

BRIAR CHAPEL – Ordinance Compliance Response

Chatham County - Compact Communities Ordinance

SECTION 3. PURPOSE

This ordinance is found to be necessary and appropriate in order to:

- A. Help implement the *Chatham County Land Conservation and Development Plan*;
- B. Protect Chatham County's rural character by adequately buffering compact communities from neighboring properties and roadways;
- C. Promote new communities that support mixed-use development, anchored by a village center composed of commercial, civic, and residential uses that add to Chatham County's tax base, help residents meet their daily needs, and preserve Chatham County's small-town atmosphere;
- D. Allow for compact village-style development surrounded by protected green space, at a size that is easily walkable and bikable by residents of all ages;
- E. Help meet the need for community facilities such as schools, stations for police, fire and EMS, recreation facilities, solid waste/recycling collection centers, libraries, and community centers on sites that are physically integrated into the community;
- F. Ensure sustainable water provision and wastewater treatment in a way that does not create a future economic burden for the taxpayers of Chatham County;
- G. Protect Chatham County's water quality and water resources, minimize its energy use, reduce household transportation costs, and protect its air quality;
- H. Establish a grid network of streets that provides multiple connections to different destinations, includes safe places for pedestrians and bicyclists to travel throughout the community, and allows for efficient transit service when and if it becomes available;
- I. Include a mix of housing types that are architecturally consistent, designed to promote safe, walkable neighborhoods, and affordable to a range of residents in Chatham County;
- J. Include neighborhood parks, active recreation areas, and larger open spaces throughout the community that are linked together by sidewalks and trails;
- K. Provide greater environmental, economic, and social benefits to Chatham County when compared with conventional development.

Response: As set forth in detail in the narrative description of the development, and specifically the offered, positive affirmations of the five findings, as well as in the information provided demonstrating compliance with each section of the Ordinance, Briar Chapel is consistent with and furthers the goals of this Ordinance.

SECTION 4. JURISDICTION

The provisions of this ordinance shall be applicable in all zoned areas of Chatham County, exclusive of the municipalities located therein and their extraterritorial jurisdictions, subject to the location provisions contained in Section 6.1 of this ordinance.

Response: Acknowledged.

SECTION 6. LOCATION AND SIZE

6.1 Location

Compact communities shall only be allowed in areas that meet all of the following conditions:

A. Currently zoned for RA-40 Residential-Agricultural;

Response: The subject property is zoned RA-40.

B. Designated as either:

- WSIII – BW (Balance of Watershed)
- WS IV – PA (Protected Area)
- Local Watershed Area (LWA)

Response: The subject property is located within the WS IV-PA (Protected Area) of the Lake Jordan Watershed.

C. Have at least one access point that is within one (1) mile from a four-lane principal or minor arterial, as measured along the centerline of area roadways; and

Response: The subject property has three access points within one mile of a four-lane principal arterial, as measured along the centerline of area roadways.

D. Are located within the portion of Northeast Chatham County that is:

- Bounded by U.S. 15-501 on the east, Andrews Store Road on the south, and Mann's Chapel Road on the west and north; and/or
- Within 1,700 feet of U.S. 15-501 on its eastern side, and is south of the U.S.15-501 intersection with Mann's Chapel Road, and north of the U.S. 15-501 intersection with Andrews Store Road; and/or
- Within one-half mile of Andrews Store Road on its southern side, and is east of the intersection with Andrews Store Road and Mann's Chapel Road, and is west of the intersection of Andrews Store Road and U.S. 15-501.

Response: A text amendment included herein or submitted separately, but at the same time, is requested in order to clarify the language of Section 6.1.D and to affirm conclusively that subject property lies within the boundaries described above.

6.2 Maximum Size

No compact community shall include more than two thousand five hundred (2,500) dwelling units.

Response: 2,389 dwelling units are proposed within the Briar Chapel community.

6.3 Residential Density (Maximum and Minimum)

Each compact community shall be allowed a maximum overall residential density of no more than two (2) dwelling units for each acre of gross land area in the project. Accessory units shall count as one half (1/2) a dwelling unit for the purposes of this calculation. Spray fields located off the project area shall not count as part of the project for the purposes of the maximum residential density calculation.

The minimum net residential density shall be at least five (5) units per net acre as measured by the total number of residential units divided by the total area excluding community facilities, street rights of way, buffers, open space, and non-residential areas .

Response: 1.5 dwelling units per each acre of gross land area are proposed. 6.64 minimum net density is proposed.

6.4 Maximum Built-upon Area

To maintain a base level of watershed protection, the overall maximum built-upon or impervious area for a compact community shall be no greater than twenty-four percent (24%) of the total project area.

Response: The overall project maximum impervious surface area will be no greater than 24% (to be monitored throughout the construction process) and will likely be considerably less than 24%.

6.5 Minimum Commercial Area

Each compact community shall include not less than one hundred thousand (100,000) square feet of commercial development.

At least twenty-five percent (25%) of the total planned commercial area) shall be developed before seventy-five percent (75%) of the maximum allowable dwelling units shall receive final subdivision plat approval.

At least fifty percent (50%) of the total planned commercial area) shall be developed before ninety percent (90%) of the maximum allowable dwelling units shall receive final plat approval.

Response: 252,000 square-feet of commercial development is proposed. The commercial components of the project will be developed in accordance with the Ordinance requirements.

SECTION 7. WATER AND WASTEWATER

All requirements of this section will be satisfied as demonstrated by the maps and reports enclosed with this application.

7.1 Water Provision

Each compact community shall be served by public water provided by Chatham County that is adequate to serve the reasonable needs of the community and that complies with all applicable regulations of the County.

Response: The Briar Chapel Community will be served by public water provided by Chatham County and will be designed in accordance with the Chatham County Public Works Water System Specifications and Details. The water system design will incorporate design parameters recommended by Mr. Steve Talbert, Chatham County Public Works Director during a meeting on April 5, 2004. More details regarding these recommendations are included in Appendix O.

As part of the Briar Chapel water system, a water tank will be constructed by Briar Chapel in accordance with the recommendations of the water supply study conducted for Chatham County. Finally, in an effort to abide by the Green Building Guideline for Compact Communities in Chatham County that encourages water conservation and reuse, the Briar Chapel community will incorporate water conserving fixtures and wastewater will be reclaimed and spray irrigated within the community as described in greater detail in Appendix M.

7.2 Wastewater Treatment

General Design Standards

The following are general wastewater options available for compact communities:

Off-site: Send wastewater to existing municipal treatment plants or construct new centralized wastewater treatment facilities;

Response: There is no known off-site public wastewater treatment system in Chatham County, in the vicinity of the proposed Briar Chapel community, that has the capacity to accept the projected 750,000 gallons per day of flow to be generated.

Hybrid: Treat wastewater on-site and pipe treated water to an existing municipal treatment plant or new centralized wastewater treatment facilities; or

Response: For the same reason cited above for off-site treatment, delivering partially treated flow would not be a viable option since there is no known off-site public wastewater treatment system in Chatham County, in the vicinity of the proposed Briar Chapel community, that has the capacity to accept the projected 750,000 gallons per day of flow to be generated.

On-site: Treat wastewater on-site and distribute treated water onto the land surface via irrigation system(s).

Response: This selected alternative not only eliminates the need for an off-site treatment facility but also promotes water reclamation and reuse as recommended by the Triangle J Council of Governments' High Performance Guidelines meets the division of water quality's preferred disposal method. This option was not selected until an investigation was undertaken to determine that the use of a spray irrigation system was a viable alternative. Based on the land plan developed for the property, the project site will contain sufficient open lands and common areas to provide ample area for irrigating the reclaimed water. Furthermore, the site investigations performed found that the application of the reclaimed water will meet the requirements of the Environmental Management Commission's regulations governing reclaimed water irrigation systems.

Wastewater collection, treatment, distribution and storage systems for compact communities must apply technologies approved by the State of North Carolina, with facilities and operating programs approved by the State of North Carolina, and with operations that are effectively monitored by the State.

Response: The collection, treatment, and distribution/disposal systems planned for the Briar Chapel community will employ proven, state-of-the-art technology as described below.

Wastewater Collection

The Briar Chapel community will consist of a wastewater collection system that includes both gravity sewer and low-pressure sewer. Gravity sewer systems are the traditional system of choice for areas where the topography allows such collection and are commonly approved by the State of North Carolina. Low-pressure sewer systems are not only an approved collection alternative in North Carolina but also offer a number of advantages over conventional systems. For example, similar to water force mains, low-pressure sewage collection force mains are buried at a minimal depth thereby minimizing maintenance difficulties by minimizing the extent of gravity sewer that is buried deeply. In addition, low-pressure sewer systems are not vulnerable to either inflow from overland storm flow that typically enters sanitary sewers through leaks around manhole covers or infiltration from groundwater entering through leaking pipe joints and manholes. More details regarding the wastewater collection system are included in Appendix N.

Wastewater Treatment

The reclamation facility will utilize the Division of Water Quality (DWQ) required components to achieve a level of treatment necessary for "reclaimed water system" spray irrigation. The following treatment levels will be required based on current State regulations:

	<i>Daily Maximum</i>	<i>Monthly Average</i>
<i>BOD₅</i>	<i>15 mg/l</i>	<i>10 mg/l</i>
<i>Total Suspended Solids</i>	<i>10 mg/l</i>	<i>5 mg/l</i>
<i>Ammonia</i>	<i>6 mg/l</i>	<i>4 mg/l</i>
<i>Fecal Coliform</i>	<i>25/100 ml</i>	<i>14/100 ml (geometric mean)</i>
<i>Turbidity</i>	<i>10 NTU</i>	<i>10 NTU</i>

As required by Administrative Code Section 15A NCAC 2H:.0200 regulation, the reclamation facility will produce a tertiary effluent. In order to achieve these levels, the facility will consist of a conventional extended aeration plant with tertiary filters and dual disinfection systems. Furthermore, the treatment process will include phosphorus removal. Please see the Briar Chapel Reclamation Facility System Report included in Appendix L for a complete description of the treatment processes.

Storage and Spray Irrigation Systems

Spray irrigation is a proven and acceptable means of disposing of reclaimed water in North Carolina. These systems have been approved for a number of communities in North Carolina including several in the Piedmont region. The storage and spray irrigation system will be designed with considerable redundancy and ease of operation in order to ensure successful utilization of these facilities. To that end, the reclaimed water system will be divided into essentially (3) redundant operating systems within the project. These systems are referred to as the Central, West Side, and East Side Reuse Districts. A description of each of these districts is provided in the Briar Chapel Community, Chatham County Reclaimed Water Storage and Utilization report included in Appendix M. In general, each district will include one of three inclement weather storage ponds. The irrigation pump stations located within each district will be capable of delivering irrigation supply to the sprayable acreage within that district as well as to the storage facilities located in the adjacent districts. A central maintenance and operations facility will also be located adjacent to the water reclamation facility. This location will house a project irrigation management office with central management software. An on-site weather station providing continuous monitoring of weather conditions, rainfall events, evapo-transpiration (ET), etc. will be located adjacent to the operations center.

Location, Ownership, and Sizing of Wastewater Facilities and Spray Fields

Compact communities shall be served by wastewater collection, treatment, distribution and storage systems that are adequate to serve the reasonable needs of the community and comply with all applicable regulations. Compact communities shall:

- Locate the wastewater treatment facilities and infrastructure within the project boundaries;
- Show the location of all spray fields needed for the compact community at build out in the sketch design submitted to Chatham County;

Response: The reclamation facility will be located entirely within the project boundary and situated adjacent to the major powerline easement and adjacent undeveloped land to the north. This location was selected based on its centralized location, its distance away from existing developed area, its separation from areas to be developed, and its topography. The spray fields will be located throughout the community for the purpose of spray irrigating common areas, ball fields, and road right-of-ways and thereby reducing the dependence on potable water for irrigation purposes. The map included in the Briar Chapel Community, Chatham County Reclaimed Water Storage and Utilization report found in Appendix M, provides a schematic of the reclamation facility and spray fields within the proposed community.

In the determination of adequacy, the County may consider any alternatives that provide reserve capacity in the wastewater system above the state required minimum, including but not limited to the following:

- Increasing the amount of wet weather storage to provide reserve capacity;
- Setting aside additional open space acreage for future spray irrigation to provide reserve capacity; and/or
- Limiting spray irrigation on a certain portion of open space acreage during specified times in order that the remaining capacity of the acreage to accept wastewater spray results in reserve capacity

Response: Additional land suitable for irrigation is available within the project (landscaped areas within commercial and non-residential areas) and may be utilized once definitive site plans are completed. Total inclement weather storage is planned to exceed 110 days at the permitted rate. This far exceeds minimal requirement of DWQ.

Wastewater Treatment System Operation and Management

Wastewater collection, treatment, distribution and storage systems for compact communities shall be managed by an operator appropriately licensed by the State of North Carolina.

Provisions shall be made for sludge management and odor control that eliminates to the maximum extent possible adverse impacts to the compact community's residents and neighbors.

Response: Maintenance of the wastewater collection system, reclamation facility, and spray irrigation system will be accomplished by highly trained and appropriately licensed personnel. Their combined expertise will be fully enabled by state-of-the-art equipment that will provide them with the information and means necessary to anticipate potential problems in advance to the extent possible and react quickly and efficiently to correct such situations or problems that may arise. A description below provides an overview of the maintenance operations for the collection, treatment, and spray irrigation infrastructure.

Wastewater Collection System Management

The wastewater collection system will be licensed operators and experienced personnel employed by, or contracted with Briar Chapel Utilities LLC, which has been approved by the North Carolina Utilities Commission (see approval letter in Appendix N). Briar Chapel Utilities LLC's primary objective for the collection system will be to ensure the overall viability of the conveyance system by maintaining system integrity, limiting exfiltration and its potential for groundwater contamination and other negative environmental impacts, and reducing the amount of infiltration/inflow (I/I) into the system. In order to achieve these goals, information on the condition of the system will be obtained routinely through two distinct practices: flow monitoring and physical condition assessment. Please see the Briar Chapel Wastewater Collection System Report included in Appendix N for a complete description of the collection system maintenance.

Reclamation Facility

Per DWQ regulations, the reclamation facility will be operated by properly Certified Operators, who will be on 24-hour call, visit the plant daily, and be available to direct the spray operations. In addition, the facility will be monitored regularly by Certified Laboratory personnel with results reported to the Division of Water Quality. Sludge management will involve hauling off-site by a sludge contractor and both on-site and off-site options will be considered for sludge odor control. Also, odor control will likely be necessary at the point of entrance of the influent pipes. The most likely measure to be implemented at the reclamation facility is addition of odor-neutralizing additives at the pump station. This method is an odor control measure that has proven successful in preventing odors that tend to accumulate in long force mains. For more details regarding the monitoring requirements, which will be specified in the non-discharge permit and the sludge management and odor control measures, see the Briar Chapel Reclamation Facility Treatment System Report in Appendix L.

Spray Irrigation and Storage Facilities

A licensed irrigation reuse operator will manage the spray irrigation and storage facilities for the community. The operator will work in conjunction with the water reclamation plant operator daily. A full time grounds crew and management team will be employed to operate and maintain the system. Maintenance staff will be on property at all times that the reuse irrigation system is in operation. Flow monitoring equipment will be installed throughout the system to measure transmission rates in comparison to actual programmed rates. Any variances will automatically be identified at the central programming unit in the operations center. The operator will have substantial flexibility in determining daily limits of spray application and appropriate spray locations. Records will be kept to identify daily activities. Spray application times will be limited to periods when maintenance staff is present on the project. All irrigation facilities will be visually inspected daily and through out periods of irrigation operation. Additional details regarding the operations of the spray irrigation can be found in the Briar Chapel Community, Chatham County Reclaimed Water Storage and Utilization report included in Appendix M.

A key component of the reuse management program will be proper management of the various crops to receive the reclaimed water. An agronomic analysis was performed in part to develop recommendations for grounds keeping including cropping scenarios, species/system selection, fertilizer recommendations, vegetation establishment and management, and vegetation harvesting regimes. Details regarding these recommendations can be found in Section 7 of the Agronomist Report included in Appendix J.

Spray times or active recreation fields shall be coordinated around times of activity. Spray times will be posted at such locations.

Financial Guarantee

A financial guarantee shall be required if final subdivision plat approval is requested prior to completion. Any such financial assurance shall satisfy the requirements of the subdivision regulations.

Response: If final subdivision plat approval is requested prior to construction, the developer will post a performance guarantee for any uncompleted items associated with the reclamation facility.

Public Filing of Wastewater Documents

To allow for ongoing public review, the developer of each proposed compact community shall furnish Chatham County an as-built copy of the plans and specifications for wastewater treatment facilities, infrastructure, and disposal or irrigation system, including all documents related to the location, sizing, ownership, and management of the disposal and irrigation sites used for the compact community, as well as any operational performance reports and data for water quality monitoring conducted for the treatment, disposal, and irrigation facilities and receiving waters surrounding them prior to final plat approval. The developer shall require the operator of such systems to furnish the County with copies of any approved plans modifying said systems and to notify the county and the residents of the compact community of any violations or citations issued in connection with the operation within 30 days thereof.

Response: Upon completion of the reclamation facility construction, as-built plans will be submitted to the County. If any modifications to the facility are made, copies of the approved plan modifications will be submitted to the County. Furthermore, operational performance reports and water quality monitoring reports generated prior to final plat approval shall be submitted to the County. Finally, if any violations or citations are issued regarding the facility operations, the County will be notified within the required permit timeframe.

SECTION 8. STORMWATER

All requirements of this section will be satisfied as demonstrated by the maps and reports enclosed with this application. Refer to Appendix H for further detail.

8.1 Guiding Principles

Compact communities are strongly encouraged to use low impact development design techniques as part of the stormwater management system. Low impact development design techniques emphasize the use of many smaller integrated stormwater controls that are distributed throughout the site, near the source of each impact. Some references for how to learn more about low impact development design are included in Attachment A.

A compact community shall not discharge stormwater received during and after development at a rate or volume greater than that discharged prior to development in order that adjacent properties shall not be unreasonably burdened with surface waters as a result of the development. Likewise, compact communities shall not unreasonably impede the natural flow of surface waters from adjacent properties across the development, thereby unreasonably causing substantial damage to such properties.

Response: The Briar Chapel stormwater management plan uses many of the principles of Low Impact Development design. Stormwater management for the site is accomplished via small, upland stormwater management basins or, in the case of those lots and areas that will bypass the identified stormwater management basin areas; stormwater runoff will be treated at the source to the extent reasonable and practical. In areas where stormwater runoff is treated at the source, treatment options will include: cisterns, bioretention areas, infiltration trenches, grassed swales, and hydrodynamic separators. The actual device used will be based upon the actual physical characteristics of the area to be treated.

Stormwater runoff flow rates and volumes are to be controlled as a minimum to the extent required by this ordinance in section 8.3. More stringent stormwater management controls are provided as described later in section 8.3.

8.2 Stormwater Management Plan

The developer for each proposed compact community shall have a Stormwater Management Plan approved by Chatham County prior to approval of a final subdivision plat. This plan shall include the information specified in the *Stormwater Management and Maintenance Plan Requirements* displayed in Attachment A of this ordinance. The plan shall be certified to be in conformity with the North Carolina Stormwater BMP Manual by a North Carolina registered stormwater professional.

Response: Prior to approval of a final subdivision plat, the Briar Chapel project will have an approved Stormwater Management Plan meeting all requirements of this ordinance and Chatham County. The main resource for design of the stormwater management facilities will be the NC Division of Water Quality Stormwater Best Management Practices Manual. If other resources are to be used for design, approval from the County will be obtained as to their use. All plan components will be designed and certified by an engineer registered to practice in the State of North Carolina.

8.3 Stormwater Controls

Engineered stormwater management controls required in the approved Stormwater Management Plan shall be designed and constructed in order to satisfy the following requirements:

- Control and treat the first inch of stormwater runoff from the project site and from any offsite drainage routed to an on-site control structure;
- Ensure that the draw down time for this treatment volume is a minimum of forty eight (48) hours and a maximum of one hundred and twenty (120) hours; and
- Maintain the discharge rate for the treatment volume at or below the pre-development discharge rate for the 1-year, 24-hour storm.

Response: The Briar Chapel stormwater management plan meets all of the performance requirements of this section of the ordinance. In addition to these performance standards, the Briar Chapel stormwater management plan exceeds ordinance requirements by:

- ***Detention will be provided for all commercial areas draining directly to offsite residential areas such that peak flow rates in the one-, two-, five-, ten-, and twenty-five year, 24-hour duration storm events after development do not exceed those computed for the pre-development condition in the same return period storm events. This is in recognition that most of the concentrated impervious surface within the Briar Chapel development will be located in the commercial areas, and the residential areas immediately adjacent to those commercial areas are most at risk for flooding as a result of this project.***

- *All of the stormwater management basins identified as areas 1-37 on the stormwater management plan for the site will provide water quality controls such that at least 85% of the total suspended solids (TSS) and at least 25% of the nitrogen in incoming stormwater runoff will be removed prior to exiting the facility.*

8.4 Maintenance and Upkeep of Stormwater Controls

The developer for each proposed compact community shall have a Stormwater Operation and Maintenance Plan approved by Chatham County prior to approval of a final subdivision plat. This plan shall include the information specified in the *Stormwater Management and Maintenance Plan Requirements* in Attachment A of this ordinance. Maintenance and upkeep of stormwater controls shall be consistent with *Stormwater Best Management Practices* as documented by the State of North Carolina.

The developer of each compact community and all subsequent owning entities and parties responsible for the stormwater management system shall have an annual maintenance inspection conducted by a certified professional engineer on each control structure in the compact community. The maintenance inspection shall assess whether the structure is functioning according to its design specifications, and recommend any repairs needed to ensure that it meet these specifications. The maintenance inspection report shall detail any functional deficiencies in each control structure and how they are to be fixed, along with any other relevant information. The professional engineer shall submit a copy of each maintenance inspection report to Chatham County within thirty (30) days after the inspection is completed.

Response: The maintenance, repairs, or reconstruction recommended in the maintenance inspection report shall be made within thirty (30) days of the completion of the report. A professional engineer shall submit a maintenance repair report to Chatham County within thirty (30) days after the repairs are made.

An operation and maintenance / inspection plan will be developed for each of the stormwater management facilities that is proposed in the final stormwater management plan for Briar Chapel. The plan will meet all of the requirements for inspections and maintenance of the stormwater management facilities as set forth in this section of the ordinance.

8.5 Posting of Financial Guarantee

All engineered stormwater controls shall be conditioned upon adequate financial assurance in favor of the compact community's property owner's association for the purpose of maintenance, repairs or reconstruction necessary for adequate performance of the control structures for not less than ten (10) years after completion that shall be satisfactory to the County Attorney and approved by the Board of Commissioners.

Response: Acknowledged

8.6 Public Filing of Stormwater Documents

To allow for ongoing public review, the developer of each proposed compact community shall submit to Chatham County a copy of the final version of the Stormwater Management Plan, Stormwater Operation and Maintenance Plan, Stormwater Operation and Maintenance Agreement, and stormwater control designs used in the compact community. These documents shall be submitted in electronic and hard copy format to the Chatham County Public Works Department prior to final plat approval for the project. In addition, the developer and all subsequent owning entities and responsible parties of the stormwater management system shall submit any updates to these documents within thirty (30) days of when the documents are updated.

Response: The developer of Briar Chapel will submit to Chatham County all required items under this section of the Ordinance.

SECTION 9: BUFFERS

All requirements of this section will be satisfied. The maps and reports enclosed with this application, and the specific responses below, further explain the means by which Briar Chapel's community design will satisfy these requirements.

9.1 Riparian Buffers

In all residential, commercial, and civic areas in each compact community, vegetative buffers of the following widths shall be permanently protected along each side of the following streams:

- At least one hundred (100) feet along all perennial streams;
- At least fifty (50) feet along all intermittent streams;
- At least fifty (50) feet along all ephemeral streams shown on the Soil Survey maps and having a drainage area of more than twenty-five (25) acres;
- At least thirty (30) feet along all ephemeral streams shown on the Soil Survey maps and having a drainage area of between ten (10) acres and twenty-five (25) acres.

Response: Vegetative buffers will be provided In accordance with the Compact Communities Ordinance. Stream buffers will be provided along each side of the stream bank as follow:

- ***A minimum 100-foot buffer along all perennial streams***
- ***At minimum 50-foot buffer along all intermittent streams***
- ***A minimum 50-foot buffer along all ephemeral streams shown on the Soil Survey maps and having a drainage area of 25 acres or more***
- ***A minimum 30-foot buffer along all ephemeral streams shown on the Soil Survey maps and having a drainage area of between 10 and 25 acres***

Uses Within the Buffer

No new development is allowed in the buffer area except for the following:

- Water dependent structures;
- Other structures such as flag poles;
- Signs and security lights which result in only diminutive increases in impervious area;
- Projects such as road crossings and greenways where no practical alternative exists;
- Desirable artificial stream bank or shoreline stabilization, as determined by Chatham County.

These activities should minimize built-upon surface area, direct runoff away from the surface waters (except sheet flow directed into a buffer), and maximize the utilization of stormwater best management practices.

Response: No new development is proposed in the buffer area except for the following:

- ***Road, greenway, and utility crossings that have no practical alternatives.***
- ***Signs, security lights, and other incidental features that may be necessary for roads, greenways, etc.***
- ***Stream bank stabilization efforts that are determined to be desirable by Chatham County.***

These limited development activities will minimize impervious area, direct runoff away from surface waters (except for sheet flow directed into a buffer), and maximize the utilization of stormwater best management practices.

To avoid a loss of effectiveness in protecting streams, the stream buffer shall remain in natural undisturbed vegetation, except as provided below.

Clearing, grading or other land disturbing activities that would reduce the effectiveness of the buffer shall be revegetated.

Buildings and other features that require grading and construction shall be set back at least ten (10) feet from the edge of the buffer.

Crossings by streets, driveways, culverts, railroads, recreational features, intakes, docks, utilities, bridges or other facilities shall be designed to minimize the amount of intrusion into the buffer.

Response: Stream buffers are to remain vegetated in a natural undisturbed state. Where limited development activity occurs (activities outlined in above section), the facilities will be designed to minimize impact, and the buffers are to be re-vegetated with native species.

Buildings and other similar features shall be set back a minimum of 10 feet from stream buffers.

Crossings by streets, driveways, culverts, recreational features, intakes, docks, utilities, bridges or other facilities shall be designed to minimize the amount of intrusion into the buffer.

The following are prohibited within riparian buffers:

- Wastewater treatment, disposal, and reuse components, including any wastewater sprayfields. Water and sewer lines are allowed to cross the buffer if no available alternative exists, provided that they are designed to minimize disturbance to the buffer (e.g. by running under bridges or crossing at right angles to the extent possible).
- Receiving areas for toxic or hazardous waste or other contaminants;
- Hazardous or sanitary waste landfills;
- Stormwater features, except in limited circumstances in buffers along ephemeral streams if the developer implements low impact development design techniques and/or other stormwater controls that meet or exceed the stormwater treatment and management performance provided by fully functioning ephemeral stream buffers in that location.

Response: No prohibited uses are proposed within the buffers.

Stream buffers can be used for passive recreational activities with very low impact walking trails, with no impervious surface. Highly erosive activities such as use by bicycles should be discouraged. The service facilities for such activities, including but not limited to parking, picnicking and sanitary facilities, shall be located outside the buffer.

Horses and motorized all terrain vehicles are prohibited within the buffer, except for maintenance vehicles, emergency vehicles, and motorized wheel chairs for disabled persons.

Unpaved trails running parallel to the stream shall be located at least thirty (30) feet from the edge of the stream.

Paved trails up to eight (8) feet in width are allowed along any streams provided they are at least fifty (50) feet from the edge of perennial and intermittent streams, and provided that the buffer as a whole is extended a distance equal to the width of the trail. Bicycles are expressly allowed on paved trails.

Response: The extensive trail system within the Briar Chapel community includes a limited amount of unpaved trails running within the stream buffer. Trails running within the buffer are located more than 30 feet from the stream edge. Except for stream crossings, there are no paved trails within stream buffers, unless an equal width is added to the stream buffer or the trail is a raised boardwalk. Signage will be posted to guide trail users, and to direct bicyclists to appropriate trails. (Please refer to Appendix B, Greenways.)

Water oriented recreational facilities, such as boat or fishing piers shall require an approved use permit from the Watershed Administrator.

Response: Acknowledged.

Clearing and re-vegetating the stream buffer for the purposes of improving its pollutant removal efficiency may be permitted, except within thirty (30) feet of a stream.

Response: Acknowledged.

Invasive species listed by the North Carolina Botanical Garden may be removed from the buffer. Natural regeneration of forest vegetation and planting of trees, shrubs, or ground cover plants to enhance the riparian buffer shall be allowed provided that soil disturbance is minimized. Plantings shall consist primarily of native species.

Response: Stream buffers may be cleared of invasive species. Replanting in stream buffers will be restricted to native species.

Tracked or wheeled vehicles are not permitted within the riparian buffer, except for the purpose of maintaining utility corridors and providing emergency services. Bicycles are expressly allowed on paved trails.

Response: Buffers will be posted with signage prohibiting unauthorized vehicles.

9.2 Perimeter Buffer

Perimeter buffers shall be utilized to minimize the impacts of each compact community on adjacent properties along the entire perimeter of the compact community. Table 9.2 lists the minimum buffer width allowable, depending on the proposed land use along the edge of the compact community and the existing land use in the adjacent property at any point along the perimeter.

Chatham County may allow a reduction in the perimeter buffer width required by this ordinance of up to fifty percent (50%) if it determines that the impact of the compact community is adequately mitigated by community design or topography.

Table 9.2 Width of Vegetative Perimeter Buffers

		Land Use Adjacent to Compact Community Perimeter				
		Residential – large lot	Residential – small lot	Commercial	Recreational	Agricultural ²
Compact Community Perimeter Land Use	Residential- large lot	0 feet	0 feet	0 feet	0 feet	0 feet
	Residential - small lot	100 feet	100 feet	0 feet	0 feet	100 feet
	Commercial	200 feet	200 feet	0 feet	200 feet ³	200 feet
	Recreational	200 feet	200 feet	200 feet ³	0 feet	200 feet
	Agricultural ²	0 feet	0 feet	0 feet	0 feet	0 feet

¹ The perimeter buffer requirements only apply to areas along the boundary of the compact community where no public road exists. In areas where a public road forms the boundary of the compact community, then the viewshed buffer requirements specified in Section 9.3 apply instead.

² Any bona fide farming operation, including land enrolled in the use value assessment program for agricultural, horticultural, forest, or conservation purposes, or part of a Voluntary Agricultural District.

³ A barrier that assures the safety of recreational activity participants in the compact community may be substituted for a buffer at the discretion of Chatham County.

Response: Perimeter buffers are provided which meet the Ordinance requirements. In most instances the perimeter buffer exceeds the minimum width requirement.

Dedication of the Buffer

The perimeter buffers required in this section only apply to areas along the boundary of the compact community where no public road exists. In areas where a public road forms the boundary of the compact community, then the viewshed buffer requirements specified in Section 9.3 apply instead. Once the perimeter buffer has been delineated, a deed restriction satisfactory to the County Attorney shall be filed with the Chatham County Register of Deeds that permanently protects this land as a buffer and identifies the maintenance responsibility that rests with the homeowners association.

Response: The perimeter buffer will be protected through a deed restriction approved by the Chatham County Attorney and filed with the County Register of Deeds. The restrictions include permanent protection of the land as a buffer and identification of the maintenance responsibility that rests with the property owners/homeowners' association.

Perimeter Buffer Vegetation and Land Uses

To the extent practicable, existing native forest vegetation shall be utilized for the perimeter buffer. Farms, pastures, and other traditional rural land uses owned by the developer or protected with a permanent conservation easement may be used to meet this requirement. Topographic features such as hills, valleys, and planted berms owned by the developer may also be used to meet this requirement.

Vegetative plantings in the buffer shall produce the effect of a natural forested area, using native species. The planting does not have to be opaque, but should function to significantly soften the visual impact of buildings, both initially and in the longer term. The visual buffering provided by vegetative plantings shall be effective in all seasons.

Response: To the maximum extent practicable, existing native forest vegetation will comprise the perimeter buffer. Where the buffer must be replanted, or augmented, native plant species will be utilized to create a visual screen effective in all seasons.

9.3 Viewshed Buffers

Viewshed buffers shall be utilized in order to minimize the impacts of compact communities on pre-development roadway views.

The developer shall map all roadway views into the project and delineate a continuous buffer of at least one hundred (100) feet in width. The buffer shall be measured at right angles to the edge of the roadway right of way into the compact community.

The Chatham County Board of Commissioners may allow a reduction in the viewshed buffer width required by this ordinance of up to fifty percent (50%) if it determines that the impact of the compact community is adequately mitigated by community design, topography, and/or guidelines for outdoor lighting such as those included in the proposed Chatham County lighting ordinance.

Response: One hundred-foot viewshed buffers are provided along the following road frontages:

- ***US Hwy 15-501, Andrews Store Road and Manns Chapel Road.***

Fifty-foot viewshed buffers are provided along Taylor Road and Hubert Herndon Road off US Hwy 15-501, and accordingly a 50% reduction of the buffer is requested. The following is provided in support of the requested reduction:

- ***The roads are both minor roads within the NCDOT road network hierarchy, but are the primary access ways into the Briar Chapel community and its main commercial areas. These commercial areas need to be visible in order for them to be commercially viable and visible from the access roads.***
- ***The proposed Chatham County Lighting Ordinance is included in its entirety within the Briar Chapel Design Guidelines.***

These reductions will not significantly affect the viewshed from US Hwy 15-501 which will remain 100 feet.

Dedication of the Buffer

Once the viewshed buffer has been delineated, a deed restriction satisfactory to the County Attorney shall be filed with the Chatham County Register of Deeds that permanently protects this land as a buffer and identifies the maintenance responsibility that rests with the homeowners association.

Response: As with the perimeter buffers, the viewshed buffers will be protected through a deed restriction approved by the Chatham County Attorney and filed with the County Register of Deeds. The restrictions include permanent protection of the land as a buffer and identification of the maintenance responsibility that rests with the property owners/homeowners association.

Viewshed Buffer Vegetation and Land Uses

To the extent practicable, existing native forest vegetation shall be utilized for this buffer. Farms, pastures, and other traditional rural land uses owned by the developer or protected with a permanent conservation easement may be used to meet this requirement. Topographic features such as hills, valleys, and planted berms owned by the developer may also be used to meet this requirement.

Vegetative plantings in the buffer shall produce the effect of a natural forested area, using native species. The planting does not have to be opaque, but should function to significantly soften the visual impact of buildings, both initially and in the longer term. The visual buffering provided by vegetative plantings shall be effective in all seasons.

Response: To the maximum extent practicable, existing native forest vegetation will comprise the viewshed buffer. Where the buffer must be replanted, or augmented, native plant species will be utilized to create a visual screen effective in all seasons. (See Appendix A: Figure 15 Buffer Revegetation Plan.)

SECTION 10. RECREATION AND OPEN SPACE

All requirements of this section will be satisfied. The maps and reports enclosed with this application, and the specific responses below, further explain the means by which Briar Chapel's community design will satisfy these requirements.

10.1 Passive Open Space

Amount of Open Space Required

Each compact community shall permanently protect a minimum of thirty percent (30%) of the gross project area as open space in order to maintain rural character and provide for passive recreation.

All of the land in neighborhood parks, active recreation, perimeter buffer, viewshed buffer, streams, wetlands, natural buffers, and major below-ground utility easements such as underground pipe lines may be counted toward meeting this requirement. Major aboveground utility easements such as high-tension power lines cannot be counted toward meeting this requirement.

Response: Briar Chapel provides over 50% of the gross project area in open space that will be permanently protected by deed restrictions and maintained by the property owners/homeowners association.

Use of Local and Regional Open Space Plans

Priority for protection as open space shall be given to lands identified in the *Chatham County Inventory of Natural Areas and Wildlife Habitats*, *Chatham County Parks and Recreation Master Plan*, and the *Triangle GreenPrint Regional Open Space Assessment*. Nonalluvial wetlands including seeps, bogs, and vernal pools shall also be systematically inventoried in each proposed compact community, and shall be given priority for conservation.

Response: Briar Chapel's open space includes Bennett Mountain (the one area within the site that is included in the Chatham County Inventory of Natural Areas and Wildlife Habitats), inventoried wetlands, a 66-acre County Park facility, all inventoried cemeteries and graves, streams, and their buffers, and other significant natural features. (Triangle Greenprint Regional Open Space Assessment does not identify any areas within the Briar Chapel site.)

The Chatham County Planning Director and the Chatham County Parks & Recreation Director shall be consulted when making the determination as to which lands in the compact community are shown in the plans and inventories listed above, and which lands shall be protected.

Response: The Chatham County Planning Director and Parks and Recreation Director were consulted during the open space planning process.

If the developer thinks that any of the lands identified in these documents that are found in the compact community cannot be protected, he/she shall provide a written technical justification to the Chatham County Planning Board from an appropriately certified professional as to why not, and propose that they not be included as open space.

Response: There are no disagreements with the features listed.

Open Space Plan

At the time of submission of an application for sketch design, the developer shall submit an open space plan showing the network of passive open space, recreational facilities, and neighborhood parks in the compact community.

Response: A plan showing the network of open space, paths/trails, recreational facilities, and neighborhood parks is included in the conditional use permit application package.

Ownership and Maintenance of Open Space

All lands designated as open space land shall not be further subdivided, and shall include no permanent buildings or structures, except in connection with uses permitted thereon. In addition, all of these lands shall be:

- A. Deeded to an incorporated property owners association for permanent protection as open space; or
- B. Granted to a non-profit land trust or other qualified conservation overseer for permanent protection as open space; or
- C. Conveyed to Chatham County for permanent protection as open space, provided that the land is accepted by Chatham County.

If open space is granted to an incorporated property owners association or to Chatham County, a deed restriction satisfactory to the County Attorney shall be filed with the Chatham County Register of Deeds that permanently restricts the use of the land to passive open space. If granted to a non-profit land trust or other qualified conservation overseer, a conservation easement shall be granted that protects the land in perpetuity as open space.

When the open space is transferred from the developer to one of the three types of recipients listed above, the transfer shall include specific contractual arrangements to provide for the ongoing maintenance of these lands.

Response: All of Briar Chapel's open space will be deeded to an incorporated property owners association for permanent protection as open space. The County Park facility will be dedicated to Chatham County through an easement agreement that allows the Briar Chapel property owners association to control the design and maintenance of the facility.

Open Space Uses

To protect water quality and help ensure that passive recreational uses can be maintained on open space in the compact community even in wetter years, developers must select one of the following two options:

- A. Designate twenty percent (20%) of the open space in the compact community as unsprayed with wastewater or reclaimed water. The location of this area can be rotated so that all areas can be irrigated as necessary to keep them healthy, but the sprayfield must be sized with this assumption so that even in wetter years there is always dry, open land appropriately located and suitable for passive recreational uses such as throwing a football or playing catch. Wetlands and riparian buffers designated in this ordinance cannot be counted toward meeting this twenty percent (20%) requirement; or
- B. Base the size of all irrigation ponds and wet weather storage ponds used in the wastewater or reclaimed water irrigation system on a mass water balance based upon the following data:
 - Monthly precipitation from the 80th percentile year or greater for a recent 25-year period;
 - Potential evapotranspiration; and
 - Soil drainage.

These data must be taken from, or representative of, the proposed site for the compact community.

Response: Option B is the selected alternative for this project. To that end, a detailed water balance and wet-weather storage analyses of the Briar Chapel site, consistent with this Ordinance requirement, were completed in order to provide recommended volume for storage of reclaimed water when irrigation is not possible or desirable during wet weather periods. The study was undertaken as required by 15A NCAC 2H .0200 and conforms to the criteria outlined in 15A NCAC 2H.0219(k)(1)(A)(vii). The requirements of 15A NCAC 2H .0219 are that a water balance be computed using average monthly climactic data for a 25-year period. The results of these analyses were based on 98 years of local climactic data that extends from 1902 to 2000. The conclusion of the study is that the recommended wet weather storage is 235 acre-feet or 102 days at a design flow rate of 750,000 gallons per day. As discussed in the Briar Chapel Community, Chatham County Reclaimed Water Storage and Utilization report included in Appendix M, the total inclement weather storage to be provided will exceed 110 days at the permitted rate. Therefore, the wet-weather storage proposed for this community will exceed that required by the compact community ordinance. For more details regarding the water balance and storage study, please see the Water Balance and Wet-Weather Storage Analyses report found in Appendix K.

To help eliminate any potential conflicts between irrigation of reclaimed water and use of active recreational areas in the compact community, a management plan shall be developed for all active recreational areas that includes the following:

- A spray schedule for any reclaimed water used to irrigate it; and
- A public education program that includes written brochures, permanent postings in prominent public locations, and/or other appropriate means determined by Chatham County to educate potential users about the proper uses of reclaimed water and to notify them that the water is not potable.

The use of recreational motorized vehicles such as motorcycles or all-terrain vehicles shall be prohibited within open space.

Response: As described in Section 7.2, a central maintenance and operations facility will be located adjacent to the water reclamation facility. This maintenance facility will house a project irrigation management office with central management state-of-the-art software that will provide a high level of automation and control. This management software will be able to control all spray schedules to avoid conflicts with irrigation and public fields use. A detailed spray management program will be developed as the spray irrigation system is designed. At all times, the requirements of this section of the Ordinance will be met or surpassed.

10.2 Active Recreational Facilities

Land dedication and fees in lieu of dedication for active recreational facilities shall be provided in accordance with the applicable Chatham County regulations.

The County shall consult with the Chatham County Parks & Recreation Director and the Chatham County Planning Director before selecting which option to use in meeting these requirements.

Any land proposed for dedication for active recreation shall be physically integrated into the design of the community and be easily and safely accessible by pedestrians.

Response: The 66-acre Briar Chapel Park facility is to be deeded by easement to Chatham County. Design, construction and maintenance will be the responsibility of the Developer and, in the future, the property owners/homeowners' association. See Appendix A: Figure 13 for a plan of Briar Chapel's open space, which indicates the extensive network of trails, recreational facilities and neighborhood parks.

SECTION 11. COMMUNITY FACILITIES

Enclosed in the application package are the impact assessments required by this section of the Ordinance.

11.1 Impact Assessment

The developer of each compact community shall conduct each of the following impact assessments:

- A. Fiscal impact assessment. This shall address all fiscal impacts on the county including those related to schools, police protection, fire protection, emergency medical services, and all other county services.
- B. Transportation impact assessment.
- C. Environmental impact assessment. Where potential negative impacts have been identified, it shall be the responsibility of the developer to provide plans and methods of how such impacts may be alleviated or minimized to the satisfaction of the Board of County Commissioners.

Chatham County shall provide study parameters and criteria to be used. Chatham County shall also require the developer to pay for a consultant(s) selected by Chatham County to conduct a peer review of each impact assessment.

All impact assessments by the developer shall be completed and submitted with sketch plan submission for each proposed compact community.

The peer review results shall be available prior to the Planning Board's deliberations.

Response: The economic analysis titled "A Fiscal Impact Analysis of The Briar Chapel Development" conducted by Miley & Associates, Inc. and Thomas, Knight, Trent, King and Company clearly demonstrates that Briar Chapel will have a positive net fiscal impact on Chatham County government and the Chatham County School Board. The analysis demonstrates that Briar Chapel meets and exceeds the requirements as outlined in Section 11 – Community Facilities (11.1 & 11.2 Impact Assessment & Mitigation) of Chatham County's CCO. As shown in the report, the net present value of the stream of annual surpluses at expanded service levels is \$2.8 million at a discount rate of 6.0%.

The following summary of revenues and expenditures at the time of the Briar Chapel's buildout also clearly shows the net positive fiscal impacts of the proposed development on Chatham County and the Chatham County Board of Education.

<i>Summary Table 21</i>		
<i>Annual General Fund Fiscal Impacts Of Briar Chapel at Buildout</i>		
<i>Incremental Revenues</i>		
<i>Property Taxes</i>	\$5,511,286	
<i>Sales Taxes</i>	<u>923,217</u>	
<i>Total Incremental Revenues</i>		\$6,434,503
<i>Incremental Expenditures</i>		
<i>County</i>	\$ 1,911,333	
<i>Schools:</i>		
<i>Operating</i>	2,046,982	
<i>Debt Service</i>	<u>818,779</u>	
<i>Total Incremental Expenditures</i>		<u>\$3,958,315</u>
<i>Annual Incremental Benefit at Existing Service Levels</i>		<i>\$1,657,409</i>
<i>Additional County Expenditures with Expanded Services</i>		<u>751,554</u>
<i>Annual Incremental Benefit, Expanded Service Levels</i>		<i>\$ 905,855</i>
		<i>=====</i>

11.2 Impact Mitigation

The developer of each compact community shall satisfy the impacts created by the development for adequate public facilities and identified in the assessments required in Section 11.1 above. These impacts may be satisfied by providing fees or dedicating land sufficient to offset the impact of the development on schools, parks, recreational facilities, police protection, fire protection, emergency services, libraries, community centers, recycling and waste collection centers, and/or other public facilities.

Any land proposed for dedication shall be physically integrated into the design of the community and be easily and safely accessible by pedestrians.

Response: The plan for Briar Chapel was carefully designed to compensate for potential impacts resulting from the development. To that end, the proposal includes land for schools, parks, a library, fire station, water tank, a 911 provider; building space for a Sheriff's office; off-site road improvements; and a significant amount of preserved open space. All of the public facilities are well integrated into the community and easily accessible via the pedestrian network of sidewalks and greenway paths. (Please also refer to the responses in the Project Description; Affirmative Finding #2, Section 3; and Affirmative Finding #3, Sections 1 and 2; Master Plan in Appendix A and the Impact Assessments included as Appendices.)

SECTION 12. COMMUNITY DESIGN

12.1 Performance Standards

The intent of this ordinance is to encourage a vibrant mix of residential, civic, retail, office, and open space uses that adhere to the following performance standards:

Performance Standards:

Town center. Each project shall include an identifiable town center (not necessarily located in the geographic center of the project) -- a square, a green, and/or transit stop with shops, retail, and offices that are connected to the mix of residential uses in a practical way.

Response: Briar Chapel is anchored by a mixed-use Town Center at the intersection of Taylor Road and U.S. Highway 15/501. The Town Center uses include office; retail; residential apartments over retail and/or office over retail; and adjacent residential apartments. The Town Center is oriented around a pedestrian friendly street with a transit stop location to be provided at the direction of an authorized transit authority. A mixed-use Village Center will be located north of Andrews Store Road, and will include office and retail establishments, a recreation center, a library and other civic uses arranged around a village green.

Housing mix and development pattern. Each project shall provide a mix of three housing types: single-family detached dwellings; single-family attached dwellings such as duplexes and townhouses; and multi-family dwellings such as apartments. The inclusion of rental housing as part of the multi-family component is strongly encouraged. The three housing types shall be fully integrated into the overall project design, with the highest residential densities occurring adjacent to civic-commercial uses, extending to lower residential densities at the periphery of the development. The use of a grid pattern of streets for the majority of the development is required to the extent feasible, based on topographic considerations.

Response: *Briar Chapel includes a mix of three housing types: single-family detached dwellings; single-family attached dwellings such as duplexes and townhouses; and multi-family dwellings such as condominium/apartments. Rental housing will be provided within the Town Center adjacent to the retail and office uses.*

The different housing types are well integrated within the community, and the various neighborhoods are interconnected with each other through the public street and sidewalk system as well as the open space network of greenway paths and trails. The highest densities occur adjacent to the project's civic and commercial uses, with the neighborhoods transitioning to lower densities near the periphery of the development.

The street system is an organic grid pattern that follows the contours of the land (See Appendix A: Figures 10 & 12A-E).

Commercial component. Each project shall include a commercial area or areas to serve the community, with establishments that are less than ten thousand (10,000) square feet in size allowed inside the community, and larger establishments allowed on the periphery in proximity to a four-lane principal or minor arterial. All commercial establishments shall be pedestrian-accessible to community residents.

Response: *The Briar Chapel Community provides several commercial components at different levels of intensity. All will be accessible via public sidewalks and greenway paths/trails.*

- *The Town Center commercial area is located at the intersection of U. S. 15-501 and Andrews Store Road. The Town Center will consist of offices; retail establishments; residential apartments over retail and/or office over retail; and adjacent residential apartments.*
- *The Village Market is located north of the intersection of U. S. 15-501 and Hubert Herndon Road. The Village Market will include offices and/or retail.*
- *The Village Center is located north of the intersection of Andrews Store Road and Parker Herndon Road, and will consist of offices; retail establishments; office over retail; and adjacent civic uses such as a library, recreation center and school. The Village Center commercial establishments will be less than 10,000 square feet in size.*

Community/neighborhood gathering points. All residential units shall be within walking distance of a neighborhood gathering point, such as an active recreational facility, community center, school, or neighborhood park.

Response: *All residential units are within walking distance of a neighborhood gathering point, such as an active recreational facility, community center, school, or neighborhood park, and are connected via a system of interconnected sidewalks and greenway paths and trails.*

Open Space. The design must, to the extent possible, preserve and protect prominent and/or significant natural features and, where appropriate, utilize them as areas for passive recreation. In addition, open space must be integrated into the plan for development, and include some flat dry land that is appropriate for passive recreational activities such as playing catch and throwing a football. To the extent practicable, the open space shall also be designed to connect with existing or planned open space on adjacent parcels to help form a connected network of open space throughout the county.

Response: *Open space within the Briar Chapel community preserves prominent and significant natural features, some of which are utilized as passive recreation. The community also includes a number improved open space areas designed for passive recreational activities, such as parks and dry flat fields that may be used for a variety of activities. To the extent practicable, the open space has been designed as an interconnected network of preserved natural areas and improved parks accessible via the community's streets, sidewalks and pedestrian paths. The open space also has been planned to connect with existing or possible future open space on adjacent parcels to help form a connected network of open space throughout the county.*

Passive and active recreational opportunities. Each project shall include the provision of both passive and active recreational opportunities. Small playgrounds and neighborhood parks shall be scattered throughout the community within walking distance of most homes.

Response: *Briar Chapel is designed to provide passive and active recreational opportunities via the interconnected network of natural areas and improved parks within walking distance of the community's homes.*

Interconnectivity. Residential units, the town center, and community gathering points must be interconnected not only by roadways, but also through a network of pedestrian and bicycle pathways. At least thirty-three percent (33%) of these pathways must be completed before final plat approval of the final fifty percent (50%) of the maximum allowable dwelling units in the compact community are built. One hundred percent (100%) of the pathways must be completed before final plat approval of the final ten percent (10%) of maximum approved dwelling units in the compact community.

Response: *In the Briar Chapel community, the residential units, Village Center, Village Market, Town Center, recreation centers, Schools and other civic spaces, and community gathering points will be interconnected by streets, sidewalks and pedestrian paths. In accordance with the Ordinance requirements, at least 33% of the pathways will be completed before final plat approval of the final 50% of the maximum allowable dwelling units. 100% of the pathways will be completed before final plat approval of the final 10% of maximum allowable dwelling units.*

Narrow streets. Streets shall be relatively narrow, with trees. Pedestrian walkways may be required on both sides of the street.

Response: *The streets within the Briar Chapel community will be relatively narrow. With the exception of the peripheral neighborhood streets, the street will be designed in accordance with the North Carolina Department of Transportation Traditional Neighborhood Development Street Guidelines. The peripheral neighborhood streets may be designed to NCDOT subdivision roads standards. Sidewalks will be provided along both sides of all streets with residences or other buildings fronting on them. Sidewalks or paths will be provided along one side of all other streets that provide connections within the community but do not serve as building frontage. Street trees, either planted or preserved, will be provided along all streets. (See Design Guidelines in Appendix C.)*

Transit. Park-and-ride spaces shall be set aside and identified in parking lots in the commercial center(s).

Response: *Locations for park-and-ride spaces and transit stops will be located within or near the Town Center, the Village Center and the Community Center and/or where any authorized transit authority may determine necessary.*

Botanical preservation and diversity. A landscape master plan shall be submitted with initial application for development. The developer shall be required to identify and retain major trees, and to identify and preserve natural areas, to the extent practicable.

Response: *The Landscape Master Plan (Appendix A: Figure 16) indicates significant trees and areas of natural vegetation that will be preserved. The Landscape plant list and the Buffer Revegetation Detail also provides a list of the landscape plant materials to be used for streets, parking areas and buffer re-vegetation.*

12.2 Streets and Other Specifications

Streets

All streets shall be public and constructed to North Carolina Department of Transportation (NCDOT) standards. Upon completion, the streets shall be offered for dedication to the NCDOT for maintenance. In exceptional circumstances, a very limited number of private roads may be allowed as dead-end minor residential streets for lengths not more than one thousand (1,000) feet in order to address topographic characteristics of a site.

Developers are strongly encouraged to use NCDOT's *Traditional Neighborhood Development Guidelines* displayed in Exhibit B of this ordinance when designing the street system.

Alleys and private roads shall be dedicated to the incorporated property owners association or equivalent entity for the compact community.

Response: *Except for the less dense peripheral neighborhood streets, public streets will conform to the NCDOT Traditional Neighborhood Development Street Design Guidelines, and as described in the Briar Chapel Street Design Guidelines in Appendix C, Design Guidelines. The Peripheral streets will conform to the NCDOT subdivision roads standards.*

Private streets and alleys will conform to the NCDOT Traditional Neighborhood Development Street Design Guidelines and as described in the Briar Chapel Street Design Guidelines in Appendix C, Design Guidelines. Private streets and alleys will be dedicated to the property owners/homeowners' association where applicable.

As shown in the Briar Chapel Master Plan, a very limited number of dead-end streets are provided in order to address topographical or property boundary characteristics. No dead-end street is more than 1,000 linear feet in length.

Building Height

No building in the compact community shall have a height greater than sixty (60) feet. Chatham County may require buildings to have a lower height if it deems appropriate to help preserve the small town character of the development.

Response: No non-residential building in the compact community will have a height greater than 60'. No residential building will have a height greater than 50'.

Additional Guidelines

Additional guidelines and options for how to meet the standards in this section are included in the *Compact Community Design Guidelines* contained in Attachment C of this ordinance.

Response: Please refer to Appendix C for Briar Chapel Design Guidelines, which incorporate the concepts described in the Compact Community Guidelines.

12.3 Housing

Construction Standards

Manufactured homes built to the U.S. Department of Housing and Urban Development Code are not permitted in compact communities. Factory-built modular homes constructed to the standards of the North Carolina Building Code are permitted, provided that the site and building design, and exterior finishes and materials are compatible with surrounding dwellings.

Response: There are no "manufactured homes" proposed to be in Briar Chapel.

Accessory Dwellings

Accessory dwellings are encouraged on lots containing single-family detached housing.

Each accessory dwelling shall count as one half (½) a dwelling unit toward the maximum allowable number of dwelling units for the project.

There may be not more than one accessory dwelling unit per lot.

The accessory dwelling unit may be attached or detached.

Each accessory dwelling unit shall not exceed one thousand (1,000) square feet or two-thirds (2/3) of the heated space in the principal dwelling unit, whichever is more limiting.

Accessory dwellings shall be designed to be harmonious with the primary dwelling on the same lot and with neighboring dwellings.

Response: Acknowledged.

Moderately Priced Dwellings

All compact communities shall provide housing for low and moderate-income households. These shall be designated as “Moderately Priced Dwellings.”

Each compact community shall provide one of the following options for Moderately Priced Dwellings:

- A. A minimum of five percent (5%) of the total residential units in the development shall be held by and be affordable to buyers whose household incomes are no greater than sixty percent (60%) of the Area Median Family Income by family size if title to the lots so designated is donated to a nonprofit community agency designated by the County whose mission is to expand and preserve housing for low-income households. The designated agency (ies) will hold title to the land in perpetuity and lease it to qualifying households. The agency (ies) have a right of first refusal to purchase any home constructed by the qualifying family at any time the owner decides to sell it.
- B. A minimum of ten percent (10%) of the total dwellings in the development shall be sold and affordable to buyers whose household incomes are no greater than sixty percent (60%) of the Area Median Family Income by family size. The sale price and incomes of buyers shall remain limited according to the terms of this ordinance for at least thirty (30) years.
- C. Upon approval of Chatham County, the developer may meet this provision through an alternative means, provided that it does both of the following at a minimum:
 - Ensure the development and sale of moderately priced dwellings in a manner equivalent to that in Option A or Option B above; and
 - Ensure that at least 5% of the total dwellings in the compact community are affordable housing.

Response: Option A has been selected to satisfy this requirement 120 moderately priced dwelling units have been identified on the master plan. Several different unit types have been planned and units/buildings have been mixed within the community among market rate dwelling units. Refer to map 11 in Appendix A for further details.

Compliance

The subdivision preliminary and final plats for each compact community shall designate the lots for Moderately Priced Dwellings, and the developer, builder(s), and purchaser(s) shall be bound by this restriction according to the terms of this ordinance.

Upon final plat approval, the applicant shall execute and record a deed restriction satisfactory to the County Attorney binding the applicant and all other parties that receive title to the property on all lots for dwellings designated as “Moderately Priced.”

Moderately Priced Dwelling unit lots shall be incorporated into the compact community in proportion to the development of dwelling unit lots without affordable housing restrictions. Subsequent final residential subdivision phase plats shall not be approved until such time as completion of at least 90% of the affordable units in preceding residential phases.

Response: Acknowledged.

12.4 Appearance

All standards in the *Chatham County Design Guidelines for Commercial, Industrial, and Conditional Use Projects* shall apply to compact communities.

As part of the project review process, the developer of each compact community shall submit integrated Architectural Guidelines and Contextual Guidelines for review by Chatham County.

Utilities shall be placed underground in order to improve sight lines, open up sidewalks, and minimize the danger of interruptions in utility service during inclement weather.

Storage areas and loading areas reached by rear alleyways in storefront neighborhoods shall be opaquely screened.

Response: The Chatham County Design Guidelines for Commercial, Industrial, and Conditional Use Projects and other architectural and landscape appearance issues for the compact community are incorporated into the Briar Chapel Design Guidelines. (Please refer to Appendix C, Design Guidelines.)

Utilities will be placed underground in order to improve sight lines, open up sidewalks, and minimize the danger of interruptions in utility service during inclement weather as well as to avoid the unsightly effects of utility lines strung across neighborhoods.

Storage areas and loading areas reached by rear alleyways in storefront neighborhoods will be opaquely screened.

12.5 Green Building

Energy Conservation and Renewable Energy

No compact community development shall deny or prohibit the installation of solar panels, either electric or thermal.

Additional guidelines for energy conservation and green building are included in the *Green Building Guidelines* contained in Attachment C of this ordinance.

Response: Newland Communities is committed to developing Briar Chapel so as to maximize energy conservation, minimize adverse impacts to the project site and surrounding areas, and develop facilities that are designed with low life-cycle costs. This will be achieved through careful planning, design, construction, maintenance and operations, and reuse where practical. More specifically, Newland will utilize the Triangle J Council of Governments' High Performance Guidelines as a basis for action throughout this project. Please refer to Appendix D, Green Building.