

# Executive Summary

## The Vision for Chatham County

*Chatham County will be a place that cooperatively controls its own destiny to assure the state of well-being desired by all of our people, while proudly preserving diverse cultural heritages and the County's rural character.*

-- Vision prepared by the Strategic Plan Development Committee and signed by the five governing boards in the County.

## Land Conservation & Development Policies

Two fundamental policies are considered in every issue addressed by the plan:

1. *Land development & conservation will reflect balanced growth.*

Balanced growth means that development is welcomed, but in ways that ensure that:

- benefits and burdens of growth are shared,
- growth consists of a mix of different types of development, and
- development is guided to suitable locations and is designed appropriately.

2. *Chatham County's approach to land development & conservation will be open, pro-active and cooperative.*

An open, pro-active and cooperative approach means:

- making citizens aware of land use changes,
- preparing ahead for development issues instead of reacting to specific development proposals or growth-shaping influences, and
- working closely with other jurisdictions.

Six other policies define the specific issues on which this plan focuses:

1. *Preserve both the form and function of rural character -- the landscape, agriculture, and home-based businesses.*
2. *Encourage compact communities with a mix of activities as development occurs.*
3. *Designate economic development centers in order to promote a diversified, sustainable business community.*
4. *Develop an integrated approach to protecting and promoting high-quality open space, recreation, historic and tourism locations.*

5. *Ensure the long-term quality and availability of groundwater and surface water resources.*
6. *Provide infrastructure in ways that support the land use, economic development and environmental objectives: water supply, wastewater and transportation.*

## Community Plan Map

The Chatham Plan designates seven types of places in order to accommodate these land conservation and development policies. These types of places are shown on the community plan map and summarized in Table 1:

- ❖ *Lakes, rivers, and streams.* The important water features that help define the county, especially Jordan Lake and the Haw, Deep and Rocky Rivers.
- ❖ *Natural Conservation Areas.* Land whose main purpose is for conservation, such as the public lands around Jordan Lake, the White Pines Nature Preserve, and the Duke Forest Lands along the Haw River. Additional lands may be added over time as the recommendation to create a parks, open space and historic asset master plan is implemented.
- ❖ *Resource Protection Areas.* Land designed to provide for farming, forestry, and rural homes along the Haw, Rocky and Deep Rivers and in special resource areas such as the Big Woods area and the Brooks Creek-Terrell's Creek area.
- ❖ *Agricultural & Rural Development Areas.* Land designed to provide for farming, forestry, and homes and, where appropriate, small cross-road commercial businesses in forms that support rural character.
- ❖ *Towns.* Siler City, Pittsboro, Cary and Goldston, where a range of homes, shops and businesses is encouraged.
- ❖ *Compact Community Corridors.* Land designed to accommodate a well-planned and integrated mix of homes, shops, offices, institutions and civic spaces -- but not strip development -- along US 15-501 north of Pittsboro, US 421 north of Siler City and a section of Farrington Road.
- ❖ *Economic Development Centers.* Areas designated for industrial development and other economic activity.

**Table 1. Land Conservation & Development Areas**

<b>Type of Place</b>	<b>Area (sq. mi.)</b>
Lakes, Rivers & Streams	23
Natural Conservation Areas	48
Resource Protection Areas	69
Agricultural & Rural Development Areas*	460
Towns (including ETJs)	73
Compact Community Corridors	28
Economic Development Centers**	8
<b>Total</b>	<b>709</b>

\* *includes cross-roads commercial areas*

\*\* *estimated area that would be designated outside of town and compact community corridor boundaries; total area might be about 10 sq. mi. Assumes 3 sizes of centers -- small: 300 acres; medium: 750 acres; large: 2,500 acres.*

The plan designates significant amounts of land for development in areas where current and future infrastructure and environmental conditions can support development -- towns, economic development centers and compact community corridors encompass 109 square miles.

The plan also designates significant amounts of land where little or no urban and suburban development can or should occur because of resource conditions -- water bodies, natural conservation areas and rural resource protection areas encompass 140 square miles.

The vast majority of the land within the county -- 460 square miles -- will be in areas designated for agriculture and rural development. Ensuring that the pattern of development that occurs in these areas preserves the rural character of the county may be the single greatest determinant of what kind of place Chatham County becomes a generation from now.

The table on the last page of the executive summary illustrates the different types of development that might occur in the different types of places described in the plan.

## Major Recommendations

1. Work closely and cooperatively with the towns in Chatham County so that development can be guided towards areas planned for urban and suburban development and away from areas with valued environmental or rural qualities.
2. Establish a set of County-wide performance standards in order to guide development to appropriate locations, provide more certainty for landowners, and establish a basis for farmland preservation strategies.
3. Retain the current 5-acre average lot size in the areas designated in the county's watershed protection ordinance and shown as resource protection areas on the community plan map.
4. Convene a working group to draft recommendations on a range of options for rural residential development in the County including but not limited to the following:
  - a. **Large lot development**
  - b. **Cluster development**, with houses clustered on one portion of a tract and the remainder of the tract set aside as permanent open space; and
  - c. **Mitigated conventional development** on smaller lots, provided that water supply and wastewater treatment standards can be met and that mitigation funds are paid into a county rural land protection fund.
5. Convene a working group to identify and designate agricultural communities in the remainder of the county for new priority funding and protection strategies.
6. Establish an official county agricultural advisory board and include agricultural enterprises in the county's economic development program.

7. Establish a *Farms for the Future* program that builds on existing efforts to provide technical assistance to farmers on marketing, infrastructure improvements, land acquisition, estate planning, and specialty farming.
8. Promote the establishment of a voluntary agricultural district program and purchase of development rights program.
9. Designate *Economic Development Centers* for new business and industry to allow effective planning and marketing for employment sites.
10. Convene a working group of the economic development board to explore the option of promoting and developing sustainable enterprises within one or more centers, or employing components of sustainability within traditional commercial enterprises.
11. Encourage shops and offices in *Neighborhood Activity Centers within compact community corridors*.
12. Designate *Cross-roads Commercial Center* locations to serve the needs of surrounding rural areas.
13. Discourage commercial and industrial development in other settings, especially as strip commercial development and in sensitive resource areas.
14. Establish a unified county board devoted to open space, recreation, historic assets and tourism and create a county open space, recreation, historic assets and tourism master plan. For projects which have the potential to enhance the tax base, the economic development board will be kept informed of planning and execution.
15. Pursue a County schools parks program and other shared facilities.
16. Adopt minimum open space set-aside standards for conventional subdivisions or develop exactions in lieu of open space set-aside standards.
17. Implement a comprehensive plan and management framework for assuring water and wastewater systems viability so that development patterns, subdivision designs, and designation of economic development centers are based on sound soil and hydrologic science. The economic development board will be kept informed of planning and execution of projects which have the potential to impact the business community.
18. Work closely with the state to identify impaired waters and develop and implement strategies for restoring them.
19. Evaluate the benefits and costs of establishing a county-wide *Sediment and Erosion Control Ordinance*.
20. Develop a program to promote water conservation and reuse measures.

21. Provide public water and/or sewer service to designated high growth areas such as towns and economic centers, and restrict or prohibit extension to areas designated for low-density growth.
22. Integrate schools into neighborhoods, ensuring good road access, safety, and utility availability, and encourage new development nearby.
23. Use impact fees, impact taxes on new development, public dedication, adequate facilities ordinances, and other strategies to help fund community facilities and programs, including schools, farmland protection and recreational and cultural facilities. Our goal is to ensure that new development will pay for itself.
24. Conduct a detailed analysis of any additional proposed major roads and road widenings beyond the current construction program in the county.
25. Plan for transit service, especially along the 15-501 corridor.
26. Review roadway design standards and revise as needed to ensure that the standards are the best match for the different types of development proposed in this plan, including support for pedestrian and bicycle travel, where appropriate and desired.
27. Use site-based planning as a means of preserving the precious resources of Chatham County. Require that developers inventory the community resources existing on major proposals including botanical, historical, and water resources.
28. Use density exchanges as a means to protect open space and farm land in Chatham County.

*EXAMPLES OF WHERE DIFFERENT KINDS OF DEVELOPMENT MAY OCCUR UNDER THE CHATHAM COUNTY LAND CONSERVATION AND DEVELOPMENT PLAN*

ACTIVITY	LOCATION					
	Agricultural & Rural Development Areas	Compact Community Corridors	Economic Development Centers	Towns (including extra-territorial jurisdiction)	Natural Conservation Areas	Resource Protection Areas
Approximate area in the plan (square miles)	460	28	8	73	48	69
Farms	✓			✓		✓
Single family houses on large lots (e.g. 5 acres)	✓			✓		✓
Single family houses clustered together with significant land set aside for open space (e.g. 50% of land in the cluster community)	✓			✓		
Golf course/other recreational communities		*		✓		
Single family houses on 1.5 acre lots	◆			✓		
Single family houses on small lots (less than 1 acre)	◆	✓		✓		
Attached single-family houses (e.g. townhouses, condos)		✓		✓		
Apartments		✓		✓		
Home businesses	✓	*		*		
Convenience stores	◎	✓	✓	✓		✓
Schools and other public facilities	✓	✓		✓		
Offices and institutional uses	◎	✓	✓	✓		✓
Shopping centers		✓	✓	✓		
Auto, truck, and mobile home dealers			✓	✓		
Warehouses and light industrial operations			✓	✓		
Manufacturing plants			✓	✓		

NOTES

- ✓ = Use permitted in this location
- \* = Use permitted in this location subject to design standards
- ◆ = Use permitted in this location subject to design standards, performance standards for water and wastewater and payment into mitigation fund
- ◎ = Use permitted only in designated cross-roads commercial locations and subject to design standards

# INTRODUCTION

The introduction outlines the purpose of preparing a land conservation & development plan for Chatham County, describes how the plan can be used, and explains the relationship of the Land Conservation & Development Plan to the County's strategic planning effort.

## Purpose

**The reason that this plan was prepared.**

The purpose of the Chatham County Land Conservation & Development Plan is to provide guidance for public and private decisions that affect Chatham County's physical development and the stewardship of the County's natural, economic and cultural resources.

To fulfill its purpose, the plan should:

- portray a clear *vision* for the County's physical development;
- provide *guidelines* which, when applied to public and private decisions that affect physical development in Chatham County, will help transform its vision into reality; and
- specify public and private *actions* considered essential to realize the vision.

## USERS

**The people who can use the plan.**

The plan is a guide for the variety of people whose actions in development and conservation will determine the way people live in Chatham County:

- *Elected officials* as they make land use, infrastructure and environmental decisions.
- *Appointed boards and commissions* as they make recommendations concerning the issues that elected officials will decide.
- *County staff* as they implement the decisions of elected officials.
- *Community groups, landowners, businesses and citizens* as they make decisions and take actions that affect the physical development of Chatham County.

The plan is designed to be specific enough to offer clear guidance on such matters as land use decisions and investments in infrastructure such as water & wastewater systems and schools, yet remain adaptable as conditions in the county change.

# Relationship To The County Strategic Planning Effort

**How the land development & conservation plan relates to the county's strategic planning effort.**

Chatham County's Strategic Plan Development Committee developed a *Road Map to the Future*, based on extensive community forums and interviews. The road map covered a range of economic, environmental, and human resource issues and outlined desired outcomes and goals related to these issues. These desired outcomes and goals have been adopted for inclusion in the Strategic Plan by Chatham's five elected governing boards. Under the Balanced Growth desired outcome, the adopted goals include, "Public understands, accepts the need for, and supports the development and implementation of land use plans."

This Land Conservation & Development Plan focuses on the built and natural environment in the county; on the physical places that will change or be preserved based on the decisions made by the users of this plan. This Land Conservation & Development Plan is crafted to be compatible with the strategic planning effort. This plan is narrower in its focus than the strategic planning effort, and provides more detailed guidance on measures related to the conservation of the county's land and natural resources.

## THE VISION: DESIRED OUTCOMES AND GOALS

The vision for land conservation and development – and the desired outcomes and goals which define the vision – provide the foundation for the policy issues and choices described in the plan.

### Vision

**The vision is a concise description of what kind of place Chatham County should be in the future.**

The vision for the Land Conservation & Development Plan mirrors the vision for Chatham County that was developed by the Strategic Plan Development Committee and adopted by the five elected governing boards in Chatham County:

*Chatham County will be a place that cooperatively controls its own destiny to assure the state of well-being desired by all of our people, while proudly preserving diverse cultural heritages and the County's rural character.*



# Desired Outcomes

**Desired outcomes are the principal characteristics of future Chatham County that will lead to the kind of place described in the vision.**

Four of the desired outcomes from the county's strategic planning effort were selected to form the foundation for the Land Conservation & Development Plan. Each of the policy choices and recommendations will be analyzed to see how it contributes to achieving these desired outcomes:

- *Balanced Growth*
- *An Adequate and Diverse Housing Supply*
- *Conserved and Protected Natural Resources*
- *Commercial Endeavors, a Net Long-Term Asset to the Community*

All 11 desired outcomes and 51 goals of the strategic planning effort can influence the development of the County and are included as an appendix to the Land Conservation & Development Plan.

# Goals

**Goals are value-based statements that may not be easily measurable; they represent aspirations for Chatham County and outline the results that should be achieved.**

Several goals were identified that would enable Chatham County to achieve the desired outcomes. Many of the goals were drawn from the strategic planning effort. Others reflect modifications to or combinations of strategic planning goals. The goals that the Land Conservation & Development Plan should support include the following:

- Prime farmland is conserved and protected to ensure agricultural lands remain in agriculture.
- More intensive land uses, e.g. commercial, high density residential and industrial, are concentrated in or near Chatham's existing towns, in designated economic centers and in clustered and mixed use developments.
- An increased proportion of land is preserved as open space in areas under development.
- A wide variety of housing options (categories, densities, locations and prices) is available.
- The county's land use planning emphasizes clustered and mixed use developments.
- Chatham County's natural resources are identified, conserved and protected.
- Chatham County's surface and underground water resources are effectively protected.
- Natural scenic areas are preserved.

- The county supports high quality, community-based schools and develops the financial wherewithal to fund them.
- Preserved open space and improved recreational opportunities are provided.
- Historic assets are preserved.
- Long-term transportation, water supply, wastewater, and solid waste facilities are provided to accommodate desired development and support environmental goals.
- Agricultural enterprises in Chatham County are economically viable.
- Tourism is established as an important component of the County's economy.

## THE FOCUS: POLICY OBJECTIVES

**Policy objectives are specific statements that define what is to be achieved; they are detailed enough to provide clear guidance for developing implementation choices and recommendations.**

The policy objectives are the heart and soul of the Land Conservation & Development Plan. They incorporate the desired outcomes and goals and provide the basis for developing specific actions and guidance.

Two objectives are fundamental to the plan and are considered in every issue that the plan addresses:

### *2. Land Conservation & Development In Chatham County Will Reflect Balanced Growth.*

Balanced growth means that new development is welcomed and accommodated, but in ways that ensure that:

- benefits and burdens of growth are shared as much as possible,
- growth consists of a mix of different types of development, and
- development is guided to appropriate locations and is designed appropriately for its setting.

### *2. Chatham County's Approach To Land Development & Conservation Will Be Open, Pro-active and Cooperative.*

To control its own destiny, the County will be prepared for growth and will work closely with other jurisdictions to meet citizens' aspirations. Citizens will be made aware of proposed land use changes. Chatham County will be pro-active towards development issues; instead of reactive either to specific development proposals or larger influences associated with the growth of the metropolitan region. The County will work closely with the towns within Chatham County, with neighboring jurisdictions, and with regional organizations to seek compatible plans and development and conservation decisions.

Six other objectives define the specific issues on which this plan focuses:

7. *Preserve Both The Form And Function Of Rural Character -- The Landscape, Agriculture, And Home-Based Businesses.*
8. *Encourage Compact Communities With A Mix Of Activities As Development Occurs*
9. *Designate economic development centers in order to promote a diversified, sustainable business community.*
10. *Develop An Integrated Approach To Protecting and Promoting High-Quality Open Space, Recreation, Historic And Tourism Locations.*
11. *Ensure The Long-Term Quality And Availability Of Groundwater And Surface Water Resources.*
12. *Provide Infrastructure In Ways That Support The Land Use, Economic Development And Environmental Objectives: Water Supply, Wastewater Treatment, Transportation and Schools.*

The following sections provide some more detail on each of these objectives, listing under each objective the major concerns of the technical and advisory committees.

*Preserve Both The Form And Function Of Rural Character: The Landscape, Agriculture, And Home-Based Businesses.*

- create residential development patterns that retain the *form* of “ruralness” through large-lot zoning, open space subdivisions, village clusters, or other design approaches.
- preserve opportunities to farm; retaining the *function* of “ruralness.”
- encourage home-based businesses in rural areas as long as the business activities meet performance standards to guard against nuisance conditions; examine the use of conditional use permits in rural areas.
- examine use-value taxation and other tax equity measures for rural land use.
- include consideration of housing diversity and affordability in rural areas.
- emphasize businesses in rural portions of the county which produce improvements in environmental quality, tranquillity and wildlife habitat.
- consider an exclusive agricultural zone
- expand incentives or subsidies for agricultural land uses.
- promote the sale of local agricultural products within the county

*Encourage Compact Communities With A Mix Of Activities As Development Occurs*

- Encourage development that incorporates a mix of uses rather than a separation of uses; encourage new development to incorporate other new urbanism features such as pedestrian connections.
- work with the towns to accommodate a significant share of new development in and around the towns.

- site commercial uses along major highways in clusters at specific, designated locations; design these commercial sites to retain a rural crossroads or village character; and integrate these uses with other nearby development.
- link development and conservation, so that more intense development at a particular site does not necessarily translate into a greater total amount of development in a broader area.
- site commercial clusters/compact communities so that they might be able to be served by transit in the future, especially along US 15-501 north of Pittsboro and US 64 east of Pittsboro.
- site commercial clusters so that they extend up side roads off main thoroughfares rather than as strips along main thoroughfares.
- include consideration of housing diversity and affordability in rural areas.
- cluster new development near school sites and reserve future school sites in concentrated development locations

#### *Designate Economic Development Centers*

- review and research which areas are most suitable for business and industry.
- identify areas of the county which are especially suited for particular businesses; restrict businesses from locations which are less suitable.
- suitable areas should be tied to transportation and utility infrastructure.
- minimize the impacts of businesses on other areas of the county.
- design a process that invites and facilitates the location of businesses in the preferred commercial and industrial sites.
- ensure that commercial development pays for itself.
- design a process for siting commercial development that is predictable and clearly spells out acceptable uses; consider “fast-track” approvals in designated locations.
- encourage “green” industries to locate in the county and provide information on local and state resources to existing and new businesses that express an interest in implementing sustainable practices.

#### *Develop An Integrated Approach To Protecting and Promoting High-Quality Open Space, Recreation, Historic And Tourism Locations.*

- coordinate/expand efforts of group working on river corridor issues: Haw River, Deep River, Rocky River
- site recreation areas near population centers
- combine school sites with park sites
- create a greenway (and open space) network that links neighborhoods and important destinations (schools, recreation lands, etc.); include walking, biking, and horse trails where appropriate.
- create a long-term county recreation plan
- establish standards for well-designed open space and recreation areas within new subdivisions.
- protect resources which promote tourism, including Lake Jordan, local rivers, antique shops, rail corridors, etc.
- increase the public’s accessibility to rivers
- establish a rails-to-trails program

*Ensure The Long-Term Quality And Availability Of Groundwater And Surface Water Resources.*

- examine the cumulative effects of well and septic tank concentrations; especially in areas with significant concentrations of well and septic service.
- include the considerations in the lot-size report
- work with up-stream and down-stream jurisdictions
- increase the health and quality of water bodies in the County
  - promote the safe use of water bodies in the County

*Provide Infrastructure In Ways That Support The Land Use, Economic Development And Environmental Objectives: Water Supply, Wastewater Treatment, Transportation and Schools.*

- growth must be consistent with the county's utility plans; where utility plans are not in place or are out-dated, develop or update them.
- define "high-growth" areas and serve them with utilities; define "low-growth" areas and use utility policies to preserve them.
- consider impacts of transportation when making land use decisions
- address the Jack Bennett Road connector issue
- address street design standards within subdivisions and connections between subdivisions
- promote community-based schools; keep transportation time/distances to schools small
- locate schools based on road access, utility availability, and safety considerations.
- Use impact fees to fund schools
- limit school enrollments to "optimal" levels
- cluster new development near school sites and reserve future school sites in concentrated development locations
- combine school sites with park sites
- incorporate pedestrian connections and bike trails in new communities to make them walkable and bikeable.
- include bike shoulders along roads
- foster alternative means of water and sewer treatment

## **THE ACTIONS: CHOICES & RECOMMENDATIONS**

**Actions describe what the county should do to achieve each of the plan's objectives.**

This chapter includes sections describing the choices that the County has made to achieve each of the plan's policy objectives. Each section includes an overview of the policy issue, a summary of major conditions and trends, and recommendations for action.

## Summary of Major Recommendations

1. Work closely and cooperatively with the towns in Chatham County so that development can be guided towards areas planned for urban and suburban development and away from areas with valued environmental or rural qualities.
2. Extend land use regulations to the entire county in order to guide development to appropriate locations, provide more certainty for landowners and establish a basis for farmland preservation strategies.
3. Retain the current 5-acre average lot size in the areas designated in the county's watershed protection ordinance and shown as resource protection areas on the community plan map.
4. Convene a working group to draft recommendations on a range of options for rural residential development in the northeastern part of the county, including the following:
  - a. **Large lot development**
  - b. **Cluster development**, with houses clustered on one portion of a tract and the remainder of the tract set aside as permanent open space; and
  - c. **Mitigated conventional development** on smaller lots, provided that water supply and wastewater treatment standards can be met and that mitigation funds are paid into a county rural land protection fund.
- 5.
6. Establish an official county agricultural advisory board and include agricultural enterprises in the county's economic development program.
7. Establish a *Farms for the Future* program that builds on existing efforts to provide technical assistance to farmers on marketing, infrastructure improvements, land acquisition, estate planning, and specialty farming.
8. Establish a voluntary agricultural district program and purchase of development rights program.
9. Designate *Economic Development Centers* for new business and industry to allow effective planning and marketing for employment sites.
10. Convene a working group of the economic development board to explore the option of promoting and developing sustainable enterprises within one or more centers, or employing components of sustainability within traditional commercial enterprises.
11. Encourage shops and offices in *Neighborhood Activity Centers within compact community corridors*.
12. Designate *Cross-roads Commercial Center* locations to serve the needs of surrounding rural areas.

13. Discourage commercial and industrial development in other settings, especially as strip commercial development and in sensitive resource areas.
14. Establish a unified county board devoted to open space, recreation, historic assets and tourism and create a county open space, recreation, historic assets and tourism master plan. For projects which have the potential to enhance the tax base, the economic development board will be kept informed of planning and execution.
15. Pursue a county schools-parks program. See previous edit
16. Adopt minimum open space set-aside standards for conventional subdivisions. See previous edit
17. Implement a comprehensive plan and management framework for assuring water and wastewater systems viability so that development patterns, subdivision designs, and designation of economic development centers are based on sound soil and hydrologic science. The economic development board will be kept informed of planning and execution of projects which have the potential to impact the business community.
18. Work closely with the state to identify impaired waters and develop and implement strategies for restoring them.
19. Evaluate the benefits and costs of establishing a county-wide *Sediment and Erosion Control Ordinance*.
20. Develop a program to promote water conservation and reuse measures.
21. Provide public water and/or sewer service to designated high growth areas such as towns and economic centers, and restrict or prohibit extension to areas designated for low-density growth.
22. Integrate schools into neighborhoods, ensuring good road access, safety, and utility availability, and encourage new development nearby.
23. Consider impact fees or impact taxes on new development to help fund community facilities and programs, including schools, farmland protection and recreational and cultural facilities.
24. Conduct a detailed analysis of any additional proposed major roads and road widenings beyond the current construction program in the county.
25. Plan for transit service, especially along the 15-501 corridor.
26. Review roadway design standards and revise as needed to ensure that the standards are the best match for the different types of development proposed in this plan, including support for pedestrian and bicycle travel, where appropriate and desired.

## Rural Character

## Overview

The rural landscape plays a vital role in defining life in Chatham County. Three elements combine to determine rural character:

- *Form* -- how the landscape looks;
- *Function* -- the activities it supports; and
- *Outlook* -- the attitude and lifestyle of the people that live there.

To help maintain the traditional form and function of the county in the years ahead, the *Chatham Plan* supports:

- Farming and forestry in predominantly agricultural and silvicultural areas;
- Rurally compatible residential development in rural areas;
- Protecting important natural areas and resource lands; and
- Preserving scenic and historic landscapes.

### **Definition of Rural Character**

In this plan, rural character is defined as the combination of natural and built features that portray the traditional form and preserve the traditional function of the rural landscape. In Chatham County, rural character is manifested in a backdrop of forests and fields, dotted with natural features such as creeks and hills and structures such as barns, silos, churches, poultry houses, general stores, and craft studios. These physical features support traditional rural activities such as farming, lumbering, craft making, and outdoor recreation that have been practiced for generations in the county. Homes in rural areas are either scattered at low densities or clustered together in small communities

These goals go hand in hand with those listed under the Economic Centers, Ground & Surface Waters, Infrastructure, and Compact Communities Policy Objectives to ensure a healthy balance of conservation and development in the county.

To help achieve these objectives, the county will support agricultural economic development, develop a package of voluntary farmland protection programs, provide development options to balance conservation and development in rural areas, and support the identification and protection of scenic and historic landscapes.



## Major Conditions & Trends

How we perceive a place is shaped in large part by what it looks like from the road, as well as from key public access points such as a bridge over a river. As a result, protecting scenic views and ensuring appropriately-designed development are key steps to preserving rural character.

Daily activities and special events also help define the rural experience for local residents. Examples include occupations such as farming, lumbering, and small-scale manufacturing, as well as recreational activities such as fishing, participating in a farmers' market, or attending a harvest festival. Form inevitably becomes combined with function as residents engage in specific activities in special places such as milking cows on a third-generation dairy farm, canoeing or kayaking along the Haw River, fishing or swimming in Jordan Lake, or hunting in the Chatham Game Lands.

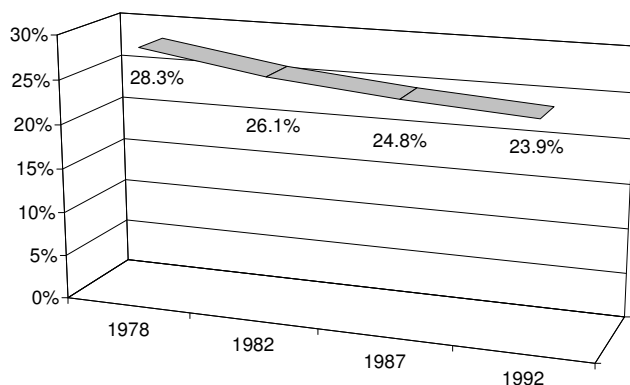
Despite the continuation of these traditional land uses, the landscape in Chatham County is changing. Several trends in particular are affecting rural character:

- The agricultural economy is evolving;
- Chatham's farmers are growing older; and
- Strip commercial development and residential development are occurring at a rapid pace and in a manner that often impacts rural character.

Farmland constitutes an important feature of the rural landscape in Chatham County. From 1978 to 1992, the county lost almost 20,000 acres of land in farms, a 15% decline. Farmland now covers less than 25% of the county.

Different agricultural sectors face different economic prospects. Tobacco, grains, and dairy farming appear to be on the decline.

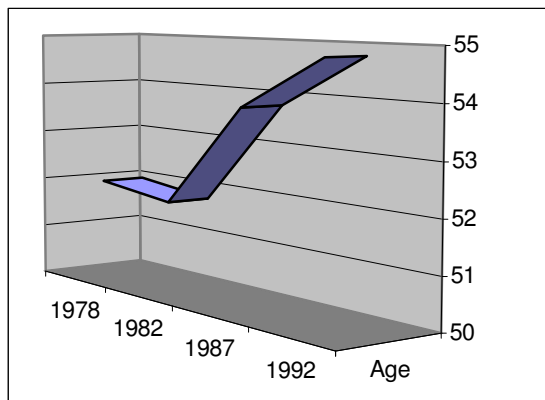
Poultry and livestock husbandry appear to be holding steady. Specialty farming, including nurseries, greenhouses, and organic farming, is on the rise. There are presently about 30 commercial organic produce farms in the county that regularly participate in local farmers' markets, as well as numerous small organic farms. The county is perhaps the only one in the Southeast to have a full-time extension agent dedicated to assisting organic farmers.



*The percentage of Chatham County in farmland is declining.*

Another challenge the agricultural community faces is passing farms on to the next generation. The average age of farmers in the county is increasing. In 1992, over half of farm operators in the county were 55 years of age or older. A positive trend is that about 70% of farmers in the county fully own their farm, well above the state average of 55%.

Finally, rapid growth is also significantly impacting the rural landscape in Chatham County. From 1980 to 1998, the county population grew by 35% to just over 45,000 residents. The new housing and services required by these people have resulted in substantial development, much of it coming at the expense of rural character.



*The average age of farmers in Chatham County is rising.*

## Choices for Chatham County

Successful efforts to protect the rural landscape in other parts of the country have generally used a number of techniques in combination, since each one serves a slightly different function. The strategies recommended here are grouped under four principles:

1. Support farming and forestry in predominantly agricultural and silvicultural areas;
2. Encourage rurally compatible residential development in rural areas;
3. Protect important natural areas and resource lands; and
4. Preserve scenic and historic landscapes.

### **Support farming and forestry in predom-inantly agricultural and silvicultural areas**

Through the plan development process, residents of the county have expressed the feeling that agriculture is an important part of life in the county, and that an appropriate and significant focus should be placed on preserving this part of the local culture and economy.

To be successful, efforts to ensure the continuation of a vibrant farming community must address agricultural economics. In addition, they must work to provide greater certainty about the long-term viability of farming in the face of increasing development pressure.

As a result, the county will do the following:

1. Establish an official county agricultural advisory board to provide input on agricultural and forestry issues to the county commissioners and promote agriculture as economic development in the county.<sup>1</sup> This body would serve to complement the work of existing agricultural organizations.
  - Membership on the board might include a representative from each of the following organizations or groups in the county: the Agri-Business Council Board; the Cooperative Extension Service Advisory Board; the Farm Bureau; the Farm Credit Agency; the Farm Services Board; the North Carolina Forest Service; the Soil and Water Conservation District Board; private timber landowners; corporate timber industries; and several at-large farmers. Overall, the board should have a mix of farmers and staff people.
  - One member of the agricultural advisory board should be appointed to the Economic Development Board.
2. Ensure that agricultural enterprises have an effective advocate in Chatham County's economic development program, by either:
  - A. Promoting agriculture as economic development in the county;
  - B. Working with the Chatham County Economic Development Corporation to expand its work program to include agricultural economic development; and/or
  - C. Enhancing existing agricultural economic development resources in the county.

If an agricultural advisory board is established, one of its tasks should be to review how to effectively advocate for agricultural economic development in the county.

3. Compile, analyze, and present available data on agriculture and forestry in the county using maps, tables, and other means in order to identify prime farm and forest land and prioritize areas for support.
4. Educate current and prospective residents and landowners of the county about North Carolina's right-to-farm law.<sup>2</sup>
5. Establish a *Farms for the Future* program including at a minimum the following components:

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<sup>1</sup> Under Section 106-739 of the *North Carolina General Statutes*, counties are authorized to "provide for the establishment of an agricultural advisory board, organized and appointed as the county shall deem appropriate."

<sup>2</sup> Section 106-701 of the *N.C. General Statutes* states that, "No agricultural or forestry operation or any of its appurtenances shall be or become a nuisance, private or public, by any changed conditions in or about the locality thereof after the same has been in operation for more than one year, when such operation was not a nuisance at the time the operation began; provided, that the provisions of this subsection shall not apply whenever a nuisance results from the negligent or improper operation of any such agricultural or forestry operation or its appurtenances."

- Market studies and marketing assistance to promote agricultural economic development in the county;
- Technical assistance on farm infrastructure financing;
- A land purchasing assistance program to help farmers acquire land to begin or expand their farming operation;
- A Land Link program to connect beginning farmers with experienced ones;
- Estate planning assistance; and
- Advocacy for organic and specialty farming in the county.

This program should not duplicate existing efforts but instead should complement them and support their continued development.

6. Review and make recommendations regarding the establishment of a voluntary agricultural district program.<sup>3</sup>
7. Encourage the donation of conservation easements on farmland. Educate landowners about the potential tax benefits and other implications of such donations.
8. Assess the feasibility and relative benefits of a voluntary purchase of development rights program run by the county, including how it might be structured.
9. Review and consider additional farmland protection techniques authorized for local government use by the General Assembly as they become available. Consider proposing additional legislation if local needs are not adequately addressed under the current state framework.

These techniques, combined with the existing use value assessment program that taxes farmland based on its agricultural value instead of its development value, will help to reduce the financial pressure on farmers to sell their land for development. A key challenge is to preserve enough farmland to maintain the agricultural support services such as feed stores and processing facilities that are essential to running a viable farming operation. This is especially important for maintaining the long-term viability of traditional agricultural operations.

### **Encourage rurally compatible residential development in rural areas**

The Economic Centers Policy Objective encourages development in existing towns, at cross-roads commercial centers, and in economic development centers. The Compact Communities Policy Objective guides growth to neighborhood activity centers. The Infrastructure Policy Objective calls for the establishment of urban service areas that outline where urban services will be provided. Inside these service areas, development will have a town or suburban pattern.

Outside of these areas, development should occur in a manner consistent with the rural landscape. To help make this happen, the county will establish both:

- *Quantitative standards* such as zoning to establish a clear baseline of measures to manage development; and

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<sup>3</sup> Under Section 106-738 of the *North Carolina General Statutes*, counties may establish a voluntary agricultural district program “to increase identity and pride in the agricultural community and its way of life and to increase protection from nuisance suits and other negative impacts on properly managed farms.”

- *Qualitative standards* such as design guidelines to take into account specific site characteristics when reviewing individual development proposals.

*Policy Guidelines for Establishing Quantitative Standards*

To protect rural character and help maintain a functioning rural economy while still providing landowners with development opportunities, all new rural residential development must preserve either the form or the function of the rural landscape, or help protect these features elsewhere in the county.

It is not desirable or feasible for all rural areas in the county to be developed to the same density. To minimize sprawling development in more rural parts of the county, relatively greater residential densities should be allowed in the more rapidly developing parts of the county located closer to major employment centers and served by major highways and other public infrastructure. Relatively lower densities should be allowed in the more rural parts of the county to help preserve the rural landscape and the rural way of life that it supports. A recent study in the county also indicates that land in rural resource use provides a net contribution to the local government fiscal balance.

To pursue these ends, the County will:

- 1) Revise the county land use regulations to provide a range of options for rural residential development that protect the form or the function of the rural landscape, including:
  - *Large lot development* (e.g. with a minimum lot size of five acres or more);
  - *Cluster development*, with houses clustered on one portion of a tract and the remainder of the tract set aside as permanent open space (e.g. 50% or more); and
  - *Mitigated conventional development* on smaller lots (e.g. 1.5 acres or smaller), provided that water supply and wastewater treatment standards can be met and that mitigation funds are paid to the county to protect rural land in other parts of the county.

**To help implement this part of the plan, the county will convene a working group of citizens and county staff to develop zoning ordinance language to carry out this rural residential policy.** This will include designating areas as *Agricultural Communities* to receive first priority in accessing new county resources allocated for maintaining family farms and the agricultural and forestry economy in the county. Larger tracts of farm and forest land would be protected in these places than in other rural parts of the county to help maintain the function as well as the form of the rural landscape. Remaining rural lands not in this *Agricultural Communities* category or in one of the other land use categories would be designated as rural residential land with development options and standards appropriate to these rural areas.

To help implement this part of the plan, the county will convene a working group that includes farmers, landowners, and the general public to develop a specific program to carry out this *Agricultural Communities* policy. The working group will present a recommended approach to the County Commissioners within one year of the approval of the *Land Development and Conservation Plan*.

The county will maintain the current zoning of 1 dwelling unit per 5 acres or more where this standard has long applied in order to protect rural character and water quality. To increase flexibility

in these resource protection areas, a cluster development option such as the one described above should also be allowed.

### *Policy Guidelines for Establishing Qualitative Standards*

When designing a development project, developers should work to do the following:

- Protect sensitive lands such as wetlands, stream corridors, and steep slopes;
- Preserve prime farmland;
- Maintain scenic views by protecting ridgelines and buffering road corridors, among other means; and
- Provide connected open space.

The county should systematically review new projects for these and other features of good design and work with developers to incorporate them into site plans.

### Key Issues

As the county implements the measures outlined above, it should pay particular attention to three issues:

- Water provision and wastewater treatment;
- Affordable housing; and the
- Economics of development.

**Water provision and wastewater treatment:** When an area is developed for residential uses, it creates what is essentially a permanent need for water provision and wastewater treatment. A key to ensuring the long-term provision of these services in an environmentally sustainable manner is the existence of a comprehensive management framework. This issue is discussed in more detail in the Ground and Surface Water Resources and Infrastructure sections of the plan.

**Affordable housing:** As the county develops, it should continue to provide the opportunity for all its residents to meet their needs. Among the most important of these is the availability of safe, decent, affordable housing. One means of doing this in rural areas is the family subdivision option presently available to existing landowners in the RA-5 zoning district that allows them to convey a single parcel to each relative of direct lineage.

In addition, the county should systematically examine other opportunities for providing affordable housing. Examples include establishing a Housing Trust Fund to help fund the construction of affordable units, providing density bonuses in return for building affordable units, and encouraging or requiring a certain number of units to be under a certain total square footage to help ensure a diversity of housing types and sizes. Efforts should also be made to help ensure the long-term affordability of units that are constructed for this purpose through ground leases and other means such as used by Habitat for Humanity.

**Economics of development:** As the county implements the provisions outlined above, a key question is how economically viable the different rural residential development options are for developers. A detailed study on this issue does not currently exist for the county. However, an

informal review of the evidence from existing residential projects provides some preliminary feedback on this question. Many examples of large lot and conventional subdivisions exist in the county, indicating that these projects can be built profitably. Only a few examples of open space subdivisions exist locally. However, many examples of successful open space subdivisions exist nationwide.

In general, open space subdivisions have:

- Lower infrastructure costs; and
- Increased lot values as a result of proximity to permanent open space.

In addition, open space areas can be leased for farming, providing another potential source of revenue, and tax benefits can often be gained by granting a conservation easement on the open space area.

Some of the drawbacks of open space subdivisions from an economic standpoint include the following:

- Developers and homebuyers are often less familiar with this type of project, potentially increasing design costs and financial risk of such developments; and
- The price per lot may put some of these projects out of reach of developers and builders selling homes on speculation (as opposed to custom-built homes).

To address these issues, the county should evaluate the effectiveness of the new standards that it implements on a periodic basis. These measures should be evaluated based on how well they are protecting rural character and the extent to which they are providing economically viable development options for landowners and developers. The county should then consider adjusting its standards based on these findings.

## **Protect important natural areas and resource lands**

Open space, wildlife habitat, and resource lands are an essential component of rural character. Measures for protecting these natural assets are outlined under the Open Space, Recreation, Historic Assets & Tourism Policy Objective of this plan.

## **Preserve scenic and historic landscapes**

Even if all of the techniques described above are successfully implemented, there is no guarantee that rural character will be maintained. Therefore, a critical undertaking is to protect signature rural landscapes in the county. To do this, the county should:

- Conduct an inventory of scenic and historic landscapes; and
- Educate landowners about the potential tax benefits of protecting scenic and historic resources.

Together, these measures will help Chatham County protect its distinctive rural character as the county grows and changes in the years to come.

# Compact Communities

## Overview

Compact communities are a time-honored type of development. Historically, they have occurred in several different forms on the Piedmont. Examples include:

- Small towns, such as Pittsboro;
- Mill villages, such as Bynum; and
- Crossroads communities, such as Silk Hope.

To respect the traditional development patterns that are part of Chatham County's heritage and character, to reduce the need for costly infrastructure, to protect farmland and open space, to facilitate travel on foot, by bike, and by transit, and to promote a greater sense of community, the *Chatham Plan* supports development in compact communities.

## Major Conditions & Trends

Most new development in Chatham County is being built in a low-density pattern that separates different uses such as homes and shopping. However, a few local developments such as Fearrington Village echo more traditional styles of community design.

In general, at present there are two different approaches to building compact communities:

- The cluster development approach to residential development discussed under the Rural Character Policy Objective; and
- The neotraditional neighborhood approach.

While one might think of the rural cluster as a golf course community without the golf course, the neotraditional neighborhood approach might be described using the "five-minute rule." Some advocates of this style of development suggest that the community works if a child can walk safely from home to local destinations in the neighborhood such as a corner store, a park, or a library in five minutes or less. Such communities are often built within or adjacent to existing towns, at crossroads, and at commercial nodes. Common components include:

- A clustered pattern of development;
- A mix of land uses, with residential, commercial, and civic components;
- A mix of housing types;
- An interconnected street network;
- Walkable, pedestrian-friendly design;
- A defined edge that marks the transition to the surrounding rural landscape;
- Connection to transit; and
- Connection to open space and recreation.
- A mix of commercial and residential in multi-story buildings.



# Choices for Chatham County

Compact communities are an important component of an integrated strategy for balancing conservation and development in the county. To help facilitate development in this style, Chatham County will:

1. **Designate locations/corridors for compact communities;**
2. **Establish development standards to permit compact communities in the locations designated; and**
3. **Develop design guidelines for compact communities.**

## 1. Designate locations/corridors for compact communities

Chatham County will:

- Designate locations and corridors where compact communities are allowed provided they meet the development standards and design guidelines outlined below.
- Require a minimum separation distance between each compact community built in the designated corridors;
- Zone the intervening areas between each compact community for agriculture/rural residential uses;
- Support efforts of towns to locate compact communities within their respective jurisdictions.

## 2. Establish development standards to permit compact communities in the locations designated

Chatham County will:

- Require a minimum project size for proposed compact communities;
- Limit the overall size of the project if it will compromise the walkability, accessibility, and community feel of the project. In general, such developments will probably range from 400 to 1,000 acres.
- Require a master plan as part of the preliminary plan review process with components similar to those required under the county's existing P.U.D. standards;
- Allow the project only if it can demonstrate the ability to provide sustainable water treatment and wastewater treatment indefinitely for all uses in the proposed project;
- Require a minimum residential density to support commercial and civic uses, facilitate walking, and expand potential future transit ridership;
- Require a mix of residential, commercial, and civic uses;

- Require a minimum percentage of land for neighborhood parks within the community;
- Require a minimum percentage of permanently protected open space adjacent and easily accessible to the community to provide passive recreational opportunities for residents and help preserve rural character;
- Work with the School Board to plan for the siting of new schools in the designated locations/corridors. Explore the possibility of requiring the dedication of land for new schools in designated compact communities as part of receiving the density bonus that the compact community designation constitutes.
- Work with developers to ensure that compact communities meet standards for transit-friendly development.

### **3. Develop design guidelines for compact communities**

Chatham County will establish design guidelines for all compact communities that include the following:

- A definable neighborhood center such as a green or square;
- Smaller public spaces such as parks and playgrounds within easy walking distance of all homes;
- A grid network of streets;
- Limits on street width (Note: Since the county currently follows the state standards for roadway design, it should work with the North Carolina Department of Transportation to develop acceptable alternatives that are appropriate for compact communities);
- A linked pedestrian network that runs throughout the community;
- A maximum setback (“build-to” line) from the street and the adjacent utility corridor;
- A diversity of housing types including single-family homes, townhouses, and apartments (whether free-standing, over garages, and/or over stores) to ensure affordable housing options for residents. The county should examine techniques such as establishing a Housing Trust Fund to help fund the construction of affordable units, providing density bonuses in return for building affordable units, and encouraging or requiring a certain number of units to be under a certain total square footage to help ensure a diversity of housing types and sizes. Efforts should also be made to help ensure the long-term affordability of units that are constructed for this purpose through ground leases and other means such as used by Habitat for Humanity.
- Human-scale commercial development that provides a safe and pleasing environment for pedestrians and bicyclists.

Together, these measures will support the development of compact communities that have been a fixture of the Chatham County landscape for generations.

# Economic Centers

## Overview

To increase job opportunities and the tax base within Chatham County, to provide suitable locations for economic development and to encourage development that sustains the county's rural character and environmental quality, The Chatham Plan supports:

- Agriculture and home-based businesses in rural areas
- Commercial and industrial development within the county's towns
- Neighborhood activity centers in compact community corridors
- Cross-road commercial centers in designated rural locations
- Economic development centers in carefully designated and planned locations
- Continued development within other areas currently zoned commercial or industrial

To focus economic development in these six settings, the county will discourage industrial and commercial development in other places, especially as strip development along the major highways, in environmentally sensitive areas, and in agricultural areas. Continuation of current activities will be supported in existing industrial and commercial areas.

With these objectives, economic activity can occur almost anywhere in the county, with the exception of conservation areas, but different activities (*or uses*) would be appropriate in different locations and might be subject to different *performance* and *design* standards.

Economic development that would be supported:

- Throughout the county, including rural areas, agriculture and home based businesses that meet *performance* standards.
- In municipalities, a wide range of industrial and commercial activities.
- In neighborhood centers and at commercial cross-roads, retail, office, and other commercial activities that meet *use* and *design* standards.
- In designated economic development centers, a wide range of industrial and commercial activities; a portion of the county's economic development efforts will explore the feasibility of pursuing environmentally and community compatible business enterprises.
- In all other currently zoned industrial and commercial areas, continued development of permitted activities.

## Major Conditions & Trends

Three major trends define the Chatham County economy as the next century approaches:

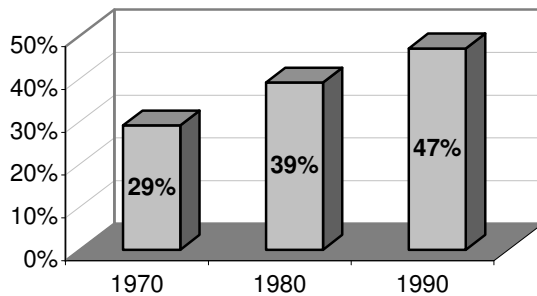
- An increasing proportion of the county's economic well-being is tied to the larger regional economy and activity that occurs outside of the county's borders.

- Manufacturing remains an important component of the economy – more so than in the rest of the region and the nation as a whole – but manufacturing is a smaller proportion of the economy than it once was and is concentrated in sectors that have been stagnant or declining on a national level.
- Farming remains more important in Chatham County than in the rest of the region, but its impact on the economy is declining.

**The Chatham economy is increasingly tied to the larger regional economy and increasingly depends on activity that occurs outside the county’s boundaries.**

County residents who are employed outside the county increasingly impact the Chatham economy. A generation ago, in 1970, 29% of the county workforce traveled out of the county for work. By 1990, almost half of the county workforce commuted out for employment. The eastern townships experience the greatest levels of out-commuting. In Baldwin, New Hope and Williams Townships more than 80% of the workforce commutes out of the county. And one half or more of the workers from Cape Fear, Center, Hadley and Oakland Township commute outside of the county for work.

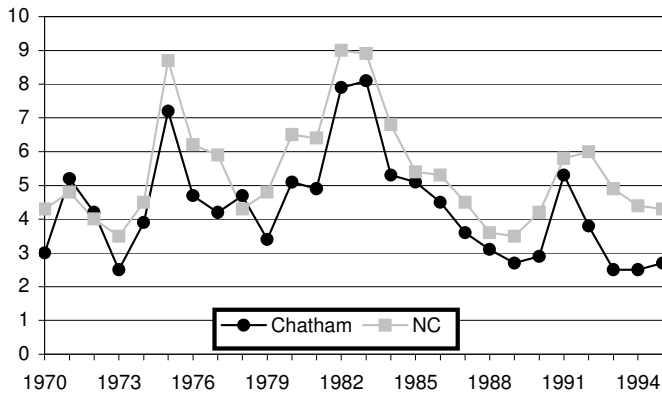
*The percentage of Chatham County residents who commute outside of the county to work is rising.*



This “regional effect” is also reflected in county income, with the proportion of net total personal income earned by working at locations outside of the county rising from 14% in 1970 to 21% in 1995.

Close ties to the larger regional economy are positively reflected in the county’s unemployment rate, which now matches the low rates of neighboring Orange and Wake Counties rather than the higher rates of more rural neighboring counties. These regional ties are also reflected in county per capita income statistics, which have risen from 75% of the US average in 1970 to 94% in 1995.

*Chatham County has a low unemployment rate.*

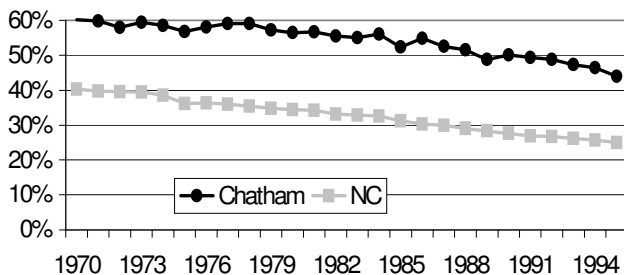


**Manufacturing is a dominant part of the county’s economy, but its share is declining and is concentrated in sectors that are stagnant or declining nationally**

In 1995, 44% of the county's employment (excluding the self-employed) was in manufacturing. This is a significantly higher proportion than the 15% of the workforce employed in manufacturing nationally.

Textiles, food processing, lumber and wood products, and chemicals and allied products dominate the manufacturing sector. Textiles account for 31% of the total manufacturing employment, food products for 24% and lumber and chemical products account for 10 to 15% each. The majority of manufacturing employment is centered in Siler City, with smaller concentrations in Goldston, the Moncure and Haywood areas and Pittsboro.

*Manufacturing employment in Chatham County is declining.*

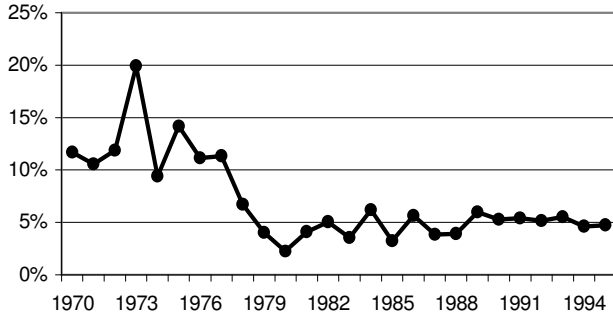


**Agriculture remains important, but is a declining share of the economy.**

The percentage of total personal income in Chatham County from farming reached a high of 20% in 1973. Since 1980, farm income has accounted for about 5% of the total personal income of county residents. This is much higher than the national 1% share of total income contributed by farm income.

In the county, 8% of total employment in 1995 was classified as farm. Nationally, only 2% of total employment is in farming. Nonfarm earnings increased at a greater rate from 1970 to 1995 than farm income: 12% for farm earnings versus 15% for nonfarm earnings.

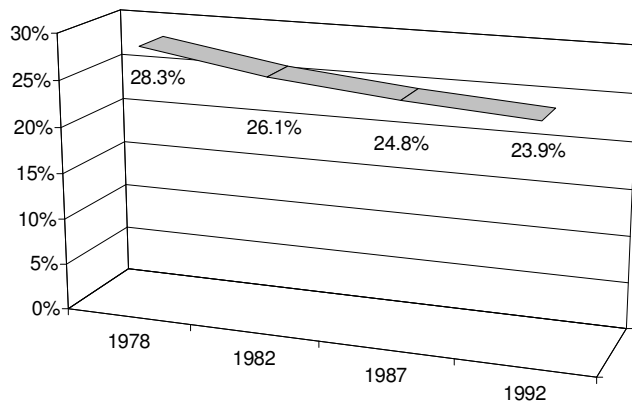
*Farm income as a % of total income has declined.*



The county's farming economy is increasingly centered on livestock, not crops. In 1970, 11% of total cash receipts and other income were from crops and 82% were from livestock. By 1999 only 6% of this total was from crops while 94% was from livestock. In 1999 Chatham County ranked 8<sup>th</sup> in the state in cash receipts from livestock and 87<sup>th</sup> from crops. In total cash receipts from farming the county ranked 15<sup>th</sup>. Nationally, the receipts are more balanced – and crops are increasing: 53% livestock and 34% crops in 1970 and 43% livestock and 46% crops in 1995. The North Carolina Department of Agriculture 2000 statistics show the Chatham County ranking among the 100 counties as follows: Beef cows-2<sup>nd</sup>; Cattle-4<sup>th</sup>; Broilers Produced 4<sup>th</sup>; All Chickens-8<sup>th</sup>; All Hay-9<sup>th</sup>; Turkeys Raised 13<sup>th</sup>; Timber Acreage 13<sup>th</sup>.

The number of farms has decreased from 1,092 in 1978 to 926 in 1992 but increased by 3% to 956 in 1997. The county ranks 12<sup>th</sup> in the state in the total number of farms. By 1992, 15% fewer acres were in farms compared to 1978. (108,363 acres in 1992; 128,186 acres in 1978). From 1992-1997 the amount increased 4% to 112,923 acres. The percentage of total land in the county which is farmland appears to be stabilizing .

*The amount of farmland in Chatham County is declining.*



These economic trends suggest the following:

- Farming remains viable and may continue due to the existing strong livestock base and the increasing number of smaller farms. The smaller specialty farms exist due to a large diverse ethnic population in the region, accessibility to area farmers' markets and customer willingness to pay a premium price for alternative and organic farm products.
- Maintenance of, or growth in, manufacturing may increasingly depend on new firms in growing sectors coming into the county rather than on significant expansion of existing firms in stagnant sectors, suggesting the need for appropriate sites for new firms.
- The county's projected population growth may be most closely tied to the larger regional economy (rather than the traditional local agricultural and manufacturing base) and the Service, Finance/Insurance/Real Estate, and Trade sectors of the economy that seek metropolitan settings.

## Choices for Chatham County

The Chatham County Land Development & Conservation Plan envisions economic development that is built around 6 principles:

1. Encourage agriculture and home-based businesses throughout the county.
2. Encourage development within Chatham County's towns.
3. Create *Economic Development Centers* to provide the elements necessary to compete in an increasingly competitive market for recruiting new business and industry; a portion of the county's economic development efforts will explore the feasibility of pursuing environmentally and community compatible business enterprises.
4. Encourage shops and offices in *Neighborhood Activity Centers*
5. Encourage appropriate *Cross-roads Commercial Centers* to serve rural areas.
6. Discourage commercial and industrial development in other settings, especially as strip commercial development along major highways and in environmentally sensitive and agricultural areas.

### **Encourage agriculture and home-based business throughout the county.**

The section on *Rural Character* outlines policies to encourage continued agricultural use of farm and forest lands.

Chatham County should consider creative options for the currently unzoned portions of the County, including RURAL ENTERPRISE AREAS which support and allow a diversity of businesses and enterprises on large land tracts.

Chatham County should periodically re-examine its home occupation standards to ensure that they promote the opportunity to work from home while requiring appropriate *performance* standards to prevent adverse impacts on neighbors or the environment.

Chatham County considers a home occupation “any use conducted on residential premises and carried on by the occupants thereof, which use is incidental and secondary to the use of the premises for residential purposes and does not change the character thereof.”

The county's residential districts should continue to permit certain business activities such as home day care centers, family care homes and breeding kennels and boarding stables (with a 3-acre minimum lot size).

### **Encourage development within Chatham County's Towns.**

Chatham County should work closely with Siler City, Pittsboro and Goldston to promote the siting of economic development activities within the towns, including their extra-territorial jurisdictions (ETJs) -- the areas that are expected to eventually become parts of the existing towns.

The county has no formal land use authority within these ETJs, and it will be important to work with the towns to ensure compatible policies are followed by the county and the towns.

The towns and their extraterritorial jurisdictions can accommodate a significant amount of development. The county should work closely and cooperatively with the towns to guide a substantial portion of new business and industry into these current and future municipal areas so that rural and environmentally important areas are not subjected to unwanted development pressure.

### **Create *Economic Development Centers* for New Business and Industry and Encourage Sustainable Business Enterprises.**

Chatham County should designate specific areas as *Economic Development Centers*. These centers would be planned in advance for development, with allowable activities specified and uses subject to performance standards and design criteria. Projects in the centers would be approved administratively.

Guidance for designating economic development centers includes:

- Locate the centers within the general areas shown on the plan map. Economic centers should not include any land designated as Resource Protection Areas or Natural Conservation Areas on the plan map.
- Different centers will have different sizes, based on the area and type of industry. The areas shown on the map represent three relative scales (small, medium, large) that the centers might have.
- Designated locations should be served by appropriate existing or planned infrastructure, and proposed development on each site should be compatible with that area's environment.



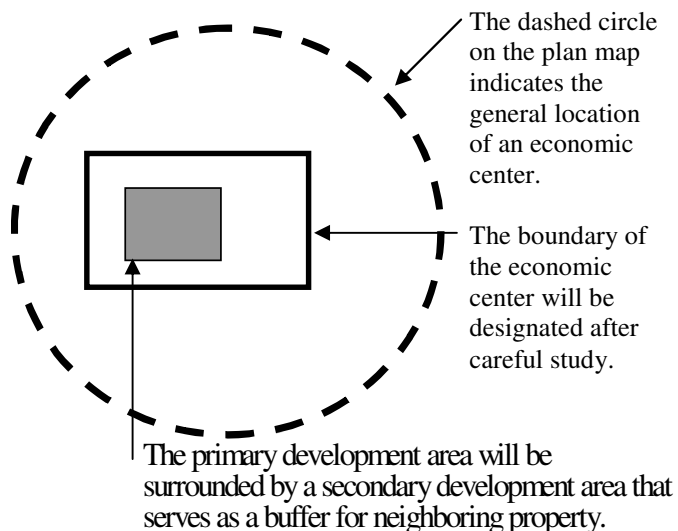
- A broad range of economic activities should be permitted;
- A *design manual* should be prepared which establishes the boundaries, appropriate uses and any performance and design criteria for each center.
- Once the centers are planned, projects should only require administrative approvals, with appeals of decisions following the same procedure as other county administrative decisions.
- The county should include site marketing, infrastructure provision, and planning & design assistance as part of the economic development centers program.

Each center should be composed of three areas:

- a *primary development area* where a wide range of industrial, office, service and retail uses are allowed and residential development is prohibited (so that land for economic uses is not lost);
- a *secondary development area* that serves as a buffer between the primary area and adjacent properties and where residential, institutional and office uses are allowed; and
- an *open space area* that includes land in steep slopes, floodplains and other environmentally important features.

Each center should have its own *set of allowable uses* and development in the centers should be subject to *performance standards* for environmental factors and to *design criteria* related to buildings, landscaping, circulation & parking, service & storage and signs & lighting. Uses, performance standards and design criteria should be specified in a design manual which should be incorporated as part of the county zoning ordinance.

***Only a portion of the area shown on the community plan map would eventually be designated as an economic development center.***



Locations for the centers should be selected based on such characteristics as the locations of water supply watersheds and other environmentally sensitive areas, the availability of large, buildable

tracts, proximity to major highways and rail lines and the long-term potential for adequate water and wastewater services.

The decision to approve or deny a project within a designated economic development center should be made by staff at a development review meeting and based on whether or not the project meets the standards specified in the design manual.

### *Designation of Economic Center Locations*

Eight areas should initially be considered for designation as economic centers based on the characteristics outlined above. These locations are:

- A center developed jointly with Pittsboro south of town along US 15-501. This area was selected to help promote development in and near existing or future towns.
- A center developed jointly with Siler City south of town along US 421. This area was selected to help promote development in and near existing or future towns.
- The Moncure-Haywood area. This area may take advantage of industrial potential in the area, together with extensive transportation and water/sewer infrastructure.
- The Goldston-Gulf area. This area may take advantage of transportation infrastructure and the potential for long term links to City of Sanford infrastructure.
- The Bonlee area. This area may build on existing poultry-related businesses.
- The area just west of the Chatham/Wake County line near the US 64/NC 751 intersection. This area may link to infrastructure and build on the economic activity in western Wake County.
- A location in the northern part of the county within the US 15-501 corridor. This area may link to infrastructure and build on the economic activity south of Chapel Hill.
- A location on NC 751 near Durham. This area may link to infrastructure and build on the economic activity in southern Durham County.

In addition to the set of allowable uses, performance standards and design criteria that would be developed for each center, evaluation of each candidate location should include:

- precisely defined boundaries, particularly in relation to existing parcel boundaries,
- specification of the range and variety of commercial enterprises which might be accommodated at each location,
- identification and description of existing viable commercial enterprises,
- access to existing or planned infrastructure that would be needed by the range of potential commercial enterprises,
- an assessment of the potential physical and social effects of the specified range of commercial enterprises.

### **Encourage shops and offices in neighborhood activity centers**

Focus some new retail and office development into *Neighborhood Activity Centers*, which are the commercial areas of the compact communities discussed in the section on *Compact Communities*.

Chatham county should ensure that commercial development along major highways occurs in the form of neighborhood activity centers by establishing:

- minimum distances between neighborhood centers, and
- maximum acreage or amounts of commercial square footage for neighborhood centers.

### **Encourage appropriate cross-roads commercial centers to serve rural areas.**

Encourage stores and services in designated cross-roads commercial centers that can serve surrounding rural areas. These cross-roads centers should be designed, built and operated primarily to accommodate the needs of the residents of the surrounding rural area.

Similar to the economic development centers approach and the compact communities approach, cross-roads commercial centers should include:

- designation of specific locations (see map),
- a careful analysis of uses appropriate to these locations,
- a set of design standards conforming to traditional rural development.

This cross-roads commercial center approach combines:

- Prohibiting certain commercial uses that are deemed inappropriate for a rural setting
- Allowing other commercial uses as long as they are at a size, height and scale that con-forms to traditional rural commercial areas.
- Applying *design standards* to other develop-ment that exceeds these size, height and scale criteria. Design standards should address building and parking layout, signage, lighting, landscaping and building design.

### **Discourage commercial and industrial development in other settings, especially as strip commercial development along major highways and in environmentally sensitive ~~and agricultural~~ areas.**

Chatham County should encourage commercial and ~~industrial activities~~ ~~existing locations~~ and the three types of centers described in this section:

- Economic development centers
- Neighborhood activity centers
- Cross-road commercial centers

If Chatham County extends zoning and focuses commercial development in designated centers, the county should re-examine the zoning ordinance's table of permitted uses to ensure that the current set of business districts, listed below, can result in the pattern of development envisioned in each type of center.

Chatham County's  
Current Business Zoning Districts:

- Office & Institutional – offices, motels, clinics
- General Business – wide range of business uses including office/institutional uses but excluding industrial uses
- Light Industrial – wholesale/warehouse/light manufacturing
- Heavy Industrial – heavy manufacturing

Conditional use zoning is an option through a rezoning application if sought by the applicant.

## **Sustainable Business Enterprises**

A growing interest in sustainable enterprises at the state and national level may provide an opportunity for the county in recruiting new business to the region. Recognizing that such enterprises will be just one component in the overall plan to diversify the county's tax base, the effort to recruit sustainable enterprises should be done in a way which complements existing efforts in economic development within the county.

Where it is feasible the county will explore the option of promoting and developing sustainable enterprises within one or more of the designated economic centers, or employing components of sustainability within traditional commercial enterprises.

In its efforts to support the business community the county may also provide a listing of local and state resources for existing and new businesses that express an interest in implementing sustainable practices.

Sustainable enterprises include businesses which support the long term interests of a region through ventures which combine the resources of the community, the economy and the environment in a way which will promote and preserve the assets and cultural heritage of each of these. Many communities, in and out of North Carolina have utilized sustainable enterprises to benefit their local economies.

The table on the next page gives examples of sustainable enterprise efforts.

## Examples of Sustainable Economic Development Initiatives

Economic development initiative:	Model venture/community:
Public-private partnerships.	<ul style="list-style-type: none"> <li>• <b>Main Street Program. sample project: New Bern, NC.</b></li> <li>• <b>Regional Heritage. Western NC</b></li> <li>• <b>Downtown Area Revitalization Effort. Wilmington, NC.</b></li> <li>• River City Corporation. Chattanooga, TN</li> </ul>
Investing in local labor, products, services.	<ul style="list-style-type: none"> <li>• <b>Self-help Credit Union/Self-Help Ventures Fund. Durham, NC</b></li> <li>• <b>Team Wilson. Wilson, NC.</b></li> </ul>
Heritage tourism.	<ul style="list-style-type: none"> <li>• <b>Handmade in America. Western North Carolina.</b></li> <li>• Music and civil rights heritage. Memphis, TN.</li> </ul>
Revitalization of downtown areas.	<ul style="list-style-type: none"> <li>• <b>Downtown Durham Inc. Durham, NC.</b></li> </ul>
Supporting local and sustainable agriculture	<ul style="list-style-type: none"> <li>• <b>Sustainable Agriculture Program at CCCC, Pittsboro, NC.</b></li> <li>• Northwest Area Foundation.</li> </ul>
Determining the appropriate mix of economic activity for a given region.	<ul style="list-style-type: none"> <li>• The Sierra Business Council. Sierra Nevada, CA.</li> <li>• Prince William County, VA.</li> </ul>
Environmentally protective and restorative development.	<ul style="list-style-type: none"> <li>• Businesses for an Environmentally Sustainable Tomorrow. Portland, OR.</li> <li>• Cape Charles Ecoindustrial Park. Virginia Eastern Shore.</li> <li>• Coalition of businesses recycling tires from several midwestern states. Minnesota.</li> </ul>
Conservation based development.	<ul style="list-style-type: none"> <li>• Ecotrust/Shoretrust Trading Group. Portland, OR.</li> </ul>
Promotion of “telecommunities”.	<ul style="list-style-type: none"> <li>• Montgomery Village. Ontario, Canada.</li> </ul>
Promoting environmental and cultural heritage.	<ul style="list-style-type: none"> <li>• Missoula Redevelopment Agency. Missoula, MT.</li> <li>• Chattanooga Convention and Visitors Bureau. Chattanooga, TN.</li> </ul>

# Ground and Surface Water Resources

## Overview

The water resources of Chatham County are essential to the quality of life, environmental quality, and economic vitality of the County. They have significantly influenced the history, growth, and land development patterns of the County. Conversely, Chatham County's growth and land development decisions have had, and will continue to have, a significant impact on the quality and quantity of the County's water resources.

Chatham County desires to ensure sustainable management and protection of surface water and ground water resources. To accomplish this goal, the *Chatham Plan* supports:

- Establishing sustainable lot sizes, development patterns, and development densities in all unincorporated areas of the County;
- Maintaining effective water supply watershed protection measures;
- Maintaining strong water resource protection buffer requirements;
- Implementing a comprehensive plan for assuring water and wastewater systems viability;
- Promoting more efficient use of water by reducing water use and increasing reuse of reclaimed water;
- Promoting restoration of impaired waters; and
- Establishing interlocal partnerships relating to water resources management and protection.

These measures complement many of the objectives included under the Rural Character, Compact Communities, Economic Centers, Open Space, and Infrastructure Policy Objectives of the *Chatham Plan*.

## Major Conditions and Trends

### Surface Water Conditions and Trends

Chatham County is fortunate that the County's water resources are generally in good shape, especially when compared to heavily populated and urbanized areas in other parts of the rapidly growing Research Triangle Region. Most of the surface waters in the County support their intended uses, including drinking water supply, swimming and recreation, and aquatic habitat.

However, in the Cape Fear River Basinwide Water Quality Management Plan, the North Carolina Division of Water Quality reports that Chatham County's water resources are already showing some signs of stress. Several streams are classified as either degraded, partially degraded, or threatened. Nonpoint source pollution is reported to be the major cause of water quality impairment, but point source wastewater discharges also contribute significantly to water quality impairment in some stream reaches.

Several major conditions and trends will affect the County's ability to manage and protect the quality and quantity of surface water resources in the years ahead:

- Increased growth and development activities within the County and in upstream areas may result in increased storm water and pollutant runoff, greater stream channel modification and streambank erosion, poorer aquatic habitat conditions, reduced ground water recharge, and greater impairment of surface waters. Unless proactive steps are taken, long-term declines in surface water conditions can be expected as additional growth and development occurs in the County.
- Continued state and national mandates for water supply watershed protection will influence the location, pattern, and density of land development within the County. The County complies fully with the North Carolina Water Supply Watershed Protection Act of 1989 which requires local governments to adopt and implement State standards (or a higher level of protection, if desired) for the protection of all water supply watersheds.

Water Supply Watersheds Within Chatham County	
Watershed Area	Classification/Zoning
Cape Fear River (1 and 10 mi. above Sanford intake)	WS-IV - CA; WS-IV - PA
Deep River (1 and 10 mi. above Goldston-Gulf intake)	WS-IV - CA; WS-IV - PA
Haw River (1 and 10 mi. above Pittsboro intake)	WS-IV - CA; WS-IV - PA
Jordan Lake (1/2 mile and 5 mile from normal pool)	WS-IV - CA; WS-IV - PA
Rocky River (1 mi. + balance above Siler City intake)	WS-III - CA; WS-III - BA
University Lake	WS-II - BW

- Chatham County’s water supply watershed protection ordinance meets, and in some instances, exceeds the State’s minimum requirements. The County has adopted more stringent stream buffer standards than are required by the State. In addition, the County has established protected low density rural corridors in several areas. These corridors include the Haw River, New Hope Creek, the Rocky River, the Deep River, the Cape Fear River, the Big Woods area, and the Brooks Creek-Terrell’s Creek area. Within these areas, residential development densities are generally limited to one unit per five acres, and more extensive stream buffers are required.
- The County has complied with State requirements, but in recent years has relaxed some of its water supply watershed protection provisions by rezoning some areas located in close proximity to public drinking water supply sources to allow increased development densities.
- According to the State Division of Water Quality, the quality of water in Jordan Lake, the major water supply source for the County and several other local governments in the region, is considered “threatened”. The 1,690-square mile Jordan Lake watershed is designated as “nutrient sensitive” because high levels of nutrients are creating a natural imbalance and stimulating frequent algal blooms in the lake. These blooms can cause dissolved oxygen levels to drop sharply, and may result in fish kills, and taste, odor, and toxin problems in the lake. These problems are of particular concern in the New Hope arm of the lake. Pittsboro Lake and Rocky River Reservoir are also considered Support-Threatened due to elevated nutrient levels and algal

blooms. Unless proactive management measures are taken, water quality problems in these reservoirs may increase in frequency and severity.

- The majority of the Haw River and Deep River drainage areas are located in the Carolina Slate Belt. The easternmost portion of the County is located in the Triassic Basin. These areas are generally characterized by extremely low groundwater yields, and streams that have very low flows during the summer and fall. Most streams have limited capacity to assimilate pollutants from point or nonpoint sources.
- Although flows in several of the County’s streams are severely limited during drought conditions, the County’s main rivers and man-made water supply reservoirs provide significant reliable quantities of water year-round. Recent completion and planned expansion of public water system facilities within the County will result in increasing dependence on surface water supply sources, such as Jordan Lake. From a water quantity standpoint, the County is projected to have an adequate supply of raw (untreated) water available to meet the County’s water needs for the foreseeable future. The challenge will be how to manage, obtain, and use that water to meet the County’s growing needs in an environmentally, socially, and economically acceptable manner.

Estimated 20-Year Safe Yield of Major Impoundments In Chatham County	
Impoundment	Estimated Yield (MGD)
Jordan Lake (existing allocation)	6.0*
Haw River at Bynum	7.65
Rocky River at Siler City	4.7
Deep River at Goldston-Gulf	2.07

\*Jordan Lake has an estimated water supply yield of 100 mgd; Chatham County has a current allocation of 6 mgd.

- The State has concluded that wastewater discharges into zero flow streams (under 10-year drought conditions) will be required to be removed if a more environmentally sound and economically achievable alternative is available. This policy typically covers small facilities serving schools, mobile home parks, subdivisions, etc. which discharge to zero flow streams in headwater areas.
- The State has also concluded that small discharges in the New Hope River arm and Morgan Creek basin of Jordan Lake should be encouraged to connect to regional facilities as soon as service becomes available. Due to continued violations of water quality standards, no new discharges will be permitted. In the section of the Deep River from Carbondon Dam to the Haw River the assimilative capacity is exhausted and new discharges should not be permitted. In the Rocky River Basin, the Pittsboro and Siler City wastewater treatment facilities should be used to provide services to the lower areas of the watershed, and the numerous small discharging facilities should be encouraged to connect to those systems as soon as possible.

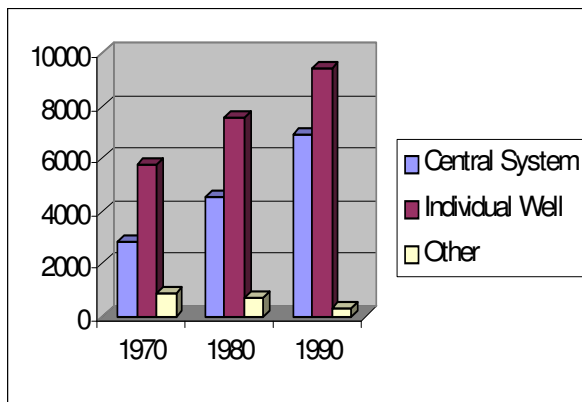


## Ground Water Conditions and Trends

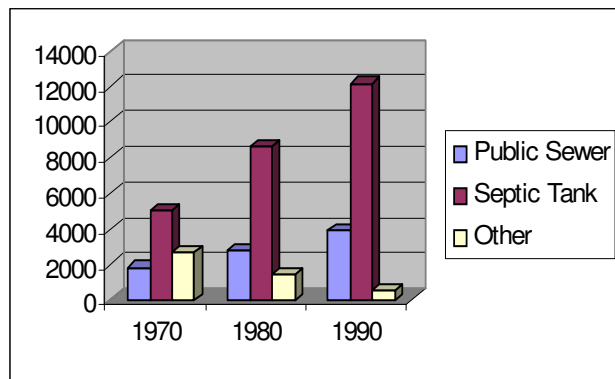
Ground water resources have also been, and will continue to be, very important to the County's quality of life, growth and development, and economic vitality. Several major conditions and trends will affect the County's ability to manage and protect ground water resources in the years ahead:

- Three major factors affect the availability of ground water within Chatham County: underlying geology, topography, and depth of weathered material. Studies have shown that average yields for the geologic types found in the County range from 5 to 8 gallons per minute. In rural areas, home and basic farm needs can be met by groundwater yields of as little as two to five gallons per minute. A well yielding 2 gpm, pumped over a 12 hour period, provides 1,440 gallons per day—more than enough for a typical single family home.
- The U.S. Geological Survey (USGS) has estimated that in the New Hope River subbasin, which lies mostly in the Triassic Basin, the median ground water recharge rate is only about 80 gallons per day per acre. The estimated median recharge rate in the Haw River subbasin is 194 gallons per day per acre. Ground water recharge rates will be reduced as increased impervious surface areas are established.
- According to the USGS, community water systems in the Piedmont region generally have a hydrogeologic limitation because individual community water supply wells can only extract ground water from a limited area of the aquifer. This is because of the fragmented rock structure and the fact that the ground water storage area (“regolith”) is dissected by streams. The USGS has concluded that, in general, many low-yield wells can more effectively extract ground water than a few high-yield wells.
- Ground water is and will continue to be the only source of water available to residents in a large part of the County. The number of individual wells is steadily increasing. Based on the Census of Housing, the estimated number of individual wells in the County increased by more than 45% during the period 1970 to 1990. The Chatham County Health Department reports that this steady increase has continued since 1990. Chatham County has adopted a local well ordinance to govern the installation of new wells.

*The estimated number of Chatham County housing units that use individual wells is steadily increasing. (Source: Census of Housing)*



- The County Health Department does not routinely track problems with wells; however, the Department has reported that some individual and community wells have recently experienced problems with groundwater quality or quantity. The Chatham Subdivision's private community water system required a new well because of groundwater quality problems. The Silk Hope School reported that the groundwater yield of its well dropped from 75 gallons per minute to 6 gallons per minute.
- The number of septic tanks, and the associated discharge of septic tank effluent into the groundwater table, is steadily increasing. Based on the Census of Housing, the estimated number of septic tanks and other on-site systems in the County increased by about a 65% during the period 1970 to 1990- an average of 250 new systems per year. The Chatham County Health Department reports that this trend has continued- but at a faster pace since 1990. In 1994 and 1995, the Health Department issued 512 and 840 new septic system permits, respectively.



*The estimated number of Chatham County housing units that use individual septic tanks is steadily increasing. (Source: Census of Housing)*

- According to soils interpretations, the soils in Chatham County have moderate to severe limitations for septic tank effluent disposal fields. From this, Chatham County can expect an increasing number of septic system malfunctions in the years ahead. The potential for wastewater system failures has significant implications for public health, environmental quality, and public infrastructure planning and finance.
- The regulatory framework applicable to on-site and alternative wastewater treatment and disposal systems has improved in recent years; however, individual homeowners have ultimate responsibility for operation, maintenance, and repair of conventional on-site septic systems.

## Choices for Chatham County

To manage and protect water resources, Chatham County will:

1. Establish sustainable lot sizes, development patterns, and development densities throughout the County;
2. Maintain effective water supply watershed protection measures;
3. Maintain strong water resource protection buffer requirements;
4. Implement a comprehensive plan for assuring long-term viability of water and wastewater systems;
5. Promote more efficient use of water by reducing water use and increasing reuse of reclaimed water;
6. Promote restoration of impaired waters; and
7. Strengthen and build interlocal partnerships applicable to water resources management and protection.

### **Establish sustainable lot sizes, development patterns, and development densities in rural areas**

In rural areas where County water and sewer utility services are not available the County should base lot size requirements and development types and intensities on the long-term ability of the County's ground water resources to support such development. Based on technical information developed to date, the County should amend the County's subdivision regulations to require a minimum lot size of at least 1.5 acres in all areas where County water and sewer utilities, or suitable community-scale water and sewer services, are not available. This will result in greater long-term protection of ground water quality and quantity. The larger minimum lot size requirement will: decrease projected impervious surface areas, thereby reducing potential adverse impacts on ground water recharge rates; reduce the potential volume of wastewater discharges into ground water; and generally result in cumulative demands for ground water that more closely match long-term ground water recharge rates.

The County should consider promoting clustered development patterns and compact neighborhoods that are designed and located to provide greater protection of water resources than conventional development patterns. Properly designed compact development can minimize impervious surfaces and reduce pollutant runoff from a site. Compact development can also result in greater preservation of open space and conservation of natural resources.

The County should also consider requiring a backup well site at a minimum of 25 feet from the original well site. The backup site must also meet the criteria for distances from pollution sources. Where steep slopes coincide with on-site water supply and wastewater systems, wells should be

located upgradient of wastewater systems, and any down-gradient wells should be offset at a 45 degree angle.

Sediment loading during and after development is an increasing water quality problem. Presently, the North Carolina Division of Land Resources administers and enforces sediment and erosion control regulations within the County. However, the Division has limited resources available to implement the program. The County should evaluate the benefits and costs of adopting a county-wide Sediment and Erosion Control Ordinance and implementing a program applicable to residential, commercial and industrial land-disturbing activities greater than 1 acre (or less, if desired) in size.

The County should integrate impervious surface reduction into development policies and regulations. The County should require storm water management measures in new development and redevelopment projects in such a manner that will avoid upstream and downstream flooding impacts, and maximize the control and reduction of pollutant runoff. Consideration should be given to requiring a minimum of 100 percent pre-development to post-development control of the runoff peak rate leaving new development sites.

### **Maintain effective water supply watershed protection measures**

Chatham County should establish and maintain zoning districts and development standards that provide long-term protection of public drinking water supply sources and minimize the potential for adverse impacts on water quality.

Land that is located adjacent to water supply reservoirs, or land that drains into the main channels of streams flowing directly into those reservoirs, should be designated as unsuitable for moderate to high density residential.

In addition to providing larger minimum lot sizes throughout rural areas, Chatham County should continue to zone environmentally sensitive areas at a rural density of 1 unit per 5 acres. The County has established a 2-acre minimum lot size in the University Lake WS-II water supply watershed, as was recommended in the University Lake watershed study and previously in effect.

### **Maintain strong water resource protection buffer requirements**

Riparian area protection is essential to protecting the County's water resources. Furthermore, riparian areas also provide essential habitat for many important plant and animal species. The County should, at a minimum, maintain the strong riparian area protection requirements that are now in effect. The County's measures are among the most comprehensive water resource protection buffer requirements in the State.

## **Implement a comprehensive plan for assuring water and wastewater systems viability**

In cooperation with the State, Chatham County should develop and implement a comprehensive management and inspection plan to assure that all water and wastewater service methods are technically, environmentally and financially viable for the long-term.

The County should consider implementing a program to ensure that buyers of property in the County are fully informed about the water supply and wastewater treatment and disposal systems that are located on their property. The program should include information on best management practices applicable to the operation and maintenance of those systems. The Cooperative Extension Service and other agencies can provide important materials and technical expertise in this effort.

## **Promote more efficient use of water by reducing water use and increasing reuse of reclaimed water**

Conservation of surface water and ground water and the reuse of reclaimed water can provide many important environmental and economic benefits. Examples of benefits are: increased natural flow in surface waters; reduced pollutant loading to surface and ground waters; extended facility capacity to meet customer demands; and reduced fixed capital costs per customer.

Chatham County should actively promote practical, cost-effective water conservation and reuse measures, such as: public education and awareness; land development regulations and incentives; utility pricing and policy; and building code requirements.

In areas where central sewer service is not available, wastewater should be disposed of by land application (surface or subsurface disposal), using governmentally-approved, effectively regulated wastewater management systems.

## **Promote restoration of impaired waters**

The County should work closely with the North Carolina Division of Water Quality (DWQ) to identify impaired waters in the County and the causes of impairment. The County should work with DWQ, the Cooperative Extension Service and other agencies to develop and implement cost-effective and environmentally-effective strategies for restoring impaired waters. The County should aggressively pursue funding for water resource protection and restoration efforts. The North Carolina Clean Water Management Trust Fund is one possible source of major grant funding support for these efforts.

## **Strengthen and build interlocal partnerships applicable to water resources management and protection**

The headwaters of Chatham County's major water resources originate in several surrounding counties. Decisions in those jurisdictions have the potential to affect the County's water resources, just as Chatham County's decisions have the potential to impact water resource conditions in

neighboring jurisdictions. The County should continue to work closely with other local governments if it is to meet its water resources management and protection goals and objectives.

Chatham County has already benefited from several existing interlocal partnerships relating to water resources management and protection. These include water purchase and sale agreements with other local governments, the Triangle Area Water Supply Monitoring Project, and the Region J Mutual Aid Compact for Water Emergencies.

The County should continue to actively encourage and participate in new and existing water resource partnerships, such as the Haw River Assembly, Cape Fear River Assembly, the proposed Upper Cape Fear Dischargers Monitoring Coalition, and the proposed Upper Cape Fear River Basin Association.

# Open Space, Recreation, Historic Assets & Tourism

## Overview

Chatham County is blessed with a rich mixture of natural, recreational and historic assets. Examples include:

- Extensive water bodies such as Jordan Lake and the Haw, Rocky, Cape Fear, and Deep Rivers;
- Scenic roads, including the Devil's Tramping Ground Road Scenic Byway;
- Historic structures and communities, such as Bynum and Silk Hope; and
- High-quality natural areas such as the White Pines preserve and Duke Forest lands.

To preserve these assets, to link them together, to encourage their enjoyment, and to improve recreational opportunities in the county, the *Chatham Plan* supports:

- Establishing a *unified county board* devoted to open space, recreation, historic assets and tourism.
- Creating a county open space, recreation, historic assets and tourism *master plan*.
- Pursuing a county *schools-parks program*.
- Adopting minimum *open space set-aside standards* for conventional subdivisions.

## Major Conditions & Trends

The county has extensive open space, a number of community-based recreation programs, numerous historic sites and several different types of visitor attractions.

### Open Space

The Jordan Lake natural area, a 46,768-acre tract encompassing the lake and land along the shoreline owned by the U.S. Army Corps of Engineers, provides the water supply for several surrounding cities and counties, a recreational outlet for Chatham County residents, flood and water quality control and fish and wildlife conservation. Almost 14,000 acres of water form one of the major attractions for the Jordan Lake State Recreation Area. The Lake and its shoreline are guided by a General Management Plan.

An inventory of the County’s natural areas and wildlife habitats was completed in 1990. Forty significant natural areas were identified within the County. Twenty-three of these sites contain one or more elements listed by the N.C. Natural Heritage Program. Twelve of the 40 sites are terrestrial and the remaining twenty-eight contain significant aquatic habitats and associated wetlands.

Most of these sites remain unprotected from developmental pressures. Four of the forty sites are registered as State Natural Areas by the Corps. Two privately owned tracts are also given protection as natural areas: (1) the White Pine Natural area (258 acres owned by the Triangle Land Conservancy); and (2) the Donnelly Hardpan Bog (owned by the Nature Conservancy).

The Duke Forest lands along the banks of the Haw River have some degree of protection as a natural area. The Duke Forest is used in conjunction with the forestry curriculum at Duke University.

In addition to the White Pines, the Triangle Land Conservancy controls five other tracts of land in Chatham County for a total of 1,107 acres of protected land. The other sites are as follows:: (1) Chanlett Tract (George’s Creek), a 37 acre wooded tract along the Deep River which will eventually form a part of a conservation corridor along the river; (2)Pace’s Mill a 179-acre easement that protects a one-mile wildlife corridor along the Haw River and Dry Creek, (3) Johnson Homestead (Von Gruenigen Farm) an easement on a 320 acre farm southwest of Siler City,(4) McIver Landing , a five acre river access to the Deep River near Gulf (5) LaGrange Riparian Reserve, a 308 acre tract along approximately two miles of the Deep River. The Conservancy is also working to protect additional land along the Deep Rive

## Recreation

Programs run by Chatham County, Siler City, and Goldston provide public recreation activities for the residents of Chatham County. The County effort is achieved by working with volunteer groups and individual communities that request assistance to provide recreational activities. Groups typically charge a participation fee to recoup costs.

A comparison of county recreation budgets for rural counties of roughly the same size as Chatham County found that Chatham County spent about one-third of what the typical county spent on recreation:

County	Population	Recreation Budget	Budget per Resident
Chatham	44,380	\$ 149,500	\$ 3.37
Davie	30,590	\$ 413,000	\$13.50
Granville	41,921	\$ 430,000	\$10.26
Lee	47,402	\$1,185,800	\$25.02
Stokes	42,222	\$ 111,800	\$ 2.65
Vance	40,621	\$ 890,000	\$21.91
Yadkin	34,437	\$ 203,000	\$ 5.84
<b>Median</b>			<b>\$ 9.51</b>

Siler City supports its efforts by providing facilities such as parks and playgrounds and by charging a fees to recoup costs for particular activities.



The County makes use of the Community Schools Act (G.S.115.73), which enables it to work with existing and proposed school sites to provide recreational services to the general public. Utilizing this program, the Chatham County Recreation Department helps oversee a wide range of indoor and outdoor sports at a number of schools and other areas throughout the county.

In conjunction with a master recreation plan, the County set aside \$30,000 for FY'96-'97 to be used for grant money for volunteer and community groups. Funded communities or groups use funds for a variety of programs such as soccer, softball and basketball.

In Goldston, the tax base is used to support the recreational program. In FY'96-'97, approximately \$17,000 was budgeted for recreation. The program, run by a volunteer director, periodically has fund raising drives at many of its functions.

An active Rails-to-Trail effort within Chatham County has concentrated on abandoned rail beds, including the regional American Tobacco Trail, a Moncure to Pittsboro trail and a Gulf to Cumnock trail.

Several designated bicycle trails criss-cross the county -- including portions of two state bike routes - - by following existing roads.

A number of grassroots citizen organizations, including the Haw River Assembly, the Rocky River Association, and the Deep River Park Association, promote open space conservation, natural resource protection and recreational use. These three groups have developed a river map depicting such features as historic sites, canoe access points and walking trails.

The County's subdivision regulations specify that a developer may be required to provide land for public recreation or funds to the county to acquire recreation land, based on a formula approved by the County, but this provision is under Board consideration. Few subdivisions have community recreation space.

## **Historic Assets and Tourism**

Beginning in the early 1980's, and building upon prior historic architectural studies, a comprehensive inventory of Chatham County's historic assets began. One hundred ten sites were recorded in Pittsboro; ten of them were listed in the National Register (NR). A total of 545 additional historic sites were recorded. Including the area around Pittsboro, there are now forty-one sites counted on the National Register.

The 1997 General Assembly voted to provide new state tax credits for historic rehabilitation projects. Homeowners and owners of other non-income producing buildings are eligible for a thirty percent state income tax credit on rehabilitation costs of at least \$25,000. Income producing property is eligible for a twenty percent state credit, in addition to existing federal credits.

Several local organizations are involved in promoting historic assets and tourism and visitor-related activities:

- **The United Chamber of Commerce in Siler City** which has taken an active role in promoting both the arts and the agricultural heritage of the County.

- **The Chatham County Arts Council** - has worked to link “the arts” with Chatham County. Efforts include an Open Studio Tour and an Arts and Cultural Resources Directory.
- **The Chatham County Travel and Tourism Board**, an advisory board to the Board of County Commissioners, has worked to promote eco-tourism, historical tourism, and cultural tourism.
- **Black Historical Society of Chatham County.** Co-sponsored by the Chatham County Arts Council, and founded in late 1996, the Society is developing an African-American oral history, among other activities.
- **Chatham County Historical Association.** Committed to maintaining the historical heritage of the County, the Association has undertaken a number of projects, including efforts to save the Bynum Bridge and inventory historic cemeteries.
- **Colonel John Randolph Lane Camp Sons of Confederate Veterans.** Originally the organization provided welfare for those who served the Confederate States of America. Today the Lane Camp provides memorial services, cemetery repair and restoration, living history interpretations, and historical information about the War Between the States in Chatham County.

## Choices for Chatham County

Chatham County will:

- Establish a *unified county board* devoted to open space, recreation, historic assets and tourism.
- Create a county open space, recreation, historic assets and tourism *master plan*.
- Pursue a county *schools-parks program*.
- *Adopt minimum* open space set-aside standards *for conventional subdivisions*.

### **Establish a unified county board devoted to open space, recreation, historic assets and tourism.**

Chatham County has a large land area, a relatively small population, and limited resources relative to more urbanized counties. In order to marshal the resources, citizen support, and staff assistance needed to achieve success, combining approaches to these different, but related, issues into a single, coordinated effort may be needed.

Such a unified board should include a diverse membership encompassing the school system, non-profit groups involved in open space and historic preservation and businesses involved in travel and tourism.

In addition to drawing membership from a wide range of sources, the unified board should involve the county's municipalities and existing community groups in its efforts.

The board should be charged with the following responsibilities:

- ❖ Coordinating schools-parks planning with the school system
- ❖ Developing greenway protection measures
- ❖ Encouraging rail-trail development strategies
- ❖ Protecting natural and historic inventory sites
- ❖ Overseeing heritage and natural area tourism promotion

Combining efforts in order to share resources, staff, volunteers and community support can result in an effective approach to open space, recreation, historic assets and tourism in the county.

### **Pursue a schools-parks program**

Once Chatham county has established an institutional structure to effectively plan for and manage parks and open space properties, the county should pursue a cost-effective schools-parks program based on four strategies:

- Sponsor presentations from and site visits to counties with established schools-parks programs
- Develop a procedure for the joint siting of new schools and parks
- Examine the potential for adding park and recreation facilities at existing school sites
- Create cooperative recreational programs, including after-school and summer programs

The county's recreation master plan should clearly articulate the goals of a schools/parks program and provide a detailed examination of the logistics involved in undertaking such a program.

### **Create a county open space, recreation, historic assets & tourism master plan**

A master plan can provide the specific guidance needed to inventory, link, finance and manage natural, historic and cultural assets. The master plan should focus on the following components:

- School-parks
- A river corridor greenway network along the Haw, Deep and Rocky Rivers
- A railroad corridor trail network emphasizing the American Tobacco Trail, a Deep River Rail-Trail from Gulf to Cumnock and a Pittsboro-Moncure Rail Trail
- Preserving sites in the county's natural and historic inventories
- Identifying potential links between:
  - ❖ the school parks
  - ❖ the river corridors
  - ❖ the rail-trail corridors
  - ❖ existing federal and state open space

- ❖ existing non-profit open space (Triangle Land Conservancy and others) and
- ❖ sites in the county's natural and historic inventories

The county recreation plan that is under development can serve as an initial component of a broader open space, recreation, historic assets and tourism master plan.

## **Adopt minimum open space set-aside standards for all new conventional residential developments**

The rural character policy objectives discusses various forms of residential development within rural areas. The mitigated conventional subdivision option should include the reservation or dedication of land for recreational use by residents of the subdivision.

The county should undertake a three-part strategy leading to open space set-asides as allowed in the current subdivision ordinance:

- After a review of standards in similar jurisdictions, establish a minimum acreage standard for recreation and open space in conventional subdivisions.
- Examine mandatory dedication vs. possibility for payment in lieu of dedication
- Establish appropriate management requirements

Adopting minimum standards will ensure that each type of residential development has some measure of open space:

- Large lot development will ensure some *natural* open space on each parcel;
- Cluster development will have *neighborhood* open space on a significant portion of the development site; and
- Mitigated conventional development will have a small amount of *neighborhood* open space plus will contribute to *community* open space through mitigation funding.

An important issue in creating neighborhood recreation and open space is whether the land should be dedicated or reserved. The former involves dedication of private property to public use, whereas the latter limits the right to use the open space to residents of the subdivision and their guests.

A reservation would normally commit a Homeowners' Associations (HOAs) to acquire title to the tract and assume the responsibility for upkeep. North Carolina law does not recognize the right of a non-homeowner (trespasser) to file a suit against the HOA should such a person be injured while trespassing on the property. HOAs typically carry liability insurance to protect them from a variety of possible claims, including should a homeowner be injured while using common recreational space.

If dedication is preferred, it must be available to serve the residents of the neighborhood. Counties may pursue fees in-lieu of dedication in an effort to combine payments from several subdivisions to purchase a larger, centrally located property to serve all contributing subdivisions.

## **Open Space as a component of rural character**

In addition to the open space issues addressed in this chapter, open space issues related to preserving rural character are addressed under the rural character policy objective.

# Infrastructure

Infrastructure is the public capital facilities that support the creation and maintenance of successful communities.

This chapter addresses some of the major infrastructure components that will be crucial to fulfilling the county's vision:

- Schools that are integral parts of Chatham County communities and that are easily accessible to the county's citizens.
- A transportation system that supports the different kinds of places described in the community plan map and that provides a range of travel choices for Chatham County residents.
- Water and wastewater services appropriate to different kinds of communities and that protect Chatham County's natural environment.

Parks and open space, the county's green infrastructure, is addressed as part of the policy objective on *Open Space, Recreation, Historic Assets and Tourism*.

# Schools

## Overview

To maintain community-oriented schools and to ensure that cost-effective, high-quality facilities are available as growth occurs, the Chatham Plan supports:

- Locating schools as an integral part of neighborhoods to the extent possible and encouraging new residential development near schools.
- Siting schools based on good road access, utility availability, and safety considerations.
- Use impact fees or impact taxes on new development to help fund new school facilities.
- Pursuing joint school/community facilities.

## Major Conditions and Trends

Chatham County has three high schools and twelve elementary and middle schools with a rated capacity to serve 8,600 students. 1997-1998 membership was about 6,700 students. Three schools were operating above their rated capacity and five schools were using mobile classrooms. Projections of future membership vary: the school system capital projects plan anticipate membership to grow to more than 7,200 students by 2002-2003 while the 1996 public school impact fee report projected 9,500 students by 2005.

The Chatham School System has a capital projects plan for the years 1997-98 through 2003-04 for new construction, renovations, maintenance/repairs and technology that totals nearly \$69 million. Current bond funds total \$7.4 million.

### *Chatham County Public Schools 2001-2002*

School	Grades	Rated Capacity	Membership
Bennett	K-8	257	248
Bonlee*	K-8	400	484
J.S. Waters	K-8	468	319
Chatham Central*	9-12	693	386
Alternative	8-12	135	51
Chatham Middle	5-8	522	536
Siler City*	K-4	630	612
Silk Hope*	K-8	400	518
Jordan-Matthews	9-12	765	565
Horton Middle	5-8	749	431
Pittsboro*	K-4	702	494
Moncure	K-8	328	257
North Chatham*	K-8	608	642
Northwood	9-12	945	900
Harrison	K-8	632	603

\* uses mobile classrooms.

## **Choices for Chatham**

Four principles should guide school infrastructure in the land conservation and development plan:

- Locate schools as an integral part of neighborhoods and encourage new residential development near schools.
- Site schools based on good road access, utility availability, and safety considerations.
- Use impact fees, impact taxes, etc. on new development to help fund new school facilities.
- Pursue joint school/community facilities.

### **Locate schools as an integral part of neighborhoods and encourage new residential development near schools.**

Historically, schools have been located in prominent locations within communities, providing both easy access for many citizens and serving as centers of community life.

In more recent times, schools have often been located on more remote sites where land is less expensive.

Chatham County should work with the school system on strategies that result in the siting of new schools in locations where more concentrated development is proposed, such as the towns and compact community corridors discussed earlier in the plan.

Better integrated school and community planning may be particularly important in potentially fast growing areas in the county, such as in the US 15-501 corridor north of Pittsboro and east of Jordan Lake near Cary.

As part of this strategy, the county should work closely with developers to reserve land for school sites in cost-effective locations. The county should explore requiring dedication of land for new schools in designated compact communities as part of receiving the density bonus that the compact community designation constitutes. In addition, the county should work with developers to promote residential neighborhoods adjacent to school sites that provide good pedestrian and bicycle access to the school for children.

### **Site schools based on good road access, utility availability, and safety considerations.**

Siting schools as integral parts of new and existing communities can also ensure that schools have good road access and access to utilities such as water and wastewater service.



## **Consider impact fees or impact taxes on new development to help fund new school facilities.**

Although new residential development adds to the tax base, it can not meet the up-front capital costs needed to provide school facilities to serve new homes.

Many communities, including several of Chatham County's neighbors, use impact or facility fees to help meet the demand for new school construction.

A 1996 study prepared for the county indicated that impact fees of up to \$3,500 for single-family homes and \$1,100 for apartments could be justified based on cost and revenue factors.

The county should continue to evaluate the use of impact fees or impact taxes (which link revenues to the value of new construction) to ensure that high-quality school facilities are available as growth occurs.

## **Pursue joint school/community facilities.**

The *Open Space, Recreation, Historic Assets and Tourism* section of this plan recommends a schools-parks program for the county. The county may also consider other community facilities linked to schools, such as libraries or community centers, so that schools and related facilities can continue to serve as centers of community life.

The county's recreation master plan should clearly articulate the goals of a schools/parks program and provide a detailed examination of the logistics involved in undertaking such a program.

# **Transportation**

## **Overview**

To provide a balanced transportation system in the county, The Chatham Plan supports:

- Completion of the current highway construction program in the county
- A complete and detailed analysis of any additional proposed major roads and road widenings
- Planning for transit service along major corridors as a complement to the development patterns proposed in the plan
- Appropriate roadway design, including transit, pedestrian and bicycle facilities

Like other infrastructure elements such as water and sewer service, the transportation system should be designed to match the different development patterns proposed in this plan: the existing towns, designated economic centers, compact communities, and rural areas and crossroads communities.

The transportation system should also minimize negative impacts on places that should be preserved, including existing communities and conservation areas.

## Major Conditions & Trends

Three major issues will help define the Chatham County transport system of the 21<sup>st</sup> Century:

- The county will be knit together with 4-lane highways.
- Roadway design standards will influence community character.
- The pattern of development over the next several years could make transit service feasible in parts of the county.

### **The county will be knit together with 4-lane highways.**

Most major roads in Chatham County are currently being widened to four lanes or are scheduled for widening, including:

- US 64, including a bypass around Pittsboro
- US 15-501 from the US 64 bypass north to Orange County
- US 1
- US 421

Once these projects are completed, most residents will be within a few miles of a 4-lane road.

With the completion of these projects, the Chatham County Thoroughfare Plan study report issued by the N.C. Department of Transportation estimates that only two road segments will exceed their capacities by the Year 2020: US 15-501 south of Pittsboro and a portion of Manns Chapel Road adjacent to US 15-501 in Northern Chatham County.

### **Roadway design standards will influence community character.**

How the roadway network is designed, and what type of companion pedestrian and bicycle features are provided, can influence travel capacity, safety and cost. Roadway design can also affect the relative attractive-ness of communities and the ability of people to use modes other than the car for travel.

Traditional roadway design emphasizes funneling traffic along a hierarchy of roads from local roads to collectors to arterials to thoroughfares, each successively carrying more traffic with higher design speeds. Evolving roadway design practices suggest that a network of interconnected lower-speed roads may be appropriate in many situations.

Both roadway capacity and fuel efficiency are maximized at moderate speeds, about 35 mph. And lower speeds are significantly safer; a pedestrian has a 95% chance of surviving a traffic accident at 20 mph, 60% at 30 mph, and only 10% at 40 mph.

Lower design speeds can allow for less pavement width, less right-of-way and less grading, resulting in cost savings.

Interconnected, low-speed roads allow for street-trees along the roadway and provide safer, more direct routes for cyclists.

Lower speeds can have minimal travel time impacts. Over a distance of four miles, traveling 45 mph saves only 2.7 minutes compared to traveling 30 mph.

By a wide margin, residents find traffic moving through their neighborhoods at 20 mph "acceptable"; by an equally wide margin, they find traffic at 30 mph unacceptable.

## **The pattern of development over the next several years could make transit service feasible in parts of the county.**

A series of compact communities spaced along major transportation corridors, as described earlier in the plan, combined with park and ride lots, could supply enough riders to make bus transit service feasible. Residential densities of seven units per acre in the vicinity of transit stops would likely be the minimum needed to support bus transit service.

This development pattern already exists in and near the US 15-501 corridor in the Camden Park section of Fearrington Village and part of the Governors Village development, indicating that the market for transit-supportive development exists in the county.

Feasibility will depend in part on the willingness of the county to help pay for service.

In the short term, the US 15-501 corridor between Pittsboro and the Orange County line could be a candidate for transit service. Existing transit service serves the corridor in Orange County and parking in Chapel Hill, a major destination in the corridor, can be inconvenient and costly.

Over the longer term, other corridors might be candidates for transit service. The US 64 corridor towards Raleigh and the Research Triangle Park may become a candidate for express bus or scheduled vanpool service.

If the Triangle Transit Authority implements its long-term plan to provide rail service to Apex, an additional extension to serve the Moncure area and potentially Pittsboro could be examined.

## **Choices for Chatham**

The future transportation system for Chatham County should be based on four principles:

1. Completion of the current highway construction program in the county
2. A complete and detailed analysis of any additional proposed major roads and road widenings
3. Planning for transit service along major corridors as development occurs
4. Appropriate roadway design, including pedestrian and bicycle facilities

## **Complete the current highway construction program in the county**

The county will continue to support the completion of the current highway construction program in the county, resulting in 4-lane highways for US 64, US 15-501 between Pittsboro and the Orange County line, US 1 and US 421.

## **Undertake a complete and detailed analysis of any additional proposed major roads and road widenings**

The county will support other new road segments or road widenings only if a complete and detailed analysis indicates that road changes are warranted and that impacts to existing communities and the natural environment are acceptable.

In the part of Chatham County within the Durham-Chapel Hill-Carrboro Metropolitan Planning Organization area, any additional changes should await completion of the ongoing comprehensive transportation plan. No new northern connector road should link Jack Bennett Road to Farrington Road unless it is included in this regional comprehensive transportation plan.

The regional comprehensive transportation plan should designate NC 751 as the only major north-south route to carry traffic on the east side of Jordan Lake.

## **Plan for transit service along major corridors as a complement to the development patterns proposed in the plan**

The county will periodically review the costs of transit service provision as development occurs. The initial focus will be in the US 15-501 corridor. The review will include both the potential for county-provided service and the potential for contracting for service from an existing public or private sector carrier. Another alternative is a self-supporting private service.

The county will also incorporate planning for future transit service as part of the development of compact communities. Planning will include identifying locations and the design of potential transit stops and park and ride lots.

## **Pursue appropriate roadway design and standards, including transit, pedestrian and bicycle facilities**

The county will review its road standards and revise them if necessary to ensure that the standards are the best match for the different types of development proposed in this plan.

Revised road standards, including consideration of transit, pedestrian and bicycle features, will be especially important for the success of compact communities.

The review will address:

- Street connectivity, including the number and length of cul-de-sacs, block lengths, the spacing of through streets, and multiple connections to developments
- Design speeds for local streets, collectors and arterials
- Traffic calming measures
- Pavement width and parking policies
- Sidewalks, bike lanes and bike paths
- Transit-oriented design features

The review should include working with the North Carolina Department of Transportation to revise state subdivision road standards.

# Water and Wastewater Infrastructure

## Overview

Water and sewer infrastructure and services are essential to the growth and development of Chatham County. As the population and economy of the County grow, it is essential that each new home, business, industry, and public facility have available adequate, reliable, economical and sustainable methods of water supply and wastewater disposal. Accordingly, the capacity, quality and long-term management of water and wastewater infrastructure within the County are considered key components of the County’s strategy to protect public health and safety, environmental quality, and economic vitality.

The types and capacities of water supply and wastewater treatment facilities are major determinants of the location and intensity of development within Chatham County. The water and wastewater service and facility choices that are made today will have a significant impact on land development patterns, land economics, efficiency, quality and long-term viability of service, and environmental quality of the County. Conversely, the land development patterns that the County chooses will have a significant impact on the methods and economics for meeting water and wastewater service needs now and for the foreseeable future.

To promote water supply and wastewater infrastructure that is consistent with the County’s land use, economic development and environmental objectives, the *Chatham Plan* supports:

- Providing public water and/or wastewater utility services to designated high density growth areas and other areas that can be practically and efficiently served by public utilities;
- Restricting or prohibiting the extension of public water and/or wastewater service to areas designated for low density growth, except where such utility extensions will enhance rural character and provide for open space and water resource protection by allowing clustered development;
- Establishing a cooperative, comprehensive water and wastewater infrastructure and services planning framework for all public and private water and wastewater service providers within the County;

- Establishing a comprehensive management framework to assure environmental and economic sustainability of water supply and wastewater treatment and disposal technologies used in the County; and
- Promoting more efficient use of water resources by reducing water use and increasing reuse of reclaimed water.

## Major Conditions and Trends

Historically, the County has relied on a number of different water and wastewater infrastructure arrangements and technologies to meet growing water and wastewater service demands. As of 1990, only about 23% of the households in Chatham County receive public sewer service, and about 41% receive water service from a public or private water company. These percentages have increased slowly since 1970, and are far below those for other counties in the Research Triangle region (67% overall for public sewer service, and 74% for public or private company water service in Region J).

### Water System Infrastructure

- As of 1996, there were 6 local government-owned water systems in Chatham County. Together these public systems serve an estimated 17,200 people through nearly 7,000 service connections. The estimated capacities and average day water demands for these systems are shown in the following table.
- Water demands in the Town of Pittsboro, Town of Siler City, and Goldston-Gulf service areas have grown slowly since 1970. Unallocated treatment capacity is currently available at the Siler City and Pittsboro water plants; however, new or expanded treatment plant capacity will be required to accommodate substantial population and economic growth in the areas served by these facilities. Siler City has identified the need to expand its raw water supply and water treatment plant capacity. The Goldston-Gulf water plant requires major near-term rehabilitation or replacement.

<i>1998 data</i>	Maximum	
Water System	Capacity (MGD)	Demand (MGD)
Chatham County- SE	0.3	0.11
Chatham County- North	3.0	1.55
Chatham County- SW	0.46	0.37
Goldston-Gulf SD	0.5	0.26
Pittsboro	2.0	1.12
Siler City	4.0	3.5

- Chatham County serves the Southeast system with water purchased from Sanford. The County serves the Southwest system with water purchases from Siler City and limited additional

purchases from Goldston-Gulf. The supplying systems are either limited in their ability to accommodate future growth, produce water of marginal quality, or charge high bulk water rates.

- Reserve capacity is available at Chatham County’s 3.0 mgd Water Treatment Plant at Jordan Lake. This plant supplies water to the County’s North system. The amount of water that can be pumped to the County’s water plant is presently constrained due to pump capacity limitations at the Cary water intake.

Chatham County currently holds a 6.0 mgd allocation of Jordan Lake water supply, and has applied for an additional 7 mgd allocation. The allocation request was based on average daily water demand projections through the year 2015, assuming that the County will eventually provide water service to 75% of the County’s residents and that per capita water demands will increase as additional industrial development occurs. The County’s request is pending before the North Carolina Environmental Management Commission.

- Chatham County has installed extensive water distribution mains serving the County’s Southeast, Southwest and North water system service areas. These mains have been built to address water quality and water quantity problems, to protect public health, to serve essential public facilities, and to promote economic development. Extensive water distribution system upgrades and improvements will be needed to support significant additional growth in these areas.
- Based on information and analyses available, groundwater is not considered a feasible short-term or long-term public water supply source. However, groundwater will continue to be essential in low density rural areas of the County.
- There are 16 privately-owned community water systems in the County. These systems serve a total of about 3,000 residents through nearly 800 service connections. Each of these systems depends solely on groundwater as a source of supply. The number of privately-owned water systems in the County has not changed since 1975; however, the number of service connections has increased by about 22% since 1975.
- As of 1990, the County’s remaining residents were served by about 9,700 individual wells (Census of Housing).

## Sewer System Infrastructure

- There are three publicly-owned wastewater treatment plants in the County. The estimated capacities and average day flows (for calendar year 1996) for these facilities are shown in the following table.

Facility	Capacity (MGD)	Demand (MGD)
Bynum WWTP	0.025	0.018
Pittsboro WWTP	0.75	0.36
Siler City WWTP	4.0	2.454

- In the past, flows at these publicly-owned wastewater treatment plants have increased at a slow rate, and some unallocated treatment capacity is available at each of these facilities. However, new or expanded treatment plant capacity, and associated expansions of wastewater collection systems, will be required to accommodate substantial population and economic growth in the areas served by these facilities.
- In 1994, the Chatham County Board of Commissioners retained a private consultant to investigate the feasibility of providing public wastewater collection and treatment services within Chatham County. A Preliminary Draft report evaluated the feasibility of providing sewer service to the existing, more densely populated areas of the County. The Board of County Commissioners did not accept the document as a valid sewer feasibility study report for use by the County; however, from that report, it is clear that the future provision of conventional wastewater management by the County would be a complex and expensive task.
- There are several privately-owned wastewater treatment facilities that discharge treated effluent into the surface waters of the County. The capacities and average day flows at these facilities are summarized in the following table.

Facility	Capacity (mgd)	Flow (mgd)
Carolina Meadows WWTP	0.18	0.1
Cole Park Plaza WWTP	0.015	0.006
Ferrington Village WWTP	0.27	0.1
Nature Trails WWTP	0.04	0.023

- The Carolina Meadows and Ferrington Village facilities have recently been expanded. However, further expansion of these privately-owned discharging facilities is not expected to be feasible, given the findings and recommendations included in the Cape Fear River Basinwide Water Quality Management Plan.
- In addition to these privately-owned discharging facilities, there are 57 spray irrigation facilities located in the County. The largest of these systems serves the Governors Club development. It has a capacity of 0.1 mgd and flows of about 0.025 mgd.
- As of 1990, the County's remaining residents were served by an estimated 12,700 individual septic systems. Like all other counties in the State, Chatham County does not yet have a comprehensive management program in place to assure long-term reliability of most of these systems.
- As more people and businesses locate in the low density areas of the County, the use of land marginally suited for subsurface wastewater disposal will increase. This could increase the potential for inadequately performing systems in the future.

## Water and Sewer Infrastructure Financing

- Federal and state funding support for local water and sewer infrastructure projects has decreased dramatically during the last two decades. Although Chatham County has successfully pursued



funding assistance for water system development, the County and its municipalities must now bear the major burden of funding such improvements. This comes at a time when water and sewer facility construction, operation and maintenance costs are increasing steadily.

- As of 1996, Chatham County's monthly water charges for a typical single family residential customer (using 6,000 gallons of water per month) were the highest reported in the six-county Region J area. Chatham County's water utility rates were raised and restructured to an increasing block rate effective January 1999. This was done to shift more of the burden of capital and operating costs to the County's water customers and to provide financial incentives for conservation of water resources.

## Choices for Chatham County

The *Chatham Plan* supports 6 major principles relating to the water and sewer infrastructure and services:

1. Provide public water and/or wastewater utility services to designated high density growth areas and other areas that can be practically and efficiently served by public utilities;
2. Restrict or prohibit the extension of public water and/or wastewater service to areas designated low density growth areas, except where such utility extensions will enhance rural character and provide for open space and water resource protection by allowing clustered development;
3. Establish a cooperative, comprehensive water supply and wastewater management planning framework for all public and private water and wastewater service providers within the County. Such a framework should also include provisions for continuing coordination with public water and wastewater utilities located in nearby jurisdictions;
4. Establish a comprehensive management framework to environmental and economic sustainability of water supply and wastewater treatment and disposal technologies used in the County; and
5. Promote more efficient use of water resources by reducing water use and increasing reuse of reclaimed water.
6. Agree only to establish community water and/or wastewater systems which apply technology previously approved by State authorities, whose facilities and operating programs are approved by the State, and whose operations are effectively monitored by the State and/or local government officials, as appropriate. No such systems should be established or operated in "Natural Conservation" or "Rural Protection" areas. The County should make no commitment, explicit or implied, to assume responsibility for ownership and/or operation of any such community water and/or wastewater system in the event that private owners of such systems fail to fulfill their service responsibilities and/or regulatory requirements.

**Provide public water and/or wastewater utility services to designated high density growth areas and other areas that can be practically and efficiently served by public utilities**

The County should: (a) direct future high density development to those areas that can be efficiently served by existing and planned public water and wastewater systems; (b) promote the provision of public water and wastewater facilities and services to those areas which contain and are appropriate for higher densities of residential, commercial, and industrial development; and (c) establish higher density zones within some areas of the County in order to make the development and provision of central wastewater service economically feasible in and around those areas.

Public water and wastewater services should be allowed in areas designated as “Towns,” “Compact Community Corridors,” and “Economic Development Centers.”

**Restrict or prohibit the extension of public water and/or wastewater service to areas designated low density growth areas, except where such utility extensions will enhance rural character and provide for open space and water resource protection by allowing clustered development**

The County should discourage moderate and high density development of land which is not contiguous to existing developed areas and which would require significant extensions of public water and/or sewer lines across undeveloped tracts. The County should prohibit or restrict the extension of public water and wastewater services to areas designated for low density development, including the “Natural Conservation Areas,” “Rural Resource Protection Areas,” and “Agricultural and Rural Development Areas.”

However, the County should allow carefully controlled utility services to support well-planned compact development located outside of the urbanized portions of the County.

On-site disposal should be encouraged in low-density and rural areas where soil conditions are acceptable.

The County should continue its present policy that states that the availability of public water should not be accepted as justification for changing or granting exceptions to land uses prescribed in the development plan in any instance where more intensive uses of a tract of land are precluded by factors other than the availability of water.

**Establish a cooperative, comprehensive water and wastewater infrastructure and services planning framework for all public and private water and wastewater service providers within the County**

In cooperation with other public and private water and wastewater service providers in Chatham County, the County should develop and implement an ongoing cooperative planning process to promote timely, economical, and environmentally compatible water and wastewater facilities and services to support the land use plans and policies of all jurisdictions in the County. Participants in

this effort should establish mutually agreeable service area boundaries, uniform planning horizons, and uniform and consistent approaches for forecasting service demands.

This cooperative effort should also include development of a County-wide water *and* wastewater service and facilities plan. The plan would include a compilation and integration of local plans and would identify: (a) potential conflicts and inconsistencies in local plans; (b) strategies for resolving those inconsistencies; and (c) potential opportunities for cooperative interlocal approaches to meeting future facility and/or service needs.

Participants in this cooperative planning effort should work closely with appropriate State agencies to proactively identify State policies and regulations that may constrain future infrastructure choices within Chatham County.

The County should continue its proactive efforts to interconnect public water systems to protect public health and safety, improve operational reliability, provide more economical service, and achieve other benefits.

### **Establish a comprehensive management framework to assure environmental and economic sustainability of water supply and wastewater treatment and disposal technologies used in the County.**

(Please see related recommendations in “Water Resources” section.)

“Decentralized” water and wastewater systems (on-site, cluster, or small-scale community systems) can be a cost-effective and long-term option for meeting service needs, public health, and environmental goals. To be sustainable, such systems must be properly managed. Chatham County should evaluate the benefits and costs of establishing a management program to assure that decentralized systems are sited, designed, installed, operated, maintained, and financed properly and that they continue to meet public health and environmental quality standards.

Such a management program could include, but not be limited to: (a) more rigorous inspection and monitoring requirements for on-site and alternative water supply and wastewater disposal systems; (b) local bonding requirements for such systems; and (c) provisions for mutually beneficial transfer of such systems to existing public water and wastewater utilities; and (d) establishing special management districts to complement the County’s land use plan.

The Cooperative Extension Service, Institute of Government, and other agencies can provide information and assistance in this effort.

The use of alternative wastewater treatment systems should be allowed consistent with local, State, and Federal laws and regulations only in the following situations:

- On land unsuitable for conventional on-site sewage disposal systems and which is not served, or expected to be served, by public sewer; or
- On land suitable for conventional on-site sewage disposal systems and which is not served, or expected to be served, by public sewer but where, through the clustering of dwelling units, open

space is preserved for providing recreation areas and/or for scenic, environmental, and agricultural protection purposes.

The type of sewage disposal facilities appropriate for an area should be identified as a function of the magnitude of present and future demand; the distribution of users; the present and potential availability of public utility services; and the capacity of the natural environment to absorb the impact.

### **Promote more efficient use of water resources by reducing water use and by increasing reuse of reclaimed water**

The County should assure that the water supplies available within the County are managed so that available resources are balanced with existing and projected needs and environmental protection goals.

The County should protect water resources and attempt to optimize capacity-related capital requirements by promoting the efficient use of water resources, reuse of reclaimed water, and managing demands for service.

The County should consider the benefits and costs of establishing an incentives based program to promote water use efficiency and reuse of water resources throughout the County.

The County should maintain a utility rate structure that provides incentives for cost-effective use of facilities and conservation and efficient use and reuse of water resources. The County should consider modifying local development regulations to require installation of dual water systems and reuse systems, where feasible.