8.0 LAND USE AND DEVELOPMENT

8.1 OVERVIEW

Existing land use in Chapel Hill is shown on Figure 10. The current land use pattern is characterized by an identifiable "center" consisting of the downtown, adjacent traditional neighborhoods, and the University of North Carolina at Chapel Hill (UNC) campus; predominantly lower density residential areas to the north, east, and south; and commercial uses located along major roadway corridors, primarily US 15-501 and East Franklin Street north of Estes Drive. Low-density residential development is the primary land use, comprising approximately 48 percent of the land within the Urban Services Area. The next largest use is institutional (mostly land owned by UNC), at 20 percent of the Urban Services Area. Privately-owned commercial, office, and mixed-use areas combined total less than 10 percent of the Urban Services Area.

With the recent development of Southern Village and planned development of Meadowmont as mixed-use communities, Chapel Hill is a maturing community that is approaching build-out. Approximately 10 percent (1,732 acres) of the Urban Services Area (excluding committed developments and land owned by UNC) is either undeveloped or developed at very low density (one unit per three or more acres). Less than four percent of land within the current Town limits is privately owned and undeveloped.[1]

Regardless of the scarcity of undeveloped land, development pressures in Chapel Hill will likely continue due to strong population growth in the region, the Town's attractiveness as a place to live, and the projected expansion of UNC. As a result, the focus of land use planning will shift from new development to managing infill and redevelopment of underutilized or previously developed properties. Areas in transition, such as older commercial corridors and neighborhoods experiencing

[1] The area within the Town's corporate limits is 12,705 acres or 19.9 square miles. An additional 4,124 acres is located within the Urban Services Area outside of the corporate limits.

change, will be especially susceptible (see Chapter 3.0, Community Character).

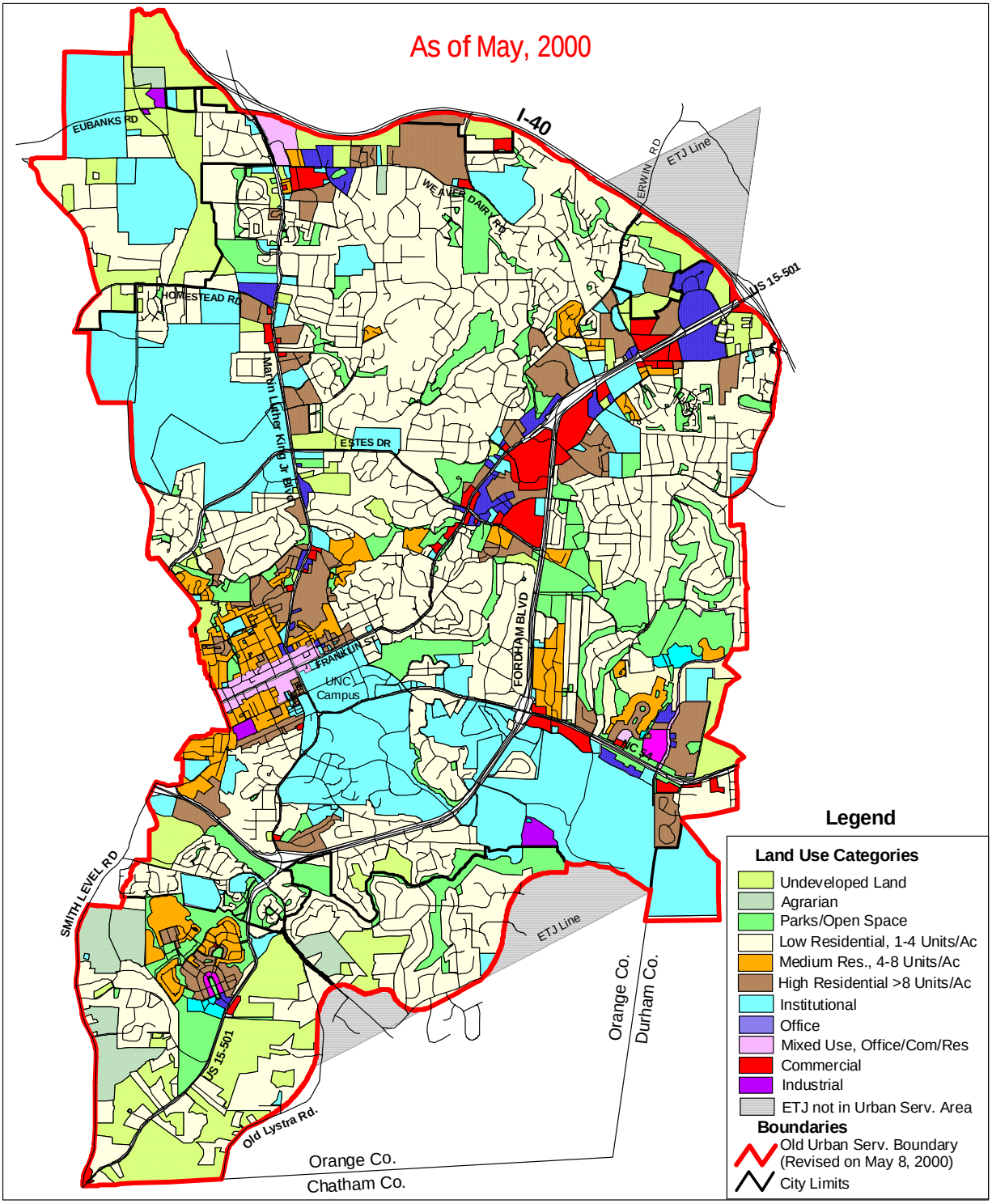
Population projections have been developed for the Town based upon an assessment of existing land use, existing zoning, and development trends within approximately 20 different areas of Chapel Hill. These projections assume that, by the year 2025, all of the undeveloped land within the Urban Services Area will be developed and some of the land that is currently developed at very low intensity will be redeveloped. Assumptions regarding infill and redevelopment of currently developed areas, as well as growth in the UNC student population and future residential development on the Horace Williams tract, are also built into the assumptions. The projections indicate that the Town's population is likely to grow from approximately 45,000 (1998 estimate) to approximately 67,600 persons in 2025, a 50 percent increase. During the same period, the number of dwelling units is projected to grow from approximately 17,400 (1998 estimate) to 24,800 in 2025. This represents an increase of approximately 7,400, or about 275 units per year.

8.2 FUTURE LAND USE

The desired future pattern of land use in Chapel Hill is shown on Figure 11. This pattern is largely an extension of existing land use, reflecting the importance of maintaining Chapel Hill's established community character. At the same time, the Land Use Plan and supporting strategies outlined in this chapter are designed to accommodate projected growth in ways that complement the existing built and natural environment. Key features of the plan include the following:

Residential Uses

- Low (1-4 units/acre) and medium (4-8 units/acre) residential development will remain the predominant land uses. Existing high-density residential development (8-15 units/acre) is also designated on the plan. Town policies should strive to maintain and enhance the character of these established residential areas. Areas surrounding the downtown and UNC campus have been designated as "residential conservation areas" because they are considered to be particularly susceptible to change and hence should be a focus of neighborhood protection policies (see Chapter 3.0).



0.5 0 0.5 1 Miles

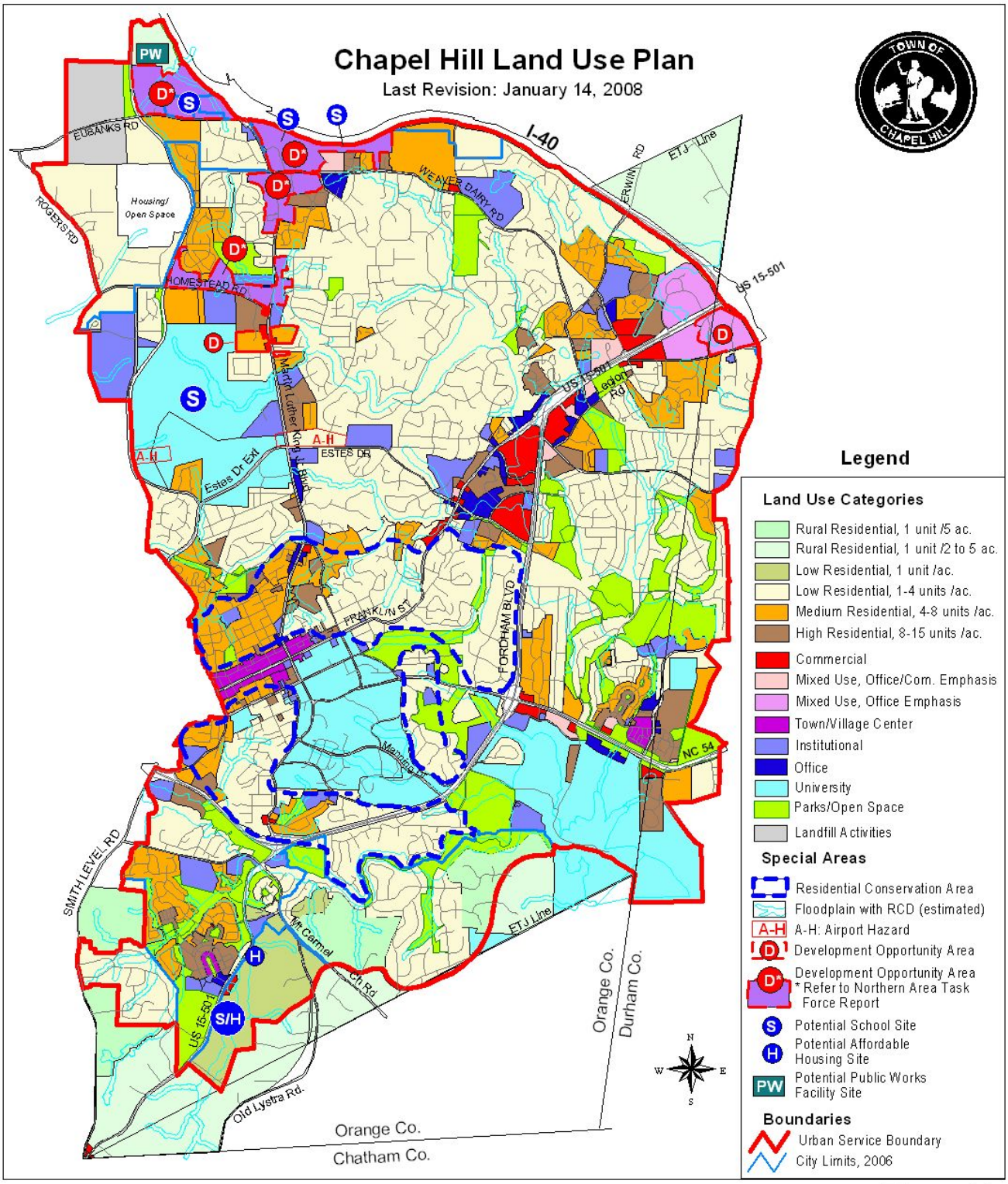
Figure 10

Existing Land Use

Comprehensive Plan

Chapel Hill, North Carolina

May 8, 2000



REVISIONS

Adopted: May 8, 2000
Revised: 11/13/2000 * 3/04/02
9/07/04 * 5/09/05 * 1/14/08

2000 0 2000 Feet

Figure 11

The Land Use Plan

Comprehensive Plan

Chapel Hill, North Carolina

Revised January 14, 2008

- Portions of the Southern and Northwest Areas have been designated for low-density residential use (1 unit/2 to 5 acres). Conservation development options that preserve substantial areas of open space should be explored for these areas.

Commercial/Mixed Uses

- Existing commercial and office areas are designated to remain in their current uses. However, neighborhood-serving commercial centers will be encouraged to develop in the future with a greater mix of uses (see Strategy 8A-2).

- Undeveloped or partially developed sites that are suitable for nonresidential development are designated mixed-use, with the objective of integrating office, commercial, and residential development to the greatest extent possible.

- The downtown is designated to remain as the center of the community ("Town Center"), using the Downtown Small Area Plan as a guide for future development. The emphasis in the 100 block of East Franklin Street will be on preserving the scale and character of the existing buildings and streetscape. Appropriate infill and redevelopment opportunities will be encouraged elsewhere in the downtown as recommended in the Small Area Plan.

- The recent Southern Village and Meadowmont developments are shown as "Village Centers" with a mix of uses.

- A mix of uses, including a neighborhood center, park, high-density residential development, and possible non-disposal solid waste management facilities, is shown on the Greene tract in the Northwest Area.

Institutional/University Uses

- Existing and planned community-serving facilities are shown as institutional land. In addition to lands designated for institutional use, the plan shows potential school sites identified by the Chapel Hill-Carrboro School Board. This designation will allow the School Board to reserve a school site when a subdivision application is submitted for approval, if the subdivision application includes part or all of a school site designated on the Land Use Plan. If the School Board decides to reserve a site, it will have 18 months from

the date of final subdivision approval in which to acquire the property.

- The Land Use Plan shows lands owned by UNC, including the main campus, Horace Williams tract, and Mason Farm, as a separate category. Future use of the Horace Williams and Mason Farm properties should be consistent with the 1998 *Outlying Parcels Land Use Plans Report* developed jointly by UNC and the Town.

Parks, Open Space, and Conservation Areas

- Existing parks and open spaces are indicated, along with selected locations to be dedicated as open space or parkland in the future. It is expected that completion of a Parks and Open Space Master Plan will result in the designation of additional open space areas.

- The 100-year floodplain and associated Resource Conservation District (RCD) are shown as an overlay over the base uses shown on the plan.

Special Designation Areas

- Key development opportunity areas are designated as "D" on the Land Use Plan (see Figure 11). These areas are appropriate for creative development or redevelopment to achieve Comprehensive Plan objectives (see Strategy 8A-1).

- Potential school sites have been selected and are shown on the Land Use Plan as "S."

- A potential site has been designated for the Town's Public Works facility in the Northwest Area shown as "PW" on the Land Use Plan.

- Potential sites for affordable housing are shown as "H" on the Land Use Plan.

The Land Use Plan is intended as a guide for future land use decision-making, including changes to zoning. As a priority implementation action, the Town should adopt a comprehensive rezoning of areas of Chapel Hill whose present zoning is not in conformance with the Land Use Plan.

Action: Future Land Use

- Modify zoning to be consistent with the Land Use Plan (Town Council, Planning Board)

Measure of Progress: Future Land Use

- Adopt comprehensive zoning consistent with Land Use Plan no later than 12/31/2001

8.3 GOALS, OBJECTIVES, AND STRATEGIES

GOALS AND OBJECTIVES

Goal
Promote orderly development and redevelopment to achieve appropriate and compatible use of land.

Objectives
Form of Development: Establish a plan for future land use (including a revised Development Ordinance) and incentives for the Town's Urban Services Area that provide for land use patterns, types, and densities that contribute to achieving the goals of the Comprehensive Plan.

Timing of Development: Implement coordinated land use policies, regulations, and capital improvements that provide for development to occur concurrently with the provision of adequate public services and facilities.

STRATEGIES AND ACTIONS

8A. Development Form
The Land Use Plan is designed to conserve and protect existing residential areas and places of special character, while providing for growth and redevelopment in areas most suitable to accommodate them. Neighborhoods susceptible to change will be protected by the strategies described in Chapter 3.0 (Community Character). New development forms will be encouraged in selected locations through a variety of mechanisms as described below.

8A-1. Encourage development of selected "opportunity areas" to achieve Comprehensive Plan objectives.

The Land Use Plan and supporting strategies identify areas of Chapel Hill that are appropriate for development or redevelopment to achieve one or more Comprehensive Plan objectives, such as supporting alternative transportation (transit, walking, and biking), providing housing choice, and preserving open space. These areas vary in character but have two common attributes. First, their current use is subject to change in the future. Second, their physical character and location in relationship to established land uses and public facilities are

suitable to support development. Development opportunity areas include the following:

- ***Areas appropriate for mixed-use development.*** These include mixed-use development areas designated on the Land Use Plan and existing and potential mixed-use centers (see Strategy 8A-2).

- ***Specific sites appropriate for higher density residential development*** (up to 15 units per acre) to expand housing choice, including potential locations on West Rosemary Street in the downtown and the Greene tract in the Northwest Area. (Residential development on the Greene tract should be combined with provision of open space and recreational facilities using principles of conservation development.)

- ***Selected sites along Airport Road*** that are either undeveloped or developed below their zoning capacity, including the Horace Williams tract and several smaller properties.

In these areas, the Town should promote creative development that achieves Comprehensive Plan objectives through regulatory policies, incentives, and public/private partnerships. Effects on community character and established land uses will need to be taken into consideration, for example:

- ***Transportation impacts*** (traffic and support of other transportation modes).

- ***Visual character***, in particular views from public roadways.

- ***Interface with adjacent residential neighborhoods.*** (This issue encompasses both the need for appropriate buffers where residential neighborhoods abut higher intensity uses and the desirability of pedestrian and other physical connections between residential areas and centers of community activity, such as mixed-use shopping areas.)

Action: Development Opportunity Areas

- Promote creative development of designated development opportunity areas through regulatory policies, incentives, and public/private partnerships (Town staff, Town Council)

8A-2. Encourage mixed-use development forms.

In the conventional suburban development pattern, land uses such as residential subdivisions, employment areas, and retail centers are isolated from one another. This pattern both contributes to a lack of community identity (in contrast to the "synergy" created by mixed uses in a traditional, functioning

downtown) and creates total dependence upon the automobile to perform basic daily activities such as working and shopping.

By definition, a mixed-use development consists of several types of activity, each of which could function independently, but that would benefit from proximity to each other. For example, residential units could be located on upper stories above ground level stores or in a residential development within easy walking distance of a neighborhood retail center, thus affording ready access to businesses that provide groceries and other goods and services needed on a daily basis. Adding office space would create the opportunity to live, work, and shop in the same vicinity, while a public facility or facilities such as a park or school would increase the range of activities and provide a community focus.

The Town has mixed-use zoning districts in place and has permitted mixed uses in specific developments. Promoting additional mixed uses – both within individual developments and in land use relationships between proximate properties – is a key Comprehensive Plan strategy. Three primary contexts are proposed for application of the mixed-use concept:

- ***Areas where office or a combination of office and commercial (retail and service establishments) are the primary uses.*** Those areas designated on the Land Use Plan for office mixed-use should include smaller scale retail/ service and possibly residential development as supporting uses, while areas designated for office and commercial mixed-use could potentially include residential.

- ***Existing commercial centers that serve surrounding neighborhoods.*** Chapel Hill's existing land use pattern includes a number of small (neighborhood-scale) and medium (community-scale) commercial centers that serve surrounding neighborhoods. Cedar Falls Courtyard on Weaver Dairy Road is a good example of a neighborhood-scale commercial center, while community-scale centers include the downtown and Eastgate, Timberlyne, and University Mall shopping centers. Opportunities to introduce or reinforce mixed-use characteristics in these centers and adjacent areas should be explored. For example, residential and/or office uses could be added when larger shopping centers are infilled or redeveloped. The Cedar Falls Courtyard area has several different uses (commercial, residential, school, and park) located in close proximity to

each other, but would benefit from sidewalk connections between the uses. Existing neighborhood and community-scale commercial areas that are or could become mixed-use centers are shown on Figure 12.

- ***Areas suitable for development as new neighborhood-serving, mixed-use centers.*** In addition to existing commercial areas, two undeveloped sites are recommended as potential mixed-use centers to serve existing and future residential development (Figure 12). Located in the Northwest Area, these sites are a portion of the Horace Williams tract (designated as a mixed-use "University Village" in the UNC Land Use Plan – see Chapter 4.0, Strategy 4A-3), and a site on Eubanks Road.

The Town should undertake several initiatives to encourage mixed-use development. The existing mixed-use zoning districts should be evaluated for opportunities to make mixed-use development a more attractive option. A new mixed-use zoning district should also be considered to allow for infill or redevelopment of existing neighborhood or community-scale shopping centers with a wider range of uses. This could be in the form of an overlay district that sets criteria for the design of mixed-use centers and is tied to the locations shown on Figure 12. Finally, the Town should take a proactive approach to encouraging desirable mixed-use development through appropriate incentives, partnerships with the private sector or UNC (with respect to the Horace Williams tract), and consideration of developer competitions for publicly owned property.

Actions: Mixed-Use Development

- Evaluate and amend the mixed-use provisions of the Development Ordinance to promote mixed-use development (Town staff, Town Council)
- Encourage mixed-use development through incentives and public/private partnerships (Town staff, Town Council)

Measures of Progress: Mixed-Use Development

- Address mixed-use development in the comprehensive development ordinance revision (no later than 12/31/2001)
- Develop a strategy to promote mixed-use development no later than 12/31/2004

Coordination of mixed-use development with transportation facilities, including transit service, sidewalks, and bikeways in addition to roads, is another important consideration. The two potential neighborhood-serving mixed-use centers in the Northwest Area, for example, are located on the Norfolk Southern Railroad line, which could be developed as a transit and/or pedestrian/bicycle corridor.

8A-3. Preserve open space in residential developments through the application of conservation development principles.

Conservation development (also referred to as conservation subdivision design) is an innovative form of residential development that reduces lot sizes so as to set aside a substantial amount of the property as permanently protected open space,

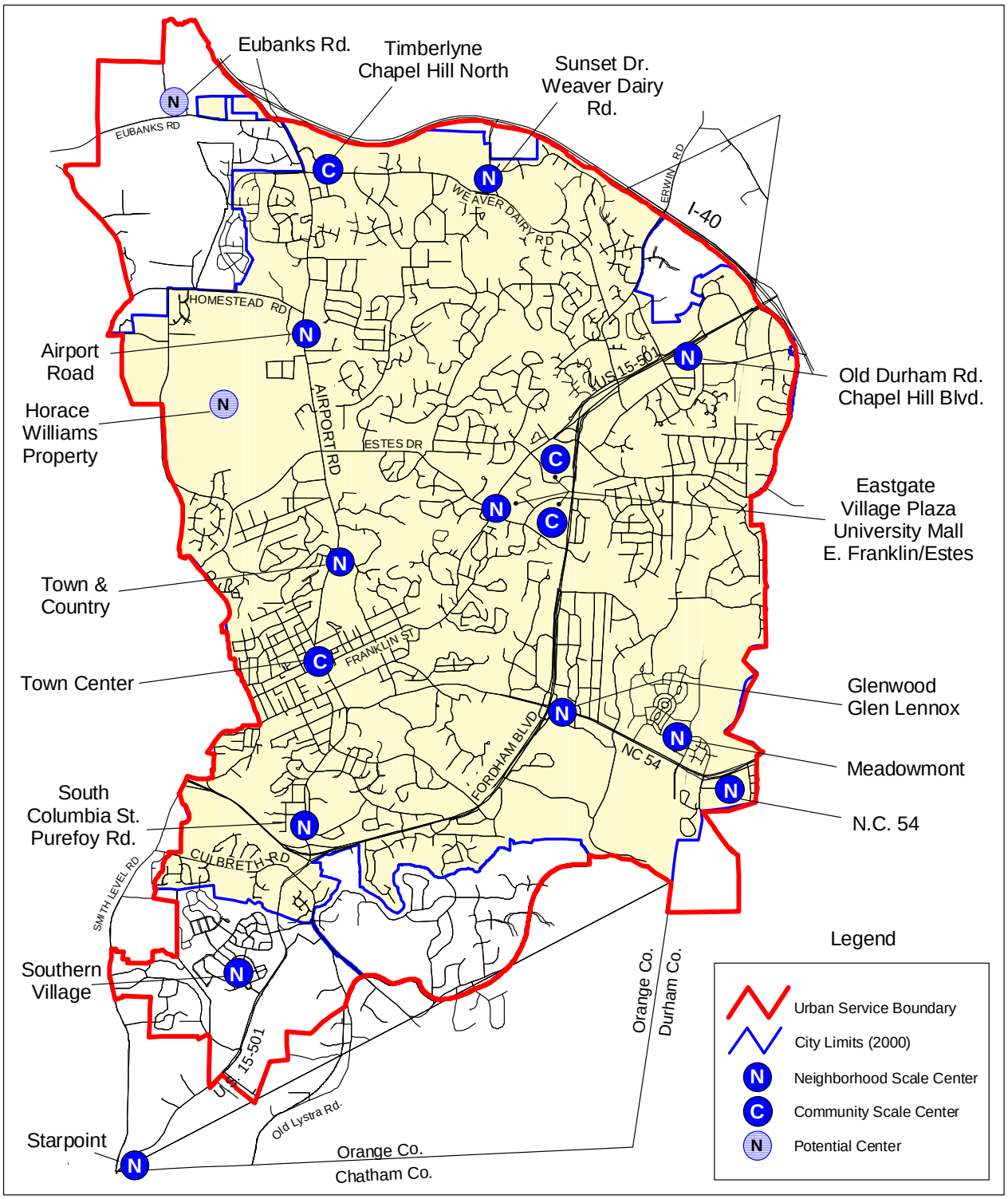


Figure 12

Existing and Potential Mixed Use Centers

N
W E
S

0.5 0 0.5 1 Miles

Comprehensive Plan

Chapel Hill, North Carolina

May 8, 2000

while maintaining the overall permitted density. It differs from "cluster development" in three important ways. First, it sets much higher standards for the quantity, quality, and configuration of the resulting open space. Where cluster ordinances typically require only 25 or 30 percent open space to be set aside, conservation subdivisions designate at least 50 percent of the unconstrained land as permanent, undivided open space. Unlike most cluster provisions, this figure is based on "density zoning" that counts only the acreage that is high, dry, flood-free, and not steeply sloped. In this way important natural resources (e.g., stream corridors and woodlands) and historic or cultural features can usually be included within the minimum required open space.

Second, rather than leaving the outcome purely to chance, this flexible design approach can be strongly encouraged or even required in areas with noteworthy resources or to achieve water quality objectives in sensitive watersheds. The encouragement could take the form of strong density *dis*incentives to discourage land-consuming layouts of large lots, combined with density bonuses for land-conserving design exceeding a minimum open space requirement (e.g., 50 percent). In certain districts where the resources are critically important or particularly sensitive, the Development Ordinance could simply require all plans to follow the principles of conservation subdivision design. Communities as diverse as Lower Merion, PA, a largely built out suburb of Philadelphia, and Isle of Wight, VA, a rural county subject to increasing development pressures from the Hampton Roads area, have enacted mandatory conservation subdivision regulations.

Third, the protected land can be configured so that it will, wherever practicable, contribute to creating an interconnected network of open space throughout the community, linking resource areas in adjoining subdivisions and/or providing buffers between new development and pre-existing parks or other dedicated open space areas. From this standpoint, conservation development could become a tool to help implement the community-wide greenway network (see Chapter 9.0, Strategy 9B-2).

By protecting open space and natural resources, conservation development provides multiple environmental benefits, such as protecting water quality, preserving wildlife habitat, and providing a natural form of stormwater management. It can facilitate implementation of the low impact development

practices described in Chapter 9.0, Strategy 9F-1 by minimizing development footprints and disturbance to natural areas.

For conservation subdivisions to become a preferred development practice, certain revisions will need to be incorporated into the Development Ordinance. These revisions include conservation zoning provisions and additions to the Subdivision Regulations to achieve conservation subdivision design. The revisions would replace the existing "cluster development" provisions in the Subdivision Regulations. Potential changes that should be evaluated by the Town include:

- Provisions for a "menu" of options regarding density and the amount of the property required to be preserved as open space, including incentives for higher open space percentages.
- Adjustment of mandatory open space requirements.
- Enhanced standards for the design, use, ownership, and maintenance of dedicated open space areas.
- "Density zoning" provisions that tie the permitted density of both conservation and conventional developments directly to the ability of the site to support it. In other words, tracts with high development suitability (flat, open, dry, etc.) would be eligible for full density, while other parcels of the same overall size but with less buildable land would qualify for proportionally fewer dwellings.
- Refinements to the Subdivision Regulations to define a process for designing conservation subdivisions that organizes development around open space resources rather than vice versa.

Action: Conservation Development

- Evaluate the Development Ordinance for opportunities to apply conservation development provisions (Town staff, Planning Board, Town Council)

Measure of Progress: Conservation Development

- Address conservation development in the comprehensive development ordinance revision (no later than 12/31/2001)

8B. Development Timing

"Development timing" refers to the provision of public facilities to support growth as it comes on line and places demands on roads, schools, and other infrastructure and services. Throughout the country, communities are playing "catch-up" as they struggle to build capital improvements for developments that have outstripped the capacity of existing facilities and services. By comparison, Chapel Hill is in the fortunate position of being a mature community with a well-developed infrastructure and a defined Urban Services Boundary. Nevertheless, some public facilities such as roads and schools have capacity issues (see Chapters 10.0, Transportation, and 11.0, Community Facilities), suggesting the need to manage growth so as to keep pace with the ability of public infrastructure and services to support it.

8B-1. Develop a growth management protocol to address the provision of public facilities and services to support development.

In order to manage growth in a manner that is consistent, transparent, and legally defensible, a clear framework or protocol is needed. The underlying premise is that the Town needs to "stay ahead of the curve" by monitoring the capacity of public facilities and services so that capital improvements or other measures can be implemented before projected shortfalls reach serious levels. A growth management protocol suitable for Chapel Hill may be comprised of five elements:

- Level of service standards or other means to measure the capacity of each type of public facility or service.
- Estimates of "reserve capacity" for each of the critical constraint factors.
- A growth monitoring system to keep track of changing levels of reserve capacity, potentially coupled with an impact analysis requirement for each development application where certain key services or facilities are approaching capacity.
- A staged plan for expanding facility capacity to accommodate the projected growth in population.
- Provisions for applicants to "mitigate" the impacts of their developments, such as building infrastructure components, donating land, and/or paying for necessary capacity enhancements (e.g., roadway or intersection improvements).

The purpose of this mechanism is to allow the Town Council to annually check the capacities of key components of community infrastructure, and to be able to use this information in reviewing and acting on development proposals. The growth management protocol will also allow the community to identify needs for capital improvements to key components of community infrastructure and to increase capacity as needed. Initially, the items subject to the protocol will be schools, raw water supply, water treatment capacity, sewage treatment capacity, and levels of service of key arterial roads. Projects for which approval has already been given will be counted as debits against existing capacity. A finding that infrastructure capacity is inadequate to serve a proposed development may, in some regulatory contexts, be cited as a reason for denial of an application.

By necessity, the growth management protocol will be closely linked to the Community Facilities Plan and associated measures of capacity developed per Strategy 11A-1 (Chapter 11.0, Community Facilities). Depending upon the selected types of public facilities and services, it will need to be coordinated with other providers such as the North Carolina Department of Transportation, Orange Water and Sewer Authority (OWASA), and Chapel Hill-Carrboro City Schools. The proposed growth monitoring system will provide a mechanism – in the form of an annual Growth Management Report – to coordinate and share information on development activities and trends in Chapel Hill and existing and projected public facility capacities. Because of the regional context in which growth and corresponding demand on public facilities and services occur, the system will need to take into account regional issues. The annual Growth Management Report, for example, should address the status of regional transportation planning efforts.

Action: Growth Management Protocol

- Develop and adopt a growth management protocol (Town staff, other service providers, Town Council)

Measures of Progress: Growth Management Protocol

- Adopt growth management protocol no later than 9/30/2000
- Prepare an annual "Growth Management Report" in the spring of each year, beginning in 2001

8C. Small Area Planning

The purpose of the Comprehensive Plan is to set an overall vision and policy framework for the long-range development of Chapel Hill, together with short- and mid-term actions designed to set the community on the path of achieving the future desired by residents. An important part of the action program will be to prepare and implement plans that address issues in specific subareas of the Town in more detail than is appropriate for the Comprehensive Plan. The scale addressed by these "small area plans" could range from a single neighborhood or group of neighborhoods to a roadway corridor or larger geographic sector of Chapel Hill.

8C-1. Prepare and adopt small area plans to implement Comprehensive Plan concepts.

Chapel Hill has an established tradition of small area planning. The Small Area Plan for the Town's Southern Area, adopted in 1992, has been largely implemented and is reflected in the Land Use Plan. The Small Area Plan for the Northwest Area was prepared in draft form in 1995 but was never adopted. A Downtown Small Area Plan was prepared in draft form in 1998 and adopted in March 2000 (see Chapter 3.0, Strategy 3C-1). Corridor plans were prepared and adopted for East Franklin Street and the NC 54 East Entranceway.

As part of preparing the Comprehensive Plan, four "focus areas" were identified that are in need of special attention due to a combination of their unique characteristics, susceptibility to

change, and importance to the future of the Town. These focus areas are:

- Downtown
- Northwest Area
- Northside Neighborhood
- Cameron-McCauley Neighborhood

As noted above, small area plans have been prepared for both the Downtown and Northwest Area. In conjunction with development of the Comprehensive Plan, members of a graduate class in the UNC Department of City and Regional Planning prepared a review of the draft Northwest Small Area Plan in April 1999. Other members of the class prepared a report on the Northside Neighborhood. Finally, a "focus group" completed a draft report on the Cameron-McCauley neighborhood in August 1999. The findings of these various studies are summarized in Appendix B.

The Northwest, Northside, and Cameron-McCauley focus areas are priority candidates for the completion and adoption of small area plans. Additional candidates for future small area plans include:

- Established residential areas per Strategy 3A-1 (see Chapter 3.0, Community Character).
- Corridors with particular issues such as land use, transportation, access management, urban design, etc. The US 15-501 and Airport Road corridors are the prime candidates for small area plans. Issues for the US 15-501 corridor include future development of the "gateway site" at the I-40 interchange, relationship to potential regional transit corridor and station locations (see Chapter 10.0, Strategy 10C-2), and urban design/entranceway character (see Chapter 3.0, Strategy 3E-1). A major issue for the Airport Road corridor is the future use of "development opportunity" sites, including the Horace Williams tract, and their relationships to other land uses and transportation facilities in the corridor.

Action: Small Area Planning

- Adopt and implement small area plans, beginning with the downtown (Town staff, residents, Planning Board, Town Council, Advisory Boards)

Measure of Progress: Small Area Planning

- Complete at least one small area plan every two years

8D. Development Review Process

In addition to the implementing regulations themselves, the development review and approval process can be a critical tool to encourage or discourage development, and, where encouraged, to guide it in desired directions.

No set of regulations is perfect. Like the plans they are intended to implement, regulations require periodic revision to keep pace with policy changes and to reflect the cultural, economic, and technological characteristics of the community. The Town is committed to improve its development regulations and the process by which they are implemented to better serve the needs of citizens, businesses, developers, and staff. Examples of measures that can be taken include more user-friendly regulations, use of new technologies to enhance dissemination of information about development applications, and expedited development review processes in targeted locations (e.g., the downtown) to facilitate desired types of development.

8D-1. Improve the development review process.
Providing opportunities through the Development Review Process for informal, early communication on development proposals between applicants and the public is an effective way to promote positive dialogue among the parties, ideally contributing to faster and better development outcomes.

The Town already has early notification requirements in place. Informal public information meetings are scheduled after receipt of a development application to present the proposal to neighbors and the public in general. This early participation process could be further enhanced by using contemporary technologies such as public access/cable TV and the Internet. Not only do these technologies improve the timing of notification over traditional mailings and newspaper notices, but they can provide expanded opportunity for feedback and the flexibility to continuously update information on development applications and their status.

An additional result of such increased interaction will be to help reduce the uncertainty of the review process for both sides, by making mutual expectations known at an early stage. In addition, the Town should evaluate its development regulations and review processes to identify areas where clarification and/or standardization of the requirements and limitations can help to increase, to the maximum extent possible, predictability for developers as well as for neighbors of the proposed development. This process may be further strengthened by tying it to the residential area planning and design guideline strategies described in Chapter 3.0 (Community Character). Because these plans and guidelines are intended to be tailored to the specific characteristics of residential areas, they can provide better guidance for developers as to what is expected and result in

projects that are, from the outset, more suited to the neighborhood's unique character and development pattern. Provided that they are clear and definite, development review requirements can also be used to achieve area-specific goals and objectives. For example, in residential conservation areas where the primary emphasis is on protection of existing character, the notification process can be increased and the overall review process be made more elaborate. On the other hand, in areas where certain types of development are desired, the review process can be simplified and expedited in order to attract such development. In the downtown area, for example, requirements should be customized to encourage the development and redevelopment of property consistent with the Downtown Small Area Plan.

Action: Development Review Process

- Review and improve the current development review process (Town staff, Planning Board, Town Council)

Measure of Progress: Development Review Process

- Address the development review process in the comprehensive development ordinance revision (no later than 12/31/2001)

Another possibility for improving the development review process is to expedite the processing of projects of limited scope and impact. As noted in Chapter 6.0, Strategy 6A-1, this mechanism could be used as a tool to support small businesses. Administrative or staff review is a mechanism commonly used to expedite processing of limited scope projects. The meaning of "limited scope" would need to be clearly defined by setting thresholds that would trigger specific review process requirements.

9.0 NATURAL ENVIRONMENT

9.1 OVERVIEW

The quality of Chapel Hill's natural resources – soil, air, water, flora, and fauna – is a barometer of the health of the community. Although largely built out, Chapel Hill contains significant natural resources that are an essential part of the land use and development pattern, provide critical environmental benefits, and help define community character. Key resources include:

Surface Water: Chapel Hill's surface water resources include streams and associated lakes and ponds. The major streams – Bolin Creek, Booker Creek, Little Creek (formed by the confluence of Bolin and Booker), Morgan Creek, and Dry Creek – generally flow from the northwest to the southeast. Bolin, Booker, Little, and Morgan Creeks drain to Jordan Lake, while Dry Creek drains to New Hope Creek.

Many of the Town's natural resources (natural habitat areas, floodplains, etc.) are concentrated along stream corridors. Residents depend upon streams for drinking water, irrigation, and other water needs, while wildlife and aquatic flora and fauna depend even more directly upon them for survival.

Floodplains: Chapel Hill's major streams have associated floodplains that have been demarcated by the U.S. Army Corps of Engineers. An important area for planning purposes is the 100-year floodplain, which is the area adjacent to the stream that is likely to flood on average once every 100 years.

Soils: Soils in Chapel Hill have been documented by the Natural Resources Conservation Service in the Orange County and Durham County Soil Surveys. Most of the soil associations present in the Town have a 5 to 10 inch surface layer of loam or sandy loam, and a 20 to 40 inch subsoil of clay, clay loam, and sandy clay loam, along with gently sloping to steep landforms. The sloping conditions combined with low load bearing strengths of clayey soils make a number of these soils prone to erosion. Other soil conditions such as depth to bedrock,

permeability (the speed at which water passes through the soil), and depth to water table can affect the suitability of selected soil types for urban land uses.

Steep Slopes: Chapel Hill's topography is "typical of the Piedmont region, with gently rolling upland, rounded hills and V-shaped valleys cut by the major streams."[2] Of particular concern are steeply sloping areas, which can significantly increase the vulnerability of the land to damage from human activities. Steep slopes combined with unstable soil conditions can play a role in environmental problems such as erosion, sedimentation of watercourses, and increased volume and velocity of stormwater runoff.

Vegetation/Natural Areas: Forests are Chapel Hill's native vegetation. Based upon 1973 LANDSAT computer imagery documented in the Environment Report for the 1989 Comprehensive Plan, four primary types of forests occur in the area: short leaf pine, loblolly pine, oak-hickory-scrub oak, and oak-gum-cypress. While development and other human activities have removed much of the naturally occurring forested cover, trees and woodlands are still a major part of the fabric of Chapel Hill, providing multiple environmental, aesthetic, and recreational benefits.

In 1988, the Triangle Land Conservancy published a report documenting natural areas that are unique within Orange County. Nine sites are located within Chapel Hill's Urban Service Area. An additional site is located outside of the Urban Services Area but within the Town's extraterritorial jurisdiction, while six sites are located in the Rural Buffer. The sites in the Urban Services Area range from a mature forest in Battle Park on the University of North Carolina at Chapel Hill campus to bottomland forests along stream corridors. The majority of the sites are located in the southern part of the Urban Services Area along Mason Creek or on the Mason Farm property.

More recently, the Triangle Land Conservancy undertook a study of habitats for native wildlife in Orange County. The report on the first phase of the project, *Landscape with Wildlife for Orange County* (1997), provided maps of the County's forests and emphasized the importance of these forests for native

[2] Allen, Eldon P. and William Wilson, *Geology and Mineral Resources of Orange County, NC*, Division of Mineral Resources, Bulletin 81, 1968

wildlife. The Phase 2 report, *Rating Land in Orange County by its Wildlife Value* (1999), describes a method to assess the forests of Orange County according to their predicted values for wildlife and presents a series of maps with ratings for the County's remaining forests.

Significant natural resources (such as valuable wildlife habitat identified by the Triangle Land Conservancy and Town-owned parks and natural areas) within Chapel Hill are shown on Figure 13. In addition to the natural resources shown on this map and/or described above, the quality of Chapel Hill's air is important to the health and well-being of residents.

9.2 GOALS, OBJECTIVES, AND STRATEGIES

GOALS AND OBJECTIVES

Goal
Identify, protect, and preserve open spaces and critical natural areas and enhance the community's air quality and water resources.

Objectives
Natural Resources: Implement regulations, policies, incentives, and programs to conserve valuable natural resources, including trees, woodlands, and habitat areas; stream corridors and floodplains; sensitive soils and steep slopes; and air and water quality.

Open Space Network: Implement an open space network designed to protect the natural environment, provide opportunities for active and passive recreation, separate incompatible uses, protect scenic views, and provide continuous linkages among neighborhoods.

STRATEGIES AND ACTIONS

9A. Regulatory Protection of Natural Resources
Chapel Hill's Development Ordinance contains several articles designed to protect environmentally sensitive resources. These articles include:

Article 5, Resource Conservation District. The Resource Conservation District (RCD) is an overlay district that applies to the area at and below the elevation two feet above the 100-year floodplain and also to areas within 75 feet of a stream (see Figure 9, Future Land Use Map for the location of the RCD). The RCD regulations set restrictions on development within the district in order to protect water quality, minimize flood damage, and maintain open space and natural habitat.

Articles 9 and 10, Water Quality District and Watershed Protection District. These two overlay districts establish development standards for a portion of the New Hope Watershed draining to the Jordan Lake Reservoir to help ensure long-term water quality. The larger of the two districts, the Watershed Protection District covers the portion of Chapel Hill south of a line that roughly follows US 15-501 and Cameron Avenue.

Article 11, Tree Protection. This article requires identification of rare and specimen trees and preparation of a Landscape Protection Plan for development projects. It also sets standards for the planting and removal of trees on public lands and within street rights-of-way.

Article 14, Design Standards. Section 14.4.2 (Site Design) of Article 14 classifies a site's potential for development based upon slope characteristics. In areas with slopes of 15 to 25 percent, development may occur upon demonstration of specialized site design techniques. Areas with slopes greater than 25 percent are considered generally unsuitable for development, and may be developed only after a detailed site analysis and demonstration that building and site engineering techniques will result in minimal disturbance.

9A-1. Evaluate the effectiveness of Chapel Hill's environmental regulations in protecting natural resources.

While the existing environmental provisions of the Development Ordinance provide a good regulatory foundation, they should be evaluated for opportunities to strengthen protection of sensitive resources. The Tree Protection Article, for example, sets no specific standards for measures to be included in the Landscape Protection Plan to protect or mitigate the removal of existing trees. Any modification to the Town's tree protection policies should address current impediments or disincentives to saving trees. Traditional engineering standards

Action: Environmental Regulations

- Review and adopt changes to the Development Ordinance to improve protection of environmental resources (Town staff, Planning Board, Town Council)

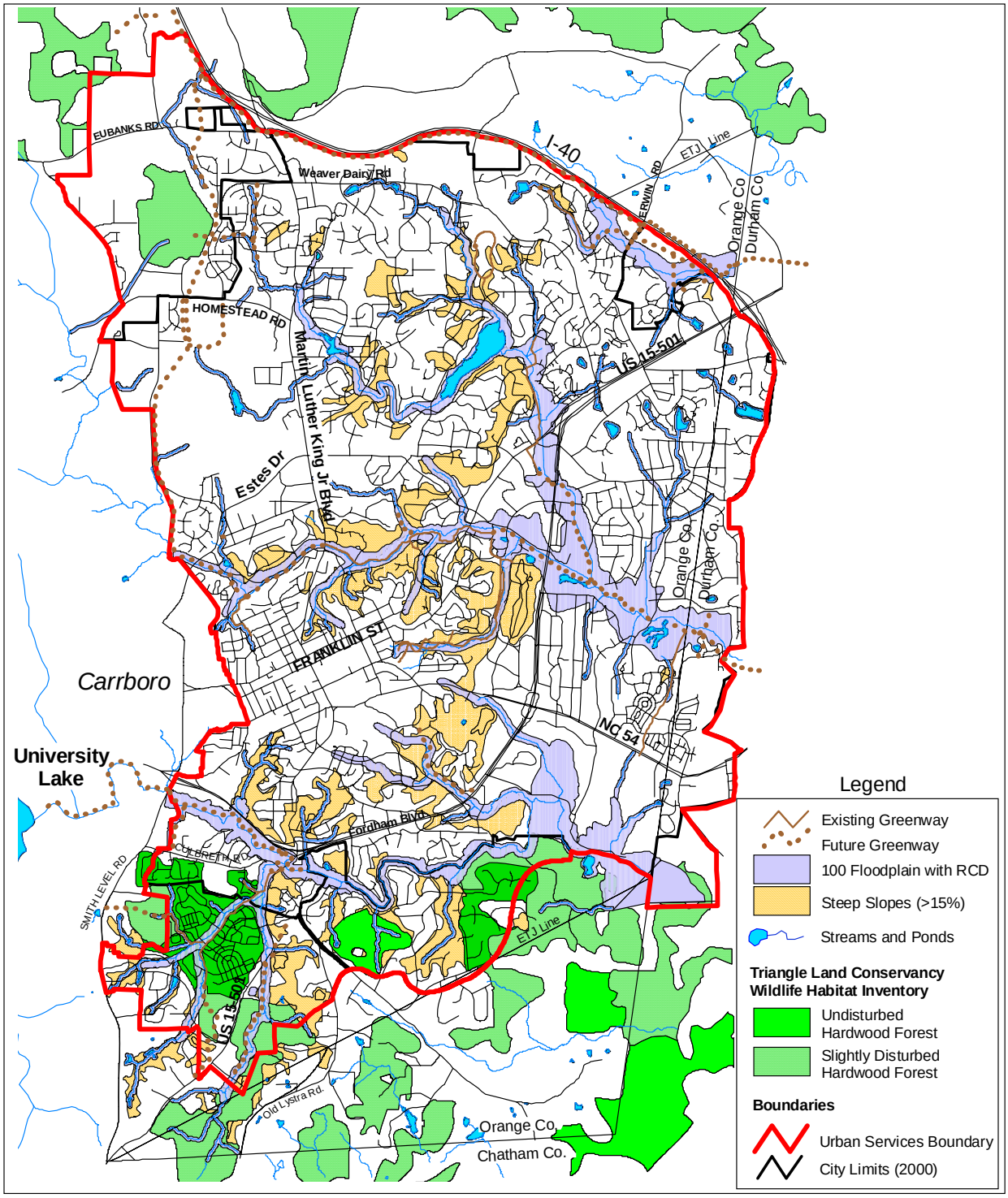


Figure 13

Natural Areas and Environmentally Sensitive Areas

N W E S

0.5 0 0.5 1 Miles

Comprehensive Plan

Chapel Hill, North Carolina
May 8, 2000

Measure of Progress: Environmental Regulations

- Address regulatory protection of environmental resources in the comprehensive development ordinance revision (no later than 12/31/2001)

for streets and bikeways, for example, can result in over-designed facilities that require unnecessary tree removal. Practices that reduce development footprints (i.e., conservation development [Strategy 9B-2] and low impact development [Strategy 9F-1]) can also increase the amount of trees and other natural vegetation that is retained. Examples of other modifications that should be considered include enhanced standards regarding the percentages of impervious cover and construction disturbance allowed in watershed areas.

9B. Open Space and Greenways

Preservation of land with environmental value as permanent open space is another way to protect Chapel Hill's natural resources. Land can be permanently secured as open space through fee simple acquisition, acquisition of a conservation easement, or through private development that maintains a portion of the property in an undeveloped state.

9B-1. Develop a schedule and committed funding source to implement the 1998 Chapel Hill Greenways Comprehensive Master Plan and the proposed Parks and Open Space Plan.

Chapel Hill has had an active greenway program since the Greenways Task Force Report was prepared and a Greenways Commission established in 1985. In 1998, the Greenways Commission prepared the Chapel Hill Greenways Comprehensive Master Plan to update the 1985 report. According to the 1998 Master Plan, the Chapel Hill Greenways Program has three major goals:

- To establish and maintain a system of linear open spaces that will help protect the environment of Chapel Hill.
- To establish a system of trails, where appropriate, enabling citizens to enjoy the recreational benefits of a network of greenways throughout the Chapel Hill community.
- To develop specific trails which may offer alternatives to automobile transportation.

The 1998 Master Plan proposes a network comprised of over 38 miles of linear open space (Figure 14). This network is largely structured around streams, but also includes highway corridors, rail corridors, ridges, and parklands. Over 28 of the 38 miles are considered suitable for the development of paved or unpaved trails. The plan divides the greenway network into 41 existing and proposed segments and classifies each proposed segment as a high, medium, or low priority. The plan also identifies potential

linkages to proposed trail systems in adjacent communities, including the regional Circle-the-Triangle trail, the New Hope Corridor and American Tobacco Rail Trail in Durham City/County, and three greenway connections to Carrboro.

From FY 1985-86 until FY 1997-98, funding for the Chapel Hill Greenways Program totaled approximately $1.8 million. This figure includes Town capital improvement funds, general obligation bonds, and grants (primarily from the North Carolina Department of Transportation's Bicycle Program). In 1996, Chapel Hill voters approved the sale of an additional $3 million in general obligation bonds for open space and greenway purposes. While this represents a significant investment by the Town, a much larger sum will be required if the 38-mile greenway system is to be fully implemented. (Current land holdings within the system total over 100 acres with 5.4 miles of recreational trails.)

A related initiative is preparation of a Parks and Open Space Master Plan as recommended by Chapter 12.0 (Community Facilities), Strategy 11A-7. While this plan will mainly address the Town's need for active and passive recreational facilities, it is likely to make recommendations for additional open space areas to supplement the greenway network proposed in the Greenways Comprehensive Master Plan.

Over the years Chapel Hill residents have consistently affirmed that open space preservation and development of a greenway network rank among the highest priorities for town action. A sustained commitment of town resources over a number of years, coupled with other creative funding and implementation strategies, will be required to bring this desire to fruition. In developing the greenway network, a high priority should be placed on connecting existing greenway segments.

Actions: Greenways and Open Space

- Acquire key greenway connections with funds committed for the open space and greenways bond (Greenways Commission, Town Council)
- Develop a funding and implementation program for the Greenways Master Plan and proposed Parks and Open Space Plan (Town staff, Greenways Commission, Parks and Recreation Commission, Town Council)

Measures of Progress: Greenways and Open Space

- Establish a long-term schedule and committed funding source no later than 12/31/2001 to complete the greenway and open space system
- Double current holdings in the greenways system (to at least 200 acres and 10.8 miles of recreational trails) no later than 12/31/2004

9B-2. Preserve open space in residential developments through the application of conservation development principles.

Preserving all of the land required to implement the Greenways Comprehensive Master Plan and Parks and Open Space Master Plan through outright acquisition would require an enormous commitment of public resources. One alternative to public acquisition is conservation development, which reduces lot sizes in a residential subdivision so as to set aside a substantial amount of the property as permanently protected open space while maintaining the overall permitted density. This concept is

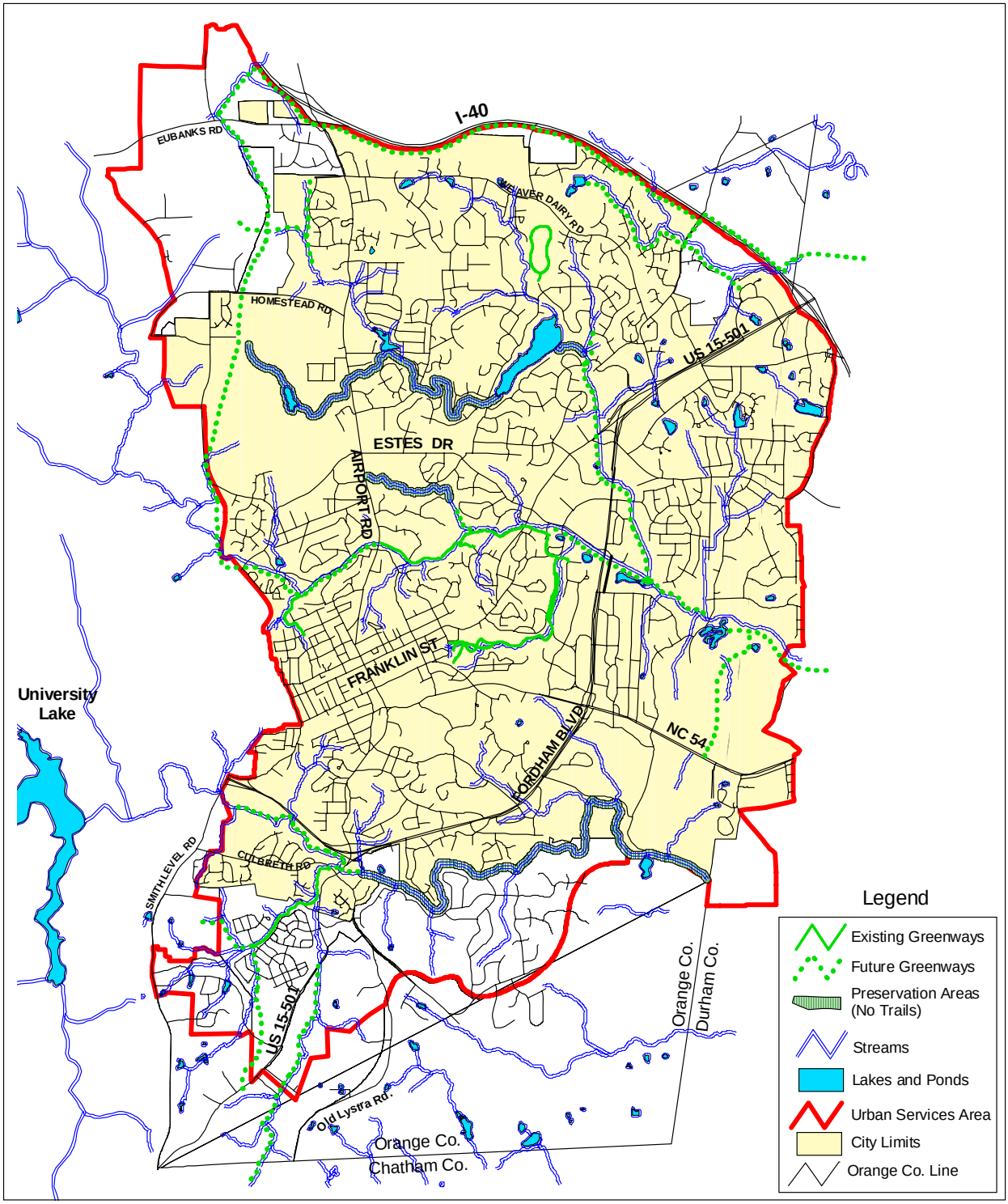


Figure 14

Greenways Master Plan

Comprehensive Plan

Chapel Hill, North Carolina
May 8, 2000

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Action: Conservation Development

- Revise the Development Ordinance to incorporate conservation development provisions (Town staff, Planning Board, Town Council)

Measure of Progress: Conservation Development

- Address conservation development in the comprehensive development ordinance revision (no later than 12/31/2001)

more fully described in Chapter 8.0 (Land Use and Development), Strategy 8A-3. Implementation of conservation development in Chapel Hill through revisions to the Development Ordinance could result in preservation of sensitive environmental resource areas or key linkages in the greenway network at limited cost to the Town. For example, the view across open space on the north side of NC 54 adjacent to the Town boundary is important to the visual character of a major "gateway" to Chapel Hill. This view could be preserved by concentrating residential development in the rear portion of the property, allowing the agricultural lands currently visible from the road to be preserved as open space in perpetuity.

9C. Tree Preservation and Planting

Residents and visitors alike consider Chapel Hill's wooded setting to be an essential part of the Town's special community character. In addition to their aesthetic contributions, trees afford many environmental benefits such as maintaining air and water quality, providing natural habitat, minimizing erosion, and ameliorating climactic extremes.

9C-1. Improve tree preservation and planting efforts along entranceway corridors.

Trees are important to the character of the Town's entranceway corridors, such as US 15-501, Airport Road, and NC 54. Tree preservation and planting should be pursued along public rights-of-way throughout the Town, with entranceway corridors constituting a special focus of these efforts. Specific recommendations include:

- ***Implement the tree preservation and planting recommendations of the Master Landscape Plan for Entranceway Corridors.*** Adopted in 1988, the Master Landscape Plan for Entranceway Corridors makes recommendations for the treatment of trees along Chapel Hill's major roadway corridors. These recommendations include maintaining forested buffers, preserving scenic vistas, and planting street trees along rights-of-way and within medians. The Entranceway Corridors Plan is addressed in Chapter 3.0 (Community Character), Strategy 3E-1, which recommends that it be updated.

- ***Designate entranceway corridors as "special character" corridors with provisions for tree planting and preservation.*** These provisions should address both tree preservation and planting within the public right-of-way and development on

private property adjacent to the right-of-way. With respect to the public right-of-way, the provisions should be designed to facilitate implementation of the Master Landscape Plan for Entranceway Corridors and will need to be coordinated with the North Carolina Department of Transportation (NC DOT). As an example, a landscaped median (with appropriate turning lanes at key locations) could be provided along Airport Road from North Columbia Street to Homestead Road. This would improve the aesthetic character of this corridor and complement the landscaped median installed by NC DOT along Airport Road from Homestead Road to Weaver Dairy Road. Depending upon the context, the provisions for private properties adjacent to the right-of-way should be designed to maintain existing forested buffers (possibly using development incentives) or encourage appropriate landscaping along urban streetscapes or other developed corridors.

Action: Trees along Entranceway Corridors

- Develop and adopt tree planting and preservation standards for the rights-of-way of Town entranceway corridors and adjacent private properties as part of Strategy 9A-1 (Town staff, Planning Board, Town Council, NC DOT)

9C-2. Review and improve tree planting provisions in Chapel Hill's Development Ordinance.

In addition to incorporating new provisions for entranceways, the Development Ordinance should be reviewed for opportunities to improve tree planting requirements. Possibilities include:

- ***Improve standards for tree plantings in surface parking lots.*** The Town's current standard calls for "shading of at least 35% of the parking area surface on noon on August 21 when the vegetation matures" (14.6.6d). This standard should be revised to specify requirements for tree planting areas within the interior of the parking lot.

- ***Incorporate requirements for street tree plantings into the Subdivision Regulations.*** Unlike many other codes, the Development Ordinance does not explicitly require street tree plantings along new residential streets.

Action: Tree Planting Regulations

- Develop and adopt improved tree preservation and planting provisions as part of Strategy 9A-1 (Town staff, Planning Board, Town Council)

9D. Public/Private Partnerships

A broad-based approach that goes beyond regulatory and acquisition strategies is called for if the quality of Chapel Hill's natural environment is to be maintained and enhanced. Throughout the country, grassroots citizen groups, often working in collaboration with governmental agencies, have been actively involved in projects to clean up and restore stream corridors, native ecosystems, and other areas of natural habitat.

9D-1. Encourage public/private partnerships to restore and enhance environmental resources.

The Town should actively promote the enhancement and restoration of woodlands, wetlands, stream corridors, and other natural habitat areas within Chapel Hill. Because of limited Town resources, every effort should be made to mobilize private organizations, businesses, and individuals. Private environmental organizations such as the Triangle Land Conservancy and Sierra Club are active in Chapel Hill and the region. In addition, Chapel Hill has a strong tradition of community involvement and many residents who are interested in environmental issues but who may not be members of any particular organization. These organizations and individuals should be encouraged to donate labor and resources to projects to improve Chapel Hill's natural environment (e.g., plant rescue program, tree planting, stream restoration, "adopt-a-park," or greenway trail construction). Sources such as the North Carolina Clean Water Management Trust Fund should be considered to help support public/private initiatives.

Action: Public/Private Partnerships

- Initiate public/private partnerships for environmental enhancement projects (Chapel Hill community, environmental organizations, volunteer groups)

9E. Air Quality

Air quality in Chapel Hill is tied to a number of factors. A major determinant is the miles traveled by automobiles and the conditions under which they are operated. Chapel Hill's air quality is affected not only by cars driven within Chapel Hill, but also by the growing number of vehicles driven ***through*** Chapel Hill to other regional destinations and by the growth of traffic in the Triangle Region generally. Thus improving air quality in Chapel Hill will in large part depend upon solutions implemented at a regional level. Nevertheless, the strategies described in Chapter 10.0 (Transportation) to reduce reliance on the private automobile will help to improve local air quality if effectively implemented. Other factors affecting air quality include the burning of fossil fuels to produce electricity or heat buildings and the emission of methane when garbage and waste products decompose in urban areas, primarily in landfills.

9E-1. Implement strategies to enhance local air quality.

Many of the transportation strategies presented in Chapter 10.0 are designed to reduce vehicle miles traveled. Key strategies include:

- Develop a multi-modal street and highway system that improves mobility for pedestrians and bicyclists (10A).
- Promote increased use of local and regional transit service (10C).

- Develop employer transportation programs to reduce commuting in single-occupancy vehicles (10D).

Another way Chapel Hill can address local air quality is to participate in the "Cities for Climate Protection Campaign," a global initiative of the International Council for Local Environmental Initiatives. This campaign engages municipalities in using their decision-making, programmatic, and purchasing powers to cut fossil fuel consumption, improve energy efficiency, and expand use of renewable energy sources throughout the community, thus reducing greenhouse gas emissions.

Actions: Air Quality

- Implement transportation strategies designed to reduce vehicle miles traveled (see Chapter 10.0)
- Participate in the Cities for Climate Protection Campaign, including developing and implementing a local action program to reduce greenhouse gas and air pollution emissions (Town staff, Town Council)

Measures of Progress: Air Quality

- Develop a local action plan to reduce greenhouse gas emissions no later than 12/31/2004
- Maintain local air quality at or below state and federal standards, as measured by an expanded state monitoring program of Chapel Hill air quality

9F. Water Quality and Stormwater Management

The quality of Chapel Hill's watercourses is of concern due to their relationships to local and regional drinking water supplies and because they are good barometers of general environmental health. In a largely developed community such as Chapel Hill, maintaining and enhancing water quality is dependent upon a variety of factors, such as stormwater management practices, open space protection, habitat preservation and restoration, and land development practices.

The Town of Chapel Hill has instituted a monthly monitoring of local streams since 1995. The monitoring includes factors such as temperature, dissolved oxygen, microinvertibrate populations (benthic inventories), and chemical constituents of the water. The Town's annual Data Book summarizes the date generated to date. In accordance with the federal Clean Water Act, the State of North Carolina has issued a draft list of impaired streams for the year 2000 across the state. In Chapel Hill, the list includes Booker Creek, Bolin Creek, Little Creek, Meeting of the Waters Creek, and Morgan Creek. In general, the list categorizes local creeks as nutrient sensitive water, and shows sediment as the cause of impairment. This finding suggests the need for continuing attention to land development practices that minimize pollutant discharges into local streams.

9F-1. Improve existing stormwater management practices.

Chapel Hill has in place overlay districts to protect water quality in the watersheds of public drinking water supplies (see Strategy 9A-1 above). However, the Town's stormwater management standards for new developments focus mainly on controlling the ***quantity*** of runoff during design storms rather than addressing the ***quality*** of stormwater runoff. This emphasis will need to change to improve water quality protection and to respond to

existing and proposed state and federal stormwater management regulations.

An alternative to conventional engineering approaches to stormwater management, ***low impact development*** minimizes disturbance of natural areas, reduces the amount of impervious surfaces (buildings and pavement), and, to the extent possible, infiltrates stormwater on-site. It is similar to conservation development (Strategy 9B-2) in its emphasis on maintaining areas in natural vegetation, but differs in its focus on hydrology rather than open space preservation. Low impact development emphasizes integrated solutions that address both the quality and the quantity of stormwater runoff. To more effectively address water quality issues, the Town should consider revising the existing stormwater management standards for both private and public development projects to incorporate low impact development principles. Low impact development principles should also be taken into consideration in revising the Development Ordinance.

Actions: Stormwater Management

- Evaluate the application of low impact development to Chapel Hill (Town staff, Stormwater Management Committee)
- Adopt and implement improved erosion and sedimentation requirements (Chapel Hill, Orange County)
- Develop a stormwater utility/dedicated source of funding for stormwater management (Town Council; potentially Carrboro and Orange County)

Measures of Progress: Stormwater Management

- Complete an evaluation of the application of low impact development to Chapel Hill no later than 12/31/2004
- Adopt a dedicated source of funding for stormwater management no later than 12/31/2004

Erosion caused by stormwater runoff during construction is another threat to the quality of Chapel Hill's watercourses. Orange County is currently developing enhanced erosion and sedimentation control standards and enforcement procedures. The Town should work with Orange County to implement these standards and procedures in Chapel Hill.

Improving stormwater management and erosion control practices will require a greater commitment of governmental resources. In 1999, a Stormwater Utility Technical Review Committee reported that it would be feasible to establish a stormwater utility in Chapel Hill to coordinate and fund local efforts to manage stormwater runoff, soil erosion, and sedimentation. This utility would collect fees to offset the cost of building and maintaining stormwater management infrastructure and of developing and monitoring regulatory compliance programs. To be most effective, a stormwater utility should be multi-jurisdictional, encompassing areas in Carrboro, southern Orange County, and possibly northern Chatham County that contribute runoff to Chapel Hill drainage basins.

9F-2. Develop and implement an effective water quality performance review process.

Improving water quality in Chapel Hill will require coordinated implementation of a variety of strategies. A number of these strategies are described above, including enhanced protection of

trees and natural habitat areas; preservation of open space, especially in the form of greenways along stream corridors; habitat restoration; and improved stormwater management and erosion control practices.

To monitor and increase the effectiveness of these separate initiatives in improving water quality, the Town should develop and implement a comprehensive water quality performance review process. This process should encompass water quality monitoring, design practices that address water quality, stream corridor restoration, and inspections. It should be based on an active, watershed-based monitoring program that tracks water quality trends, screens potential problem areas, and evaluates the effectiveness of alternative best management practices for development. (Key water quality parameters are currently monitored at nine locations on Chapel Hill streams.) Establishing adequate inspection and enforcement procedures is another key element. The process should be developed in cooperation with Orange County because of the regional character of water quality and stormwater management issues.

Action: Water Quality Performance Review

- Develop and implement a water quality performance review process (Chapel Hill, Orange County)

Measure of Progress: Water Quality Performance Review

- Reduce the percentage of water quality samples that exceed state standards to below the average of 1993-1999 levels

10.0 TRANSPORTATION

10.1 OVERVIEW

Like many communities throughout the United States, the Town of Chapel Hill has experienced both the benefits and impacts of improved automobile mobility over the past fifty years. The benefits include enhanced access facilitated by the City's street system and the State Highway System, which link neighborhoods to employment and shopping areas and Chapel Hill as a whole to the larger region.

The "auto-mobility" provided by these streets and highways has also contributed to changes in Chapel Hill's development patterns. Residents are relocating further from their place of destination and driving further. Residents are also making more trips per day as the dependency on automobiles grows, resulting in increased congestion. Past engineering solutions to the problem of increased congestion have been directed to increasing capacity. The resulting improved auto-mobility, however, attracts even more drivers, resulting in even more congestion.

Local and regional growth coupled with automobile dependency will further impact mobility as roadways become increasingly congested. Projections for the year 2025 predict unacceptable performance levels on 15/501, SH 54, Estes Drive, and I-40.

Improvements to Chapel Hill streets and highways impact other modes of transportation, including transit, bicycling, and walking. Because buses must travel along the same congested streets and highways as automobiles, transit mobility is decreased. As streets and highways are widened and automobile traffic and speeds increase, bicycling opportunities are limited and safety has become a significant problem. Similarly, the widening of intersections to accommodate more through, left, and right turns increases the exposure of pedestrians crossing streets.

Locally and nationally, State Highway Departments and municipal traffic engineers make strong arguments for providing

roadway improvements to maintain traffic flow and safety. However, there has been increasing sentiment throughout the country that the pendulum toward auto-mobility has gone too far and that aggressive redirection toward alternative modes is critical for choice and to address the growing congestion issue. Federal transportation policy now emphasizes the need to develop streets and highways that are in ***harmony*** with today's livable communities.

The central purpose of the strategies and actions described in this chapter is to define the changes that need to be made to move Chapel Hill away from the cycle of auto dependency towards a more balanced transportation system that improves mobility and choice for residents. This requires new, creative responses to today's growing transportation problems. Key concepts include:

- Multi-modal streets and highways that provide safe and efficient mobility for automobiles, transit, bicycles and pedestrians.
- Evaluation methods to measure the performance of all transportation modes.
- Development of a comprehensive pedestrian and bicycle network.
- Roadway improvement standards that enhance pedestrian and bicycle mobility.
- Traffic management initiatives that address residential area traffic impacts, improve signal progression along streets and highways, and include new techniques for intersection control such as modern roundabouts.
- Improved traffic impact analysis guidelines that will require a more complete disclosure of the transportation impacts of new developments.
- Increased use of local and regional fixed and non-fixed transit, including an expanded park-and-ride system.
- Transportation demand management programs that promote alternatives to use of the single-occupancy automobile.
- Comprehensive parking strategies that balance parking supply with demand.

In addition, the Town should conduct periodic transportation surveys to assess progress in improving mobility for Chapel Hill residents.

An integrated approach to transportation and land use planning will be key to successfully implementing these concepts. Thus the strategies and actions regarding future land use described in Chapter 8.0 will need to be closely coordinated with the recommended transportation initiatives. As an example, mixed-use development (Strategy 8A-2) is important to foster mixed transportation modes (transit, pedestrians, and bicycles in addition to private vehicles).

One positive result of the initiatives proposed in this chapter should be increased use of non-automobile forms of transportation. However, another result is likely to be increased levels of traffic congestion, as the emphasis shifts away from widening streets and accommodating automobiles as the top transportation priority. This Comprehensive Plan suggests that, in the balancing of competing objectives, it is reasonable to accept higher levels of automobile traffic congestion in exchange for narrower, more pedestrian-friendly streets, and for higher levels of transit, bicycle, and sidewalk usage.

In pursuing the initiatives contained in this chapter, it is important that the Town consider the regional context of Chapel Hill's transportation challenges. Increased congestion on the Town's roadway corridors, for example, is tied to growth in the Triangle region as a whole. Thus the Town should continue to participate in regional transportation planning studies. Current studies relevant to Chapel Hill include:

- Durham-Chapel Hill-Carrboro Urban Area 2025 Comprehensive Transportation Plan: The Durham-Chapel Hill-Carrboro Metropolitan Planning Organization (MPO) is preparing a integrated, comprehensive 2025 Transportation Plan that incorporates future projections of land use. A Draft Plan is anticipated by the end of 2000.

- U.S. 15-501 Major Investment Study (MIS): This study is analyzing roadway and transit improvements, including the development of a fixed guideway corridor, in the US 15-501 corridor between Chapel Hill and Durham. The study is also evaluating the impact of implementing transportation demand management programs in the corridor. Phase I of the MIS was completed in 1999. Phase II is scheduled to be completed in April 2001.

- I-40 HOV/Congestion Management Study: This study is evaluating the feasibility of constructing high occupancy

vehicle lanes (HOV) along I-40 between Orange County and Johnson County. The study will also evaluate the feasibility of HOV along NC 147 in Durham and I-540 in Raleigh. Phase I of the Study has been completed and Phase II was expected to begin in April 2000.

- Triangle J Council of Governments Regional Development and Mobility Principles Study: This study will evaluate various land use scenarios for the Triangle Region and assess their impacts on transportation and other factors (e.g., water quality and air pollution).

10.2 GOALS, OBJECTIVES, AND STRATEGIES

GOALS AND OBJECTIVES

Goal
Develop a balanced, multi-modal transportation system that will enhance mobility for all citizens, reduce automobile dependence, and preserve/enhance the character of Chapel Hill.

Objectives
General:

- Increase emphasis on transit, bicycle, and pedestrian mobility town-wide. Achieve an increase in the percentage of total trips within Chapel Hill by alternative transportation modes and a corresponding reduction in the percentage of trips by automobiles.
- Emphasize transit and pedestrian/bicycle mobility in the vicinity of the downtown and the University of North Carolina at Chapel Hill (UNC) campus.
- Minimize roadway improvements that increase automobile capacity. Proposed automobile capacity improvements should not negatively impact any alternative mode level of service.
- Integrate all transportation modes within existing and future developments with appropriate land uses, design standards, and infrastructure. A priority should be to connect residential areas to nearby commercial centers, schools, parks, and other neighborhoods with sidewalks and bike lanes and/or paths.
- Develop strategic transportation linkages between neighborhoods, transit stops, and activity areas.

Multi-Modal Streets and Highway System: Develop and maintain a comprehensive network of streets and highways that support safe automobile, transit, bicycle, and pedestrian mobility within Town.

Public Transportation: Maintain a public transportation system that enhances the mobility and safety of Town residents, employees, and students. Increase per capita ridership with provision of increased service to an expanded park-n-ride lot system that complements regional transit.

Bikeways: Develop and maintain a system of safe and efficient bikeways (on-street bike lanes and off-street bike paths within greenways) designed to contribute to Town-wide mobility, connecting neighborhoods with activity centers, schools, parks, and other neighborhoods.

Pedestrians: Develop and maintain a pedestrian circulation system, including sidewalks and greenway trails, that provides direct, continuous, and safe movement within and between districts of Town. Link neighborhoods to activity centers, transit stops, schools, parks, and other neighborhoods.

Transportation Demand Management: Develop and implement programs that reduce the percentage of trips made by single occupancy vehicles, and encourage transportation by alternate modes.

Parking: Develop a parking system within downtown that recognizes the need for adequate short-term parking while encouraging policies and practices that minimize the long-term parking supply.

STRATEGIES AND ACTIONS

10A. Multi-Modal Street and Highway System

Developing and maintaining a comprehensive network of streets and highways that support safe automobile, transit, bicycle lanes, and sidewalks is critical to improving mobility within the Town of Chapel Hill. Of particular concern is the development of performance standards for pedestrian and bicycle mobility that can be used in combination with vehicular performance to evaluate and develop Chapel Hill's transportation infrastructure. These standards should be coupled with an aggressive program

of constructing bicycle lanes and sidewalks, with connections to a town-wide greenway network, in order to create a truly multi-modal street and highway system.

The basis for the multi-modal street and highway system is the Arterial Street Plan presented in Figure 15. This plan depicts the primary arterial and collector transportation system that provides mobility within and through the Town of Chapel Hill.

10A-1. Develop a method for evaluating operating performance for pedestrians and bicycles.

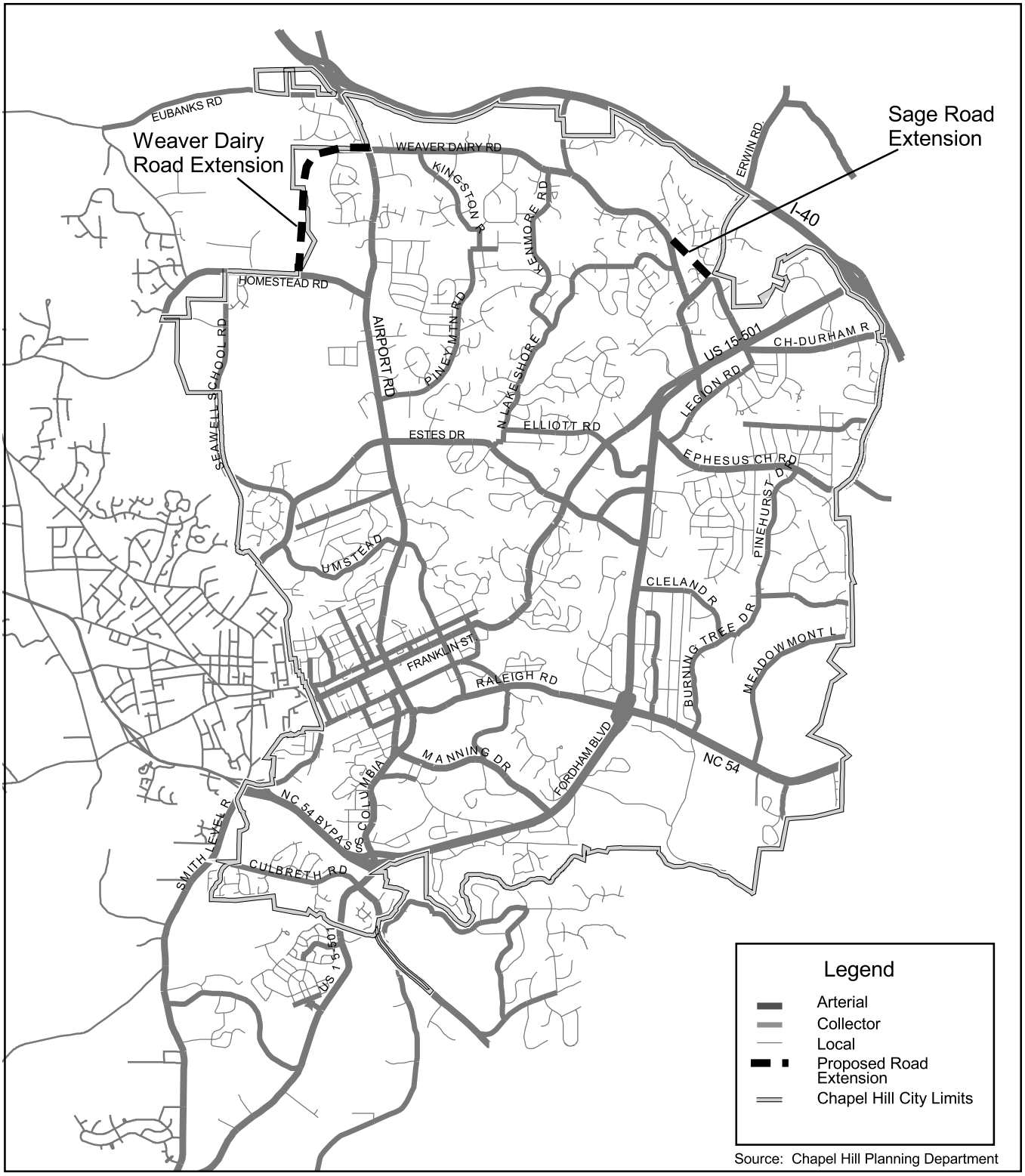
Similar to most communities within the United States, the Town of Chapel Hill currently defines the optimal operating performance for automobiles using a traffic engineering concept referred to as level of service. Levels of service are simply performance measurements from A to F, where A is excellent (free traffic flow with little restriction on maneuverability caused by other vehicles) and F is failure (subject to severe congestion and extreme delays). The measurement is based on average vehicular waiting time for intersections and average travel speed for arterial streets.

Because Chapel Hill does not have a similar method of evaluating the pedestrian and bicycle network, the following measures for assessing pedestrian and bicycle performance are proposed.

Pedestrian Levels of Service Performance Measures

National examples of pedestrian network performance are very limited. One such example, however, was developed as part of the City of Fort Collins, CO Pedestrian Plan. As this plan was being developed, it was recognized that a procedure for measuring pedestrian performance did not exist elsewhere in the United States. The procedure developed for the Fort Collins plan was adapted from pedestrian performance methodologies developed in Europe and includes the following five performance measures:

- Directness: Measurement of the walking trip length.
- Continuity: Measurement of the completeness of the sidewalk system.
- Street Crossings: Measurement of the pedestrian safety in crossing a street.



Source: Chapel Hill Planning Department

Figure 15

Arterial Street Plan

Comprehensive Plan

Chapel Hill, North Carolina

May 8, 2000

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- Visual Interest and Amenity: Measurement of the pedestrian system's attractiveness and features.

- Security: Measurement of the pedestrian's sense of security.

Although these measures can be applied throughout Chapel Hill, the acceptable performance thresholds will vary by type of activity area. As an example, a high pedestrian performance level will be of greater importance in the downtown than in outlying, lower density subdivisions with light vehicular and pedestrian traffic. The following activity areas to which differential performance standards would be applied are proposed:

- Downtown and UNC: This area reflects the most pedestrian-oriented environment where all performance measures should be high.

- Activity Corridors and Centers: This area is defined by the primary commercial and employment centers outside of Chapel Hill's downtown. Providing direct linkages within a minimum of one-quarter mile (and preferably one-half mile) radius of these centers will increase local pedestrian travel.

- School/Recreation Walking Areas: These include all routes within one-quarter to one-half mile of all schools and recreation areas. The distance for schools may need to be greater based upon the school district's policy regarding the distance students must live from a school to be eligible for busing.

- Transit Corridors: These include areas within one-quarter to one-half mile of existing transit and routes identified in the transit plan.

- Other: This category includes all locations not falling within one of the four previous areas.

Figure 16 illustrates existing sidewalks and potential pedestrian zones corresponding to the above descriptions.

Bicycle Level of Service Performance Measures

Intuitively the Town of Chapel Hill has all the makings for a community with high bicycle mobility: a University population, high trip density with relatively short trips, and good climate. The completeness of the bicycle network to provide safe and direct connections, however, is lacking.

Further complicating matters, there is no methodology widely accepted by engineers, planners, or bicycle coordinators that will allow the ability of a roadway to allow efficient operation of both bicycles and motor vehicles to be determined. Determining how existing traffic operations and geometric conditions impact a bicyclist's decision to use or not use a specific roadway is the first step in defining the bicycle compatibility or performance of the roadway.

In December of 1998, the U.S. Department of Transportation in association with the UNC Highway Safety Research Center developed a Bicycle Compatibility Index (BCI) to evaluate existing facilities. This index also assists in determining what geometric improvements may be required for new facilities to achieve the desired level of service performance for bicycles. The BCI Compatibility Index can be applied to the Town of Chapel Hill in the following three ways:

1. Evaluating all existing and planned bicycle routes using the BCI index will provide for an accurate assessment of the bicycle network, not just a map showing where bicycle lanes may or may not happen to be.

2. The BCI index is the first of its kind to provide a direct correlation of facilities to performance, which allow bicycle plan designers to examine the field variables to improve bicycle lane performance. Weak links in the existing and planned network can be determined, and sites needing improvements can be prioritized based on index values.

3. The BCI index provides for performance measures that can be used in combination with traffic engineering standards to balance a street or corridor's level of service. As an example, one could argue that widening a roadway to improve automobile level of service must be done in balance with the bicycle level of service. Hence new roadways or roadways that are being redesigned or retrofitted can be assessed to determine if they are bicycle compatible. If the roadway does not meet the desired level of performance, the model can be used to evaluate changes in the design necessary to improve performance for bicycles.

Actions: Pedestrian/Bicycle Operating Performance

- Develop and adopt procedures for evaluating the operating performance of pedestrian and bicycle facilities (Town staff, Town Council, Walks and Bikeways Commission)
- Use the adopted procedures to evaluate existing and planned pedestrian and bicycle facilities (Town staff)
- Hold a Town/NCDOT summit on bicycle compatible highway design and develop roadway design standards that incorporate bicycle lanes (Citizens, Town staff, NC DOT)
- Incorporate schedule to implement bicycle lane design standards into the Bicycle Improvement Action Plan developed per Strategy 10A-2 (Walks and Bikeways Commission, Town staff, Town Council)

Measure of Progress: Pedestrian/Bicycle Operating Performance

- Adopt pedestrian/bicycle operating performance measures no later than 12/31/2001

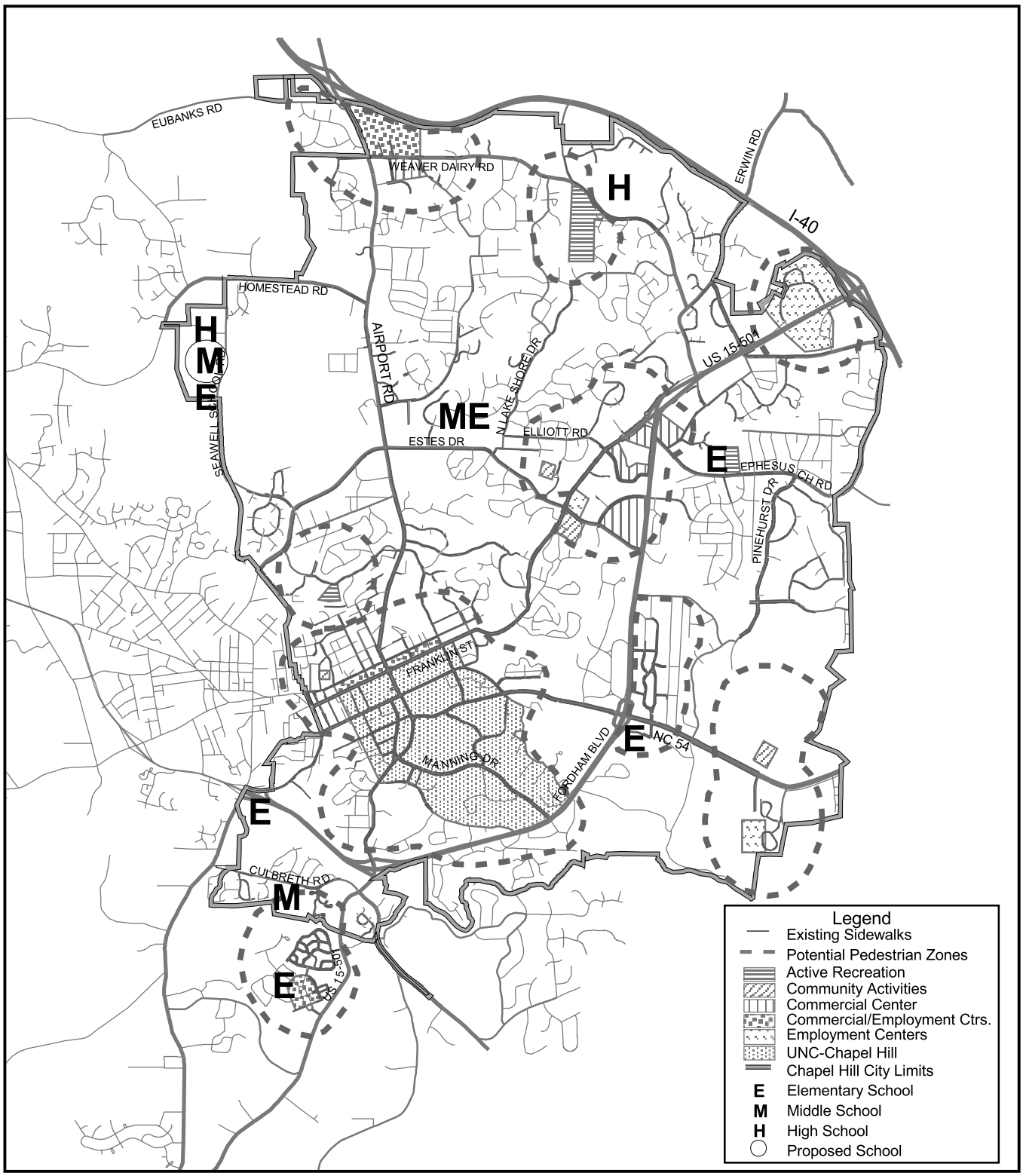

Figure 16

Existing Sidewalks and Potential Pedestrian Zones

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Comprehensive Plan

Chapel Hill, North Carolina

May 8, 2000

Source: Chapel Hill Planning Department

Actions: Pedestrian and Bicycle Networks

- Develop and adopt Pedestrian and Bicycle Improvement Action Plans to achieve target performance measures (Walks and Bikeway Commission, Town staff, Town Council UNC Planning Committee)
- Develop a funding and implementation program to construct priority pedestrian and bicycle improvements identified by the plans (Town staff, Town Council)
- Adopt revised roadway standards incorporating on-street bike lanes, including a commitment to install bike lanes in roadway resurfacing projects where feasible (Town staff, Town Council)

Measures of Progress: Pedestrian and Bicycle Networks

- Adopt a committed funding source and schedule to implement the pedestrian and bicycle networks no later than 12/31/2001
- Adopt revised roadway standards incorporating on-street bike lanes no later than 12/31/2001
- Improve the pedestrian network to acceptable performance levels within the downtown, UNC, and other pedestrian priority zones identified by the Pedestrian Improvement Action Plan no later than 12/31/2004
- Provide continuous bicycle lanes along Airport Road, U.S. 15-501, and Franklin Street from the northern Town boundary to the UNC campus when these roadways are next resurfaced and no later than 12/31/2004

10A-2. Develop a comprehensive pedestrian and bicycle network.

The performance measures described in Strategy 10A-1 will be of little utility unless coupled with concerted action by the Town to develop a comprehensive network of pedestrian and bicycle facilities. This network should be designed to provide direct connections between neighborhoods and from neighborhoods to activity centers. It should include sidewalks and bike lanes along streets and highways (the focus of this strategy) and off-street bicycle/pedestrian paths developed as part of the greenway network (see Chapter 9.0).

A multi-faceted approach to developing the comprehensive pedestrian and bicycle network should be pursued. For example, roadway resurfacing or reconstruction projects should incorporate re-striping to accommodate bicycle lanes wherever feasible. Traffic signals or other devices should be provided at intersections to accommodate pedestrians and bicyclists needing to cross major roadways. Consideration should be given to use of utility rights-of-way for bikeways/greenways where feasible. Development of the pedestrian/bicycle network should be coordinated with Carrboro, Orange County, Hillsborough, and the City and County of Durham to encourage regional connections.

Town-wide bicycle and pedestrian plan recommendations have been developed in draft form but have not yet been adopted. A map of existing and proposed Chapel Hill bicycle facilities based upon the draft Bicycle Plan is presented in Figure 17. The plans should be re-evaluated in the context of the proposed performance measures and a schedule developed for their implementation.

Securing adequate funding will be key to successful implementation of the bicycle and pedestrian plans. Filling in gaps in the existing system should be a major priority in programming new improvements. In addition to the financing required for facility development, adequate funding should be committed in the Town's annual budget for sidewalk, bikeway, and greenway maintenance needs.

Bicycle facility development and maintenance should be coupled with other measures to promote bicycle usage in Chapel Hill, such as a public information and education program. The Town could "lead by example" by integrating bicycle usage into the day-to-day activities of the Police and other departments.

Consideration should be given to adopting standards in the Development Ordinance regarding the provision of bicycle parking/ storage facilities in parking lots and at workplaces. Covered, secure bike parking should also be provided at park-and-ride lots.

10B. Traffic Management

Traffic management is the process of improving the overall traffic flow of the street system without making major roadway improvements. Traffic management also includes changes in traffic control devices and the implementation of traffic calming techniques to control traffic in residential areas and locations with pedestrian and bicycle activity.

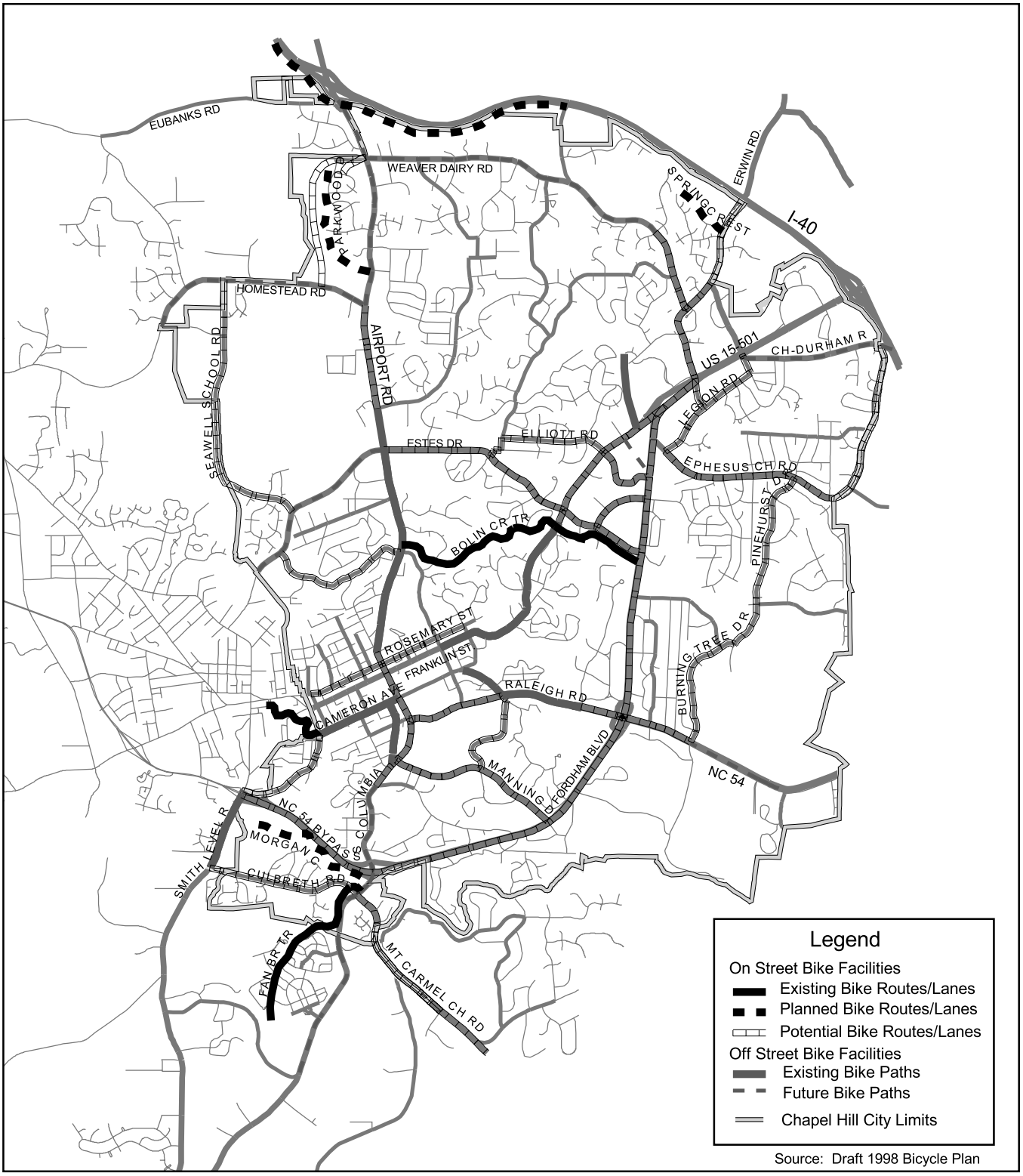
10B-1. Develop a process to address residential area traffic impacts.

As Chapel Hill grows and traffic volumes increase, there is increased propensity for automobile drivers to seek alternative routes to avoid congested arterials. Often these routes are within Chapel Hill's residential areas, where the roads were not designed to accommodate the higher volumes and traffic speeds.

The concept of traffic calming has evolved over the past two decades as a way to lessen the desirability of neighborhood streets for non-local traffic and to reduce traffic speeds. Often neighborhood residents request devices such as speed humps, chokers or barricades to address their problems. These mitigations, however, often cause safety problems or divert the problem to other locations.

A phased, non-capital improvement planning process should be undertaken to address the potential impacts on neighborhoods of drivers seeking alternate routes. This process might include:

- Neighborhood education and awareness program
- Enforcement (i.e., increased patrols, smart trailers that instantaneously report the speed of the passing vehicle and radar speed cameras from which speeding tickets are issued; this may require a statutory change)
- A legal change to give pedestrians the right-of-way (would need to be done at the state level)
- Engineering changes (signing, pavement markings)



Source: Draft 1998 Bicycle Plan

Figure 17

Existing and Planned Bike Network

Comprehensive Plan

Chapel Hill, North Carolina
May 8, 2000

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Action: Neighborhood Traffic Impacts

- Develop a neighborhood traffic management engineering, education, and enforcement program (Town staff, Transportation Board)

- Traffic calming devices (if other measures are ineffective, develop capital improvement plans and test with temporary devices agreed to by the neighborhood, including cones, barrels, barricades and removable speed humps)

Neighborhood traffic management plans could be developed as part of the residential area plans described in Chapter 3.0 or in response to neighborhood requests for traffic calming devices.

10B-2. Develop a comprehensive signal-timing plan.

Traffic signal performance constitutes probably the number one complaint of Chapel Hill residents related to traffic congestion. These complaints stem from the locations of the signals, traffic volumes, and the comprehensiveness of the timing plan.

Actions: Comprehensive Signal-Timing Plan

- Commit funding to conduct comprehensive intersection turn movement counts and develop multiple signal timing plans (Town Council)
- Identify funding source to update traffic counts and timing plans every five years (Town Council)

Measures of Progress: Comprehensive Signal Timing Plan

- Develop and implement a comprehensive signal-timing plan no later than 12/31/2004
- Conduct before and after travel time runs along key corridors to demonstrate travel time savings

Whereas past decisions on where signals were located cannot easily be changed, performance can be improved by developing and implementing a comprehensive signal timing plan. To develop such a plan, current intersection turn movement counts are required at all signalized intersections during the a.m. peak hour, the mid day, the p.m. peak hour, and Saturday. However, collecting these traffic counts and evaluating signal timing is a labor-intensive process. Without an adequate budget for data collection and evaluation, the Town's engineering department must rely on spot field review and minor updates when an occasional intersection might be counted as part of a development review.

As one would expect, even after current traffic counts are collected and a signal timing plan is developed, the ongoing change in traffic volumes will eventually require that new counts be collected and the timing plan updated.

10B-3. Develop modified engineering and design standards for streets.

Historically, highway and arterial street widening and intersection improvements have been undertaken in Chapel Hill primarily to improve the capacity and traffic flow of automobiles. For decades, these widenings were uncontested. Land development projects, including highway-oriented commercial centers and office parks, have also embraced the automobile and the necessity for roadway improvements. Street engineering standards have traditionally emphasized "auto-mobility" to the detriment of other factors such as pedestrian and bicycle safety.

In recent years, the ability of roadway improvements to solve Chapel Hill's growing congestion problem has been questioned. Instead, there is a growing sentiment that roadway improvements should be in balance with other community objectives, such as accommodating bicycle and pedestrian travel and protecting natural resources and community character.

To address these issues, Chapel Hill should reevaluate its current engineering standards for arterial, collector, and local streets. The revised standards should address the following:

- Accommodation of all modes of transportation: pedestrians, bicycles, and (where appropriate) transit in addition to the automobile.
- Measures to reduce travel speeds and to minimize non-local traffic on local residential streets. These could include reductions in traffic lane widths, which would also promote conservation of natural vegetation and low impact development practices (see Chapter 8.0, Strategy 9F-1).
- Consideration of "community character" issues, such as the effects of roadway widenings on visual quality and adjacent land uses.
- The need for "bicycle-friendly" stormwater drainage facilities (e.g., catch basin grates).

Where appropriate, traffic lanes should be narrowed to accommodate bike lanes, increase safety for pedestrians and bicycles, and reduce the amount of impervious surface. Intersection design standards should also be revised to include pedestrian enhancements such as bulb-outs, median refuge islands, and improved crosswalks. Intersection control improvements, such as modern roundabouts[3], should also be addressed in revised street and intersection standards.

The revised standards should apply both to roadway improvement projects undertaken by the Town and to new developments. The revisions will need to be coordinated with

Actions: Modified Street Standards

- Adopt an ordinance change requiring new developments to construct sidewalks and bicycle lanes, including off-site improvements to provide connections to existing facilities as necessary (Planning Board, Transportation Board, Town Council)
- Modify the current street and intersection standards to promote a balance in transportation modes (Town staff)
- Develop and adopt a policy governing roadway widenings and related improvement projects (Town staff, Town Council)
- Coordinate with NCDOT in developing street and highway standards for facilities within Chapel Hill (Town staff, NCDOT)

Measure of Progress: Modified Street Standards

- Adopt ordinance change requiring new developments to construct sidewalks and bicycle lanes as part of the comprehensive development ordinance revision (no later than 12/31/2004)

[3] Modern roundabouts are an alternative to increasing the number of through and turn lanes at signalized intersections to accommodate automobile traffic, which often negatively affects bicycle and pedestrian mobility. In addition to increasing capacity, the benefits provided by roundabouts include reduced delays, improved air quality, enhanced safety for automobiles and pedestrians, reduced need to widen roads, and improved aesthetics. Popular in Europe and Australia, modern roundabouts have been endorsed by the Institute of Traffic Engineers and many state and municipal departments of transportation.

the NC Department of Transportation (NCDOT) regarding their application to state highways in Chapel Hill.

10B-4. Develop improved transportation impact analysis guidelines.

Traffic impact studies prepared for proposed developments describe the benefits and impacts a project is likely to have on Chapel Hill. Typically these studies project the expected growth in traffic resulting from the development, define what impacts might result if the project were to be built, and recommend mitigation actions to offset those impacts.

Actions: Transportation Impact Analysis

- Develop and adopt revised transportation impact analysis guidelines (Town staff, Town Council)
- Refine the regional transportation model to be of sufficient detail to assist in the development of trip distribution patterns for proposed projects (Town staff, Durham/ Chapel Hill/Carrboro MPO)

Measure of Progress: Transportation Impact Analysis

- Address revised transportation impact analysis guidelines as part of the comprehensive development ordinance revision (no later than12/31/2001)

As is true of most communities with requirements for traffic impact studies, the Town's current Traffic Impact Analysis Guidelines focus on automobiles and do not rigorously address transit, bicycle, and pedestrian mobility, impacts, or on/off-site improvements. The guidelines should be expanded to more comprehensively address these issues with special attention to the following issues:

- Define the types of projects that would be required to prepare transportation impact analyses.
- Require sufficient detail to disclose the development's full range of transportation impacts and required mitigation measures. The required analysis should address the projected performance of the development with respect to vehicular, bicycle, pedestrian, and transit modes.
- Develop a transportation impact analysis checklist that must be complete before a study can be submitted for review.
- Retain an independent consultant to review specific elements or all of the traffic study as necessary.

10C. Public Transportation

Providing public transportation services that enhance the mobility and safety of Town residents, employees, and students (both high school and university) is key to developing a balanced, multi-modal transportation system. This concept encompasses both the existing Chapel Hill transit system and the plans for future regional transit. The goal is to increase per capita ridership by providing enhanced service, including an expanded park-and-ride lot system that complements local (and potential future regional) transit.

10C-1. Aggressively promote the use of fixed and non-fixed route transit.

Chapel Hill Transit provides weekday fixed route and express service, weeknight fixed route service, and weekend fixed route service. Other services provided by Chapel Hill Transit include Shared Ride FEEDER service and EZ Rider Service. Shared Ride FEEDER service is an extension of fixed route transit service to areas of Town that do not receive regular bus service. EZ Rider Service is a special service that uses lift-equipped vehicles to transport individuals with limitations that prevent them from using the fixed route service.

The Chapel Hill Transit System celebrated its 25th anniversary of service in August 1998. In commemoration of this event and to look forward to the future, Town Council formed a 25th Anniversary Review Committee comprised of the Transportation Board and other appointed members. The final report of this committee makes a series of recommendations intended to enhance current services and to increase public transit ridership in the future. Key recommendations include:

- Maintain the focus of the route structure on the downtown/University areas while exploring ways to expand service in outlying areas and during non-commuting periods.
- Expand information on the transit system available to the public. Also, increase marketing with efforts targeted to new or expanded user groups based upon changing demographics.
- Promote transit-oriented land use patterns, including development in the downtown area, to encourage greater transit use.
- Work with other regional transit providers to respond to changing commuting patterns and to support implementation of a fixed guideway system linking Chapel Hill to the region.
- Work with the Regional Air Quality Coalition to address air quality concerns, including implementation of additional transit service to relieve congestion along major corridors.

Creative options for expanding the current services, such as free bus passes and on-demand shuttles, need to be explored if transit ridership is to be increased. All possible route and operational improvements should be considered, including changes in route structure, extended and expanded weeknight and weekend service, and expanded park-and-ride service. Transit routes

Action: Local Transit Service

- Develop a plan to promote the use of transit and explore creative options to fixed route transit (Town staff, Transportation Board, Town Council)
- Identify funding sources to improve transit service (Town Council)

Measure of Progress: Local Transit Service

- Adopt a plan and funding source to improve local transit no later than 12/31/2001

should be closely coordinated with existing and future land use patterns as described in Chapter 8.0, including linkages to commercial and residential areas.

Areas with high concentrations of UNC students and employees are the prime candidates for expanded transit service. In addition, areas designated for future higher density development, such as the Horace Williams property, require adequate transit connections to the downtown and main campus of UNC.

Existing local transit routes and coverage and existing and proposed park-and-ride lots are shown on Figure 18.

10C-2. Explore potential regional transit service into Chapel Hill.

The Triangle Transit Authority (TTA) currently provides regional bus service that connects Chapel Hill, Durham, Raleigh, and Research Triangle Park. In addition, TTA has developed a plan for expanded regional transit, including consideration of rail service. The U.S. 15-501 Major Investment Study (MIS) currently under development is exploring potential alternatives for fixed guideway transit into Chapel Hill. Corridor and station study alternatives developed for this study are shown on Figure 18.

Enhanced regional transit service could potentially improve mobility for residents and employees in Chapel Hill. The Town should work with Triangle Transit Authority and UNC to explore opportunities for expanded routes, more frequent service, and extended service hours. This effort should address potential technologies and the locations of transit corridors, major activity center stops (e.g. the Raleigh-Durham Airport, Research Triangle Park, and Amtrak stations), and transfer centers. Future transit service should maximize positive benefits to the community. Key considerations include integration with land use patterns, interface with Chapel Hill transit service, and time frame for implementation.

Action: Regional Transit Service

- Continue efforts to evaluate and promote regional transit service to Chapel Hill (Town Council, Town staff, Transportation Board, UNC, Triangle Transit Authority)

10C-3. Increase use of park-and-ride and associated transit service.

As described in Chapter 4.0, UNC and the UNC Healthcare System are projected to experience significant growth in the foreseeable future. As a result of this growth, increased numbers of employees and students will locate outside the Town of Chapel Hill, while parking opportunities on the UNC campus

are not expected to increase. Increased usage of park-and-ride services is thus essential to minimize traffic impacts on major corridors leading to the downtown and parking impacts in the areas surrounding the campus. The Town should work with UNC, Chapel Hill Transit, and TTA to increase the number and size of peripheral park-and-ride locations with express/limited transit service serving UNC and the downtown. Potential locations for new park-and-ride lots have been identified and are shown on Figure 18.

Park-and-ride lots should be provided with convenient bicycle and pedestrian connections to facilitate use. In addition, support services such as convenience commercial and day care centers should be considered at these locations.

Action: Park-and-Ride

- Develop a master plan for an expanded park-and-ride system, coordinated with express/limited stop bus service to employment destinations (Town staff, UNC)

Measure of Progress: Park-and-Ride

- Adopt a plan and funding source for an expanded park-and-ride system no later than 12/31/2001

10C-4. Explore the feasibility of establishing a downtown transit center and satellite facilities.

The idea of locating a future transit center in the downtown area has been discussed for many years. The purpose of a transfer center is to provide an adequate area for transit passengers to transfer between buses servicing transit routes in and around Chapel Hill. At a minimum, the center would include space for transit vehicles and for layover and waiting passengers.

A downtown transit center could potentially be developed in conjunction with other public or private developments. This kind of facility would serve the needs of passengers who must transfer frequently and would encourage greater use of an expanding transit network that serves the downtown and the larger community. It could also provide a transfer point for the Triangle Transit Authority (TTA) bus service and for private providers.

In addition to the downtown, strategic smaller transfer centers might be appropriate at major activity areas where there a number of transfer trips.

Actions: Downtown Transit Center

- Evaluate the need for, and possible locations of, a transit transfer facility in downtown Chapel Hill (Town staff, UNC, Transportation Board, Town Council)
- Investigate the development of smaller scale transit facilities in other parts of the Town (Town staff)

10D. Employer Transportation Programs

Reducing the percentage of trips made by single-occupancy vehicles and encouraging transportation by alternate modes are essential if auto-dependency and associated traffic congestion are to be reduced. Because congested conditions are typically caused by employees commuting to and from work, employer transportation programs are commonly used to promote alternatives to driving alone.

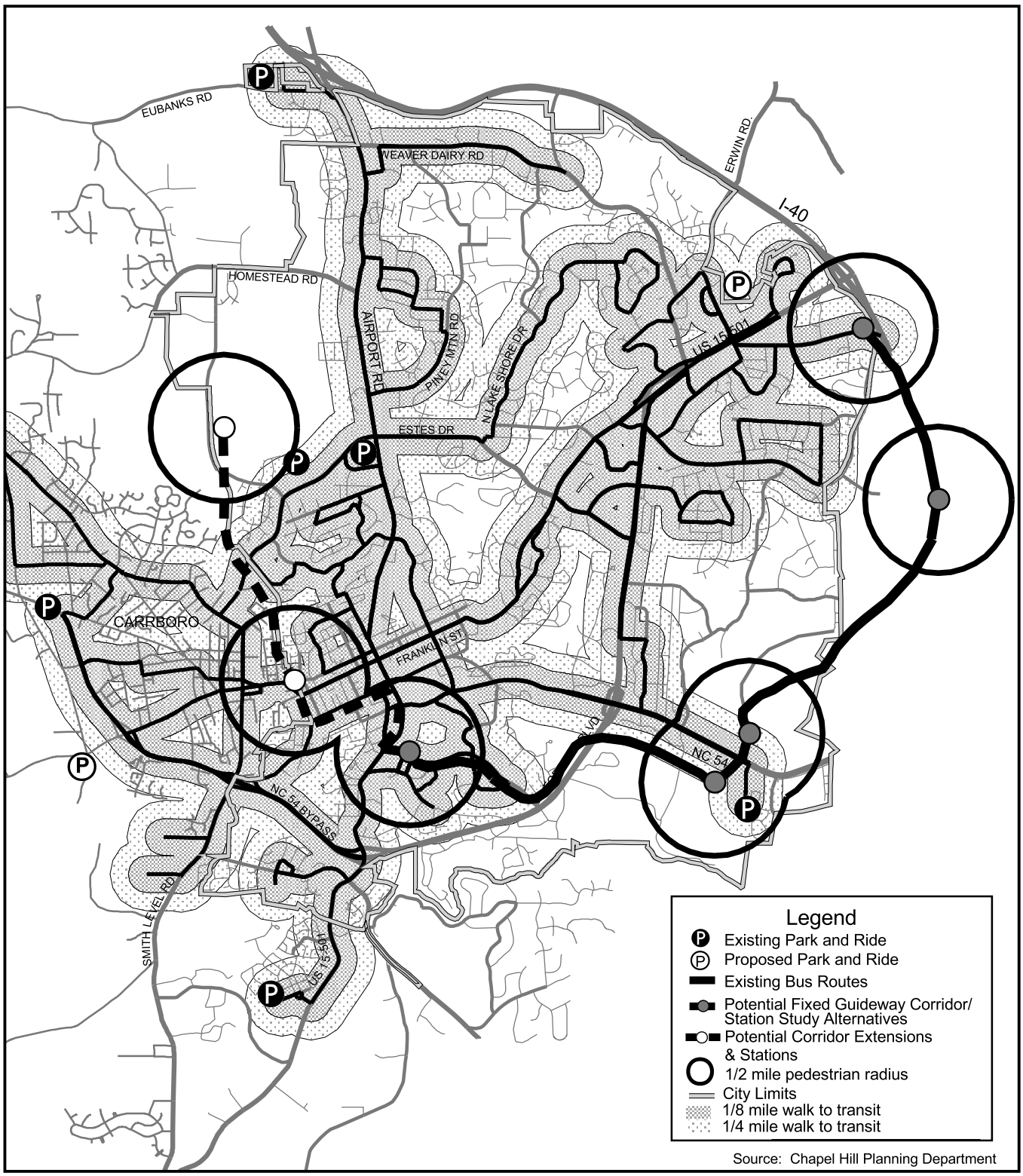

Figure 18

Existing and Proposed Transit Network

Comprehensive Plan

Chapel Hill, North Carolina

May 8, 2000

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10D-1. Develop a Transportation Demand Management program to help reduce traffic congestion.

The Town of Chapel Hill has established Transportation Management Plan Guidelines for new developments within the Town. However, there is no annual follow up to determine whether these Transportation Management Plans are achieving the goals set forth in the plans. It should further be noted that successful TDM programs are generally administered at the regional level with community programs to set policy and support individual activity centers in car-pool matching, vanpool sponsorships, and development of marketing information and data. Often, municipally operated TDM organizations work with various developments and organizations, such as universities and employment centers, in the development and promotion of individual programs. Furthermore, annual follow up is needed to determine the success or failure of project-specific transportation management plans.

Actions: Employer Transportation Programs

- Coordinate with major employers to establish a transportation management organization (Town staff, Town Council, Carrboro, UNC/UNC Healthcare, other employers)
- Prepare and adopt improved standards for transportation management plans (Town staff, Town Council)
- Require the submission of annual follow up reports for developments with TDM programs included as a condition of approval, including proposed changes to reach thresholds if not currently attained (Town staff, Town Council)

Establishment of a dedicated transportation management organization will be needed if Chapel Hill is to develop an effective TDM program. This organization would be supported by and coordinate the efforts of major employers such as the Town of Chapel Hill, Chapel Hill/Carrboro City Schools, UNC/UNC Healthcare System, and Blue Cross/Blue Shield. While the organization could initially focus on Chapel Hill and Carrboro, it should develop a regional scope if it is to be truly effective. The organization would develop an overall transportation management plan and work with employers to promote transportation alternatives such as carpool/vanpools, transit, and bicycling. Experience of other municipalities that have successful employer transportation programs should be considered in developing such a program for Chapel Hill.

In a related initiative, the Town should work with private developers and the transportation management organization to assist in preparing and implementing accountable transportation management plans for developments projected to generate significant levels of traffic.

10E. Parking

In order to promote a vital downtown and commercial centers, it is critical to provide an adequate (but not excessive) supply of convenient, off-street, short-term parking. However, to promote a balanced transportation system, it is also necessary to minimize the long-term parking supply available to employees. The

purpose of minimizing long-term parking through supply and/or pricing policies is to make driving alone to work a less attractive alternative than other modes of transportation.

10E-1. Develop and implement a comprehensive parking strategy.

Peak period commuter trips are directly related to parking availability. When parking is plentiful and inexpensive, the automobile is a compelling alternative. When parking is scarce and expensive, trade off of speed and cost are compared to opportunities for alternative modes. Typically, parking standards specify minimum parking requirements, with no limit on the number of spaces that can be built above the minimum. There has, however, been a growing movement toward both minimum and maximum parking standards as large amounts of parking promote automobile trips, take up large amounts of space, and have adverse visual and environmental impacts.

The availability of parking by type is also important. Employee trips are non-discretionary and long-term by nature. The additional time it might take to travel via an alternative mode is potentially reduced when considering the eight-hour plus duration. In addition, employee work trips have the greatest impact on peak hour congestion. Therefore, reducing long-term employee parking has distinct benefits for combating automobile congestion.

Short-term parking, on the other hand, is typically needed to serve discretionary trips. A person can choose to shop or eat at a number of alternative locations. Based on industry studies, discretionary trips are affected when parking occupancy exceeds 85 percent of available supply.

Therefore, when considering changes in parking requirements, provision of short-term parking is critical to maintain economic vitality, whereas limitation of long-term parking helps promote use of alternative modes.

Although more expensive than surface parking lots, parking structures use less land and eliminate aesthetically displeasing "sprawl" parking. Structured parking should be encouraged where feasible as part of a comprehensive parking strategy.

Shared parking is another element of a comprehensive parking strategy. Because of the large amount of land necessary to accommodate the parked car, opportunities to share parking

between various uses minimizes parking requirements. Uses that are logical candidates for shared parking include office developments where employee parking occurs during the day and theatre uses where parking is at night. Existing church parking lots, if situated in an appropriate location consistent with the park-and-ride master plan, are potential candidates for park-and-ride lots during the weekday because they are typically used on Sunday and some evenings.

10F. Mobility Report Card

To ensure progress in improving mobility for Chapel Hill residents through the above initiatives, community-wide transportation mobility surveys should be conducted on a periodic basis. The survey results will become the Town's "Mobility Report Card" for use by Town Council and staff in prioritizing and modifying transportation programs to address citizens needs.

10F-1. Prepare a periodic mobility survey to track progress in achieving transportation goals and objectives.

The mobility surveys should be conducted every three years, with the first survey becoming the benchmark for subsequent comparisons. Daily and peak hour traffic counts, and transit ridership reports are often conducted annually. Survey elements would include:

- Daily traffic counts along key arterials (25 to 50 locations)
- AM and PM peak hour intersection turn movement counts and level of service analysis of key intersections (25 to 50 locations)
- AM and PM peak hour travel time and delay runs that determine the average time it takes to travel from one end of Chapel Hill to another along various corridors. This analysis should also identify key congestion points for each corridor (ten to twenty corridors)
- Inventory of miles of sidewalk and bicycle lanes (ideally, this inventory should record miles by level of service standards)
- Peak hour and/or daily bicycle and pedestrian counts at key locations (25 to 50 locations)
- Annual and daily transit passenger summaries by total system and route

Action: Mobility Report Card

- Conduct community-wide mobility surveys every three years (Town staff)

Measure of Progress: Mobility Report Card

- Complete initial mobility survey no later than 12/31/2001

11.0 COMMUNITY FACILITIES

11.1 OVERVIEW

Community facilities include infrastructure and services provided by Chapel Hill or other public agencies for the benefit of Town residents. For the purposes of the Comprehensive Plan, community facilities and services include the following:

- Water and sewer
- Solid waste management
- Police protection
- Fire protection
- Schools
- Library services
- Parks and recreation
- Transportation facilities
- Municipal operations

Several of these services (police and fire protection, library services, and municipal operations) are the sole responsibility of Chapel Hill. Parks and recreation is also a Town responsibility, but is supplemented by recreational facilities and open spaces managed by Orange County, Carrboro, and the University of North Carolina at Chapel Hill (UNC). The Town shares responsibilities for solid waste management and transportation with other governmental agencies, while water and sewer service and schools are the sole responsibility of other agencies. Each of the nine public facility types is described in more detail in Section 11.2 below. The locations of existing and planned community facilities in Chapel Hill is shown in Figure 19.

Chapel Hill and its allied service providers maintain high standards for public facilities and services; the school system, for example, is cited by residents as one of the strengths of the community. Residents indicate a desire to continue these high standards, and possibly to expand current facilities in certain areas such as parks and recreation. At the same time, local and regional growth is placing increasing demands on schools, roads, and other facilities. This raises the need for strategic planning if

the quality of community facilities and services that Chapel Hill residents have come to expect is to be maintained in the future.

11.2 GOALS, OBJECTIVES, AND STRATEGIES

GOALS AND OBJECTIVES

Goal
Provide community facilities and services that meet the physical, social, and cultural needs of Chapel Hill's population.

Objectives
Town-wide Criteria: Locate, design, and operate community facilities and services to promote public health, safety, and well-being within Chapel Hill's Urban Services Area.

Facility Types and Standards: Establish standards or performance criteria for the following types of facilities and services, to ensure that they adequately meet community needs:

- Water and sewer
- Solid waste management
- Police protection
- Fire protection
- Schools
- Library services
- Parks and recreation
- Transportation facilities
- Municipal operations

STRATEGIES AND ACTIONS

11A. Community Facilities Planning and Development
A survey of the last ten years reveals that Chapel Hill and allied providers have generally done well in providing basic public facilities and services to serve the growing population. Provision of water and sewer service, public safety, schools, and municipal facilities has generally kept pace with or, based on planned capital improvements, is expected to maintain adequate levels of system capacity. Nevertheless, capacity problems are being experienced in some areas (e.g., roads, waste management, and

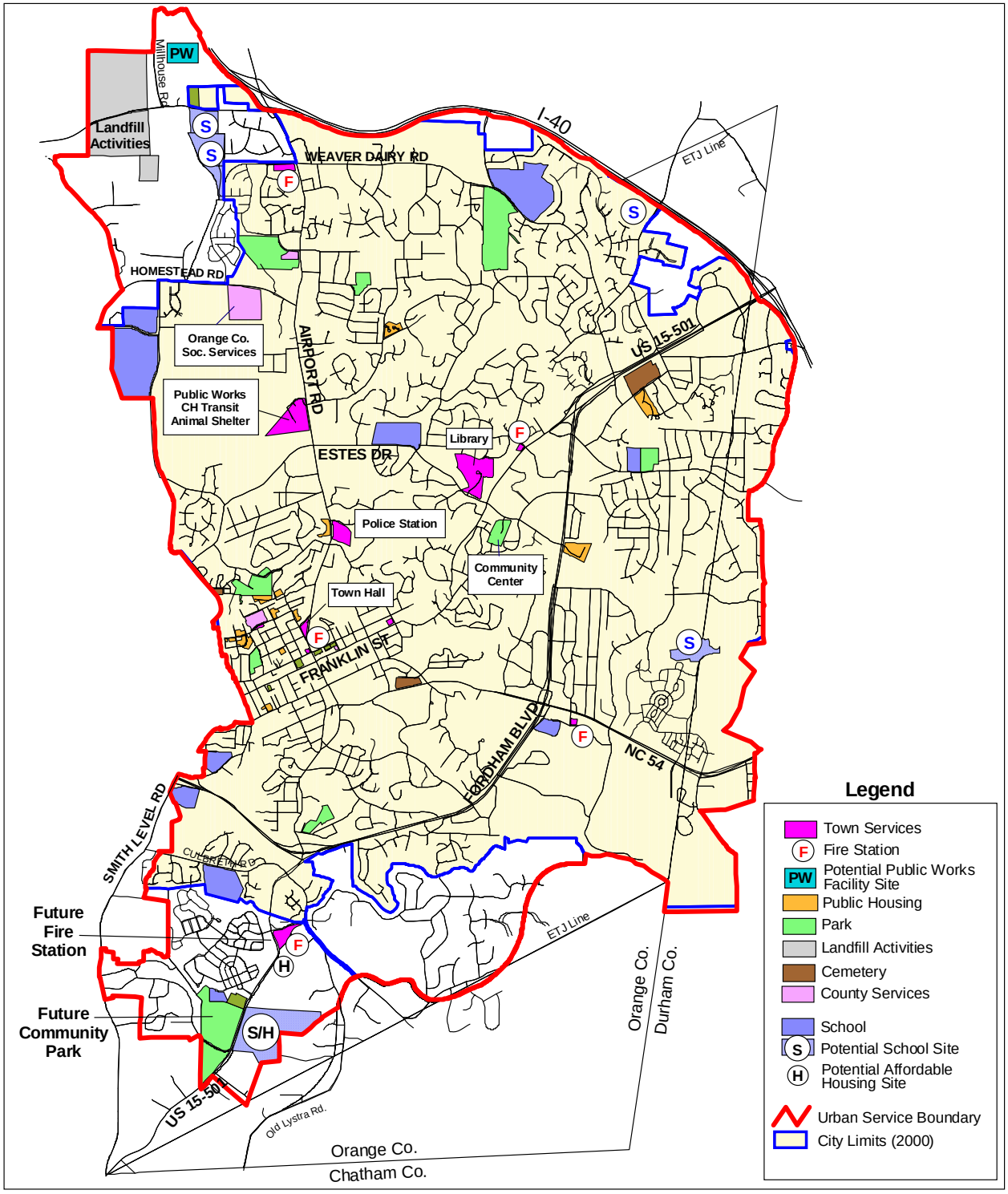

Figure 19

Existing and Planned Community Facilities

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Comprehensive Plan

Chapel Hill, North Carolina

May 8, 2000

library services), indicating a need to be proactive in meeting the community's needs for public facilities and services.

An example of such a proactive approach is establishment of a "growth management protocol" for the provision of community facilities and services (see Chapter 8.0, Land Use and Development, Strategy 8B-1). One of the recommended components of this protocol is the adoption of level of service standards, or similar performance criteria, to measure the capacity of each type of public facility or service. The level of service standards may be derived from government requirements, professional or industry standards, or even from measuring citizen expectations through surveys or other means. Some of the standards are currently in place (e.g., the maximum response radius and time for fire stations) while others need to be developed (e.g., standards for the provision of parks and recreational facilities).

A Community Facilities Plan is essential if a proactive approach to providing public facilities and services is to be implemented. This plan will set realistic requirements to meet the needs of the current and future population for the various types of public facilities and services provided by the Town and other service providers. Based upon a comparison of the current and programmed provision of public facilities to the levels of service or other performance standards identified in the plan, needed capital improvements or other means of meeting future needs can be planned for.

The Community Facilities Plan should address water and sewer service, solid waste management, police, fire protection, schools, libraries, parks and recreation, transportation facilities, and municipal operations. Several of these facilities and services are not under the direct control of the Town (e.g., water and sewer service and schools) while others are multi-jurisdictional in nature (e.g., solid waste). Close cooperation with other providers will thus be necessary. In the case of facilities provided by others, the Town's role will be one of coordination, information-sharing, and support.

The Community Facilities Plan should also address issues of development timing and support of and consistency with the Future Land Use Plan. The suggested growth management protocol may be the basis for dealing with these issues by adopting a staged plan for the expansion of facility capacity. For example, different levels of service may be associated with

different land use intensities within the established Urban Services Boundary.

Finally, the Community Facilities Plan should address the relationship between the demand for public facilities and the Town's (or the appropriate agency's) fiscal ability to provide those facilities at the level of service standards set forth in the Plan. The growth management protocol established per Strategy 8B-1 should include provisions for mitigation actions or payments by applicants to offset the demands of new developments on public facilities and services. While the public agencies are still responsible for implementing capital improvements, this would provide a valuable source of funding that directly relates service demands to service costs.

The parameters of the Community Facilities Plan are described below in the context of the eight types of public facilities and services.

11A-1. Work with OWASA to provide safe, adequate water supplies and wastewater treatment capacity for the community and the region.

Water and sewer service is provided by the Orange Water and Sewer Authority (OWASA). OWASA is a regional public water and sewer utility established in 1977 to serve the Chapel Hill and Carrboro communities, as well as other nearby areas in Durham and Chatham counties.

Potable water is delivered to Chapel Hill's residents, businesses, industry and other facilities located within the Urban Services Boundary using a system of trunk lines and mains, water storage facilities, and booster pumps.

OWASA's raw water supply is drawn from a variety of sources, including the Cane Creek Reservoir, University Lake, and Stone Quarry Reservoir. The 30-year safe yield of OWASA's present supply system is 11.2 millions of gallons per day (MGD).

The raw water is treated at the Jones Ferry Road Filtration Plant in Carrboro. Present capacity of the plant is 15 MGD. Unlike water supply reservoirs, which are sized to meet average daily demand calculated over a year, treatment facilities must be able to meet the maximum or peak demand of any given day. Current peak daily demand in the OWASA service area is approximately 13 MGD. Additionally, treated water storage

capacity, necessary to maintain adequate water flow and pressure throughout the system, is 8.0 million gallons.

Wastewater is reclaimed at the Mason Farm Treatment Plant and discharged into Morgan Creek. The plant has a current capacity of 9 MGD, with about 0.5 MGD of unused, uncommitted capacity available to serve new development. Additional capacity will be provided through a 3 MGD expansion and renovation project which is underway, with a scheduled completion date of late 1999 or early 2000.

OWASA is preparing a Comprehensive Water and Sewer Master Plan, with a planning horizon of 2050. Preparation of this plan is being coordinated with Chapel Hill to ensure consistency with the Town's Land Use and Development goals. The Town should work in close coordination with OWASA to implement the Master Plan through actions such as:

- Adopting appropriate performance standards.
- Monitoring the Town's total capacity needs in order to insure a sufficient water and sewer service supply to meet projected demands.
- Supporting water reuse and conservation efforts.
- Working with adjacent jurisdictions to minimize development impacts within the water supply watersheds.

Action: Water and Sewer

- Support OWASA in developing and implementing the Comprehensive Water and Sewer Master Plan (OWASA, Town of Chapel Hill)

The Town will also continue to encourage private sector financing of capital costs associated with future expansion of water and sewer facilities necessary to serve new development.

11A-2. Implement a solid waste management plan that meets the waste reduction goals adopted by Orange County and Chapel Hill.

Currently, the Orange County Landfill serves the solid waste disposal needs of Chapel Hill, which generates about 28 percent of the total waste handled by the landfill. Owned and managed by Chapel Hill, Orange County, and Carrboro under the name of Orange Regional Landfill Owners Group, the facility has a projected capacity of about six years (2005). There are no plans to construct a new local or regional landfill, but rather to eventually divert solid waste disposal to a location outside of the region.

Adoption and implementation of advanced recovery and waste reduction techniques are essential because of the costs associated with transporting solid waste outside of the region. Based on this

consideration and a long-standing commitment to resource conservation, the Town has adopted specific waste reduction goals. These goals are to reduce the volume of solid waste landfilled per capita by 45 percent by the year 2001 and 61 percent by the year 2006, taking 1991-1992 as the base year against which to calculate the reduction.

The above goals are consistent with those contained in the Countywide Solid Waste Management Plan. Specific waste reduction measures contained in the plan that are designed to achieve these goals include:

- ***Construct a Materials Recovery Facility for processing recyclables.*** One-third of the Greene Tract has been committed for possible use for non-disposal solid waste purposes.
- Adopt volume-based solid waste fees.
- Adopt bans on landfilling recyclables.
- ***Increase recycling and general waste prevention education.*** This should include programs that encourage the following: reuse, repair, and composting; recycling-based manufacturing and the use of other waste prevention technologies such as reducing the use of packaging; and reductions in the use of toxic, long-lived, and non-recyclable materials.

In April 2000, solid waste management functions formerly performed by the Town, on behalf of the Landfill Owners Group, were transferred to Orange County. Nevertheless, the Town will coordinate and cooperate with the County and other local governments in implementing measures to achieve the adopted goals by the target dates, and will continue to provide waste collection and transport services.

Action: Solid Waste Management

- Work with Orange County and Carrboro to meet the adopted waste reduction goals (Town of Chapel Hill, Orange County, Carrboro)

Measure of Progress: Solid Waste Management

- Achieve the Town's solid waste reduction goals

11A-3. Provide for expansion of staff and facilities needed to meet future community needs for police protection.

The Chapel Hill Police Department is composed of three divisions, including the patrol division, the investigations division, and the support services division. Police services are supplemented through programs such as ongoing neighborhood watch/policing programs.

Crime statistics for the period from 1988 to 1998 indicate increases in some categories and decreases in others. Total crimes against persons and property crimes decreased 24 percent and 4 percent, respectively, during this period, although some individual categories increased. Traffic citations increased 76 percent during the same period, while drug arrests increased 199 percent from 1990 to 1998.

In 1997, the Police Department had a total staff of 123 persons. In that same year, the department handled 28,000 calls for service. Based upon the projected population increase, the volume of service calls is expected to increase by 54 percent by the year 2025. Total projected staff for 2025 is 189 persons. This number is derived from population projections and a performance standard based on a desired maximum utilization or workload capacity rate of approximately 40 percent.

Action: Police Protection

- Upgrade the Police Headquarters Building and take other action as necessary to meet community police protection needs (Police Department, Town Council)

Measure of Progress: Police Protection

- Monitor crime rates with the objective of achieving a decline in the overall crime rate and the different categories of crime over time

The above and other factors are considered in calculating additional facility demands. Population projections to the year 2025 suggest that additional space will be needed to accommodate expanded staffing and equipment needs. The existing Police Headquarters Building is located on Airport Road near Umstead Drive. The facility is in poor condition and in need of extensive rehabilitation. The 1996 Bond Project commits $700,000 for renovation of the Police Headquarters Building. In addition, at least one substation will be operating in the community (at Southern Village) by fiscal year 2001-2002, which will alleviate space needs.

The above standards will continue to be used to calculate additional police staffing and facility demand. However, the continued adequacy of these standards should be evaluated periodically and action taken as needed to respond to changing conditions.

11A-4. Provide for facility development and equipment acquisition needed to meet future community needs for fire protection.

The Chapel Hill Fire Department facilities include a headquarters building, three substations, and a training facility. A fourth substation will be built by mid-2001 at Bennett Road to serve the Town's southern area. With the addition of this station, the entire Chapel Hill Urban Services Area will have fire protection coverage.

Currently, fire services are provided on the basis of a one and one-half mile response radius from each station, to ensure an emergency response of less than five minutes. This standard is based upon recognized and accepted professional practice and also reflects resident demand for fire protection service. It is used to determine the need for additional fire equipment and facilities. The Town's service provision has easily met the five-minute response time standard for the past five years, and, with the completion of the Bennett Road station, will continue to do so.

Planned fire protection improvements include the renovation of the Fire Training Facility and of Fire Station No. 3 at Elliot Road (target date 2000 for both), the acquisition of a new fire truck in the year 2000, and the replacement of existing fire trucks between 2000 and 2003.

Currently used standards will continue to be applied to the calculation of additional fire station facility and equipment demand. However, the continued adequacy of these standards should be evaluated periodically and action taken as needed to respond to changing conditions.

Action: Fire Protection

- Construct the Bennett Road substation and take other action as necessary to meet community fire protection needs (Fire Department, Town Council)

Measure of Progress: Fire Protection

- Maintain a maximum response radius of 1-½ miles from each station and an emergency response time of less than 5 minutes

11A-5. Support Chapel Hill-Carrboro City Schools in providing quality public education, including school facilities adequate to meet future enrollment projections.

The quality of the public school system is cited as one of the elements that makes Chapel Hill such a desirable community to live in. Most of Chapel Hill is served by the Chapel Hill-Carrboro City Schools. The district covers the two towns and extends south to the Orange/Chatham County line, west of Carrboro, and a short distance north of I-40. The portion of Chapel Hill that is located in Durham County is served by the Durham County School District.

Chapel Hill/Carrboro City Schools include eight elementary schools, three middle schools (with a fourth one under construction), two high schools, and a Hospital school. There were 8,939 students enrolled in these schools in September 1999. Student enrollment is growing annually at a rate of about five percent.

With the coming on-line of the new middle school in the next two years, demand will be adequately met at all levels. However, projections indicate that a new elementary school will be needed

Action: Schools

- Support Chapel Hill-Carrboro City Schools in implementing a long-range planning process to address future needs for school facilities (Chapel Hill-Carrboro City Schools, Chapel Hill, Carrboro)
- Designate potential school sites on the Future Land Use Plan (Town staff, Town Council)

Measures of Progress: Schools

- Establish performance standards to be used in assessing the need for future school facilities no later than 12/31/2001
- Include an update on capacity in an annual Growth Management Report

within three to five years. The Town should assist Chapel Hill-Carrboro City Schools in identifying student enrollment increases based on projected future population. In addition, the Town should support local school districts (public and private), UNC, and other education providers as they work to maintain and improve educational facilities and services.

These objectives will be met by working closely with the school districts, through mechanisms such as the Schools and Land Use Council, to facilitate advance planning of school facilities (five to ten-year horizon). The Town should coordinate with the education providers in defining and supporting a framework for information sharing. Through this framework, the Town can provide the most up-to-date demographic information to assist in projecting future student enrollments. In addition, sites identified by Chapel Hill-Carrboro City Schools as potential new school locations will be incorporated into the Future Land Use Map (see Chapter 8.0).

11A-6. Develop and implement a plan to meet future community needs for library services.

Established in 1958, the Chapel Hill Public Library provides free library services to all residents of Orange County. The current library building, completed in the early 1990's, is located in Pritchard Park, a wooded property that is planned for park development within the next two years. The library contains 27,315 square feet of floor area and accommodates approximately 120,000 volumes. Circulation has increased by over 40 percent to about 17 volumes per capita in the past decade.

These numbers, coupled with earlier space demand projections of between 40,000 and 48,000 square feet by the year 2000 (which were contained in the 1989 Comprehensive Plan Community Facilities Report), indicate that demand for library services exceeds the current capacity of the Pritchard Park library.

In 1997, Town Council appointed a Library Needs Assessment Task Force to "study what the community wants from its public library and the library's short and long-term service needs." The conclusions of the 18-month study were as follows:

- The level of demand for library services created by population growth in Chapel Hill and Southern Orange

County already outpaces available library resources and will continue to do so.

- The requirement that the 21st century public library provide access to adequate per capita levels of technology represents a resource planning and allocation challenge.
- The Town's changing minority population represents both an enriching opportunity and an additional service pressure for the Library.
- Under any scenario, the current facility is already proving inadequate for meeting the space needs of the Chapel Hill Public Library.

The task force's work should be developed into a more detailed plan and implementation program to address the community's future needs for library services. This plan should determine the need to expand the existing library or to develop new facilities.

Action: Library Services

- Develop and implement a Library Master Plan (Chapel Hill Public Library, Town Council)

Measures of Progress: Library Services

- Complete Library Master Plan no later than 12/31/2004
- Establish performance standards to be used in assessing the need for future library services in the Master Plan

11A-7. Develop and implement a plan to meet future community needs for park and recreational facilities.

Widespread community interest in recreational activities makes the provision of parks a priority for the Town. However, because Chapel Hill is largely built out, the Town faces constraints in attempting to provide additional park and recreational facilities to serve its residents.

Currently, Chapel Hill owns 13 parks with a cumulative total of 126 acres. The Northern Community Park is under development and two more sites have been acquired for future park development: Pritchard Park (site of the Chapel Hill Public Library), and Southern Community Park. When completed, these three properties will bring the total parkland to 273 acres.

The Town has committed to preparing a Parks and Open Space Plan to address the future provision of recreational facilities for residents. Because undeveloped land in Chapel Hill is rapidly disappearing, this plan should target appropriate parcels for acquisition in the short term, based upon identified community needs for recreation and open space. Given the difficulties associated with acquiring additional land, a variety of strategies to increase public recreational opportunities should be pursued. Potential strategies that should be considered in developing this plan include:

- Evaluate the suitability of property already owned by the Town for park development, particularly to identify

Action: Park and Recreational Facilities

- Develop and implement a Parks and Open Space Master Plan (Town staff, Parks and Recreation Commission, Town Council; coordinate with Carrboro and Orange County Parks and Recreation Department)

Measures of Progress: Park and Recreational Facilities

- Complete Parks and Open Space Master Plan no later than 12/31/2001
- Establish performance standards to be used in assessing the need for park and recreational facilities in the Master Plan

opportunities to establish neighborhood parks in areas in need.

- Evaluate redevelopment sites for potential acquisition and park development.
- Enhance existing parks and recreation facilities to improve and increase utilization. These enhancements may include adding lights to existing sports fields to expand hours of use; improving bicycle and pedestrian links to all parks; and redesigning facilities to better meet the specific needs of the community.
- Ensure that new development provides for the park and recreational facility needs of future users of the development.
- Continue to pursue facility cost-sharing and joint-use/joint-planning agreements with other agencies such as Chapel Hill-Carrboro City Schools, UNC, and regional open space agencies. Orange County is preparing a county-wide parks and open space plan, which includes recommendations for coordinated planning to meet Town/County recreational needs.

11A-8. Develop a multi-modal transportation system, including operating performance standards for pedestrians and bicycles as well as automobiles.

As described in Chapter 10.0 (Transportation), the Town of Chapel Hill currently defines the optimal traffic operating performance for automobiles using level of service standards ranging from A to F. Level of service problems have been regularly addressed by undertaking highway and arterial street widening and intersection improvements. However, in recent years the ability of roadway improvements to solve Chapel Hill's growing congestion problems has been questioned.

Further, similar performance standards do not exist to measure the capacity of pedestrian and bicycle facilities. Assessing the quality of travel modes other than the private automobile is critical to the Town as it undertakes efforts to develop a balanced, multi-modal transportation system.

Strategies and actions for developing such a multi-modal transportation system, coupled with suggested operating performance standards, are described in detail in Chapter 10.0.

11A-9. Develop and implement a long-range facilities plan for municipal operations.

Municipal operations facilities provide services that meet the needs of the population and are available to all residents in order

to promote health, safety, and well being. Current Town facilities include the Municipal Building, Homeless Shelter, Old Post Office/Court Building, the Municipal Operations Facility, and three cemeteries.

While the existing municipal facilities are generally adequate to meet community needs, they should continue to be monitored for needed improvements. Historically, planning for municipal facilities has been done piece-meal or has taken a back seat to other priorities until the needs become unsustainable.

One current issue is the Municipal Operations Facility, which houses a number of Town departments and operations and is located on land leased from the University. The lease for this building will expire at the end of the year 2007 and its status is in question after that date. A long-range solution should be sought, preferably in coordination with an overall planning process for the total municipal services system, where consideration is given to issues of renovation versus replacement, and decentralization versus consolidation.

Actions: Municipal Operations

- Develop a long-term solution for the Municipal Operations Facility (Chapel Hill, UNC)
- Develop and implement a long-range facilities plan for municipal operations (Town staff, Town Council)

Measure of Progress: Municipal Operations

- Have long-range solution for the Municipal Operations Facility in place no later than 12/31/2004

12.0 FISCAL CONDITIONS

12.1 OVERVIEW

The Town of Chapel Hill's fiscal condition is generally sound, as indicated by the following measures:

- Chapel Hill is one of the smallest municipalities in the country to have an Aaa bond rating from Moody's Investors Service.
- The total General Obligation debt service requirement for Fiscal Year (FY) 1998-99 was approximately $2.2 million, or 6.8 percent of total General Fund expenditures (10 percent or less is considered desirable).
- The Town's outstanding General Obligation long-term debt was approximately $25.8 million as of June 30, 1999 or 1 percent of the Town's total property tax base of about $2.9 billion. Under North Carolina State law, the Town's debt limit is 8 percent of the total property tax base or about $230,000,000, leaving a legal debt margin of $204,170,000.
- Like other North Carolina municipalities, Chapel Hill relies on property taxes to fund the majority of its operating expenses. The Town's tax rate has remained essentially stable over the last ten years (53.8 cents per $100 valuation in 1998-99 compared to 54 cents per $100 valuation in 1988-89).

The Town's approved budget for FY 1999-2000 includes a tax rate increase of 2.5 cents to 56.3 cents to help pay for increased operating and debt service costs.

The total property tax burden for Chapel Hill residents is a combination of Chapel Hill, Orange County, and Chapel Hill/Carrboro school system levies. Town property taxes constitute about 33 percent of this total in FY 1999-2000:

Chapel Hill	.563
Orange County	.919
Chapel Hill/Carrboro School System	.220
Total	$1.70

In FY 1999-2000, Chapel Hill residents in Durham County paid taxes at a rate of .563 Town and .9297 County (total $1.4927). There is currently no separate Durham Public Schools supplement to this rate.

While Chapel Hill's tax rate was stable during the period between FY 1988-89 and FY 1998-99, Orange County's rate increased over 50 percent during the same period (from 64.5 cents to 90.2 cents). The increase was largely due to school construction and debt service.

Chapel Hill residents have identified two major fiscal issues that need to be considered in implementing the Comprehensive Plan. The first is the perception that the residential property tax burden is relatively high. Approximately 80 percent of the Town's real property tax base (about $2 billion) is residential and 20% (about $500 million) is non-residential property. For the purpose of comparison, residential and non-residential development comprised 66 percent and 34 percent, respectively, of the property tax base of Wake County. The relatively low percentage in Chapel Hill is related to the tax-exempt status of the Town's major employers, the University of North Carolina at Chapel Hill (UNC) and the UNC Health Care System.

A second issue is identifying funding sources to pay for Comprehensive Plan initiatives such as greenway acquisition and development of bikeway and sidewalk networks. The Town's long-term debt includes $13.5 million in General Obligation bonds approved by voters in November 1996 to finance several major capital improvement projects:

Parks and recreation facilities	$5.0 million
Open space and greenways	$3.0 million
Fire and police facilities and equipment	$2.0 million
Public works facilities	$0.5 million
Street and sidewalk improvements[1]	$3.0 million
Total	$13.5 million

[1]Includes $500,000 for sidewalks and bikeways

The major capital projects proposed in the Comprehensive Plan will require substantial additional investments by the Town if they are to be implemented. As an example, the Draft 1998 Bicycle Plan identified an approximate cost of $4.8 million, or $587,000 per mile, for six priority bikeway projects. The fiscal implications of using General Obligation bonds to finance new capital projects is illustrated by the following hypothetical example:

Assuming a $10 million bond and an interest rate of 5 percent over 20 years, approximately $970,000 would be required to pay the annual debt service. This is equivalent to 3.3 cents on the tax rate (or $294,000 generated by a one-cent increase). A 3.3 cent tax rate increase is equivalent to about $50 for a property valued at $150,000.

12.2 GOALS, OBJECTIVES, AND STRATEGIES

GOALS AND OBJECTIVES

Goal
Enhance the Town's ability to provide services and manage its development through financial stability and fiscal planning.

Objectives
Fiscal Analysis: Integrate fiscal assessment and cost-benefit analysis into the Town's decision-making processes.

Tax Base: Encourage appropriate development that reduces reliance on residential property taxes, consistent with supporting a high quality of life. Consider incentives and opportunities for strategically located non-residential development.

Bonds: Promote use of bonding authority to achieve key community objectives.

STRATEGIES AND ACTIONS

12A. Fiscal Impacts of Private Development
Increasing the Town's tax base in a manner that supports community values (e.g., maintaining town character and

providing alternatives to automobile usage) is an important objective of the Comprehensive Plan. Although private land uses such as residential and office produce tax revenues, they vary in their effects on governmental finances based upon the difference between the revenues they generate and the cost of municipal services required to support them. No studies have been conducted in Chapel Hill to quantify the relative costs/benefits of different land uses. In general, office development generates the highest net revenues of all land uses. Retail development generates much lower revenues than office uses. Residential development can have a positive or negative fiscal impact based upon factors such as housing cost and the number of school age children.

12A-1. Incorporate analysis of projected tax revenues versus costs in terms of demands on community facilities and services in making decisions on rezonings.

Whether proposed by the Town or by a property owner/developer, rezoning of land from one category to another is the most appropriate time to consider the fiscal impacts of private development because it involves a change in adopted land use policy. From the Town's perspective, fiscal costs and benefits should be evaluated when initiating rezonings to implement the Land Use Plan. They should also be considered when making decisions on private requests for traditional or conditional rezoning.

A fiscal impact assessment model should be developed to allow quantitative analysis of the costs and benefits of proposed rezonings. Orange County has a model in place that it uses to evaluate the net fiscal impacts on the County and school district budgets of proposed residential and non-residential developments. This model could be evaluated to determine whether it could be adapted for use by Chapel Hill.

It is important to note that fiscal impact should not be the primary criterion used to evaluate proposed rezonings. Rather, it should be considered along with other objectives such as effects on community character, affordable housing, etc. The most effective approach to growing the tax base will be one that reinforces the qualities that make Chapel Hill such a desirable community while providing an appropriate balance between residential and non-residential development. This balance will be achieved by implementing the Future Land Use Plan and related policies, including proactive measures to promote mixed use and non-residential development in targeted locations.

Actions: Fiscal Impacts of Private Development

- Adopt a policy requiring analysis of the fiscal impacts of proposed rezonings (Town Council)
- Develop a model and procedure for analyzing the fiscal impacts of proposed rezonings (Town staff)

Measure of Progress: Fiscal Impacts of Private Development

- Adopt a fiscal impact model and procedures no later than 12/31/2004

Action: Town Permit and Fee Structure

- Develop a new permit and fee structure to fully recover the costs of managing private development (Town Council)

Measure of Progress: Town Permit and Fee Structure

- Develop a new permit and fee structure no later than 12/31/2001

12A-2. Revise the Town's permit and fee structure to capture the full cost of services provided.

Currently, the costs of staff review and other expenses incurred in such activities as reviewing development applications, issuing building permits, and conducting engineering inspections exceed the fees charged for such services. The Town should review its current permit and fee structure with the intent of raising fees as necessary to fully recover the costs of managing private development. The current town policy to exempt affordable housing developments from such fees should be continued. The Town should also evaluate the pricing and categories of business privilege licenses to determine if additional revenue could be appropriately generated.

12B. Financing Comprehensive Plan Initiatives

Like previous town plans and initiatives, this plan contains a number of strategies that will require significant investment of public funds if they are to be implemented. Examples include acquisition/development of complete greenway, bicycle, and sidewalk networks; funding to increase the supply of affordable housing; and streetscape improvements and other investments in the downtown. These concepts are not new to Chapel Hill; the community is well aware of its needs and desires and has generated many creative and thoughtful ideas in this and other planning processes. In the past, a major stumbling block to implementing planning initiatives supported by the community has been lack of funding. While the Town has used General Obligation Bonds to finance capital projects such as park and recreation facility development, open space and greenway acquisition, and sidewalk and bikeway improvements, much larger sums will be needed if the priority programs identified by the Comprehensive Plan are to be fully implemented.

As described in Section 12.1, Chapel Hill is in excellent fiscal condition, a tribute to prudent management practices by town government. Given the Town's sound fiscal situation and the strong support of the community for ideas such as more parks, trails, and greenways, perhaps what is needed is a new paradigm, one that shifts the emphasis from "spending" to "investment." Consider whether any mature, successful U.S. corporation has not made major investments to avoid obsolescence and maintain competitiveness and customer loyalty. While Chapel Hill may not be strictly analogous to a private corporation, it nevertheless competes for residents and businesses that historically have chosen it because of its special community character. To fail to

make the necessary investments to maintain its standard of quality, thereby losing its "competitive edge" as the region's most desirable place to live, would reflect a failure of strategy to match vision.

If the Comprehensive Plan is to be effectively implemented, a major investment initiative for the 21st century will be required. This initiative should be conceived as an investment in the future of the community, one that enhances its intrinsic value as a special place to live as well as its economic well-being. In its broadest sense, this concept of "Building Value for the 21st Century" will find application not just in capital programs (e.g., greenway and bikeway development) but also in other strategies such as the preservation of historic neighborhoods or promotion of mixed-use environments. All of these initiatives will work together to build the community that Chapel Hill residents desire for the future.

12B-1. Develop and implement a funding strategy for Comprehensive Plan initiatives.

A comprehensive funding strategy for Comprehensive Plan initiatives is needed if the concept of "Building Value for the 21st Century" is to be brought to fruition. This strategy will entail the following steps:

1. Define order-of-magnitude costs of priority capital investment programs defined by the Comprehensive Plan.
2. Identify funding sources to cover the costs of priority programs.
3. Develop a phased implementation schedule to allow the costs of programs to be allocated over a number of years. This schedule should address a longer time horizon (at least 10 years) than the current five-year Capital Improvements Program (CIP), with shorter term projects programmed into the CIP.

A creative funding strategy that uses a variety of sources will be needed. Possibilities include:

- ***Federal and state funding sources***, such as the Transportation Equity Act for the 21st Century (TEA-21), Community Development Block Grant (CDBG) program, and North Carolina's Bicycle Program, Park and Recreation Trust Fund, and Clean Water Management Trust Fund. The Town already makes use of these programs and the amount available to fund new initiatives is limited.

Nevertheless, the Town should continue to pursue and leverage these and similar funding sources. TEA-21 enhancement monies available through the State are a particularly promising source of funding for transportation projects such as bikeways and sidewalks.

- ***New sources of town revenues.*** Potential new sources that have been considered by the Town include a stormwater utility fee, impact fees, and impact taxes. A stormwater utility fee is being contemplated to pay for costs associated with maintaining and improving stormwater management facilities. North Carolina legislation enables local municipalities to assess impact fees to recover costs needed for roadway and stormwater improvements to serve new developments. It is unclear whether an impact fee system would yield greater benefits to the Town than the current practice of negotiating developer-provided improvements on a project specific basis. Impact taxes would provide the Town with wider discretion in how it spends fees derived from developers, but the state legislature has not enacted the required enabling legislation to date. Regardless of the merits of individual proposals, the Town should continue to investigate new revenue sources that could strengthen its ability to take on new capital initiatives. Another example is volume-based solid waste collection fees (see Chapter 11.0, Strategy 11A-2).

- ***Private donations***, including gifts of land, money, or easements, and corporate or institutional sponsorships. The Town has actively worked over the years to acquire easements on privately-owned lands required to provide linkages in the greenway system. Throughout the country, private conservation land trusts have received as gifts (or purchased) land or easements to protect open space and natural areas. From a regional perspective, the Triangle Land Conservancy (TLC) is a nonprofit corporation organized in 1983 to protect the most important and scenic areas of the Triangle region of North Carolina. To date, TLC has protected 2,056 acres through easements or outright acquisition. The Town could work with TLC or other land conservation organizations on opportunities to protect environmentally sensitive lands in Chapel Hill.

  Institutions and private corporations based in Chapel Hill are another potential source of support for Comprehensive Plan initiatives. One could imagine UNC, for example,

helping to construct a bikeway that would be accessible to students or staff commuting from off-campus, or a business sponsoring development of a greenway trail segment.

- ***Traditional sources of Town revenue.*** Irrespective of monies that can be raised from other sources, most of the funds required to fully fund Comprehensive Plan initiatives will need to be obtained through property taxes or bonding. This could be in the form of earmarked property taxes. Based upon the figures presented in Section 12.1, 3 cents on the tax rate dedicated for parks and greenways or affordable housing, for example, would generate some $1 million annually and is equivalent to roughly $50 per year for a property valued at $150,000. Alternatively, General Obligation Bonds similar to the recent Open Space Bond could be used.

The ultimate success of the funding strategy is directly tied to the importance that the community and its political leaders place on the concept of "Building Value for the 21st Century" and their willingness to commit town resources to capital projects identified by the Comprehensive Plan. The General Obligation bonds approved in 1996 are evidence of citizens' support for "quality of life" funding initiatives. The magnitude of the present challenge, however, is unprecedented in Chapel Hill's history. Faced with similar challenges, communities throughout the country have passed voter referendums committing major sums of money to parks and open space acquisition and similar initiatives. Chapel Hill residents should consider forming a citizens action group to assist in developing the comprehensive funding strategy and to mobilize support for its implementation.

Actions: Financing Comprehensive Plan Initiatives

- Develop funding strategy for priority Comprehensive Plan initiatives (Town staff, Advisory Boards, Town Council)
- Integrate programs, projects, and funding sources identified by the funding strategy into the Town's budgeting process (Town staff, Advisory Boards, Town Council)

Measure of Progress: Financing Comprehensive Plan Initiatives

- Develop funding strategies for priority Comprehensive Plan initiatives as defined in Chapter 13.0 (Implementation)

13.0 IMPLEMENTATION

13.1 OVERVIEW

Plans are turned into reality by taking action. Chapters 3.0 to 12.0 present numerous strategies designed to bring about the positive future for Chapel Hill envisioned by residents. These strategies range from revised regulations to broad programmatic initiatives; from potential changes in fiscal practices to major capital improvements. It is readily apparent that the Town lacks the resources needed to implement all of the strategies simultaneously. Therefore, it is important to establish a realistic implementation program if the Comprehensive Plan is to serve as a guide for future decision-making. This program needs to set priorities regarding the sequence in which the strategies and actions contained in the plan are to be carried out. It also should incorporate a process for monitoring progress made in implementing the Comprehensive Plan strategies over time.

This chapter describes an implementation program for the Comprehensive Plan comprised of the following elements:

- An ***action plan*** that identifies short-term (0-2 years), mid-term (2-5 years), and long-term (5-10 years) priorities for implementation.
- A ***monitoring*** program to track progress made in implementing the action plan and to provide a mechanism to make needed "mid-course" adjustments. This program includes the use of numeric indicators to provide statistical measures of progress.

13.2 ACTION PLAN

Tables 1 and 2 present an action plan for implementing new Comprehensive Plan initiatives. Table 1 classifies the actions according to time frame and type of action. Table 2 provides a summary schedule referenced to the plan elements. The three action types are defined as follows:

- ***Program:*** Entails more detailed planning to implement concepts contained in the Comprehensive Plan.

- ***Regulation:*** Involves revising Town regulations. Numerous individual recommendations for ordinance changes are presented in the various plan elements. A comprehensive revision to the Development Ordinance is proposed to address these changes in an integrated fashion.

- ***Capital:*** requires significant financial commitment to a capital project or projects.

On-going programs or projects that do not require a significant new commitment of resources by the Town are not included in the table. For example, the 1996 General Obligation Bonds will help to fund several Comprehensive Plan strategies, such as improved police and fire protection facilities (Strategies 11A-3 and 11A-4). However, these projects are not included in the action plan because they have committed funding. Examples of on-going program initiatives that are not included in the table include coordination with the University of North Carolina at Chapel Hill (UNC) on planning issues and participation in regional initiatives, such as planning for future transit.

The action plan is not intended to be a definitive prescription, but rather is a guide to decision-making that sets priorities and identifies the general phasing of Comprehensive Plan recommendations. It does not preclude certain actions from being implemented earlier than shown if the time and resources are available to address them. However, the plan is an aggressive one that will require Town funds to be committed not only to major capital programs, but also to program initiatives for which Town staff will need outside assistance to complete within the allocated time frame.

Table 1. Action Plan – New Comprehensive Plan Initiatives

Strategy Ref. No.	Action	Type of Action
Short-Term Actions (0-2 years)		
3A-5, 3B-1, 7A-2, 6A-1& 2, 7C-1, 8A-1 to 3, 8D-1, 10B-3&4	Initiate and complete a comprehensive revision to the Development Ordinance	Regulation
3C-1	Develop an implementation schedule and begin implementing the Downtown Small Area Plan	Program/ Regulation
3D-1	Implement a percent for art program	Program/ Regulation
4A-2, 10-C	Develop a plan and funding source for an expanded park-and-ride system	Program
4B-2	Initiate joint employee housing project with UNC	Capital
5A-2	Adopt a Town strategy to address Shaping Orange County's Future	Program
5B-1	Initiate discussions re. a coordinated TDR/PDR/ conservation easement strategy	Program
7A-1	Enact an affordable housing funding source	Program
7A-2	Develop an affordable housing incentive program	Program
7C-1	Develop and adopt a rental licensing and inspection ordinance	Regulation
8.2	Adopt rezoning consistent with the Land Use Plan	Regulation
8B-1, 11A	Develop a coordinated Community Facilities Plan/growth management protocol	Program
9B-1	Develop a long-term schedule and funding source to complete the greenway and open space system	Program
10A-1	Adopt pedestrian/bicycle operating performance measures	Program
10A-2	Develop a Pedestrian Improvement Action Plan, including a long-term schedule and funding source	Program
10A-2	Develop a Bicycle Improvement Action Plan, including a long-term schedule and funding source	Program
10A-2	Adopt roadway standards for on-street bike lanes and begin applying to resurfacing/reconstruction projects	Program
10C-1	Develop a plan and funding source to improve local transit	Program
10F-1	Conduct community-wide mobility survey	Program
12A-2	Revise the Town's permit and fee schedule	Regulation

Strategy Ref. No.	Action	Type of Action
Mid-Term Actions (2-5 years)		
3A-1	Define residential area planning process and initiate one residential area plan	Program
3A-3	Develop a plan to address UNC traffic and parking impacts on neighborhoods	Program
3C-1	Continue implementing the Downtown Small Area Plan	Program/Capital/ Regulation
3E-1	Revise the Master Plan for Town Entranceway Corridors	Program
4A-2, 10C-3	Implement an expanded park-and-ride system	Capital
4B-2	Complete joint employee housing project with UNC	Capital
5B-1	Evaluate options for a joint Urban Services Area/Rural Buffer strategy	Program
6A-1	Develop a proactive strategy to encourage and retain non-residential development	Program
7A-1	Fund affordable housing developments using funding source identified in 0-2 year time frame	Capital
8A-2	Develop a strategy to promote mixed-use development	Program
8C-1	Initiate at least one additional small area plan	Program
9B-1	Implement priority greenway acquisition and development projects	Capital
9E-1	Develop a local action plan to reduce greenhouse emissions	Program
9F-1	Implement a dedicated source of funding for stormwater management	Program
9F-1	Evaluate low-impact development practices	Program
10A-2	Implement priority sidewalk development projects	Capital
10A-2	Implement priority bikeway development projects	Capital
10B-2	Develop a comprehensive signal-timing plan	Program
10C-1	Implement plan to improve local transit	Capital
11A-6	Complete a Library Master Plan	Program
11A-7	Implement Parks and Open Space Master Plan	Capital/Program
11A-9	Identify long-range solution for the Municipal Operations Facility	Program
12A-1	Develop a model and procedures for analyzing the fiscal impacts of proposed rezonings	Program/ Regulation

Strategy Ref. No.	Action	Type of Action
Long-Term Actions (5-10 years)		
3A-1, 8C-1	Evaluate residential area planning process. Based upon evaluation, complete additional small area plans	Program
3C-1	Complete implementation of Downtown Small Area Plan	Program/Capital
5B-1	Adopt a joint Urban Services Area/Rural Buffer strategy	Program
7A-1	Fund affordable housing developments using funding source identified in 0-2 year time frame	Capital
7A-3	Pursue inclusionary zoning	Regulation
9B-1	Continue greenway acquisition and development projects	Capital
9F-1	Based upon review in 2-5 year time frame, adopt low impact development practices	Program/ Regulation
9F-2	Develop a water quality performance review process	Program
10A-2	Continue sidewalk development projects	Capital
10A-2	Continue bikeway development projects	Capital
10B-1	Develop a process to address neighborhood traffic impacts	Program
10B-3	Develop modified engineering standards for streets	Program/ Regulation
10C-5	Evaluate the feasibility of a downtown transit center and smaller scale transit facilities in other parts of Town	Program
10D-1	Develop a Transportation Demand Management program	Program
10E-1	Develop a comprehensive parking strategy	Program
11A-6	Implement Library Master Plan	Capital
11A-7	Complete implementation of Parks and Open Space Master Plan	Capital/Program

13.3 PLAN MONITORING

A process for monitoring progress in implementing the Comprehensive Plan is an integral part of the implementation program. This process is comprised of three interrelated elements:

- Annual Growth Management Report
- Periodic Plan Evaluation
- Tracking of Community Indicators

Growth Management Report
As part of Comprehensive Plan development, a Data Book was published in January 1999 that provided facts and statistics regarding the state of the Chapel Hill community. In January of every year, the Data Book will be updated with available community data for the previous 12 months. A summary of the Data Book will also be prepared to highlight trends in key areas, for example:

- Growth in population
- Growth in housing stock and non-residential (commercial and office) space
- Changes in the demographic profile of the community
- Changes in traffic volumes along key roadways
- Changes in the capacities of community facilities
- Summary of capital improvements completed during the preceding year
- Changes in air and water quality

The annual update of the Data Book will provide the factual basis for preparing a Growth Management Report in the spring of every year. This report will serve several purposes. First, it will analyze the trends presented in the Data Book in the context of indicators of progress, thus illustrating not only where the community is but also the directions in which it is moving. The second purpose of the report will be to identify changes in the demand for and capacities of community facilities and services, thus providing essential input to the growth management protocol (Chapter 8.0, Strategy 8B-1) and community facilities plan (Chapter 11.0, Strategy 11-A). This portion of the report will be prepared in collaboration with agencies that provide key public services in the community (e.g., the Orange Water and Sewer Authority and Chapel Hill-Carrboro City Schools).

The Growth Management Report will also include a fiscal assessment that describes changes in Town revenues and expenses. Finally, the report will describe progress made during the previous year in implementing the recommendations of the Comprehensive Plan.

Periodic Plan Evaluation

Progress made in implementing the Comprehensive Plan will be evaluated annually in the Growth Management Report. This evaluation will provide the basis for adjusting the action plan described in Section 13.1 in response to the previous year's progress and other factors such as new Town priorities, operational considerations, and changes in the external environment. The revised action plan will be programmed into the Town budget, Capital Improvements Program, and the work plans of affected Town departments.

In addition to the yearly evaluations, the Town will undertake a major revision of the Comprehensive Plan five years following plan adoption. This revision will establish a new action plan for the subsequent years.

Community Indicators

By definition, indicators are measurements of particular conditions or specific actions that reflect the status of a larger system's operation. Indicators are commonly used in sustainable community initiatives around the country to monitor progress in achieving sustainable development objectives. The Sustainable Seattle initiative, for example, uses 40 indicators to chart Seattle's progress toward or away from sustainability, defined as the long-term health and vitality of cultural, ecological, economic, and social systems. Examples of the indicators used by Sustainable Seattle include vehicle miles and fuel consumption, voter participation, water consumption, wild salmon runs, and youth involvement in community service.

A broad range of indicators of sustainability for Chapel Hill has been developed by the Chapel Hill Sustainability Committee and the Sustainable Development Workshop in the UNC Department of City and Regional Planning. These proposed indicators are tied to sustainable development policy recommendations published in a series of three reports:

- Sustainable Development Policy Recommendations for the Town of Chapel Hill (March 1997)
- Indicators for a Sustainable Chapel Hill (April 1996)

- Operationalizing Concepts of Sustainable Development for the Town of Chapel Hill (April 1995)

A narrower range of indicators is proposed for the Comprehensive Plan as a way to track the progress made in achieving the plan goals and objectives during plan implementation. Some of these indicators are included in the plan elements as statistical targets to be used in measuring the effectiveness of particular actions. Other indicators will be tracked in the annual Growth Management Reports. Table 3 presents a list of recommended indicators. It should be noted that indicator programs depend upon the availability of good information and require that staff resources be committed to compiling and tracking data. In addition, many of the Comprehensive Plan strategies are not well-suited to numeric measures of progress.

Table 3. Comprehensive Plan Indicators

Strategy	Indicator
Rental conversions (3A-5)	• Nuisance complaints received by Police Dept. in neighborhoods adjacent to the campus • Number of Historic District properties that do not comply with front yard parking standards
University-related traffic and parking (4A-2)	Percentage of faculty, employees, and students who commute alone to campus
On-campus student housing (4B-1)	Number of UNC undergraduates who live off-campus in Chapel Hill
Off-campus employee housing (4B-2)	Percentage of Town and University employees that live in Chapel Hill
Non-residential development (6A-1)	• Ratio of residential versus non-residential tax base • Square footage of total commercial and office space
Mixed-use development (6B-1, 8A-2)	Amount of mixed-use development as a percentage of total development
Affordable housing development (7A-1) Affordable housing incentives (7A-2)	• New affordable housing units constructed, total number and as a percentage of all new housing units • Total number of housing units affordable to low and moderate income populations as a percentage of the populations of those groups
Greenways and open space (9B-1)	• Miles of greenway acquired • Miles of greenway developed with trails • Acreage of parkland/open space accessible to the public and ratio to population
Air quality (9E-1)	Concentrations of ozone, carbon monoxide, and other pollutants in relationship to state and federal standards
Water quality (9F-1, 9F-2)	Percentage of water quality samples that violate state standards for fecal coliform, dissolved oxygen, total suspended solids, etc.
Multi-modal transportation system (various transportation strategies)	• Percentage of total trips made in single-occupancy vehicles • Traffic counts along key roadways
Pedestrian/bicycle networks (10A-2)	• Miles of sidewalks built, total and system gaps filled in • Miles of bicycle facilities developed and system gaps filled in • Bicycle counts at key locations
Expanded local transit service (10C-1)	Transit boardings per capita
Water and sewer service (11A-1)	• Ratio of water demand to system capacity • Water usage per capita • Ratio of sewer demand to system capacity
Solid waste management (11A-2)	Volume of solid waste landfilled per capita
Police protection (11A-3)	Number of crimes in various categories as a ratio of total population
Fire protection (11A-4)	• Maximum response radius • Emergency response time
Schools (11A-5)	Ratio of enrollment to capacity

14.0 TOWN GOVERNMENT

14.1 OVERVIEW

The Town of Chapel Hill has an established tradition of open, accountable government, prudent fiscal management, and the involvement of all segments of the community in Town affairs. This tradition was articulated in the 1989 Comprehensive Plan section entitled "Town Government – Preamble." The current Comprehensive Plan reaffirms the goal, objectives, and policies related to Town Government contained in the 1989 Plan. These are presented below in their entirety as they appeared in that document. They are divided into four main categories: citizen participation, citizen information, administration of Town functions, and fiscal management. Included are Town Government policies that convey Chapel Hill's preferences related to day-to-day government.

14.2 GOALS, OBJECTIVES, AND POLICIES

GOAL

Town government that maximizes citizen participation, is representative of and responsive to the populations, and that serves and governs the population in an honest, efficient, and equitable manner.

OBJECTIVES AND POLICIES

Citizen Participation
Objective: Participatory government accessible and responsive to the population.

Policies:
- The Town shall take steps to maximize participation by citizens in all Town functions.
- The Town shall undertake programs designed to increase the awareness of and participation in decision-making by groups often underrepresented in Town Government.

Citizen Information
Objective: A citizenry informed of Town functions and activities.

Policies:
- The Town shall provide comprehensible information conveniently accessible to the public, including outreach efforts.
- The Town shall make an effort to inform citizens most affected by given issues of the decision-making process.

Administration
Objective: Efficient and equitable administration of Town functions.

Policies:
- The Town shall hire competent personnel and establish conditions of employment necessary to retain them.
- The Town shall require Town employees to give courteous and timely attention to requests for information and assistance to the public.
- The Town shall enforce all Town ordinances and procedures consistently.
- The Town shall institute mechanisms for intra- and intergovernmental coordination and cooperation (including joint ventures, periodic joint meetings, courtesy reviews, and other regular communications channels) to minimize conflicting and overlapping activities and jurisdictions.
- The Town shall administer all Town functions without discrimination because of race, creed, sex, national origin, age, economic status, or affectional preference.

Fiscal Management
Objective: Efficient and responsible governmental financing and financial administration.

Policies:
- The Town shall require strict and public accountability for all expenditures and revenues.
- The Town shall use borrowing to finance major capital improvements, in keeping with the life of the capital improvement, insofar as the Town's credit rating is not injured.

- The Town shall take initiative in identifying and pursuing sources of state, federal, and private financial assistance.