mounted. Signs in this category may also be mounted against the structure.
  - c) Minimum setback from all property lines: 5 feet.
  - d) Maximum number of signs per establishment: 1.
4. Identification Signs
- a) Maximum sign area: 32 square feet.

- b) Maximum height: 6 feet.
- c) Minimum setback: 10 feet from all property lines.
- d) Maximum number of signs per adjoining street frontage: 1.

5. Menu Signs

- a) Maximum sign area: 45 square feet.
- b) Maximum height if ground mounted: 8 feet.
- c) Minimum setback from all property lines: 10 feet.
- d) Maximum number of signs per business establishment: 1.

6. Temporary Signs

- a) Maximum sign area: 32 square feet.
- b) Maximum height: 8 feet.
- c) Temporary signs, including banners, shall not be placed on the premises more than 30 days prior to the temporary event and must be removed within 10 days following the temporary event.
- d) Banners shall not be used as permanent signs.
- e) Minimum setback from all property lines: 10 feet.

The table below summarizes the maximum sign area and sign height requirements by type of sign.

**Table 4-6  
Summary Table of Sign Area and Sign Height Standards by Sign Type**

Sign Type	Maximum Sign Area	Maximum Sign Height
Professional, Occupational, Incidental Identification	6 sq. ft.	2.5 ft.
Temporary	32 sq. ft.	6 ft.
Menu	32 sq. ft.	8 ft.
Wall	45 sq. ft.	8 ft.
Freestanding	1 sq. ft. per LF of wall area*	--
Agricultural/Open Space Classification	32 sq. ft.	8 ft.
All Other Land Use Classifications	100 sq. ft.	15 ft.

\* A minimum of 32 square feet is guaranteed at any one individual premises.

#### 4.5.7. Table of Permitted Signs

Table 4-7 Table of Permitted Signs, delineates the various types of permitted signs by land use classification.

**Table 4-7  
Table of Permitted Signs**

Sign Type	Land Use Classification					
	Agricultural/Open Space	Educational/Administrative Services	Commercial	Central Cargo Industrial	Airside Industrial	General Industrial
Advertising Sign						
On-Premises	X	X	X	X	X	X
Wall Sign	X	X	X	X	X	X
Professional or Occupational Nameplate, Incidental	X	X	X	X	X	X
Identification	X	X	X	X	X	X
Menu			X			X
Construction	X	X	X	X	X	X
Real Estate	X	X	X	X	X	X
Portable Sign						
Temporary	X	X	X	X	X	X
Exempt	X	X	X	X	X	X

Notes:  
         X       = Indicates permitted  
        Blank   = Indicates not permitted

**4.5.8. Nonconforming Signs**

1. Signs in existence on the effective date of this Ordinance which do not conform to the provisions of this Ordinance, but which were constructed, erected, affixed or maintained in compliance with all previous regulations, shall be regarded as nonconforming signs. Although it is not the intent of this Ordinance to encourage the continued use of nonconforming signs, nonconforming signs shall be allowed to continue and a decision as to the continued existence and use or removal of such signs shall be controlled as follows:

- a) No nonconforming sign shall be changed to another nonconforming sign.

- b) No nonconforming sign shall have any changes made in the words or symbols used or the message displayed on the sign unless the sign is specifically designed for periodic change of message.
  - c) No nonconforming sign shall be structurally altered so as to change the shape, size, type or design of the sign other than to make the sign a conforming sign.
  - d) No nonconforming sign shall be re-established after the activity, business or use to which it relates has been discontinued and such sign shall be removed.
  - e) No nonconforming sign shall be reestablished and all remains of the sign must be removed after damage or destruction, if the estimated expense of repairs exceeds fifty percent of the estimated total value of the sign at the time of destruction, as determined by the Lenoir County Building Inspector. If damaged by less than fifty percent, but repairs are not made within three months of the time such damage occurred, the nonconforming sign shall not be allowed to continue and must be removed.
  - f) No nonconforming sign shall be relocated unless it is brought into conformance with the requirements of this Ordinance.
  - g) Normal maintenance and repair of a nonconforming sign is permitted providing the shape, size, type or design of the sign is not altered.
2. Any nonconforming sign which is structurally altered, relocated or replaced shall immediately be brought into compliance with all the provisions of this Ordinance.
  3. Any nonconforming sign which (i) is a menace to the public safety, (ii) has been abandoned, or (iii) which has not been properly maintained, including cleaning and painting of painted surface areas and replacement of damaged parts, shall be removed after due notice has been given by the Executive Director.

## 4.6. LANDSCAPING AND SCREENING

### 4.6.1. Purpose

The purpose of this Section is to establish minimum landscaping and screening requirements that provide (i) a visual buffer between parking and loading areas and public streets, (ii) a visual buffer between parking and loading areas and adjoining residential land uses, (iii) visual buffering and shading within parking lots to break up large expanses of pavement, (iv) screening of solid waste collection dumpsters, and (v) screening between certain incompatible land uses.

#### 4.6.2. Parking and Loading Area Landscaping

##### 1. Streetside Buffer Yard Requirements

- a) All parking lots containing ten or more parking spaces shall include a minimum 10-foot perpetually maintained natural or planted buffer yard to screen the parking lot from all adjoining public street rights-of-way (where such parking lot is not screened visually by an intervening building).
- b) The required streetside buffer yard shall contain at least one canopy tree for each sixty linear feet of street frontage and each tree shall be a minimum of 8 feet in height and shall have a minimum caliper of 2 inches (measured six inches above grade) at the time of planting. Each tree shall be a species which can be expected to attain a minimum height of 40 feet and have a crown width of 30 feet or greater at maturity.
- c) The required buffer yard shall also contain evergreen shrubs, planted four feet on center, which are of a species which can be expected to reach a minimum height of 36 inches and a minimum spread of 30 inches within 3 years of planting.
- d) All portions of the streetside buffer yard not planted with trees or shrubs or covered by a wall or other barrier shall be planted with grass, ground cover, or natural mulch of a minimum depth of 3 inches.

##### 2. Property Line Buffer Yard Requirements

Any parking lot and loading area (i) which contains ten or more parking spaces, (ii) which is located on a commercially-, industrially-, institutionally-used lot, and (iii) which abuts a residentially zoned or used lot shall include a minimum 10-foot perpetually maintained natural or planted buffer yard along all adjoining property lines that do not coincide with street rights-of-way.

The required property line buffer yard shall comply with the planting standards set out in subsection 1 above for streetside buffer yards except that there shall be one canopy tree for each 60 LF of property line adjoining a residentially zoned or used lot rather than for each 60 LF of street frontage.

##### 3. Interior Parking Lot Landscaping

All parking lots containing (i) ten or more parking spaces and (ii) which are located on a commercially-, industrially-, institutionally-used lot shall provide interior landscaping. Each required planting area shall be a

minimum of three hundred fifty (350) square feet in size and have no dimension less than seven (7) feet.

Planting areas shall be located within or adjacent to the parking area as tree islands, at the end of parking bays, inside seven (7) foot wide or greater medians, or between rows of cars or as part of continuous street or buffer yards. So long as the minimum standards of this section are met, the number, size and shape of landscaped planting area shall be at the discretion of the owner, as approved by the DRC.

No vehicular parking space shall be located farther than fifty (50) feet from the tree trunk of a canopy tree in a planting area with one (1) canopy tree or farther than seventy-five (75) feet from the trunk of a canopy tree in a planting area with two (2) or more canopy trees, with a maximum spacing between the trees of fifty (50) feet. Any landscaped planting area shall contain a continuous growing area for each tree therein.

Trees shall be required at the minimum rate of one (1) canopy tree for every two thousand (2,000) square feet of total parking lot area. All parking lots located within the same block which serve one (1) or more businesses or uses of land or share unified ingress and egress shall be considered as a single parking lot for the purpose of computing the required rate of trees.

Each required canopy tree shall be a minimum of 8 feet in height and shall have a minimum caliper of 2 inches (measured six inches above grade) at the time of planting. Each tree shall be a species which can be expected to attain a minimum height of 40 feet and have a crown width of 30 feet or greater at maturity.

Shrubs shall be required at a rate of one (1) shrub per five hundred (500) square feet of total parking lot area. All shrubs shall be a minimum of eighteen (18) inches in height when planted and shall attain a minimum height of thirty (30) inches within three (3) years of planting. No more than forty (40) per cent of required shrubs may be deciduous.

#### 4.6.3. Screening of Dumpsters

Solid waste collection dumpsters which are (i) located on sites used for commercial, institutional, or industrial purposes and (ii) abutting a residence, residentially zoned lot, or street right-of-way shall be screened from the view of adjoining residences, residentially zoned lots, or street rights-of-way. Such screening may consist of natural vegetation, fences, walls, or berms and shall be installed, located, or constructed so as to create an effective screen.

#### 4.6.4. Screening of Adjoining Incompatible Land Uses

Whenever an industrial or commercial use is proposed to be located so that the principal building, accessory building(s), outdoor use areas, or parking and loading areas are within 100 feet of a lot which is used for residential purposes or

which is zoned for residential use, the industrial or commercial use shall provide screening in accordance with the following standards:

1. A minimum 25-foot perpetually maintained natural or planted buffer yard shall be provided along all property lines directly abutting a residentially used or zoned lot.
2. The buffer yard shall contain 3 canopy trees and 5 understory trees per 100 linear feet of buffer yard. Canopy trees shall be a minimum of 8 feet in height and 2 inches in caliper (measured 6 inches above grade) when planted. When mature, a canopy tree should be at least 40 feet high and have a crown width of 30 feet or greater. Understory trees shall be a minimum of 4 feet high and 1 inch in caliper (measured 6 inches above grade) when planted.
3. The buffer yard shall also contain 25 shrubs per 100 linear feet of buffer yard. All shrubs shall be of a species which can be expected to reach a minimum height of 36 inches and a minimum spread of 30 inches within 3 years of planting.
4. All portions of the buffer yard not planted with trees or shrubs or covered by a wall or other barrier shall be planted with grass, groundcover, or natural mulch of a minimum depth of 3 inches.

#### 4.6.5. Alternative Screening Methods

1. Under certain circumstances the application of the standards delineated in Sections 4.6.2 through 4.6.4 is either inappropriate or ineffective in achieving the purposes of this Ordinance. When screening is required by this Section or by other provisions of this Ordinance and the site design, topography, unique relationships to other properties, lot configuration, spatial separation, natural vegetation, or other special considerations exist relative to the proposed development, the developer may submit a specific plan for screening to the DRC. This plan must demonstrate how the purposes and standards of this Ordinance will be met by measures other than those listed in Sections 4.6.2 through 4.6.4. If approved by the DRC, the alternative screening plan may be utilized to meet the requirements of this Ordinance.
2. A combination of natural vegetation, fences, walls and berms may be utilized to achieve the screening requirements of Sections 4.6.2 through 4.6.4 provided that the following standards are met:
  - a) Walls (a minimum of 5 feet in height and constructed of masonry, stone or pressure treated lumber) or an opaque fence (a minimum of 5 feet in height) may be used to reduce the widths of the buffer yards required in Section 4.6.4 by 10 feet.

- b) Understory tress may be substituted for canopy trees if, in the opinion of the DRC upon conferring with the electrical utility provider, a conflict exists with overhead utility lines.
- c) Wall planters shall be constructed of masonry, stone or pressure treated lumber and shall have a minimum height of 30 inches. The minimum height of shrubs in wall planters shall be 6 inches. The effective planting area of the wall planter shall be 4 feet in width (7 feet if the wall planter contains trees).
- d) Any berm utilized for screening purposes shall have a minimum height of 3 feet, a minimum crown width of 3 feet, and a side slope no greater than 3:1.

#### 4.6.6. Maintenance

In order for any screening to fulfill the purpose for which it was established, it must be properly maintained. The owner of the property and any tenant on the property where screening is required will be jointly and severally responsible for the maintenance of all required screening materials. Maintenance includes actions necessary to keep screening materials healthy, neat and orderly in appearance and free of litter and debris. Any live screening materials such as shrubs and trees that may die must be replaced in compliance with the minimum standards of this Ordinance. All screening and landscaping areas must be protected from damage by motor vehicles or pedestrians which could reduce the effectiveness of the screening.

#### 4.6.7. Use of Existing Screening

When a lot is to be developed so that screening is required and that lot abuts an existing hedge, fence or other screening material on the adjoining lot, then that existing screen may be used to satisfy the requirements of this Ordinance. The existing screen must meet the minimum standards for screening established by this Ordinance and it must be protected from damage by pedestrians or motor vehicles. However, the burden to provide the necessary screening remains with the use to be screened and is a continuing obligation that runs with the land so long as the original use continues in operation. Consequently, should the screening on the adjoining lot be removed, the use required to be screened shall, at that time, provide screening in accordance with the requirements of this Ordinance.

#### 4.6.8. Obstructions Prohibited

Landscaping and screening materials shall not obstruct the view of motorists using any street, driveway, or parking aisle.

#### 4.6.9. Guarantee in Lieu of Immediate Installation of Landscaping and Screening Materials

It is recognized that land development occurs continuously and that vegetation used in landscaping or screening should be planted at certain times of the year to ensure the best chance of survival. In order to ensure compliance with this Ordinance and reduce the potential expense of replacing landscaping or screening materials which were installed in an untimely or improper fashion, the developer may provide an adequately secured performance bond or other security, acceptable to the Executive Director, to ensure that all of the requirements of this Section will be fulfilled.

#### 4.7. DIMENSIONAL REQUIREMENTS

##### 4.7.1. Minimum Lot Area/Maximum Impervious Area

1. Except as specifically provided for in subsections 3 and 4, all lots in the following land use classifications shall have at least the amount of square footage and shall not exceed the maximum amount of impervious area indicated in the table below:

Land Use Classification	Minimum Lot Area	Maximum Impervious Area
Agricultural/Open Space	5 acres	25%
Commercial	No minimum	80%
Central Cargo Industrial	No minimum	80%
Airside Industrial	No minimum	70%
General Industrial	No minimum	60%
Educational/Administrative Services	No minimum	75%

2. The minimum lot sizes set forth in this subsection are permissible only if and to the extent that adequate water and sewer facilities are or can be made available to serve the lots. Where public water and sewer services are not available, a greater minimum lot area may be required by the Lenoir County Health Department.
3. Deviations from the applicable lot size requirements of this Section may be made for nonconforming lots if approved by the DRC.
4. Impervious area shall mean any part of any parcel that has been modified by the action of any person in a manner which reduces the land's natural ability to absorb and hold storm and surface water. This includes the grading of the property and/or creation of any hard surface area which either prevents or retards the entry of water into the soil mantle, and/or the hardening of an existing surface which causes water to flow at an increased rate. By way of example, common impervious areas include, but are not limited to, roof tops, walkways, patios, driveways, parking lots or storage areas, concrete or asphalt paving, gravel roads, or any cleared, graded, graveled, or compacted surface or paved earthen materials used for vehicular travel, or areas covered with surfaces which similarly impede the natural infiltration of surface water into the soil mantle.

#### 4.7.2. Minimum Lot Width

1. All lots in the following land use classifications shall have at least the lot width indicated in the table below:

Land Use Classification	Minimum Lot Width
Agricultural/Open Space	150'
Commercial	50'
Central Cargo Industrial	100'
Airside Industrial	100'
General Industrial	100'
Educational/Administrative Services	100'

2. The lot width shall be measured along a straight line connecting the points at which a line that demarcates the required setback from the street intersects with side property lines.
3. No lot created after the effective date of this Ordinance that is less than the recommended width shall be entitled to a variance from any building setback requirement.
4. Deviations from the applicable lot width requirements of this Section may be made for nonconforming lots if approved by the DRC.

#### 4.7.3. Lot Access Requirements

1. Subject to the remaining provisions of this Section, every lot to be built upon shall abut a public or private street and no structure shall be built upon a lot that does not abut a public or private street. Lots in the following land use classifications shall have at least the lot frontage indicated in the table below:

Land Use Classification	Minimum Lot Width
Agricultural/Open Space	50'
Commercial	25'
Central Cargo Industrial	25'
Airside Industrial	25'
General Industrial	25'
Educational/Administrative Services	25'

2. Lots of record created prior to the adoption of this Ordinance that have less lot frontage than that required by subsection 1 above are exempt from the requirements of this Section.

#### 4.7.4. Building Setback Requirements

1. Except as specifically provided for elsewhere in this Section no portion of any building may be located on any lot closer to any lot line or to a street right-of-way line than is authorized in the following table:

	Land Use Classification					
	Agricultural/Open Space	Educational/Administrative Services	Commercial	Central Cargo Industrial	Airside Industrial	General Industrial
Street Setback*						
Loop Freeway	150'	na	75'	na	150'	150'
Central Spine Road	na	na	50'	20'	50'	50'
Felix Harvey Parkway	150'	75'	75'	na	150'	150'
NC 58	50'	50'	50'	na	50'	50'
All other roads	50'	50'	50'	20'	50'	50'
Side Property Line Setback	20'	10'	10'	0'	10'	10'
Rear Property Line Setback	40'	20'	10'	0'	0'	0'

\*Street classifications shall be determined in accordance with the NCGTP Master Plan.

2. Setback distances shall be measured from the street right-of-way line or property line to a point on the lot that is the nearest extension of any part of the building that is substantially a part of a building itself and not a mere appendage to it nor a building part allowed to encroach into a setback (see Section 4.7.7). Greater building setbacks than those delineated in subsection 1 may be needed to accommodate required landscape buffers (see Section 4.6 for specific landscaping and buffering requirements).
3. Building setbacks from approved private streets shall be the same distance as specified in subsection 1 but shall be measured from the

private street right-of-way or the boundary line of the common area reserved for the private street.

4. Deviations from the applicable setback requirements of this Section may be made for nonconforming lots if approved by the DRC.
5. Where proposed street alignments have been established, building setbacks shall be measured from the future right-of-way line of the proposed street.
6. No building setbacks are required from a lot line that abuts the right-of-way of a railroad track or siding.
7. Flight line (taxiway and taxilane) setbacks shall be in accordance with FAA requirements and Section 4.3.1.

#### 4.7.5. Building Height Limitations

1. In agricultural/open space-classified areas, no building may exceed a height of 50 feet.
2. In all other land use classifications, there shall be no maximum height limitation except as may be required for structures located within the Airport Height Obstructions Overlay (see Appendix D). Building height shall be measured as the vertical distance from grade to the highest finished roof surface in the case of the flat roofs or to a point at the average height of the highest roof having a pitch.
3. The height limitations of subsection 1 shall not apply to public buildings, church spires, belfries, cupolas and domes not intended for residential purposes, or to monuments, water towers, observation towers, power transmission towers, silos, grain elevators, chimneys, smokestacks, derricks, conveyors, heating and air conditioning equipment, flag poles, radio, television and communication towers, masts, aerials and similar structures, provided such structures meet the requirements of the NC Building Code and Appendix D, Airport Operations Overlay Regulations.

#### 4.7.6. Dimensional Requirements for Accessory Buildings, Structures, and Uses

##### 1. Location

Accessory buildings and structures may be located in front of the principal structure but in no case may they encroach in the street building setback. No accessory structure or building except utility substations shall be erected in any easement.

##### 2. Setbacks

- a) Street: No encroachment in the street setback is permitted.

- b) Side and Rear: In agricultural/open space-classified areas, if the gross floor area (GFA) of the accessory structure or building is less than six hundred square feet, the structure or building may be located 5 feet from a side or rear line. If the GFA of the accessory structure is six hundred square feet or greater, it must meet the setback requirements of the principal building(s) as outlined in Section 4.7.4. In all other land use classifications, the side and rear setback of accessory buildings shall be the same as the principal building.

3. Height

The height of all accessory structures and buildings shall conform to the height limitations of the land use classification of the property.

4. Agricultural Use Accessory Buildings and Structures

Buildings and structures that are accessory to an agricultural use may be located on noncontiguous tracts or parcels that are in the same ownership or under the same control as the agricultural use.

4.7.7. Supplementary Requirements

1. Encroachments into Required Setbacks

- a) Encroachments Permitted in Required Setback: The following are permitted in required setbacks provided there is no interference with any sight distance area:

- (i) Landscaping features, including but not limited to, ornamental pools, planting boxes, sculptures, arbors, and trellises;

- (ii) Ornamental entry columns and gates, flag poles, lamp posts, address posts, HVAC equipment, mailboxes, public utility wires and poles, pumps or wells, and fences or retaining walls; and

- (iii) Handicapped ramps.

- b) Structures Permitted in Required Setbacks: The following structures may encroach into any required setback:

- (i) Cornices, steps, overhanging eaves and gutters, window sills, bay windows or similar architectural features, chimneys and fireplaces, fire escapes, fire balconies, and fire towers may project not more than two and one-half feet into any required setback, but in no case shall be closer than three feet to any property line; and

- (ii) Porches and decks may encroach into the required street and rear setbacks as follows:

Porch or Deck Type	Setback	Maximum Encroachment	Maximum Area
Covered or Uncovered	Street	3 feet	35 sq. ft.
Uncovered only	Rear	50% of setback	---

- c) Canopy Projections: Gas station and convenience store pump island canopies may be located in the street setback provided that no equipment or part of a canopy is located closer than fifteen feet to a street right-of-way line if the pump island is parallel to the street right-of-way or 50 feet if the pump island is perpendicular to the street right-of-way.

2. Visibility at Intersections

No building, structure, wall, fence, shrub or tree shall be erected, maintained, or planted on any lot which will allow an obstruction in the horizontal or vertical sight distance area as defined in Appendix B.

3. Principal Building per Lot

No more than one principal building shall be permitted on a buildable lot in an agricultural/open space-classified area. In all other land use classifications, more than one principal building may be permitted on a buildable lot provided the dimensional requirements of this Ordinance are met for each principal building unless specifically waived by other provisions of this Ordinance.

4. Water and Sewage Disposal Requirements

Every structure intended for human occupancy shall be served by a water supply system and a sewage disposal system that (i) is adequate to accommodate the reasonable needs of the proposed use of the lot and (ii) complies with all applicable health regulations.

5. Lot Size Reduction Prohibition

No lot shall be reduced in size so that noncompliance with respect to any frontage, building coverage, area, width, setback, parking, buffer yard, or signage requirement of this Section is created, nor shall any existing nonconformity or violation be increased. This prohibition shall not, however, apply to governmental acquisition of land.

6. Special Purpose Lots

Requirements of this Section with respect to street frontage, minimum lot area, and minimum lot dimensions shall not apply to lots for family or

church cemeteries, sewer lift stations, and similar utility uses. Such lots shall comply with the requirements below.

- a) The special purpose lot shall be permitted only after the DRC has determined that the proposed lot has sufficient dimensions to accommodate the intended use and, where required by this Ordinance, buffer yards.
- b) If the special purpose lot does not have direct access to a public street, an easement for ingress and egress with a minimum width of ten feet shall be platted and recorded.

#### 4.8. FLOOD DAMAGE PREVENTION REQUIREMENTS

The use of land within designated 100-year and 500-year flood hazard areas and the developmental standards applicable to those uses shall be in accordance with the requirements of the Lenoir County Flood Damage Prevention Ordinance.

Appendix A - List of Recommended Plant Materials

(Primary Source: *Landscape Plants of the Southeast* by R. Gordon Halfacre and Anne R. Shawcroft, 1979)

Evergreen Canopy Trees		At Maturity (in feet)		Growth Conditions	Remarks
Botanical Name	Common Name	Height	Spread		
<i>Cedrus deodara</i>	Deodar Cedar	40-50	30-40	Sun/Pt Shade	Let lower limbs touch ground. Large scale screen or specimen tree.
<i>Magnolia grandiflora</i>	Southern Magnolia	40-60	25-30	Sun/Pt Shade	Let lower limbs touch ground. Large scale screen or specimen tree. White flowers in late spring.
<i>Pinus palustris</i>	Longleaf Pine	80-100	30-40	Sun/Pt Shade	Mass planting/screen. Loses lower limbs with age.
<i>Pinus sylvestria</i>	Scotch Pine	40-70	15-30	Sun	Ornamental specimen or mass planting. Loses lower limbs with age.
<i>Pinus taeda</i>	Loblolly Pine	70-90	30-40	Sun/Pt Shade	Mass plantings. Provides light shade for understory planting. Loses lower limbs with age.
<i>Pinus thunbergii</i>	Japanese Black Pine	50-70	20-25	Sun	Mass plantings. Space close together to form screen.
<i>Quercus laurefolia</i>	Laurel Oak	40-60	30-40	Sun/Pt Shade	Good street tree. Not as long-lived as Live Oak.
<i>Quercus virginiana</i>	Live Oak	30-50	30-50	Sun/Pt Shade	Long-lived. Can reach magnificent proportions with age.

Deciduous Canopy Trees		At Maturity (in feet)		Growth Conditions	Remarks
Botanical Name	Common Name	Height	Spread		
<i>Acer rubrum</i>	Red Maple	40-50	25-35	Sun/Shade	Beautiful fall colors. Use in mass plantings. Long-
<i>Fragus grandifolia</i>	Beech	60-80	40-60	Sun	Cast dense shade, long-lived.
<i>Fraxinus pennsylvanica</i>	Green Ash				
<i>Ginkgo biloba</i>	Ginkgo	40-70	20-40	Sun	Street tree, light shade – susceptible to air pollution.
<i>Gleditsia triacanthos inermis</i>	Thornless Honey Locust	50-75	25-40	Sun	Thorns present serious hazard on streets & playgrounds.
<i>Liquidambar styraciflua</i>	Sweet Gum	60-100	50-75	Sun/Pt Shade	Attractive all year. Allow space to develop symmetrically. Useful for shade.
<i>Liriodendron tulipifera</i>	Tulip Poplar	60-150	30-40	Sun	Useful as specimen or mass plantings in large areas. Good fall color.
<i>Nyssa sylvatica</i>	Black Gum	40-60	20-30	Sun/Shade	Gorgeous fall color and distinctive winter habit. Useful in mass; good specimen while young.
<i>Platanus acerifolia</i>	London Plane	70-100	50-70	Sun/Pt Shade	Long-lived, withstands worst city conditions.
<i>Platanus occidentalis</i>	Sycamore	70-100	60-80	Sun/Pt Shade	Mass planting, needs ample space to develop. Withstands severe conditions.
<i>Prunus sargentii</i>	Sargent Cherry	40-60	30-40	Sun	Casts dense shade
<i>Quercus acutissima</i>	Sawtooth Oak	25-30	25-30	Sun/Pt Shade	One of smaller oaks.
<i>Quercus alba</i>	White Oak	60-100	50-90	Sun/Pt Shade	Majestic specimen. Slow growing, very long-lived. Avoid planting near driveway or patio.
<i>Quercus coccinea</i>	Scarlet Oak	60-80	40-50	Sun	Excellent foliage, rapid growth; excellent shade & street planting.
<i>Quercus nigra</i>	Water Oak	50-75	30-40	Sun/Pt Shade	Use as specimen, canopy & background. Drooping branches limits use as shade tree.
<i>Quercus palustris</i>	Pin Oak	60-80	40-50	Sun/Pt Shade	Excellent lawn tree for large areas. Not recommended for street, lower branches block visibility.
<i>Quercus phellos</i>	Willow Oak	60-80	30-40	Sun	Excellent shade or street tree. Useful as specimen, framing, background and canopy.
<i>Quercus rubra</i>	Red Oak	50-70	40-60	Sun/Pt Shade	Rapid growth, handsome shade tree for street, lawns & mass planting.
<i>Quercus shumardii</i>	Shumard Oak	60-30	40-50	Sun	Rapid grower, excellent foliage.
<i>Salix babylonica</i>	Weeping Willow	30-50	20-40	Sun/Pt Shade	Somewhat untidy & aggressive. Attractive large screen for areas used in spring & summer. Should

Deciduous Canopy Trees		At Maturity (in feet)		Growth Conditions	Remarks
Botanical Name	Common Name	Height	Spread		
					not be planted near underground pipes.
<i>Taxodium distichum</i>	Bald Cypress	50-100	20-30	Sun/Pt Shade	Use in poorly drained sites. Exotic in appearance.
<i>Tilia cordata</i>	Littleleaf Linden	30-50	25-40	Sun/Pt Shade	Useful as street tree & areas requiring dense shade.
<i>Ulmus americana</i>	American Elm	75-125	60-120	Sun/Pt Shade	Susceptibility to Dutch Elm disease limits landscape use.
<i>Ulmus parivolia</i>	Chinese Elm	80-90	70-90	Sun/Pt Shade	
<i>Zelkova serrata</i>	Japanese Zelkova	50-60	40-50	Sun/Pt Shade	Excellent shade tree. Substitute for Elm. Trunk subject to sun scald.

Evergreen Ornamental and Understory Trees		At Maturity (in feet)		Growth Conditions	Remarks
Botanical Name	Common Name	Height	Spread		
<i>Eriobotrya japonica</i>	Loquat	10-20	8-12	Sun/Pt Shade	Excellent specimen or accent plant. May be used in shrub borders, planter boxes or as screen.
<i>Ilex x attenuata</i>	Hybrid Hollies	20-30	10-20	Sun/Pt Shade	Good screen plant
<i>Ilex cassine</i>	Dahoon Holly	20-30	10-15	Sun/Pt Shade	Good for naturalizing in swampy locations.
<i>Ilex myrtifolia</i>	Myrtle Holly	20-25	7-9	Pt Shade	Excellent for tall screens or borders.
<i>Ilex opaca</i>	American Holly	15-30	10-20	Sun/Pt Shade	Best used as specimen plant or in clumps as screen & border. Allow lower limbs to branch to ground.
<i>Pinus nigra</i>	Austrian Pine	20-40	12-20	Sun	Picturesque with age. Use as texture contrast in shrub borders or as screen when spaced 12-15 ft. apart.
<i>Prunus caroliniana</i>	Carolina Cherry Laurel	20-30	15-20	Sun/Pt Shade	Excellent in natural form. Excellent foliage. Use as specimen, screen or border.
<i>Quercus acuta</i>	Japanese Evergreen Oak	20-40	8-16	Sun	Specimen or screening material with heavy low branching and elegant foliage.

Deciduous Ornamental and Understory Trees		At Maturity (in feet)		Growth Conditions	Remarks
Botanical Name	Common Name	Height	Spread		
<i>Acer palmatum (varieties)</i>	Japanese Maple	15-20	10-15	Pt Shade	Beautiful tree for small gardens & terraces. Refined in character.
<i>Amelanchier canadensis</i>	Serviceberry	10-20	8-15	Sun/Pt Shade	Blooms just before dogwood. Attractive with background of loblolly pines or planted along edge of wild areas.
<i>Betula nigra</i>	River Birch	20-40	16-20	Pt Shade	Graceful branching habit, attractive bark.
<i>Carpinus betulus 'Fastigiata'</i>	Upright Hornbeam	20-40	15-20	Sun	Good street tree for narrow spaces.
<i>Carpinus caroliniana</i>	American Hornbeam	20-30	15-20	Sun/Shade	Good small street or shade tree with refined character.
<i>Cercis canadensis</i>	Eastern Redbud	20-30	12-25	Sun/Pt Shade	Good foliage & beautiful in blossom; interesting specimen or filler. Drought resistant.
<i>Chionanthus virginicus</i>	Fringe Tree	10-12	8-10	Sun	Used as specimen; good in cities.
<i>Cornus florida</i>	Flowering Dogwood	15-30	15-20	Pt Shade	Interesting horizontal branch structure. Use in group planting or as accent in borders & margins of woods. Develops thinner & more graceful habit in part shade rather than full sun.
<i>Cotinus coggyria</i>	Smoketree	10-15	8-14	Sun	Maintain high moisture until well established. Interesting specimen or border plant for cooler areas.
<i>Elaeagnus augustifolius</i>	Russian Olive	15-20	20-30	Sun	Withstands severe exposures. Rapid growth. Rather short-lived.
<i>Franklinia alatamaha</i>	Franklinia	20-30	15-18	Sun	Showy, fragrant late summer flowers & colorful autumn foliage. Use as accent, specimen or filler.
<i>Halesia carolina</i>	Carolina Silverbell	20-40	18-20	Pt Shade/Shade	Useful in borders and along paths or streets. Excellent as naturalizing material.
<i>Koelreuteria paniculata</i>	Golden Raintree	20-30	15-20	Sun/Pt Shade	Valuable for flower & showy seed pods. Best used in groups. Short-lived
<i>Lagerstroemia indica</i>	Crape Myrtle	15-25	5-15	Sun	Decorative & effective throughout year as specimen or multi-trunked small tree. Flowers late summer.
<i>Magnolia soulangiana</i>	Saucer Magnolia	15-25	15-25	Sun/Pt Shade	Best suited to city garden; espaliers well in limited areas, flowers in spring.
<i>Magnolia stellata</i>	Star Magnolia	10-12	8-10	Sun	Very handsome specimen shrub for lawns & gardens, best with darker background. Flowers in spring.

Deciduous Ornamental and Understory Trees		At Maturity (in feet)		Growth Conditions	Remarks
Botanical Name	Common Name	Height	Spread		
<i>Malus hybrida</i>	Flowering Crab Apple	15-25	10-20	Sun	More susceptible to fire blight when forced by too much fertilizer or heavy pruning.
<i>Malus pumila</i>	Apple	25-40	25-40	Sun	Develops rugged, sculptural form with careful pruning.
<i>Oxydendrum arboreum</i>	Sourwood	20-30	10-15	Sun/Shade	Slender & handsome; valued for summer flowering & for brilliant fall coloring. Useful in borders and as undercover in woodland areas.
<i>Prunus cerasus</i>	Sour Cherry	20-30	15-20	Sun/Pt Shade	Tolerant of shaded situation in light woodlands or may be used as specimen or espaliered. Lives 15-20 years.
<i>Prunus persica</i>	Peach	10-15	10-15	Sun	Use as screen, border or specimen where spectacular color display can be appreciated
<i>Prunus serrulata</i>	Japanese Cherry	15-25	15-20	Sun/Pt Shade	Outstanding for quick effect. Life span is 15-20 years.
<i>Punica granatum</i>	Pomegranate	12-15	12-15	Sun	Use as specimen or as high hedge closely planted & pruned.
<i>Pyrus calleryana</i>	Callery Pear	20-40	20-30	Sun/Pt Shade	Showy display of flowers in early spring; fruit adds interest without creating litter. Beautiful fall foliage color. Long-lived.
<i>Salix caprea</i>	Pussy Willow	12-25	8-15	Sun/Pt Shade	Fast growing. Interesting flowers & fruit for floral arrangements. Short-lived.
<i>Sassafras albidum</i>	Sassafras	25-40	20-25	Sun/Pt Shade	Useful for thickets, borders of woodland parks & mass plantings.
<i>Vitex agnus-castus</i>	Chaste Tree	10-12	8-10	Sun/Pt Shade	Handsome mass, particularly attractive in bloom. Difficult to blend with other shrubs.

Large Evergreen Shrubs (over 6' height)		At Maturity (in feet)		Growth Conditions	Remarks
Botanical Name	Common Name	Height	Spread		
<i>Azalea indica</i>	Indian Azalea	6-12	6-8	Sun/Shade	Best in Coastal Plain. Requires mulch.
<i>Callistemon lanceolatus</i>	Bottlebrush	6-12	8	Sun	Grown primarily for floral display. In very warm areas may be trained as specimen tree. Good screening material for protected beach properties.
<i>Camellia japonica</i>	Japanese Camellia	7-12	5-7	Pt Shade	Easily grown but very formal in character. Requires protection from winter wind.
<i>Camellia sasanqua</i>	Sasanqua Camellia	7-12	5-7	Sun/Pt Shade	Excellent for informal borders, specimen, accent and sheared or natural hedges. If not planted in shade, should be planted where morning sun does not strike foliage.
<i>Cleyera japonica</i>	Cleyera	8-10	5-6	Pt Shade	Highly shade tolerant; withstands city conditions. Excellent along coast but must be protected from salt spray.
<i>Elaeagnus pungens</i>	Thorny Elaeagnus	8-11	6-10	Sun	Effective as large scale specimen, natural hedge, shrub border, covering on banks. Tolerant of many adverse conditions such as salt spray.
<i>Euonymus japonicus</i>	Evergreen Euonymus	6-7	3-5	Sun/Shade	Prevention and control of insects and disease limits desirability. Tolerates salt spray.
<i>Ilex cornuta</i>	Chinese Holly	8-10	5-7	Sun/Pt Shade	Useful as hedge or massive foundation plant. Ragged appearance when sheared.
<i>Ilex crenata</i>	Japanese Holly	10-12	3-5	Sun/Pt Shade	Suitable for screening or hedging. Useful as background material.
<i>Ilex glabra</i>	Inkberry Holly	6-9	4-7	Sun/Shade	Select male plants for best winter color. Most useful as background plant. Excellent for naturalizing.
<i>Ilex latifolia</i>	Lusterleaf Holly	8-12	7-11	Pt Shade	Use in large scale shrub borders; excellent for industrial or park sites or as specimen or screening plant for large areas.
<i>Ilex pernyi</i>	Perny Holly	9-12	4-6	Sun/Pt Shade	Taller growing than many shrub hollies. Showy red fruit.
<i>Ilex vomitoria</i>	Yaupon Holly	5-15	6-12	Sun/Shade	Useful as border, screen, specimen, or barrier for large properties. Susceptible to salt burn.
<i>Illicium anisatum</i>	Anise Tree	8-12	8-10	Sun/Pt Shade	Excellent as enclosure and foundation plant for large buildings or as large specimen. Attractive form and foliage; rarely produces flowers.

Large Evergreen Shrubs (over 6' height)		At Maturity (in feet)		Growth Conditions	Remarks
Botanical Name	Common Name	Height	Spread		
<i>Laurus nobilis</i>	Laurel	10-12	8-10	Sun	Often used as screen or informal hedge. Grows well in Coastal Plain and Piedmont.
<i>Ligustrum japonicum</i>	Japanese Privet	6-10	5-6	Sun/Shade	Formal or informal hedge or shrub border. Adapted to adverse conditions of drought, heat, cold, and salt spray. Use in foundation plantings only for large structures and sites. Excellent background material.
<i>Ligustrum lucidum</i>	Glossy Privet	8-12	5-10	Sun/Shade	Does well in adverse conditions. Adapted to large extensive areas. Excellent as tall screen or windbreak.
<i>Loropetalum chinense</i>	Loropetalum	6-10	8-9	Sun/Pt Shade	Useful as screen, border, or foundation shrub. Excellent espaliered.
<i>Magnolia virginiana</i>	Sweetbay	10-12	8-10	Sun/Pt Shade	Native to coastal areas and sometimes treelike proportions. Use against architectural or evergreen background.
<i>Michelia figo</i>	Banana Shrub	6-8	6-8	Sun/Lt Shade	Handsome foliage and pleasant banana fragrance from flowers in evening. Foliage may freeze in severe winters.
<i>Myrica cerifera</i>	Wax Myrtle	10-12	4-6	Sun/Pt Shade	Will thrive in practically any situation. Good background material; combines well with junipers. Useful on coast but will not tolerate direct exposure to salt spray.
<i>Myrtus communis</i>	Myrtle	5-10	4-7	Sun	Excellent specimen or for sheared or natural hedges. Useful for foundation plantings for large buildings.
<i>Osmanthus fortunei</i>	Fortune Tea Olive	9-12	5-7	Sun	Excellent in large borders and screens or as clipped hedge. May be used as formal specimen.
<i>Osmanthus fragrans</i>	Fragrant Tea Olive	10-12	10-14	Sun/Pt Shade	May become treelike in Coastal Plain. Use as large specimen near porch or walkway.
<i>Osmanthus heterophyllus</i>	Holly Osmanthus	6-10	3-5	Sun/Pt Shade	May be used as formal specimen or hedge. Useful as background planting.
<i>Photinia fraseri</i>	Fraser Photinia	7-12	5-8	Sun	Resistant to mildew which disfigures <i>P. serrulata</i> . Best used for hedge in full sun or where color harmonizes.
<i>Photinia glabra</i>	Red Photinia	6-10	4-5	Sun	Best used for hedges in full sun or where color harmonizes.
<i>Photinia serrulata</i>	Chinese Photinia	7-12	5-12	Sun	Limited landscape use because of color and

Large Evergreen Shrubs (over 6' height)		At Maturity (in feet)		Growth Conditions	Remarks
Botanical Name	Common Name	Height	Spread		
					susceptibility to mildew. Large specimen or accent plant for unlimited areas requiring mass.
<i>Pittosporum tobira</i>	Pittosporum	8-10	6-9	Sun	Excellent specimen plant or for natural or clipped hedges and screens. Popular for beach landscaping.
<i>Podocarpus macrophyllus maki</i>	Podocarpus	8-10	3-5	Sun/Shade	Excellent specimen, hedge, or screening material for large or small gardens. Withstands city conditions.
<i>Prunus laurocerasus</i>	English Laurel	10-12	8-11	Sun/Shade	Sometimes has scorched foliage appearance, especially in winter. May be used for tall hedges, windbreaks, or foundation planting for large buildings.
<i>Pyracantha koidzumi</i>	Formosa Firethorn	6-10	6-10	Sun/Pt Shade	Heavy clusters of bright red fruit in fall and winter. Interesting as specimen, border or screen plant. Often seen espaliered or trained on trellis.
<i>Viburnum rhytidophyllum</i>	Leathleaf Viburnum	6-10	5-7	Shade/Pt Shade	Dignified shrub of architectural character; excellent foliage and fruit. Used as specimen and foundation plant especially for narrow wall spots.
<i>Viburnum tinus</i>	Laurestinus Viburnum	10-12	10-12	Sun/Pt Shade	Valuable evergreen for barrier, specimen, clipped or unclipped hedge. Avoid watering in fall or planting on very fertile soils. Good background material.
<i>Yucca aloifolia</i>	Spanish Bayonet Yucca	6-15	4-5	Sun/Pt Shade	Excellent texture or form contrast against architectural features. Effective massed in large areas. May be used in city gardens or in protected beach plantings.

Large Deciduous Shrubs (over 6' in height)		At Maturity (in feet)		Growth Conditions	Remarks
Botanical Name	Common Name	Height	Spread		
<i>Azalea calendulacea</i>	Flame Azalea	8-12	5-8	Sun/Pt Shade	Handsome and showy native azalea. Best in woodland plantings. Good fall color.
<i>Azalea hybrida 'Exbury'</i>	Exbury Hybrid Azalea	6-8	5-7	Pt Shade	Excellent for naturalizing or in mass for color accent in spring. Effective in combination with evergreen azaleas and camellias.
<i>Buddleia davidii</i>	Butterfly Bush	5-8	3-6	Sun	Summer flowering and usually treated as perennial. Useful scattered through large shrub borders or as accent for flower beds.
<i>Calycanthus floridus</i>	Sweetshrub	6-9	5-8	Sun/Shade	Valued for fragrance of flowers and fruit; useful in unclipped borders and moist areas
<i>Cortaderia selloana</i>	Pampas Grass	3-10	6	Sun/Pt Shade	Excellent as specimen in larger areas with flowers and foliage giving striking effect. Limited in use by large size.
<i>Cytisus scoparius</i>	Scotch Broom	5-7	3-5	Sun/Pt Shade	Form derived from vertical twig growth rather than foliage effect; somewhat unpredictable in survival. Numerous seedlings replace old plants. Will grow on clay banks.
<i>Deutzia scabra</i>	Pride of Rochester Deutzia	6-10	4-8	Sun/Pt Shade	Handsome mass useful in shrub borders or as specimen. Showy flowers. Useful as background or accent for flowers beds.
<i>Euonymus alatus</i>	Winged Euonymus	5-8	3-5	Sun/Pt Shade	Excellent for parks or industrial sites. Flamboyant coloring and rank growth limit use to large-scale properties.
<i>Exochorda racemosa</i>	Pearl Bush	10-12	8-10	Sun/Pt Shade	Delicate appearance in bloom; attractive foliage. Grows leggy with age, requiring facer shrubs. Valuable as light mass or specimen for large areas.
<i>Forsythia intermedia</i>	Forsythia	8-10	7-10	Sun	Good foliage mass but most beautiful in flower; useful as large accent, dense mass or screen, and in border with spring bulbs. Withstands city conditions.
<i>Hamamelis virginiana</i>	Witch Hazel	8-15	7-14	Sun/Pt Shade	Excellent for naturalizing in shady areas. Blooms after leaves have fallen. Useful for large estates and parks.
<i>Hydrangea paniculata</i>	Hydrangea	8-20	6-8	Pt Shade	Grows well in seaside gardens; tolerant of city conditions. May be trimmed to form small tree.

Large Deciduous Shrubs (over 6' in height)		At Maturity (in feet)		Growth Conditions	Remarks
Botanical Name	Common Name	Height	Spread		
<i>Kolkwitzia amabilis</i>	Beauty Bush	6-7	6-8	Sun	Good mass when properly maintained, otherwise loose and open. Transplants poorly, slow to establish.
<i>Philadelphus x virginalis</i>	Mock Orange				
<i>Spiraea prunifolia plena</i>	Bridalwreath Spirea	5-7	3-5	Sun/Shade	Valuable shrub for flowers, foliage and fall color; useful for all informal planting; combines well with perennials and roses.
<i>Spiraea vanhouttei</i>	Vanhoutte Spirea	5-7	4-6	Sun/Shade	Dependable plant. Useful as specimen or mass, as natural hedge, or in shrub borders.
<i>Syringa persica</i>	Lilac	6-8	7-9	Sun/Pt Shade	Good foliage and twig growth for screening and background. Long lasting plant of high quality with minimum problems.
<i>Viburnum burkwoodii</i>	Burkwood Viburnum	6-8	5-7	Sun/Pt Shade	Flowering shrub borders, background, and naturalizing in woodlands. May be espaliered on fence or wall.
<i>Viburnum dilatatum</i>	Linden Viburnum	6-9	6-8	Sun/P. Shade	Best flowering and fruiting in open situations and planted in groups. For borders, screens or specimen use.
<i>Viburnum plicatum tomentosum</i>	Doublefile Viburnum	8-10	8-10	Sun/Pt Shade	Handsome specimen or accent plant; useful in shrub borders. Beautiful horizontal branching habit displaying flowers and fruit well. Will not tolerate drought.
<i>Weigela florida</i>	Weigela	6-8	8-10	Sun	Valued for handsome flowers; at other seasons rather coarse, does not blend well with other shrubs; best as specimen or accent in very large gardens.

Medium Evergreen Shrubs (4' – 6' height)		At Maturity (in feet)		Growth Conditions	Remarks
Botanical Name	Common Name	Height	Spread		
<i>Abelia grandiflora</i>	Glossy Abelia	4-6	3-5	Sun/Shade	Medium height informal hedges or for background. Iron chlorosis common; not well adapted to deep sandy soils. Leaf drop from low temperatures, lack of pruning and starvation.
<i>Aucuba japonica</i>	Japanese Aucuba	4-5	3-4	Shade	Excellent for dark corners or shady locations. May be grown in planter boxes.
<i>Azalea hybrida</i>	Hybrid Azaleas	4-6	3-4	Pt Shade	Brilliant floral display with different varieties covering entire azalea blooming season. Somewhat more cold hardy than Kurume azalea.
<i>Berberis julianae</i>	Wintergreen Barberry	4-6	2-5	Sun/Pt Shade	Handsome shrub. Good as background material. May be used as specimen, hedge, border, or background material. Impenetrable because of thorns.
<i>Buxus microphylla japonica</i>	Japanese Boxwood	4-5	3-4	Sun/Shade	Larger leaves than species. Excellent sheared or natural hedge. Good low specimen plant.
<i>Euonymus kiautschovicus</i>	Spreading Euonymus	4-6	4-6	Sun/Shade	May be trained as vine on walls or fences; climbs by aerial roots. Lower branches sometimes prostrate and root. Useful as hedge, screen, border or foundation planting.
<i>Fatsia japonica</i>	Japanese Fatsia	4-6	4-6	Shade	Prefers protected spot in deep shade. Excellent espaliered or in planter boxes; very tolerant of confined city conditions.
<i>Ilex crenata</i>	Japanese Hollies	4-6	3-5	Sun/Shade	Fine as foundation plant or in masses. Good substitute for boxwoods and may be developed into formal or informal hedge.
<i>Jasminum floridum</i>	Flowering Jasmine	4-6	5-7	Sun/Pt Shade	May be trained as vine. Acts as large scale ground cover when used in mass plantings. Excellent on banks or over wall where graceful form shows to advantage. Useful for unclipped hedges or borders requiring little care once established.
<i>Huniperus chinensis pfitzeriana</i>	Pfitzer Juniper	4-6	6-9	Sun	Best used in broad masses in large-scale areas. Exotic in appearance, does not mix well with other plants. Susceptible to salt burn.
<i>Mahonia bealei</i>	Leatherleaf	5-6	3-4	Pt Shade/Shade	Very dependable for use in shrub borders or as

Medium Evergreen Shrubs (4' – 6' height)		At Maturity (in feet)		Growth Conditions	Remarks
Botanical Name	Common Name	Height	Spread		
	Mahonia				specimen. Winter-burn if grown in sun. Interesting and exotic effect.
<i>Mahonia pinnata</i>	Cluster Mahonia	4-6	2-3	Sun/Pt Shade	Useful for border or specimen; not as limited in use as coarser textured species. Excellent vertical accent. Grows well in sun.
<i>Myrica pennsylvanica</i>	Northern Bayberry	3-6	3-8	Sun/Pt Shade	Excellent for beach landscaping, particularly as salt wind barrier. May be naturalized in masses; effective in shrub borders and foundation plantings.
<i>Nandina domestica</i>	Nandina	4-6	2-3	Sun/Pt Shade	Interesting used as facer shrub or planted in groups. Avoid placing near red brick buildings. Excellent vertical accent. Good for year-round interest.
<i>Prunus laurocerasus augustifolia</i>	Narrow Leaf English Laurel	4-6	5-6	Sun/Shade	Excellent for contemporary design. Good low growing foundation plant. Adapts well to city conditions.
<i>Pyracantha coccinea</i>	Scarlet Firethorn	5-6	6-8	Sun	Needs 3 to 4 applications general purpose spray annually starting late March or early April. Use as wall shrub, specimen, or foundation planting.
<i>Yucca gloriosa</i>	Mound Lily Yucca	4-6	3-4	Sun	Resistant to salt spray. Frequently seen grouped with smaller growing yuccas. Sharp, stiff leaves hazardous. Combines well with santolina.

Medium Deciduous Shrubs (4' – 6' height)		At Maturity (in feet)		Growth Conditions	Remarks
Botanical Name	Common Name	Height	Spread		
<i>Azalea hybrida</i>	Hybrid Azaleas	3-5	3-5	Shade/Pt Shade	Excellent habit and good foliage; useful in groups and mass. Not for Coastal Plain.
<i>Berberis thunbergii</i>	Japanese Barberry	3-5	3-5	Sun/Pt Shade	Grows in any situation, particularly good for poor soil, shade, and exposed places. Good for use as impenetrable hedge (thorns). Tolerates exposure.
<i>Chaenomeles speciosa</i>	Flowering Quince	5-6	5-6	Sun/Pt Shade	Splendid mass with fine foliage, showy flowers, and interesting winter color; excellent for borders, specimen, or hedges.
<i>Hamamelis vernalis</i>	Vernal Witch Hazel	4-6	2-3	Sun/Pt Shade	Useful for borders, low screens, and for naturalizing.
<i>Hydrangea quercifolia</i>	Oakleaf Hydrangea	4-6	3-5	Pt Shade	Strong-textured accent or specimen for large scale gardens and parks. Excellent flowers and fall foliage color.
<i>Kerria japonica</i>	Kerria	4-6	3-5	Sun/Pt Shade	Useful in small groups in foreground of shrub border. Attractive against walls and fences that contrast in color and texture. Can be trained as vine and used in natural areas. Little care required.
<i>Rosa multiflora</i>	Japanese Rose	4-6	10-15	Sun	May be used over fences and walls and on trellises but requires much space. Forms impenetrable wide hedge (thorns).
<i>Rosa rugosa</i>	Rugose Rose	4-6	4-6	Sun	Handsome and useful in flower and shrub borders. Especially suited for coastal and windy sites.
<i>Spiraea cantoniensis</i>	Reeves Spirea	4-6	3-5	Sun/Pt Shade	Excellent landscape plant. Use as specimen or accent plant or in shrub borders. Almost evergreen in warmer areas.
<i>Spiraea thunbergii</i>	Thunberg Spirea	3-5	3-4	Sun/Pt Shade	Earliest blooming of spireas. Graceful and delicate in appearance. Foliage retained until late November.
<i>Vaccinium ashei</i>	Rabbiteye Blueberry	4-6	3-5	Sun	Excellent as informal hedge or border.

Small Evergreen Shrubs (1' – 4' height)		At Maturity (in feet)		Growth Conditions	Remarks
Botanical Name	Common Name	Height	Spread		
<i>Aucuba japonica</i> 'Nana'	Dwarf Aucuba	4-5	3-4	Shade	Excellent for dark corners or shady locations.
<i>Azalea hybrida</i>	Satsuki Hybrid Azaleas	2-4	2-4	Pt Shade	Large, showy flowers late in season. Most useful for small-scale areas.
<i>Azalea obtusum</i>	Kurume Azaleas	2-4	2-5	Pt Shade	Brilliant floral display with best color in light shade. Excellent for small gardens.
<i>Buxus harlandii</i>	Harland Boxwood	2-4	2-3	Sun/Pt Shade	Not good as specimen but excellent in low hedges or as edging plant. Grows well in Coastal Plains.
<i>Chamaecyparis obtusa</i> 'Nana Gracilis'	Dwarf Hinoki Cypress	2-4	2-3	Sun/Pt Shade	Excellent as accent or specimen. Not for mass plantings.
<i>Cotoneaster horizontalis</i>	Rockspray Cotoneaster	2-3	5-8	Sun	Charming plant with long season of handsome foliage and fruits; useful for rock gardens or as ground cover, or draping over low walls. Combines well with stone or wood.
<i>Danae racemosa</i>	Alexandrian Laurel	3	2-3	Shade	May be cut for winter displays. Excellent selection for darker corners of patios and fenced gardens as filler or accent. Unique foliage and fruit.
<i>Daphne odora</i>	Winter Daphne	3-4	3	Sun/Shade	Rather expensive and temperamental but beautiful foliage plant. Does not respond to fertilization or pruning and is difficult to establish. Interesting in foreground of mixed shrub plantings, in rock gardens, or as an edging material.
<i>Euonymus fortunei</i> 'Vegetus'	Evergreen Bittersweet	3-4	Indeter- minate	Sun/Shade	May be used as sheared low hedge, in planter boxes, as climber, or as cover when allowed to trail on ground. Requires spraying to prevent scale infestations.
<i>Euonymus japonicus</i> 'Microphyllus'	Dwarf Japanese Euonymus	2-3	18-24	Sun/Shade	Used for edging, lawn border, or line definition; twigs break easily. Plant destroyed by Euonymus scale unless regularly sprayed.
<i>Hypericum patulum</i>	St. John's Wort	3	3	Sun	More vigorous than species with handsome flower production. Excellent in foreground grouping or in shrub borders and foundation plantings.
<i>Ilex cornuta</i> 'Rotunda'	Dwarf Horned Holly	2-3	3-4	Sun/Pt Shade	Requires no care when established. May be used as accent or foundation plant, unclipped hedge or container plant.

Small Evergreen Shrubs (1' – 4' height)		At Maturity (in feet)		Growth Conditions	Remarks
Botanical Name	Common Name	Height	Spread		
<i>Ilex crenata</i> (varieties)	Japanese Holly	2-3	3-5	Sun/Shade	Excellent substitute for Dwarf Boxwood. May be used as edging or accent plant.
<i>Ilex vomitoria</i> 'Nana'	Dwarf Yaupon Holly	2-4	3-5	Sun/Shade	Excellent as low edging, specimen, or accent plant. Rather formal in character. Withstands drought when well-established. Useful as low growing foundation plant.
<i>Lavandula officinalis</i>	English Lavendar	2-4	3-4	Sun	May be clipped to form low hedge or border. Space 2 ft. apart as hedging.
<i>Leucothoe axillaris</i>	Coastal Leucothoe	3-4	4	Pt Shade/ Shade	Excellent in masses. Good selection for enclosed city gardens or naturalized along stream banks and woodland trails.
<i>Leucothoe fontanesiana</i>	Drooping Leucothoe	3-4	4-6	Pt Shade/ Shade	Good color and habit; useful for massing and as undergrowth for naturalizing in woods. Good filler between other shrubs.
<i>Ligustrum japonicum</i> 'Rotundifolium'	Curlyleaf Ligustrum	4	3	Sun/Pt Shade	Useful as container specimen. Interesting twisted habit of leaf growth. Withstands adverse city conditions and drought fairly well.
<i>Lonicera yunnanensis</i>	Yunnan Honeysuckle	2-3	3-4	Sun	Useful as ground cover or in rock gardens. Good for quick and temporary effect.
<i>Pinus mugo</i> 'Compacta'	Mugo Pine	3-4	2-4	Sun	Varies greatly from seed, some plants reaching a height of 8'. Excellent planted in informal masses exposed to full sun and wind. Useful as specimen.
<i>Raphiolepis indica</i>	India Hawthorne	3-4	4-5	Sun/Shade	Strong in character with dramatic appearance. Good informal hedge with excellent foliage and flower color combination. Tolerates wind and salt spray.
<i>Rosmarinus officinalis</i>	Rosemary	2-4	2	Sun	For herb gardens and as accent or background for flowers. May be used as low hedge in warm areas with careful pruning.
<i>Skimmia japonica</i>	Japanese Skimmia	4	3	Pt Shade/ Shade	Grown for excellent foliage, flowers, and fruit. Useful in foundation plantings and foreground of mixed shrub plantings or in planter boxes.
<i>Skimmia reevesiana</i>	Reeves Skimmia	1-2	2-3	Pt Shade	Grown for foliage, flowers, and fruits. Excellent for small gardens.
<i>Virburnum davidii</i>	David Virburnum	3	3-5	Sun/Pt Shade	Excellent low-growing foundation plant. Of

Small Evergreen Shrubs (1' – 4' height)		At Maturity (in feet)		Growth Conditions	Remarks
Botanical Name	Common Name	Height	Spread		
					dignified and rather formal character.
<i>Yucca filamentosa</i>	Adam's Needle Yucca	1-4	2-4	Sun/Pt Shade	Very resistant to drought and adverse growing conditions. Hazardous near play areas because of sharp, pointed leaf blades.

Small Deciduous Shrubs (1' – 4' height)		At Maturity (in feet)		Growth Conditions	Remarks
Botanical Name	Common Name	Height	Spread		
<i>Chaenomeles japonica</i>	Japanese Flowering Quince	2-3	2-3	Sun/Pt Shade	Withstands city conditions very well. Showy flowers. Needs leafy background.
<i>Deutzia gracilis</i>	Slender Deutzia	3-4	4	Sun/Pt Shade	Excellent as filler in mixed shrub borders and flower gardens, or as low hedge around entrance, patio or walk. Useful for gardens or foundation plantings
<i>Hypericum kalmianum</i>	Kalm St John's Wort	3	3	Sun	May be used to form low hedge along walks, drives, walls or fences. Often evergreen in warmer areas.
<i>Jasminum nudiflorum</i>	Winter Jasmine	2-4	3-5	Sun/Shade	Suitable for covering banks. Will survive in poor soil. Good for irregular loose hedges. Attractive winter bloom. Little care required.
<i>Potentilla fruticosa</i>	Bush Cinquefoil	2-4	3-5	Sun/Pt Shade	Valued for long flowering season. Excellent in rock gardens, over stone walls, or ground cover. Informal hedge or edging material.

Evergreen Vines		At Maturity (in feet)		Growth Conditions	Remarks
Botanical Name	Common Name	Height	Spread		
<i>Akibia quinata</i>	Fiveleaf Akebia	30-40	Indeterminate	Sun/Lt Shade	Excellent foliage for fences or trellis if carefully controlled. Spreads by long underground runners.
<i>Anisostichus capreolatus</i>	Cross Vine	50-60	Indeterminate	Sun	Fast-growing screen for wire fences or trained on masonry walls. Handsome foliage and flower.
<i>Clematis armandii</i>	Armand Clematis	15-20	Indeterminate	Sun	Prefers cool areas. Fast-growing with beautiful flowers; use as accent to cover pergolas and trellises.
<i>Euonymus fortunei</i>	Winter Creeper	3-6	2-4	Sun/Shade	Desirable as low screen against masonry or tree trunks, and may be used as low ground cover for difficult situations in shade or with poor drainage. Tolerates salt spray.
<i>Fatshedera lizei</i>	Bush Ivy	8-9	Indeterminate	Shade/Pt Shade	Excellent espalier plant. Good filler in narrow strips between walk and wall. Tolerates beach conditions if protected from strong winds.
<i>Gelsemium sempervirens</i>	Carolina Jessamine	20	Indeterminate	Sun/Shade	Good screening material. Grows well on fences and trellises; train first growth horizontally to cover wire. Will climb on small trees and down spouts.
<i>Hedera canariensis</i>	Algerian Ivy	30	Indeterminate	Shade	Must be confined if used in small garden. May be used as ground cover.
<i>Hedera colchia</i>	Colchis Ivy	30	Indeterminate	Shade	Useful on fences or as accent. May be sheared to form topiary object. Can be used as ground cover.
<i>Hedera helix</i>	English Ivy	50	Indeterminate	Pt Shade/ Shade	May be used as ground cover. Aggressive in adapted conditions.
<i>Jasminum officinale</i>	Common Jasmine	15	Indeterminate	Sun/Pt Shade	Popular for summer flowers and fragrance. Useful on arbors or trellises, having graceful, airy effect.
<i>Lonicera sempervirens</i>	Trumpet Honeysuckle	50	Indeterminate	Sun/Pt Shade	Excellent for naturalizing. Begins bloom early spring and continues throughout summer if grown in sun.
<i>Rosa banksiae</i>	Banks Rose	10-20	Indeterminate	Sun/Pt Shade	Forms good screen; has numerous flowers. Needs space for massive growth and must be trained to support. Requires little maintenance; tolerates salt spray.
<i>Smilax lanceolata</i>	Smilax	20-30	Indeterminate	Sun/Shade	Handsome foliage. Forms dense screen on trellises and fences. Spreads by underground shoots.
<i>Trachelospermum asisticum</i>	Yellow Star Jasmine	12	15	Pt Shade	Somewhat more cold hardy than T jasminoides. For spot interest on fences and walls where fragrance

Evergreen Vines		At Maturity (in feet)		Growth Conditions	Remarks
Botanical Name	Common Name	Height	Spread		
					may be appreciated. Elegant and interesting foliage.

Deciduous Vines		At Maturity (in feet)		Growth Conditions	Remarks
Botanical Name	Common Name	Height	Spread		
<i>Actinidia chinensis</i>	Kiwi Vine	25	30	Sun/Pt Shade	Grown mainly for luxuriant effect of foliage but also bears delicious fruit. Use as texture contrast in large scale areas or as accent plant for pergolas and trellises.
<i>Clematis hybrida</i>	Large Flowered Clematis	5-30	Indeterminate	Sun	Easily trained to wall or form. Requires care throughout year. Restrained and delicate growth habit. Weak climber.
<i>Clematis paniculata</i>	Japanese Clematis	30	Indeterminate	Sun	Vigorous and easy to grow. Late blooming for decorative screen. Moderately resistant to salt spray.
<i>Clematis virginiana</i>	Virgin's Bower	12-15	Indeterminate	Sun/Shade	Commonly seen along creek banks and streams. Good for naturalizing. Good foliage effect.
<i>Hydrangea anomala petiolaris</i>	Climbing Hydrangea	50	Indeterminate	Pt Shade	Clings to masonry and trees without support. Most suitable in rustic environments. Interesting effect on stone. Does not bloom well in dense shade.
<i>Parthenocissus quinquefolia</i>	Virginia Creeper	10-20	Indeterminate	Sun/Pt Shade	Most useful for large-scale work. Produces quick screen. Resistant to salt spray.
<i>Parthenocissus tricuspidata</i>	Boston Ivy	30	Indeterminate	Sun/Pt Shade	Clings well on masonry work, small leaf varieties less vigorous. Withstands city conditions well. Cold hardy.
<i>Rosa hybrida</i>	Climbing Rose	6-40	Indeterminate	Sun/Pt Shade	Excellent as cover for chain-link fence. Will bloom better if trained in horizontal plain. Grown for flower effect.
<i>Vitis rotundifolia</i>	Muscadine Grape	50	Indeterminate	Sun	Ideal summer screen. Grown for fruit, screening, and as ornament. Mildly tolerant to salt spray and sandy soil.
<i>Wisteria floribunda</i>	Japanese Wisteria	30+	Indeterminate	Sun	Large and very aggressive climber valued for flowers and foliage; useful on pergolas and trellises; may be trained as standard. Rampant growth can girdle trees. Interesting trunk with age.
<i>Wisteris sinensis</i>	Chinese Wisteria	30+	Indeterminate	Sun	Aggressive vine valued for flowers and foliage; useful on pergolas and trellises. Difficult to transplant. Interesting trunk and stems with age. Rampant growth can girdle trees.

Evergreen Ground Covers		At Maturity (in feet)		Growth Conditions	Remarks
Botanical Name	Common Name	Height	Spread		
<i>Ajuga reptans</i>	Bugle Flower	3"-5"	Indeterminate	Pt Shade	Excellent ground cover.
<i>Aspidistra elatior</i>	Cast Iron Plant	1-2	2-3	Shade	Not strictly ground cover but used in densely shaded spots for massing or accenting.
<i>Cotoneaster dammeri</i>	Bearberry Cotoneaster	6"-12"	3	Sun/Pt Shade	Effective in rock gardens or on low banks.
<i>Cyrtomium falcatum</i>	Holly Fern	1-2	2-3	Shade/Pt Shade	Does not spread. Excellent as accent plant or ground cover.
<i>Festuca ovina glauca</i>	Blue Fescue	8"-12"	8"-12"	Sun/Pt Shade	Excellent edging or border material but does not form solid carpet.
<i>Helleborum orientalis</i>	Lenten Rose	12"-18"	12"	Shade	Excellent cover for shaded areas; strong texture and attractive winter flowers.
<i>Hypericum calycinum</i>	Aaronsbeard	8"-12"	Indeterminate	Sun/Pt Shade	Flowering mass completely covers ground. Useful as undershrub in woods. Shade limits flower production.
<i>Iberis sempervirens</i>	Evergreen Candytuft	6"-10"	1-2	Sun	Excellent ground cover for edging. Effective in rockeries.
<i>Juniperus chinesisnsis sargentii</i>	Sargent Juniper	1-2	6-8	Sun	Best variety for adverse conditions. Withstands heat and salt spray.
<i>Juniperus conferta</i>	Shore Juniper	12"-18"	3-5	Sun	Will grow on beach dunes or in clay. Effective in masses. Withstands severe exposure.
<i>Juniperus horizontalis</i>	Creeping Juniper	12"-18"	3-5	Sun	Serviceable for difficult locations. Withstands city conditions.
<i>Liriope muscarii</i>	Liriope	6"-12"	12"-18"	Shade	Thrives in practically any situation and is used to border walks & trees. Withstands salt spray.
<i>Liriope spicata</i>	Creeping Liriope	6"-10"	Indeterminate	Shade	Excellent for preventing soil erosion. Withstands neglect when established.
<i>Ophiopogon jaburan vittata</i>	Snakebeard	8"-12"	Indeterminate	Shade/Sun	Plant in small masses. Withstands salt spray.
<i>Ophiopogon japonicus</i>	Mondo Grass	6"-10"	Indeterminate	Sun/Shade	Resistant to drought and cold. Excellent cover for large or small areas. Especially useful under trees.
<i>Pachysandra terminalis</i>	Japanese Spurge	5"-12"	Indeterminate	Shade	Excellent ground cover for shade. Good texture accent on level ground.

Evergreen Ground Covers		At Maturity (in feet)		Growth Conditions	Remarks
Botanical Name	Common Name	Height	Spread		
<i>Phlox subulata</i>	Thrift	2"-4"	Indeter- minate	Sun	Valued for ability to survive in adverse conditions. Useful in mass for ground cover.
<i>Rosa wichuraiana</i>	Memorial Rose	1-2		Sun/Pt Shade	Good barrier planting; may be trained on fence for screen.
<i>Santolina chamaecyparissus</i>	Lavender Cotton	1-2	3-4	Sun	Useful on poor, sandy, or gravelly soils. Stems root where they touch ground. Somewhat salt tolerant.
<i>Santolina virens</i>	Green Santolina	12"-18"	2-3	Sun	Excellent for mass or border plantings. Useful in poor, sandy or gravelly soils.
<i>Sarcococca hookeriana humilis</i>	Small Himalayan Sarcococca	1-2	1-2	Pt Shade	Useful in groups as filler and background, as informal border, or ground cover.
<i>Teucrium chamaedrys</i>	Germander	10"-12"	8"-10"	Sun	Useful for summer bloom in front of evergreens
<i>Vinca major</i>	Big Periwinkle	6"-10"	Indeter- minate	Sun	Excellent for naturalizing. Good ground cover for banks.
<i>Vinca minor</i>	Periwinkle	5"-8"	3-4	Pt Shade/Shade	Excellent ground cover under trees and for covering shady banks.

Deciduous Ground Covers		At Maturity (in feet)		Growth Conditions	Remarks
Botanical Name	Common Name	Height	Spread		
<i>Hemerocallis hybrida</i>	Daylilly Hybrids	1-2	3-4	Sun/Shade	Useful in masses for large scale or roadside plantings and to control erosion on banks.
<i>Hosta lancifolia</i>	Narrow Leaved Hosta	1-2	4	Shade/Pt Shade	Beautiful in foliage and flower as specimen or border plant. Useful massed or planter boxes.
<i>Hosta plantaginea</i>	Fragrant Hosta	1-2	4	Pt Shade	Excellent for bordering walks and drives in shaded areas or as specimen.

B-1 RULES OF CONSTRUCTION

1. Word Interpretations

Words not defined in this Ordinance shall be given their ordinary and common meaning.

2. Rules of Construction

For purposes of this Ordinance, the following rules of construction shall apply:

- a) Tense: Words used in the present tense include the future tense;
- b) Singular and Plural: Words used in the singular number include the plural number, and the plural number includes the singular number, unless the context of the particular usage clearly indicates otherwise;
- c) Mandatory Meaning: The words 'shall', 'will', and 'must' are mandatory in nature implying an obligation or duty to comply with the particular provision;
- d) Gender: Words used in the male gender include the female gender; and
- e) References: Any reference to a 'Section' or 'subsection' shall mean a Section or subsection of this Ordinance, unless otherwise specified. Whenever any provision or definition of the Ordinance refers to or cites a section of the North Carolina General Statutes (NCGS) or any other state or local law and that section is later amended or superseded, this Ordinance shall be deemed amended to refer to the amended section or the section that most nearly corresponds to the superseded section.

B-2 DEFINITIONS

**Access Easement.** An easement which grants the right to cross property.

**Accessory Building.** A detached subordinate building, the use of which is incidental to that of the principal building and located on the same lot therewith.

**Accessory Structure.** A detached subordinate structure(s), the use of which is incidental to that of the principal structure and located on the same lot therewith. Structures accessory to an agricultural use may be located on noncontiguous tracts in accordance with Section 4.7.6, subsection 4.

**Address.** The official house, building, or structure number assigned for a specific lot, building or portion thereof.

**Agricultural Use.** The use of land or water for bona fide farm purposes (see Farm, Bona Fide).

Aircraft. Any machine supported for flight in the air by buoyancy or by the dynamic action of air on its surfaces, including, but not limited to, powered airplanes, gliders, helicopters, and dirigibles.

Airport. The North Carolina Global TransPark Cargo Airport.

Alley. A roadway that affords only a secondary means of access to abutting property.

Antenna Array. One or more rods, panels, discs or similar devices used for the transmission or reception of radio frequency signals, which may include omnidirectional antenna (rod), directional antenna (panel) and parabolic antenna (disc). The antenna array does not include the support structure.

Antenna Support Structure. Any building or structure other than a tower that can be used for location of telecommunications facilities.

Applicant. Any person or entity that requests any administrative action or approval as allowed under this Ordinance. Also referred to as 'petitioner'.

Assembly. A joining together of completely fabricated parts to create a finished product.

Athletic Field. Outdoor sites, often requiring equipment, designed for formal athletic competition in field sports (e.g. softball, soccer, football).

Authority. The North Carolina Global TransPark Authority authorized in NCGS 63A-3(a).

Auto Wrecking. A person or establishment that provides open storage, disassembling, or salvaging for junked motor vehicles.

Automobile Repair Services. An establishment primarily engaged in one or more of the following activities: (1) general automotive repair or service, (2) automotive engine repair, (3) installation or repair of automotive transmissions, (4) installation or repair of automotive glass, (5) installation or repair of automotive exhaust systems, (6) repair of automotive tops, bodies and interiors, and (7) automotive painting and refinishing.

Bars, Night Clubs, Taverns. Establishments primarily engaged in the retail sale of alcoholic drinks, such as beer, ale, wine, and liquor, for consumption on the premises.

Base Flood. The flood having a one percent chance of being equaled or exceeded in any given year.

Basement. A story of a building or structure having one-half or more of its clear height below grade.

Berm. A man-made mound of dirt with gently sloping sides and crown.

Best Management Practices (BMP). A structural or nonstructural management-based practice used singularly or in combination to reduce nonpoint source inputs to receiving waters in order to achieve water quality protection goals.

Block. The land lying within an area bounded on all sides by roads.

Board of Directors. The North Carolina Global TransPark Authority Board of Directors created in NCGS 63A-3(b) (the North Carolina Global TransPark Authority Act).

Buffer. An area of natural or planted vegetation through which stormwater runoff flows in a diffuse manner so that the runoff does not become channelized and which provides for infiltration of the runoff and filtering of pollutants. The buffer is measured landward from the normal pool elevation of impounded structures and from the bank of each side of streams and rivers.

Buffer Yard. A strip of land which is established to separate one type of land use from another type of land use and which contains natural or planted vegetation, berms, walks, or fences in accordance with the provisions of this Ordinance.

Buildable Lot. One or more lots of record in one undivided ownership with sufficient total area, exclusive of easements, flood hazards, water bodies, well and septic tank fields; sufficient total dimensions; and sufficient access to permit construction thereon of a principal building together with its required parking and buffer yards.

Building. Any structure that encloses a space used for sheltering any occupancy. Each portion of a building separated from other portions by a fire wall shall be considered a separate building.

Building Height. The vertical distance from grade to the highest finished roof surface in the case of flat roofs or to a point at the average height of the highest roof having a pitch. Height of a building in stories does not include basements, except as specifically provided for in this Ordinance.

Building Line. The line, established by this Ordinance, beyond which the building shall not extend, except as specifically provided by this Ordinance.

Building Separation. The minimum required horizontal distance between buildings.

Caliper Inches. Quantity in inches of the diameter of trees measured at six inches above the ground for trees four inches or less in trunk diameter and twelve inches above the ground for trees over four inches in trunk diameter.

Canopy Tree. A species of tree which normally grows to a mature height of forty feet or more with a minimum mature crown width of thirty feet.

Cargo Transport System. A network of non-highway surface or elevated vehicular routes and transfer stations for the movement of cargo designed to provide unencumbered access to the multiple modes of transportation for manufacturing and distribution facilities within the NCGTP.

Cemetery. Property used for the interring of the dead, including columbaria and mausoleums.

Certificate of Compliance. A statement, signed by the Executive Director, setting forth either that a building or structure complies with the provisions of this Ordinance, or that building, structure, or parcel of land may lawfully be employed for specified uses, or both.

Collector Road. A road whose principal function is to carry traffic between cul-de-sac, local, and subcollector roads, and roads of higher classification, but which may also provide direct access to abutting properties.

Collocation/Site Sharing. Use of a common wireless communication facility (WCF) or common site with more than one wireless license holder or by one wireless license holder for more than one type of communications technology and/or placement of a WCF on a structure owned or operated by a utility or other public entity.

Combination Use. A use consisting of a combination on one lot of two or more principal uses. (Under some circumstances, a second principal use may be regarded as accessory to the first, and thus a combination use is not established. In addition, when two or more separately owned or separately operated enterprises occupy the same lot, and all such enterprises fall within the same principal use classification, this shall not constitute a combination use.)

Common Area(s). All areas, including private roads, conveyed to an owners' association within a development, or owned on a proportional undivided basis in a condominium development.

Conference/Training Center. A use primarily intended for transient guests where the primary attractions are generally conference, meeting, and training facilities. A conference/training center may include a combination of such uses as (1) meeting and training rooms; (2) assembly halls; (3) indoor and outdoor recreational facilities; (4) hotel and motels; (5) restaurants; and (6) incidental support retail businesses.

Convenience Store. A retail store that is designed and stocked to sell primarily food, beverages, and other household supplies to customers who purchase only a relatively few items (in contrast to a supermarket). It is designed to attract and depends upon a large volume of stop and go traffic. Illustrative examples of convenience stores are those operated by the Fast Fare, 7-11, and Pantry chains.

Corner Lot. A lot abutting two or more roads at their intersection.

County. Refers to Lenoir County, North Carolina.

Critical Root Zone. The rooting area of a tree established to limit root disturbance, generally defined as a circle with a radius extending from a tree's trunk to the furthest point of the crown dripline.

Cul-de-sac Road. A short local road having one end open to traffic and the other end permanently terminated by a vehicular turnaround.

dbA. The sound pressure level, in decibels, as measured using the impulse mode and "A" weighting network on a precision sound level meter.

Day. Any reference to days shall mean calendar days unless otherwise specified. A duration of days shall include the first and last days on which an activity is conducted, and all days in between, unless otherwise specified by state law.

Day Care Center. A child day care facility as defined in NCGS 110-86(3) as well as a center providing day care on a regular basis for more than two hours per day for more than five adults.

Declaration of Unit Ownership. A duly recorded instrument by which property is submitted to the provisions of NCGS 47A.

Dedication. A gift, by the owner, of the right to use or possess land for a specified purpose or purposes. This transfer of property rights requires a written document stating dedication and is completed with an acceptance.

Developer. A person engaging in development.

Development. Any man-made change to improved or unimproved real estate, including, but not limited, to buildings or other structures, mining, dredging, filling, grading, paving, excavation, or drilling operations or storage of equipment or materials.

Development, Density Of. The density of development shall be determined using a gross acreage system. The total area of the tract, including areas to be used for new roads, rights-of-way, drives, parking, structures, recreation areas, dedicated areas, and required setbacks, shall be used for density calculations.

Development Ordinance. The land use, development, and site design standards and regulations adopted by the NCGTP Authority.

Development Review Committee. The technical advisory committee established by Section 2.1 of this Ordinance.

Drainage Easement. An easement that grants the right of water drainage to pass in open channels or enclosed structures.

Drainageway. Any natural or man-made channel that carries surface runoff from precipitation.

Dripline. A vertical line extending the outermost portion of a tree's canopy to the ground.

Driveway. A private travel way which provides access from a public or private road, road or easement.

**Easement.** A grant of one or more of the property rights, by the property owner, to, or for use by, the public, a corporation, or other entities.

**Emergency Shelter.** A facility providing, without charge, temporary sleeping accommodations, with or without meals, for individuals and/or families displaced from their residences as a result of sudden natural or man-made catastrophe including, but not limited to, earthquake, fire, flood, tornado, hurricane, or the release of hazardous or toxic substance(s) into the environment. Such a natural or man-made catastrophe must be designated by the responsible local, state, or federal official, or an emergency agency such as the American Red Cross or the Emergency Management Assistance Agency.

**Engineer.** Any engineer licensed by the State of North Carolina.

**Executive Committee.** The Executive Committee of the North Carolina Global TransPark Authority Board of Directors.

**Executive Director.** The Executive Director of the North Carolina Global TransPark Authority appointed pursuant to NCGS 63A-3(k).

**Existing Lot (Lot of Record).** See Lot of Record.

**Extraterritorial Jurisdiction (ETJ).** That portion of a municipal planning jurisdiction that lies outside of the corporate limits of the municipality within which municipal land use regulations apply.

**Farm, Bona Fide.** An agricultural land use that includes the production and activities relating or incidental to the production of crops, fruits, vegetables, ornamental and flowering plants, dairy, livestock, poultry, fish, and all other forms of agricultural products having a domestic or foreign market, but not including swine farms.

**Fence.** A physical barrier or enclosure consisting of wood, stone, brick, block, wire, metal or similar material, used as a boundary or means of protection or confinement, but not including a hedge or other vegetation.

**Financial Guarantee.** Any form of security, including a cash deposit, collateral, property, or instrument of credit, in an amount and form approved by the Authority for use in place of actual construction of required improvements. Also referred to as 'surety.'

**Firearm.** A weapon, including pistols, rifles, and shotguns, capable of firing a projectile using an explosive charge as a propellant.

**Floor.** The top surface of an enclosed area in a building (including basement), i.e., top of slab in concrete slab construction or top of wood flooring in wood frame construction. The term does not include the floor of a garage used solely for parking vehicles.

**Frontage.** The side(s) of a lot abutting a legally accessible public or private road right-of-way.

**Grade, Finished.** The final elevation of the ground surface after development.

Grade, Natural. The elevation of the ground surface in its natural state before man-made alterations.

Gross Floor Area. The sum of the gross horizontal areas of one or several floors of a building measured from the exterior face of exterior walls, or from the centerline of a wall separating two buildings, but not including interior parking spaces, loading space for motor vehicles, or any space where the floor-to-ceiling height is less than six feet.

Group Development. A development in which, in lieu of division of a tract of land into separate lots of record for separate principal buildings, a tract of land is divided into two or more principal building sites for the purpose of building development (whether immediate or future), and occupancy by separate families, firms, businesses, or other enterprises.

Habitable Floor. Any floor useable for living purposes which includes working, sleeping, eating, cooking or recreation or a combination thereof. A floor used only for storage purposes is not a habitable floor.

Hazardous Material. Any substance listed as such in SARA section 302, Extremely Hazardous Substances, or Section 311 of CWA (oil and hazardous substances).

Hazardous Waste Treatment Facility. A facility which is established and operated for the recovery, recycling, treatment, storage during collection and prior to treatment, short-term storage after treatment, collection, processing, volume reduction, source separation, or transportation used exclusively in connection with the facility, of hazardous waste; and which facility includes several of the following equipment and processes: incinerators, rotary kilns, drum handling, washing and crushing facilities, raw waste tank storage, reduction, neutralization, detoxification, wastewater treatment facilities, including settling systems, aerobic digesters, anaerobic digesters, clarifiers, neutralization facilities, solidifying facilities, evaporators, reactions to facilities reuse or recycling, analytical capabilities, and other similar appropriate technologies, activities and processes as may now exist or be developed in the future.

Interior Setback. A setback from any property line not alongside a road.

Junk. Old or scrap copper, brass, rope, rags, batteries, paper, trash, rubber, debris, waste, or junked, dismantled or wrecked automobiles, or parts thereof, iron, steel, and other old or scrap ferrous or nonferrous material or other refuse.

Junk/Salvage Yard. Any land or area used, in whole or in part, for the storage, keeping, or accumulation of material, including scrap metals, waste paper, rags, or other scrap materials, or used building materials, for the dismantling, demolition or abandonment of automobiles or other vehicles or machinery or parts thereof. An establishment or place of business which stores or keeps for a period of 15 days or more materials within the meaning of 'junk' as defined above.

Lake. Any natural or impounded body of water, including, but not limited to, a reservoir or pond.

**Landfill.** A facility for the disposal of solid waste on land in a sanitary manner in accordance with Chapter 130A Article 9 of the NC General Statutes. For the purpose of this Ordinance, this term does not include composting facilities.

**Landfill, Demolition and Construction Debris.** A disposal site for stumps, limbs, leaves, concrete, brick, wood and uncontaminated earth. Disposal of any other types of waste must be approved by the NC Division of Health Services.

**Landfill, Sanitary/Solid Waste.** A site for solid waste disposal from residential, industrial or commercial activities.

**Landowner.** Any owner of a legal or equitable interest in real property, including the heirs, devisees, successors, assigns, and personal representative of such owner. Also includes a person holding a valid option to purchase land to act as an agent or representative.

**Local Road.** A road whose primary function is to provide access to abutting properties.

**Lot.** A parcel of land whose boundaries have been established by some legal instrument such as a recorded deed or a recorded map and which is recognized as a separate legal entity for purposes of transfer of title. The word 'lot' includes plot, parcel, or tract.

**Lot Area.** The total area circumscribed by boundaries of a lot except that when the legal instrument creating a lot shows the boundary of the lot extending into a public road or private right-of-way, then the lot boundary for purposes of computing the lot area shall be the road right-of-way line, or if the right-of-way line cannot be determined, a line running parallel to and 30 feet from the center of the traveled portion of the road.

**Lot Boundary Line.** A line that divides one lot from another or from a right-of-way.

**Lot Coverage.** The portion of a lot covered by building(s) and/or structure(s).

**Lot, Corner.** A lot abutting on and at the intersection of two or more roads.

**Lot Depth.** The distance measured along the perpendicular bisector of the smallest possible rectangle enclosing the lot.

**Lot, Double Frontage.** See Lot, Through.

**Lot, Through.** A lot that has a pair of opposite lot lines along two substantially parallel roads, and which is not a corner lot. Also known as a 'double frontage lot.'

**Lot Line, Front.** The boundary line of a lot running along a road right-of-way. If a lot has two property lines which are also road right-of-way lines abutting different roads, then the shorter of those two lines shall constitute the front lot line; if both lines are equal, the front lot line shall be determined by the property owner if the front property line has not been designated on a final plat (minimum building lines are construed to designate the front lot line).

Lot of Record (Existing Lot of Record). A lot that was recorded prior to the adoption of this Ordinance.

Lot Width. The horizontal distance between the side lines of a lot measured at right angles to its depth along a straight line parallel to the front lot line at the minimum required building setback line.

Major Thoroughfare Road. Major thoroughfares consist of interstate, other freeway, expressway, or parkway links, and major roads that provide for the expeditious movement of high volumes of traffic within and through urban areas.

Marquee. Any permanent roof-like structure projecting beyond a building or extending along and projecting beyond the wall of the building, generally designed and constructed to provide protection from the weather.

Mining. The breaking of the surface soil in order to facilitate or accomplish the extraction or removal of minerals, ores, or other solid matter; any activity or process constituting all or part of a process for the extraction or removal of mineral, ores, soils, and other solid matter from its original location; and/or the preparation, washing, cleaning, or other treatment of minerals, ores, or other solid matter so as to make them suitable for commercial, industrial, or construction use.

Minor Thoroughfare Road. Minor thoroughfares collect traffic from collector, subcollector, and local roads and carry it to the major thoroughfare system. Minor thoroughfares may be used to supplement the major thoroughfare system by facilitating movement of moderate volumes of traffic within and through urban areas and may also serve abutting property.

Multi-Tenant Building. A building that is used for two or more occupancies, provided each occupancy is separated by construction having fire-resistive ratings in compliance with the NC Building Code.

Nonconforming. A lot, structure, sign, or use of land, which is now prohibited under the terms of this Ordinance, but was lawful at the date of this Ordinance's enactment, or any amendment or revision thereto.

Nonresidential Development. All development other than residential development, agriculture, and silviculture.

North Carolina Global TransPark (NCGTP). The North Carolina Global TransPark cargo airport complex authorized by the North Carolina General Assembly in NCGS Chapter 63A (the North Carolina Global TransPark Authority Act).

North Carolina Global TransPark Master Plan. The official plan of development for the North Carolina Global TransPark complex site as adopted by the North Carolina Global TransPark Authority.

**Off-site.** Any area not contained within the boundaries of the site being developed, whether or not the developer owns such land.

**Open Space.** An area of land and/or water that is generally unimproved and is reserved for recreation, resource protection, amenity, or buffer purposes.

**Overlay District.** A special land use classification that covers a specified area and has unique requirements that supplement or supersede any requirements of the underlying, general purpose land use classification.

**Owner.** A holder of any legal or equitable estate in the premises, whether alone or jointly with others, and whether in possession or not.

**Parcel.** A continuous area of land in the possession of or owned by, or recorded as the property of, the same person or persons, and which is uniquely identified by the Lenoir County Tax Office.

**Parking Lot.** Part of a development that is designed and designated as a place to park motor vehicles.

**Parking Space.** A specific site within a parking area designed to accommodate a single motor vehicle.

**Pedestrian Way.** A right-of-way or easement dedicated to public use to facilitate pedestrian access to adjacent roads and properties.

**Perennial Waters.** Waters as identified on recent USGS topographic maps that are free flowing for the entire year.

**Person.** Any individual, partnership, firm, association, joint venture, public or private corporation, trust, estate, commission, board, or public or private institution, utility, cooperative, interstate body or other legal entity.

**Petitioner.** Any person that requests any administrative action or approval as allowed under this Ordinance. Also referred to as 'applicant'.

**Plan, Construction.** The map and accompanying text, prepared and submitted under the prescribed conditions set forth in this Ordinance, which details required improvements such as roads, fire hydrants, and street lighting.

**Plan, Drainage.** The portion of a construction plan that illustrates the proposed system designed to provide adequate surface and subsurface drainage for a proposed development.

**Plan, Erosion and Sedimentation Control.** A plan that outlines the procedure designed to control accelerated erosion and sedimentation resulting from certain land disturbing activities.

Plan, Phased Development. A plan which has been submitted to the Authority by a landowner for phased development which shows the type and intensity of use for a specific parcel or parcels with a lesser degree of certainty than the plan(s) determined by the Authority to be a site-specific development plan.

Plan, Site. Submittal required for the review of proposed installation of improvements and construction as well as changes of use.

Plat. A surveyed map or plan of a parcel of land that is to be or has been subdivided.

Preliminary Site Plan. A site plan indicating proposed use and development layout that is submitted to the approving authority for preliminary approval.

Principal Building. A building in which is conducted the principal use of the zone lot on which it is located or, in a group development, of the building site on which it is located. Any dwelling is considered a principal building unless it is a farm tenant dwelling; or a residence for a pastor; or caretaker dwelling accessory to a nonresidential use (limited to one such residence per lot).

Principal Dwelling. Any principal building or structure which is used and designed for human habitation including living, sleeping, cooking and eating activities excluding dormitories, hotels, motels, shelters for the homeless or other structures designed for transient residents.

Principal Structure. A structure(s) in which is conducted the principal use(s) of the lot on which it is located.

Private Drive. A vehicular travelway not dedicated or offered for dedication as a public road, providing access to parking lot(s) for two or more principal buildings in a group housing or group nonresidential development.

Private Sewer. A system which provides for collection and/or treatment of wastewater from a development, or property, and which is not maintained by a government organization or utility district.

Private Road. A vehicular travelway not dedicated or offered for dedication as a public road, but resembling a cul-de-sac or a local road by carrying traffic from a series of driveways to the public road system

Private Water. A system that provides for the supply and/or distribution of potable water for use by a development, project, or owner, and which is not operated or maintained by a government organization or utility district.

Property Line Setback. A setback from a property line that is not coterminous with a road or street right-of-way line.

Public or Community Sewage System. A single system of wastewater collection, treatment and disposal owned and operated and/or maintained by a sanitary district, a

metropolitan sewage district, a water and sewer authority, a county or municipality, a public utility, or a home owners association.

Public Road or Street. A road right-of-way dedicated for public use and maintained or intended to be maintained by the North Carolina Department of Transportation.

Public Sewer. A system that provides for the collection and treatment of sanitary sewage from more than one property, and is owned and operated by a government organization or sanitary district.

Public Water Supply System. A water supply system intended for the provision of potable water to the public as approved by the NC State Board of Health and/or the Lenoir County Health Director.

Reservation. An obligation shown on a plat or site plan to keep property free from development and available for public acquisition for a stated period of time. It is not a dedication nor a conveyance.

Residential Development. Buildings for residence such as attached and detached single-family dwellings, modular homes, manufactured homes, apartment complexes, condominiums, townhouses, cottages, etc. and their associated outbuildings such as garages, storage buildings, gazebos, etc. and customary home occupations.

Retaining Wall. A structure, either masonry, metal, or treated wood, designed to prevent the lateral displacement of soil, rock, fill or other similar material.

Reverse Frontage Lot. A through lot that is not accessible from one of the parallel or non-intersecting roads upon which it fronts.

Right-of-way. A strip of land occupied, or intended to be occupied, by a road; crosswalk; railroad; road; utility transmission line or pipeline; water main; storm or public or community sewage system main; or other similar improvement.

Road Right-of-Way. A strip of land occupied or intended to be occupied by a travelway for vehicles and also available, with the consent of the appropriate governmental agency, for installation and maintenance of sidewalks, traffic control devices, traffic signs, road name signs, historical marker signs, water lines, sanitary sewer lines, storm sewer lines, gas lines, power lines, and communication lines.

Road or Street Setback. Any setback from a street, road, or lane.

Roof Line. The top edge of the roof or the top of the parapet, whichever forms the top line of the building silhouette.

Salvage Yard, Auto Parts. Any establishment listed in North American Industry Classification System under Industry Code Number 421140. Also, any zone lot which is maintained, used, or operated for storing, keeping, buying or selling wrecked, scrapped, ruined, or dismantled motor vehicles or motor vehicle parts; or any zone lot upon which

three or more, unlicensed, used motor vehicles which cannot be operated under their own power are kept or stored for a period of 15 days or more.

Salvage Yard, Scrap Processing. Any establishment listed in the North American Industry Classification System under Industry Code Number 421930. Also, any land or area used, in whole or part, for the storage, keeping, accumulation of scrap or waste materials, including scrap metals, waste paper, rags, building materials, machinery, or other scrap materials.

Satellite Dish Antenna. A parabolic or dish-shaped antenna that is designed for the purpose of receiving electronic signals.

Seating Capacity. The actual seating capacity of an area based upon the number of seats, or one seat per eighteen inches of bench or pew length. For other areas where seats are not fixed, the seating capacity shall be determined as indicated by the NC Building Code.

Setback. The required minimum horizontal distance that must be reserved between the nearest vertical surface of a building and the applicable road right-of-way line, boundary line, or other structure in which no other structure may be erected. Also referred to as the 'minimum building line.'

Shooting Range. An area designed and improved to encompass shooting stations or firing lines, target areas, berms and baffles, and other related components.

Shooting Range Facility. A public or private facility, including individual shooting ranges, safety fans or shotfall zones, structures, parking areas, and other associated improvements, designed for the purpose of providing a place for the discharge of various types of firearms or the practice of archery. Does not include incidental target practice areas on private property, turkey shoots, government facilities, or occasional 'sighting-in' of firearms.

Shopping Center. A group of commercial establishments planned, developed, and managed as a unit with a unified design of buildings and with coordinated parking and service areas.

Sight Distance Area, Horizontal. The area formed by extending lines from the point of intersection of intersecting roads along the centerline of such roads for a distance of forty feet and connecting the ends of such lines by a straight line to form the base for a triangle. Each of the two sides of the triangle will be forty feet in length.

Sight Distance Area, Vertical. The area between three feet and ten feet above the horizontal area measured from the level of the point of intersection of the centerlines of the intersecting roads.

Sight Distance Easement. An easement that grants to the entity responsible for road maintenance the right to maintain unobstructed view across horizontal and vertical sight distance areas.

Sign. See Section 4.5.2 for sign-related definitions.

Single-Family Detached Dwelling. A separate, detached building designed for and occupied exclusively by one family.

Special Promotion. An advertising activity or circumstance of a business which is not part of its daily activities or normal routine, and in which the display or sale of merchandise, wares, or other tangible items is the sole purpose for the promotion. Special promotions include grand openings or closeout sales, but do not include reoccurring sales advertisements or other similar publicity.

Stabilizing Vegetation. Any vegetation that protects the soil against erosion.

Stealth. Any tower or telecommunications facility which is designed to enhance compatibility with adjacent land uses, including, but not limited to, architecturally screened roof-mounted antennas, antennas integrated into architectural elements, and towers designed to look other than like a tower such as light poles, power poles, and trees. The term stealth does not necessarily exclude the use of uncamouflaged lattice, guyed, or monopole tower designs.

Storm Drainage Facilities. The system of inlets, conduits, channels, ditches and appurtenances which serve to collect and convey stormwater through and from a given drainage area.

Stormwater Runoff. The direct runoff of water resulting from precipitation in any form.

Structure. Anything constructed or erected, including a building; a manufactured or mobile home; a storage tank for gases or liquids; or any other permanent, man-made facilities, including swimming pools, walls, and signs. The connection of two buildings by means of an open porch, breezeway, passageway, carport or other such open structure, with or without a roof, shall not be deemed to make them one building.

Subcollector Road. A road whose principal function is to provide access to abutting properties, but which is also designed to be used or is used to connect local roads with collector or higher classification roads.

Surety. See Financial Guarantee.

Swine Farm. Any tract or contiguous tracts of land which is devoted to raising animals of the porcine species and which is served by an animal waste management system having a design capacity of 600,000 pounds steady state live weight (SSLW) or greater, regardless of the actual number of swine on the farm.

Telecommunications Facilities. Any cables, wires, lines, wave guides, antennas, and any other equipment or facilities associated with the transmission or reception of communications which a person seeks to locate or has installed upon or near a tower or antenna support structure. However, telecommunications facilities shall not include:

- (1) Any satellite earth station antenna two meters in diameter or less which is located in an area classified as industrial or commercial; or
- (2) Any satellite earth station antenna one meter or less in diameter, regardless of land use classification.

**Temporary Building.** Any building of an impermanent nature, or one that is designed for use for a limited time, including any tent or canopy.

**Temporary Event.** An activity sponsored by a governmental, charitable, civic, educational, religious, business, or trade organization that is infrequent in occurrence and limited in duration. Examples include arts and crafts shows, athletic events, community festivals, carnivals, fairs, circuses, concerts, conventions, exhibitions, trade shows, horse shows, outdoor religious events and other similar activities.

**Temporary Structure.** Any structure of an impermanent nature or one that is designed for use for a limited time, including any tent or canopy.

**Ten-Year Storm.** The surface runoff resulting from a rainfall of an intensity expected to be equaled or exceeded, on the average, once in ten years and of a duration which will produce the maximum peak rate of runoff for the watershed of interest under average antecedent wetness conditions.

**Tenant.** Any person who alone, or jointly, or severally with others occupies a building under a lease or holds a legal tenancy.

**Thoroughfare Plan.** A plan adopted by the Authority for the development of existing and proposed major roads that will adequately serve the future travel needs of an area in an efficient and cost effective manner.

**Through Lot.** A lot abutting two roads that do not intersect at the corner of the lot.

**Tower.** A self-supporting lattice, guyed, or monopole structure constructed from grade that supports telecommunications facilities. The term tower shall not include amateur radio operator's equipment, as licensed by the FCC.

**Tower, Lattice.** A guyed or self-supporting multi-sided, open, steel frame structure used to support communications equipment.

**Tower, Monopole.** A structure composed of a single spire used to support communications equipment.

**Tower, Telecommunications.** See definition of Tower.

**Toxic Substance.** Any substance or combination of substances (including disease causing agents), which after discharge and upon exposure, ingestion, inhalation, or assimilation into any organism, either directly from the environment or indirectly by ingestion through food chains, has the potential to cause death, disease, behavioral abnormalities, cancer, genetic mutations, physiological malfunctions (including malfunctions or suppression in reproduction or growth) or physical deformities in such organisms or their offspring or other adverse health effects.

Tract. All continuous land and bodies of water in one ownership, or contiguous land and bodies of water in diverse ownership, being developed as a unit, although not necessarily all at one time.

Understory Tree. A species of tree that normally grows to a mature height of fifteen to thirty-five feet.

Use. The purpose or activity for which land or structures is designed, arranged or intended, or for which land or structures are occupied or maintained.

Use(s), Accessory. A structure or use that: (1) is clearly incidental to and customarily found in connection with a principal building or principal use; (2) is subordinate to and serves a principal building or principal use; (3) is subordinate in area, extent, or purpose to the principal building or principal use served; (4) contributes to the comfort, convenience, or necessity of occupants, business, or industry, in the principal building or principal use served; and (5) is located on the same lot as the principal building or principal use served.

Use, Mixed. Occupancy of a building or land by more than one use.

Use, Permitted. Any use, as designated in this Ordinance, that is by right allowed to occur within a specific land use classification.

Use(s), Principal. The primary purpose or function that a lot or structure serves or is proposed to serve.

Utility Easement. An easement which grants to the Authority or other utility providers the right to install and thereafter maintain any and all utilities including, but not limited to, water lines, sewer lines, septic tank drain fields, storm sewer lines, electrical power lines, telephone lines, natural gas lines, fiber optic cable and telecommunication lines, and community antenna television systems.

Variance. A grant of relief by the Executive Director to a person from the requirements of this Ordinance where unusual or unique circumstances peculiar to the property exist, literal enforcement would result in unnecessary and undue hardship, and such relaxation of the regulations would not be contrary to the objectives of this Ordinance.

Violation. Failure on the part of any person to comply with the provisions of this Ordinance.

Watercourse. Any stream, river, brook, swamp, sound, bay, creek, run, branch, canal, waterway, estuary or lake.

Wet Detention Pond. A pond that has a permanent pool and which also collects stormwater runoff, filters the water, and releases it slowly over a period of days.

Wetlands. Transitional lands between terrestrial and aquatic systems as defined by and under the jurisdiction of the US Army Corps of Engineers.

Working Days. Days exclusive of Saturday and Sunday during which weather conditions or soil conditions permit land-disturbing activity to be undertaken.

C-1-1 Number of Review Copies to be Submitted

Type of Map or Plan	# of Prints
Site Plan <ul style="list-style-type: none"><li>• Site Layout</li><li>• Water, Sewer and Drainage Utility</li><li>• Landscaping Plan</li></ul>	4 Sets

C-1-2 Required Information: Site Plans

Submission of all maps and/or plans shall contain the following information before submission to the Development Review Committee (DRC) for review. Information required on site plan sheets is indicated by the following codes: 'A' to be included on all sheets, 'S' to be included on Site Plan sheet, 'U' to be included on Utility sheet, and 'L' to be included on Landscaping sheet. Depending on the scale or complexity of the development, any or all the sheets may be combined. Additional information may be required for approval of the site plan. The DRC may waive items required if it is judged that they are not necessary to complete the review.

Information	Sheet
Map or plan size: Maps submitted shall not exceed a maximum size of 24" by 36"	A
Maps or plans may be drawn on more than one sheet with appropriate match lines	A
Plan Endorsement Block	A
Title Block containing: Name of Development	A
Name of map or plan	A
Owner's name with address and daytime phone number	A
Location (including address, township, county and state)	A
Date(s) map(s) prepared or revised	A
Scale of drawing in feet per inch. Drawing shall be at a scale of not less than 1" equal to 100'.	A
Scale of drawing in feet per inch. Drawing shall be at a scale of not less than 1" equal to 40'.	
Bar graph	A
Name, address, and telephone # of preparer of map (licensed surveyor, engineer, or architect)	A
Developer's name, address, and daytime phone number (if different from owner's)	A
Land use classification and zoning district(s), if any, on adjacent properties	S, L
Existing land use within the property and on adjacent properties	S, L
Plat book or deed book reference	S
Names of adjoining property owners (or subdivisions or developments of record with plat book reference)	S
Tax map, block, and parcel(s) number	S
Vicinity map showing location of site relative to surrounding area (typically drawn in upper right hand corner), at a scale of 1" = 2,000'	S
NCGTP Authority, corporate limits, county lines, and other jurisdiction lines, if any, on the tract	A

Information	Sheet
North arrow and orientation (north arrow shall not be oriented towards bottom of map)	A
Source of property boundaries signed or sealed by registered land surveyor, architect, landscape architect, or engineer	S
Boundaries of the tract to be subdivided or developed:  distinctly and accurately represented and showing all distances	A
tied to nearest street intersection (within 300') or U.S.G.S. (within 2000')	S
showing locations of intersecting boundary lines or adjoining properties	S
Location and descriptions of all monuments, markers, and control corners	S
Existing property lines on tract to be subdivided or developed. If existing property lines are to be changed, label as 'old property lines' and show as dashed lines	S
Dimensions, location and use of all existing and proposed buildings; distances between buildings measured at the closest point; distance from buildings to the closest property lines	S
Railroad lines and right-of-ways	A
Water courses, ponds, lakes or streams	A
Marshes, swamp and other wetlands	A
Areas to be dedicated or reserved for the public or a local jurisdiction	A
Areas designated as common area or open space under control of an Property Owners' Association	S, L
Location of designated recreation areas and facilities	S
Location of floodway and floodway fringe from Flood Hazard Boundary Maps and cross-section elevations, if applicable	A
Existing and proposed topography of tract and 100' beyond property showing existing contour intervals of no greater than 5' (2' where available) and labeling at least two contours per map and all others at 10' intervals from sea level	A
Proposed lot lines and dimensions	A

Information	Sheet
Site calculations including: acreage in total tract	S
acreage in public open space	S, L
total number of lots proposed	S
linear feet in streets	S
area in newly dedicated right-of-way	S
Lots sequenced or numbered consecutively	S
Show dimensions and location of all parking areas, total provided and minimum required number of parking spaces, driveways, service areas, off-street loading facilities and pedestrian walkways	S, L
Within parking areas, clearly indicate each parking space, angle of parking and typical size	S
Street data illustrating: Existing and proposed rights-of-way lines within and adjacent to property	S
Existing and proposed rights-of-way within and adjacent to property showing: total right-of-way width dimension	S
right-of-way width dimension from centerline of existing public streets	S
Existing and proposed streets showing: pavement or curb lines	S
pavement width dimension (face-to-face)	S
cul-de-sac pavement radius	S
existing and proposed street names	A
Location, dimension and type of all easements	A
Utility Layout Plan showing connections to existing systems, line sizes, material of lines, location of fire hydrants, blowoffs, valves, manholes, catch basins, force mains, etc. for the following types of utility lines: sanitary sewer	U

Information	Sheet
water distribution	U
natural gas, electric, cable TV, etc.	U
Landscaping Plan shall include: Location of any required planting yard and/or parking lot plantings	L
Location and screening of dumpsters/compactors	L
Location, species, size, number, spacing, height of trees and shrubs in required planting areas. (If existing vegetation is to be preserved, indicate approximate height and species mix)	L
Size of planting yard, walls, berms and fences	L
Provisions for watering, soil stabilization, plant protection and maintenance access	L
Location and description of barriers to protect any vegetation from damage both during and after construction	L
Existing and proposed signs (location, height and area)	S
Location, dimensions and details of proposed clubhouses, pools, tennis courts, tot lots or other common area recreation facilities	S
Front, side and rear elevations of proposed building(s)	S

### C-1-3 Documents and Written Information in Addition to Maps and Plans

In addition to the written application and the plans, whenever the nature of the proposed development makes information or documents such as the following relevant, such documents or information shall be provided. The following is a representative list of the types of information or documents that may be requested at the time of plan submission:

Information
Documentation confirming that the applicant has a legally sufficient interest in the property proposed for development to use it in the manner requested, or is the duly appointed agent of such a person.
Certifications from the appropriate agencies that proposed utility systems are or will be adequate to handle the proposed development and that all necessary easements have been provided.
Completed application for NC Division of Land Resources Erosion and Sedimentation Control permit if disturbing greater than one acre
Documentation concerning avoidance and minimization of impacts to wetlands and surface waters per US Army Corps of Engineers requirements (40 CFR Part 230) and NC Division of Water Quality regulations (15A NCAC 2H .0500)
Information that documents whether or not the operation of the facility will require an industrial NPDES Stormwater permit per NC Division of Water Quality regulations (15A NCAC 2H.0126)
Information that documents whether or not the operation of the facility will require an Air Quality permit per NC Division of Air Quality regulations (15A NCAC Subchapters 2D and 2Q)
Detailed descriptions of recreational facilities to be provided.
Legal documentation establishing property owners' associations or other legal entities responsible for control over required common areas and facilities.
Bonds, letters of credit, or other surety devices.
A traffic impact study performed and prepared by a qualified transportation or traffic engineer or planner.
Time schedules for the completion of phases in staged development.
If any street is proposed to intersect with a state maintained road, a copy of the application for driveway approval as required by the Department of Transportation, Division of Highways Manual on Driveway Regulations.

#### C-1-4 Environmental Permits

Type of Permit	Issuing Agency	Duration	Issued to whom
1. Section 404	US Army Corps of Engineers	10 years	NCGTP
2. Section 401 WQC	NC Division of Water Quality	10 years	NCGTP
3. Area B Permit	US Army Corps of Engineers	Until expiration of Section 404 permit	NCGTP
4. Erosion & Sedimentation Control Permit	NC Division of Land Quality	Through completion of construction	Tenant, Contractor or NCGTP
5. NPDES MS4 Stormwater	NC Division of Water Quality	5 years	NCGTP
6. NPDES Industrial Stormwater	NC Division of Water Quality	5 years	Tenant
7. Air Quality Permit	NC Division of Air Quality	5 years	Tenant

#### C-1-5 Stormwater Control and Watercourse Buffer Ordinance

##### Section 1. Title; Purpose.

(a) Title. This chapter shall constitute and be known and may be cited as the "Stormwater Control and Watercourse Buffer Ordinance" of the North Carolina Global TransPark (NCGTP).

(b) Purpose. This section is intended to protect water quality in the Neuse River Basin from additional nitrogen pollution generated from new development and to preserve existing riparian buffers in that basin. To achieve these purposes, this section establishes performance standards that: limit the amount of nitrogen in stormwater runoff; controls stormwater peak runoff rates; promotes the use of best management practices; and protects existing riparian buffers.

##### Section 2. Definitions.

As used in this chapter, unless the context clearly indicates otherwise, the terms, phrases and words, and their derivatives, have the meaning given herein:

**Best Management Practice or BMP.** Stormwater and runoff pollution control devices or practices designed to reduce the amount of flow or pollutants contained in discharges to the stormwater conveyance system and receiving waters, which meet standards outlined in the North Carolina Division of Water Quality *Stormwater Best Practices Manual*, July 2007.

**Buffer.** An area of natural or planted vegetation through which stormwater runoff flows in a diffuse manner so that the runoff does not become channelized and which provides for infiltration of the runoff and filtering of pollutants. The buffer is measured landward

from the normal pool elevation of impounded structures and from the bank of each side of streams and rivers.

**Environmental Compliance Officer.** A person or company retained by NCGTP to review and implement the NCGTP stormwater master plan. All NCGTP development plans must be submitted to the Environmental Compliance Officer for review and approval before commencing construction.

**Ephemeral (Stormwater) Stream.** A feature that carries only stormwater in direct response to precipitation with waters flowing only during and shortly after large precipitation events. An ephemeral stream may or may not have a well-defined channel, the aquatic bed is always above the water table, and stormwater runoff is the primary source of water. An ephemeral stream typically lacks the biological, hydrological, and physical characteristics commonly associated with the continuous or intermittent conveyance of water.

**Impervious Surface.** Any material that significantly reduces and prevents natural infiltration of water into the soil. Impervious surfaces include but are not limited to roofs, patios, balconies, decks, streets, parking areas, driveways, sidewalks, and any concrete stone, brick, asphalt, or compacted gravel surface.

**Intermittent Stream.** A well-defined channel that contains water for only part of the year, typically during winter and spring when the aquatic bed is below the water table. The flow may be heavily supplemented by stormwater runoff. An intermittent stream often lacks the biological and hydrological characteristics commonly associated with the conveyance of water.

**Land-Disturbing Activity.** Any use of the land by any person in recreational, industrial, educational, service, institutional, office, industrial, or commercial development, road construction and maintenance that results in a change in the natural cover or topography or alters the natural structure of the land mass and that causes or contributes to sedimentation.

**Maintain or Maintenance.** Any action necessary to keep stormwater control measures and devices in proper working condition, so that such facilities shall continue to comply with the standards of this chapter to prevent failure of stormwater control measures and devices and functions as intended. Maintenance includes activities undertaken to prevent failure of stormwater control measures and devices, and includes maintenance activities identified in approved stormwater control plans and maintenance manuals, and the North Carolina Division of Water Quality *Stormwater Best Practices Manual*, July 2007.

**New Development.** Any development for a project requiring site plan approval or similar approvals by the NCGTP, which, in the case of office, institutional, commercial, or industrial development will result in land disturbance of greater than one-half acre. New development shall include redevelopment but shall not include agriculture, mining or forestry activities.

**North Carolina Global TransPark (NCGTP).** That entity created by enabling legislation in 1991 (NCGS Chapter 63A) to perform essential governmental and public functions related to development of an air cargo facility in Kinston North Carolina. The NCGTP Authority Board (the Authority) is the governing body for the TransPark.

**Off-Site Stormwater Control Facilities.** The overall design, construction and maintenance of one (1) or more devices and measures and associated drainage easements, conduits, inlets, channels, pipes and ditches, filters, buffers, bioretention

areas, and ponds necessary to collect, convey, store, and control stormwater runoff and pollutants from more than one (1) development site. Stormwater control facilities serving contiguous properties consisting of more than one (1) tenant site are examples of off-site stormwater control facilities.

**On-Site Stormwater Control Facilities.** The overall design, construction and maintenance of one (1) or more devices and measures and associated drainage easements, conduits, inlets, channels pipes, ditches, filters, buffers, bioretention areas, stormwater wetlands, and ponds necessary to collect, convey, store, and control stormwater runoff and pollutants within and for a single tenant site.

**Perennial Stream.** A well-defined channel that contains water year round during a year of normal rainfall with the aquatic bed located below the water table for most of the year. Groundwater is the primary source of water for a perennial stream, but it also carries stormwater runoff. A perennial stream exhibits the typical biological, hydrological, and physical characteristics commonly associated with the continuous conveyance of water.

**Pre-Development Conditions.** The land use, drainage, and impervious surface conditions existing on the site at the time plans are submitted for approval.

**Post-Development Conditions.** Pre-development conditions together with the land use, drainage and impervious conditions that would exist on the site if all proposed development plans for the site are fully completed.

**North Carolina Division of Quality Stormwater Best Practices Manual, July 2007.** A manual adopted by the NCGTP by reference, as fully set forth in this section which includes plan and data submission requirements, presents design procedures and criteria for conducting natural, hydrologic and hydraulic evaluations, best management practice designs, standards for managing the volume and quality of stormwater runoff, and standards.

**Regional Stormwater Control Facilities.** The overall design, construction and maintenance of measures and devices and associated drainage easements, conduits, inlets, channels, pipes, ditches, filters, buffers, bioretention areas, and ponds necessary to collect, convey, store, and control stormwater runoff and pollutants within or outside a development and for one (1) or more developments, as shown on the NCGTP stormwater master plan and approved by the North Carolina Division of Water Quality.

**Riparian Surface Water.** Actual surface water that is shown as a feature on either the most recent version of (a) the Lenoir County soil survey map prepared by the Natural Resources Conservation Service of the United States Department of Agriculture; or (b) the most recent version of the 1:24,000 scale (7.5 minute) quadrangle topographic maps prepared by the United States Geologic Survey (USGS) except for the following surface waters:

- (1) Man-made channels, such as ditches and canals, other than a modified natural stream.
- (2) Man-made ponds and lakes located outside natural drainage ways.
- (3) Ephemeral (stormwater) streams.

**Stormwater Master Plan.** A conceptual plan approved by the NCGTP Authority and the North Carolina Division of Water Quality, which establishes stormwater control policies and recommendations for all land owned or controlled by NCGTP. This plan may be expanded as additional property is acquired, or may include an entire watershed or region as an alternative to individual site specific stormwater control plans. This

expansion of jurisdiction will only be implemented upon approval by the NCGTP Authority, with concurrence from the North Carolina Division of Water Quality. The purpose of the stormwater master plan is to meet or exceed stormwater requirements of the Neuse River Basin Nutrient Sensitive Waters Management Strategy in a more coordinated and cost effective manner through the use of regional stormwater control facilities as opposed to the exclusive use of on-site or off-site stormwater control facilities.

**Stormwater Control Plan.** The set of drawings and other documents that comprise all of the information and specifications for the drainage systems, structures, concepts, techniques, measures and devices that will be used to control nitrogen loads and stormwater runoff on a site specific basis as required by this chapter and the North Carolina Division of Water Quality *Stormwater Best Practices Manual*, July 2007. Also included are the supporting engineering calculations, input data for any computer analyses, and results of any computer analyses.

### **Section 3. Applicability**

All new development within the NCGTP complex shall, prior to the approval of a site plan or similar plan of any type, comply with the requirements of the Neuse River Basin Nutrient Sensitive Waters Management Strategy as specified in 15A NCAC 2B .0233, .0235, .0240 and .0242 and these regulations herein. In addition, each new development will be required to submit a site specific Stormwater Control Plan prior to commencement of construction. Where these requirements conflict with or differ from other regulatory requirements including, but not limited to, the NCGTP stormwater master plan or Lenoir County, the stricter of the requirements shall control.

It is the intent of the NCGTP Authority to regulate stormwater and tenant usage on a regional or watershed basis. Initially, NCGTP will regulate tenants on lands owned and controlled by NCGTP, with options to expand jurisdiction based on additional property acquisitions, or within the defined watershed surrounding NCGTP. A stormwater master plan will define implementation strategies. Any expansion of jurisdiction is subject to review by the North Carolina Division of Water Quality.

### **Section 4. Nitrogen Control Requirements.**

**(a) Compliance with State Standards.** No new development or expansion of an existing development, use, facility, building, structure, nor any new or expanded vehicular surface area shall contribute a nitrogen export load exceeding ten (10) pounds per acre per year per project at an individual tenant site. Cumulative development loads will not exceed three and six-tenths (3.6) pounds per acre per year for the entire NCGTP complex.

#### **(b) Alternate Means of Compliance**

**(1) Utilize NCGTP Nitrogen Allocations.** The NCGTP proposes to utilize current nitrogen allocations for the entire NCGTP complex primarily to meet NCGTP facility and infrastructural needs. Developers shall have the option of requesting access to remaining NCGTP nitrogen allocations from the NCGTP Environmental Compliance Officer. Access to and use of NCGTP nitrogen allocations is at the discretion of the NCGTP Executive Director, with approval

by the Authority, and may not exceed the total allocation for the entire NCGTP complex.

**(2) Payment to North Carolina Riparian Buffer Restoration Fund or other Third Party Mitigation Providers.** Developers shall have the option of offsetting their nitrogen export load limitations of subsection (a) above by paying monies to the North Carolina Riparian Buffer Restoration Fund based on the latest fee adopted by the State or engage other third party mitigation providers approved by NCGTP and the North Carolina Division of Water Quality. A one-time offset payment may be paid to bring the nitrogen export load down from ten (10) pounds per acre per year to three and six-tenths (3.6) pounds per acre per year. Installation of NCGTP approved on-site stormwater control facilities or payments or a combination of both may be used.

**(3) Stormwater Master Plan.** Developments that comply with the NCGTP stormwater master plan approved for NCGTP may be exempted from the requirements of subsection (a) above. Compliance with the stormwater master plan shall include the installation within the development of all stormwater control measures shown in the stormwater master plan, approved use of regional stormwater control facilities, payment of fees in lieu of installation when allowed by NCGTP or the North Carolina Division of Water Quality, use of NCGTP nitrogen allocations if allowed by the NCGTP, and payment of any applicable drainage fees.

**(c) Procedures.** The nitrogen export calculations shall be made using procedures outlined in the North Carolina Division of Water Quality *Stormwater Best Practices Manual*, July 2007.

**(d) Time of Submission.** The applicant shall submit nitrogen export calculations for pre-development and post-development conditions at each tenant site or for each project and demonstrate compliance with this section prior to the approval of a site plan of any type, as part of plan submission. All calculations are to be reviewed by the NCGTP Environmental Compliance Officer.

**(e) Approved BMPs.**

(1) **The Best Management Practices** that may be used to reduce nitrogen in stormwater runoff include but are not limited to the following: wet detention ponds, constructed wetlands, open channel practices (water quality swales), riparian buffers, vegetated filter strips with level spreader, bioretention cells (rain gardens), and sand filters. The BMP nitrogen removal efficiencies shall be as listed in the North Carolina Division of Water Quality *Stormwater Best Practices Manual*, July 2007. Use of all BMP measures is subject to review and approval by the NCGTP Environmental Compliance Officer.

(2) **Proprietary or Demonstration BMPs** must be approved by the NCGTP Environmental Compliance Officer, with concurrence from the North Carolina-Division of Water Quality for general use and must be designed in accordance with any guidelines established by the Division, and any manufacturer's guidelines and specifications that are not inconsistent with the Division's guidelines.

## **Section 5. Peak Runoff Control Requirements.**

**(a) Standards.** New development must discharge the storage volume at a rate equal to or less than the pre-development peak runoff rate for the one year, 24-hour storm event. If the post-development peak runoff rate does exceed pre-development rates, on-site stormwater control facilities shall be provided such that there is no net increase.

**(b) Procedures.** The peak flow calculations shall be made using procedures outlined in the North Carolina Division of Water Quality *Stormwater Best Practices Manual*, July 2007.

**(c) Time of Submission.** The applicant shall submit peak flow calculations for the pre-development and post-development conditions prior to the approval of a site plan of any type as part of plan submission. All calculations are subject to review and approval by the NCGTP Environmental Compliance Officer.

**(d) Exemptions.** New development is exempted from these peak runoff control requirements if the overall impervious surface within the development is less than fifteen (15) percent and the remaining pervious portions of the site are utilized to the maximum extent practical to convey and control the stormwater runoff, as determined by the NCGTP Environmental Compliance Officer.

**(e) Stormwater Master Plan.** Developments that comply with the stormwater master plan approved for NCGTP may be exempted from the requirements of section (a) above. Compliance with the NCGTP stormwater master plan shall include the installation within the development of all on-site stormwater control facilities shown in the stormwater master plan, payment of fees in lieu of installation, , and payment of any applicable drainage fees.

## **Section 6. Stormwater Control Plan.**

**(a) General Requirements.** The Stormwater Control Plan for each facility shall be designed to meet the requirements of the Neuse River Basin - Nutrient Sensitive Waters Management Strategy (15A NCAC 2B .0235 4(a)(i) and (ii). All structural BMPs shall be designed and maintained in accordance with the North Carolina Division of Water Quality *Stormwater Best Practices Manual*, July 2007.

**(b) Maintenance Manual and Budget.** The Stormwater Control Plan shall include an operation and maintenance manual and proposed budget. The maintenance manual shall contain a narrative describing each installed measure and device and design specifications. The maintenance manual shall indicate for each installed measure and device what operation and maintenance actions are needed and what specific quantitative criteria will be used to determine when these actions will be taken. The budget shall include both annual costs, and a fund for structural and vegetative replacement, periodic sediment and contaminant removal, major repairs and replacement.

## **Section 7. Buffer Requirements.**

**(a) Buffer.** The applicant shall show on all site development plans, 50-foot wide riparian buffers directly adjacent to riparian surface waters (perennial and intermittent streams, lakes, ponds and estuaries) as defined in Section 2 unless exempted by the North Carolina Division of Water Quality. Exemptions will be coordinated between the NCGTP Environmental Compliance Officer and the Division of Water Quality and subsequently documented.

**(b) Calculation Next To Riparian Surface Water.** For streams, ponds, lakes, or similar impoundments, the buffer shall begin at the most landward limit of the normal water level (top of the bank for intermittent and perennial streams) and extend landward, measured horizontally on a line perpendicular to the surface water.

**(c) No Impact/Determination.** The applicant shall demonstrate that the new development does not impact the Neuse buffer. Land disturbing activities that may impact Neuse Buffer systems are subject to review by the NCGTP Environmental Compliance Officer and will be coordinated with the North Carolina Division of Water Quality prior to impact approval.

**Section 8. Incorporation of the North Carolina Division of Water Quality Stormwater Best Practices Manual, July 2007.**

The North Carolina Division of Water Quality *Stormwater Best Practices Manual*, July 2007, and amendments thereto, are hereby adopted by reference as fully as though set forth herein. If any standard, requirement, or procedure in this manual is in conflict with any provision of this ordinance, then the most stringent shall apply. The North Carolina Division of Water Quality *Stormwater Best Practices Manual*, July 2007 is available at:

[http://h2o.enr.state.nc.us/su/documents/BMPManual\\_WholeDocument\\_CoverRevisedDec2007.pdf](http://h2o.enr.state.nc.us/su/documents/BMPManual_WholeDocument_CoverRevisedDec2007.pdf)

D-1 AIRPORT OPERATIONS OVERLAY DISTRICT REGULATIONS

- (A) The Airport Operations Overlay District is not intended to be utilized as a separate land use classification, but as a designation which identifies areas subject to regulations which are supplementary to the regulations of the land use classification to which such designation is attached, appended or overlaid. Regulations which apply to areas designated on the land use classification map as being within such appended or overlaid designation must be determined by joint reference to the regulations of both the basic land use classification and the overlay classification.
- (B) It is the intent of these regulations to restrain influences which are adverse to the airport property and safe conduct of aircraft in the vicinity of the Airport, to prevent creation of conditions hazardous to aircraft operation, to prevent conflict with land development which may result in loss of life and property, and to encourage development which is compatible with airport use characteristics within the intent and purpose of zoning. To this end, the Airport Operations Overlay designation, when overlaid to a basic land use classification, is intended to coordinate the purpose and intent of this Section with other regulations duly established by the Authority whose primary intent is to further the purposes set out above.
- (C) The Airport Operations Overlay District is composed of two major subcategories: the AHO, Airport Height Obstructions Overlay District and the ANC, Airport Noise Compatibility Overlay District.
- (1) AHO, Airport Height Obstructions Overlay District. This overlay district is created to regulate the height of structures and natural vegetation within designated approach, transitional, horizontal, and conical zones. These zones are established as subdistricts (AHO-A, AHO-T, AHO-H, and AHO-C) of the AHO District and are more fully described in Subsection (E).
- (2) ANC, Airport Noise Compatibility Overlay District. This overlay district is created to regulate land uses within designated noise exposure zones. Land use compatibility within the noise exposure zones is determined in accordance with the standards delineated in Subsection (I).

The boundary of the Airport Operations Overlay District, including the AHO and ANC subcategories, is delineated on the map entitled, *Airport Operations Overlay District Map*, which is on file in the offices of the Executive Director.

- (D) The following definitions shall apply to this Section:
- 1) Airport. The North Carolina Global TransPark Cargo Airport.
  - 2) Airport Elevation. The highest point of the airport's useable landing area measured in feet above mean sea level (98.8').
  - 3) Approach Surface. A surface longitudinally centered on the extended runway centerline, extending outward and upward from the end of the primary surface and at the same slope as the approach zone height limitation slope set forth in subsection (E). In plan the perimeter of the approach surface coincides with the perimeter of the approach zone.
  - 4) Approach, Transitional, Horizontal, and Conical Zones. These zones are set forth in subsection (E).
  - 5) Conical Surface. A surface extending outward and upward from the periphery of the horizontal surface at a slope of 20:1 for a horizontal distance of 4,000 feet.
  - 6) Day-Night Average Sound Level (Ldn). A basic measure of quantifying noise exposure, namely: The 'A-weighted sound level' averaged over 24-hour time periods, with a 10 decibel penalty applied to night time (10:00 p.m. to 7:00 a.m.) sound levels.
  - 7) dBA. The unit of corrected noise level measured in accordance with the 'A-weighting scale' that replicates the response characteristics of the ear.
  - 8) Decibel (abbreviated dB). A unit of measuring the relative loudness of sound or sound pressure equal approximately to the smallest degree of difference of loudness or sound of which includes about 130 decibels on a scale beginning with 1 for the faintest audible sound.
  - 9) Hazard to Air Navigation. An obstruction determined to have a substantial adverse effect on the safety and efficient utilization of the navigable airspace.
  - 10) Height. For the purpose of determining the height limits in the Airport Heights Obstruction Overlay District, the datum shall be mean sea level elevation unless otherwise specified.
  - 11) Horizontal Surface. A horizontal plane 150 feet above the established airport elevation, the perimeter of which in plan coincided with the perimeter of the horizontal zone.

- 12) Larger than Utility Runway. A runway that is constructed for and intended to be used by propeller driven aircraft of greater than 12,500 pounds maximum gross weight and jet-powered aircraft.
- 13) Nonconforming Use. Any pre-existing structure, object of natural growth, or use of land that is inconsistent with the provisions of this Section or an amendment thereto.
- 14) Nonprecision Instrument Runway. A runway having an existing instrument approach procedure utilizing air navigation facilities with only horizontal guidance, or area type navigation equipment, for which a straight-in nonprecision instrument approach procedure has been approved or planned.
- 15) Obstruction. Any structure, growth, or other object, including a mobile object, which exceeds a limiting height set forth in subsection (E).
- 16) Person. An individual, firm, partnership, corporation, company, association, joint stock association or government entity; includes a trustee, a receiver, an assignee, or a similar representative of any of them.
- 17) Precision Instrument Runway. A runway having an existing instrument approach procedure utilizing an Instrument Landing System (ILS) or a Precision Approach Radar (PAR). It also means a runway for which a precision approach system is planned and is so indicated on an approved airport layout plan or any other planning document.
- 18) Primary Surface. A surface longitudinally centered on a runway. When the runway has a specially prepared hard surface, the primary surface extends 200 feet beyond each end of that runway. When the runway has no specially prepared hard surface, or planned hard surface, the primary surface ends at each end of that runway. The width of the primary surface will be that width prescribed in Part 77 of the Federal Aviation Regulations (FAR) for the most precise approach existing or planned for either end of that runway. The elevation of any point on the primary surface is the same as the elevation of the nearest point on the runway centerline.
- 19) Runway. A defined area on an airport prepared for landing and takeoff of aircraft along its length.
- 20) Transitional Surfaces. These surfaces extend outward at ninety degree angles to the runway centerline and the runway centerline extended at a slope of 7 feet horizontally for each foot vertically from the sides of the primary and approach surfaces to where they intersect the horizontal and conical surfaces. Transitional

surfaces for those portions of the precision approach surfaces, which project through and beyond the limits of the conical surface, extend a distance of 5,000 feet measured horizontally from the edge of the approach surface and at ninety degree angles to the extended runway centerline.

- 21) Tree. Any object of natural growth.
- 22) Utility Runway. A runway that is constructed for and intended to be used by propeller driven aircraft of 12,500 pounds maximum gross weight and less.
- 23) Visual Runway. A runway intended solely for the operation of aircraft using visual approach procedures.

(E) Except as otherwise provided in this Section, no structure shall be erected, altered or maintained, and no trees shall be allowed to grow in any district or zone created by this Section to a height in excess of the applicable height limitations herein established for each zone in questions as follows:

- (1) Precision Instrument Runway Approach Zone (AHO-A). The inner edge of this approach zone coincides with the width of the primary surface and is 1,000 feet wide. The approach zone expands outward uniformly to a width of 16,000 feet at a horizontal distance of 50,000 feet from the primary surface. Its centerline is the continuation of the centerline of the runway. This zone slopes 50 feet outward for each foot upward beginning at the end of and at the same elevation as the primary surface and extending to a horizontal distance of 10,000 feet along the extended runway centerline; thence slopes upward 40 feet horizontally for each foot vertically to an additional horizontal distance of 40,000 feet along the extended runway centerline.
- (2) Transitional Zone (AHO-T). The transitional zones are the areas beneath the transitional surfaces. Transitional zones slope 7 feet outward for each foot upward beginning at the sides of and at the same elevation as the primary surface and the approach surface, and extending to a height of 150 feet above the airport elevation (or 248.9 feet above mean sea level). In addition to the foregoing, there are established height limits sloping 7 feet outward for each foot upward beginning at the sides of and the same elevation as the approach surface, and extending to a horizontal distance of 5,000 feet measured at ninety degree angles to the extended runway centerline.
- (3) Horizontal Zone (AHO-H). The horizontal zone is established by swinging arcs of 10,000 feet radii from the center of each end of the primary surface of each runway, and connecting the

adjacent arcs by drawing lines tangent to those arcs. The horizontal zone does not include the approach and transitional zones. The horizontal zone is established at 150 feet above the airport elevation or at a height of 248.9 feet above mean sea level.

- (4) Conical Zone (AHO-C). The conical zone is established as the area that commences at the periphery of the horizontal zone and extends outward therefrom a horizontal distance of 4,000 feet. The conical zone slopes 20 feet outward for each foot upward beginning at the periphery of the horizontal zone and at 150 feet above the airport elevation and extending to an elevation of 350 feet above the airport elevation.
  - (5) Excepted Height Limitations. Nothing in this Section shall be construed as prohibiting the construction or maintenance of any structure, or growth of any tree to a height up to 45 feet above the surface of the land.
  - (6) Where an area is covered by more than one height limitation, the more restrictive limitation shall prevail.
  - (7) The boundary of the Airport Height Obstructions Overlay District is delineated on the map entitled, *Airport Operations Overlay District Map* which is on file in the offices of the Executive Director.
- (F) Notwithstanding any other provisions of this Section, no use may be made of land or water within any zone established by this Section in such a manner as to create electrical interference with navigational signals or radio communication between the airport and aircraft, make it difficult for pilots to distinguish between airport lights and others, result in glare in the eyes of pilots using the airport, impair visibility in the vicinity of the airport, create bird strike hazards, or otherwise in any way endanger or interfere with the landing, takeoff, or maneuvering of aircraft intending to use the airport. Specific restrictions regarding hazardous wildlife attractants are delineated in subsection (J).
- (G) The regulations prescribed by this Section shall not be construed to require the removal, lowering or other change or alteration of any structure or tree not conforming to the regulations as of the effective date of this Section, or otherwise interfere with the continuance of a nonconforming use. Nothing contained herein shall require any change in the construction, alteration or intended use of any structure, the construction or alteration of which was begun prior to the effective date of this Section, and is diligently prosecuted.

Notwithstanding the preceding paragraph of this subsection, the owner of any existing nonconforming structure or tree is hereby required to permit the

installation, operation and maintenance thereon of such markers and lights as shall be deemed necessary by the Authority to indicate to the operators of aircraft in the vicinity of the airport the presence of such airport obstruction. Such markers and lights shall be installed, operated and maintained at the expense of the Authority.

- (H) The DRC shall not approve a development plan within an AHO-A, AHO-T, AHO-H, or AHO-C zone until it has been determined that the proposal upon which it is requested to act is in compliance with the terms of these regulations.
  - (1) Except as specifically provided in (i), (ii), and (iii) hereunder, no material change shall be made in the use of land, no structure shall be erected or otherwise established, and no tree shall be planted in any zone hereby created unless a permit therefore shall have been applied for and granted. Each application for development plan approval shall indicate the proposed use of the site, with sufficient particularity to permit it to be determined whether the resulting use, structure or tree would conform to the regulations herein prescribed. If such determination is in the affirmative, the development plan shall be approved. No approval for a use inconsistent with the provisions of this Section shall be granted unless a variance has been approved in accordance with subsection K.
    - (i) In the area lying within the limits of the horizontal zone and conical zone, no certificate of compliance shall be required for any tree or structure less than 75 feet of vertical height above the ground except when because of terrain, land contour or topographic features, such tree or structure would extend above the height limits prescribed for such zones.
    - (ii) In areas lying within the limits of the approach zones, but at a horizontal distance of not less than 4,200 feet from each end of the runway, no certificate of compliance shall be required for any tree or structure less than 75 feet of vertical height above the ground, except when, because of terrain, land contour or topographic features, such tree or structure would extend above the height limits prescribed for such zones.
    - (iii) In the areas lying within the limits of the transition zones beyond the perimeter of the horizontal zone, no certificate of compliance shall be required for any tree or structure less than 75 feet above the ground, except when such tree or structure because of terrain, land contour or topographic features, would extend above the height limit prescribed for such transition zones.

Nothing contained in any of the foregoing exceptions, shall be construed as permitting or intending to permit any construction, alteration of any structure or growth of any tree in excess of any of the height limits established by this Section except as set forth in subsection (E)(5).

- (2) No certificate of compliance shall be granted that would allow the establishment or creation of an obstruction or permit a nonconforming use, structure or tree to become a greater hazard to air navigation than it was on the effective date of this Section, or any amendments thereto, or than it is when the application for a certificate of compliance is made. Except as indicated, all applications for such a certificate of compliance shall be granted.
  - (3) Whenever the DRC determines that a nonconforming tree or structure has been abandoned or more than eighty percent torn down, physically deteriorated or decayed, no permit shall be granted that would allow such structure or tree to exceed the applicable height limit or otherwise deviate from the regulations of this Section.
- (I) The DRC shall not issue a certificate of compliance within an ANC, Airport Noise Compatibility Overlay District until it has been determined that the proposal upon which it is requested to act is in compliance with the terms of this subsection.
- (1) The permitted land use of any property within the ANC, Airport Noise Compatibility Overlay District shall be in accordance with the requirements of Attachment D-1. The boundary of the Airport Noise Compatibility Overlay District is delineated on the map entitled, *Airport Operations Overlay District Map* which is on file in the offices of the Executive Director.
- (J) In addition to regulating the height of structures and natural vegetation and regulating land uses within noise exposure zones, the Airport Operations Overlay District is created to regulate certain land uses that have the potential to attract hazardous wildlife to or in the vicinity of the Airport. Wildlife use of areas within the airport's approach or departure airspace, aircraft movement areas, loading ramps, or aircraft parking areas may cause conditions hazardous to aircraft safety. Consequently, it is imperative that wildlife attractants that could adversely impact the airport's operational area not be located in close proximity to the airport.
- (1) The following land uses shall not be located within the Airport Operations Overlay District if the DRC determines that such land uses may cause hazardous wildlife movement into or across the approach or departure airspace:

- (i) New publicly or privately owned putrescible-waste disposal operations (Putrescible-waste disposal operations are defined as landfills, garbage dumps, underwater waste discharges, or similar facilities where activities include processing, burying, storing, or otherwise disposing of putrescible material, trash, and refuse. Putrescible material is defined as rotting organic material);
  - (ii) New wastewater treatment facilities;
  - (iii) Wetlands mitigation areas except those designated under any permit granted to the Authority;
  - (iv) Dredge spoil containment areas; and
  - (v) Any other human-made structure, land use practice, or feature that can attract or sustain hazardous wildlife within the landing or departure airspace, aircraft movement area, loading ramps, or aircraft parking areas. Hazardous wildlife is defined as wildlife species that are commonly associated with wildlife-aircraft strike problems, are capable of causing structural damage to airport facilities, or act as attractants to other wildlife that pose a wildlife-aircraft strike hazard.
- (2) Within the Authority's jurisdictional area, the DRC shall not issue a certificate of compliance for the uses delineated in (J)(1) until it has been determined that the proposal upon which it is requested to act is in compliance with the terms of this subsection. In addition, no State agency and no political subdivision, in accordance with NCGS 63-31(f) and NCGS 63A-18, may authorize any of the uses delineated in (J)(1), within six miles of the boundaries of the NCGTP cargo airport complex site without obtaining the approval of the Authority.
- (K) Any person desiring to erect or increase the height of any structure, or permit the growth of any tree, or use property not in compliance with the regulations prescribed in this Section may apply to the Executive Director for a variance.

Attachment D-1  
Land Use Compatibility\* with Yearly Day-Night Average Sound Levels

level	Yearly day-night average sound (Ldn) in decibels					
	<65	65-70	70-75	75-80	80-85	>85
<b>Residential</b>						
Residential, other than mobile homes and transient lodgings	Y	N(1)	N(1)	N	N	N
Mobile home parks	Y	N	N	N	N	N
Transient lodgings	Y	N(1)	N(1)	N(1)	N	N
<b>Public Use</b>						
Schools	Y	N(1)	N(1)	N	N	N
Hospitals and nursing homes	Y	25	30	N	N	N
Places of worship, auditoriums, and concert halls	Y	25	30	N	N	N
Governmental services	Y	Y	25	30	N	N
Transportation	Y	Y	Y(2)	Y(3)	Y(4)	Y(4)
Parking	Y	Y	Y(2)	Y(3)	Y(4)	N
<b>Commercial Use</b>						
Offices, business and professional	Y	Y	25	30	N	N
Wholesale and retail--building materials, hardware and farm equipment	Y	Y	Y(2)	Y(3)	Y(4)	N
Retail trade--general	Y	Y	25	30	N	N
Utilities	Y	Y	Y(2)	Y(3)	Y(4)	N
Communication	Y	Y	25	30	N	N
<b>Manufacturing and Production</b>						
Manufacturing, general	Y	Y	Y(2)	Y(3)	Y(4)	N
Photographic and optical	Y	Y	25	30	N	N
Agriculture (except livestock) and forestry	Y	Y(6)	Y(7)	Y(8)	Y(8)	Y(8)
Livestock farming and breeding	Y	Y(6)	Y(7)	N	N	N
Mining and fishing, resource production and extraction	Y	Y	Y	Y	Y	Y
<b>Recreational</b>						
Outdoor sports arenas and spectator sports	Y	Y(5)	Y(5)	N	N	N
Outdoor music shells, amphitheaters	Y	N	N	N	N	N
Nature exhibits and zoos	Y	Y	N	N	N	N
Amusements, parks, resorts and camps	Y	Y	Y	N	N	N
Golf courses, riding stables and water recreation	Y	Y	25	30	N	N

*Numbers in parentheses in the table refer to notes provided below.*

Key to Table

Y (Yes) = Land Use and related structures compatible without restrictions.

N (No) = Land Use and related structures are not compatible and should be prohibited.

NLR = Noise Level Reduction (outdoor to indoor) to be achieved through incorporation of noise attenuation into the design and construction of the structure.

25, 30, or 35 = Land use and related structures generally compatible; measures to achieve NLR of 25, 30, or 35 dB must be incorporated into design and construction of structure.

#### Notes for Table

(1) Where the Authority determines that residential or school uses must be allowed, measures to achieve outdoor to indoor Noise Level Reduction (NLR) of at least 25 dB and 30 dB should be incorporated into building codes and be considered in individual approvals. Normal residential construction can be expected to provide a NLR of 20 dB, thus, the reduction requirements are often stated as 5, 10 or 15 dB over standard construction and normally assume mechanical ventilation and closed windows year round. However, the use of NLR criteria will not eliminate outdoor noise problems.

(2) Measures to achieve NLR 25 dB must be incorporated into the design and construction of portions of these buildings where the public is received, office areas, noise sensitive areas or where the normal noise level is low.

(3) Measures to achieve NLR of 30 dB must be incorporated into the design and construction of portions of these buildings where the public is received, office areas, noise sensitive areas or where the normal noise level is low.

(4) Measures to achieve NLR 35 dB must be incorporated into the design and construction of portions of these buildings where the public is received, office areas, noise sensitive areas or where the normal level is low.

(5) Land use compatible provided special sound reinforcement systems are installed.

(6) Residential buildings require an NLR of 25.

(7) Residential buildings require an NLR of 30.

(8) Residential buildings not permitted.

\* The designations contained in this table do not constitute a Federal determination that any use of land covered by the program is acceptable or unacceptable under Federal, State, or local law. The responsibility for determining the acceptable and permissible land uses and the relationship between specific properties and specific noise contours rests with the local authorities. FAA determinations under Part 150 are not intended to substitute federally determined land uses for those determined to be appropriate by local authorities in response to locally determined needs and values in achieving noise compatible land uses.