



Town of Carrboro

Town Hall
301 W. Main St.
Carrboro, NC 27510

Meeting Agenda Board of Aldermen



Tuesday, May 16, 2017

7:30 PM

Board Chambers - Room 110

REGULAR MEETING OF THE BOARD OF ALDERMEN

7:30-7:40

A. POETRY READING, RESOLUTIONS, PROCLAMATIONS, AND ACKNOWLEDGEMENTS

1. [17-142](#) Proclamation: Endangered Species Day

7:40-7:43

B. ANNOUNCEMENT OF UPCOMING MEETINGS

7:43-8:00

C. REQUESTS FROM VISITORS AND SPEAKERS FROM THE FLOOR

8:00-8:05

D. CONSENT AGENDA

1. [17-158](#) Approval of Previous Meeting Minutes of May 2, 2017
2. [17-155](#) Request-to-Set a Public Hearing on Land Use Ordinance Amendments Related to Solar Arrays

PURPOSE: The purpose of this agenda item is for the Board of Aldermen to consider setting a public hearing on amendments to the Land Use Ordinance related to roof and ground mounted solar arrays.

Attachments: [Attachment A - Resolution](#)
[Attachment B - Draft ordinance](#)

3. [17-156](#) A Request to Set a Public Hearing for the Abandonment of Rand Road Right of Way.

PURPOSE: The purpose for this meeting is to set a public hearing for the Town abandoning the current Rand Road right of way located within the South Green Development. The purpose of this abandonment is to prepare for the dedication of the relocated Rand Road upon completion of the South Green Development.

Attachments: [Rand Road - Intent to close Resolution \(Draft\)](#)

E. OTHER MATTERS

8:05-8:30

1. [17-161](#) Update on Concept Plan for Affordable Commercial - Development Potential of Old 86 - Town Owned Property

PURPOSE: The purpose of the agenda item is to update the Board on the proposal to develop town-owned property for affordable commercial flex-space.

Attachments: [Concept Plan For Development of Old 86 Town Owned Property](#)

8:30-8:45

2. [17-159](#) Amendments to the Water and Sewer Management, Planning, and Boundary Agreement (WASMPBA)

PURPOSE: The purpose of this item is to provide possible amendments to the WASMPBA.

Attachments: [Att A - Resolution 5-16-17](#)

[Att B - Exhibit to Resolution - Maps](#)

[Att C - WASMPBA with 2010 Amend and Apdx](#)

8:45-9:15

3. [17-152](#) Discussion on Land Use Ordinance Amendments relating to Tree Protection, Canopy Shade Coverage and Replacement Standards

PURPOSE: The purpose of this item is for the Board to discuss potential text amendments to the Land Use Ordinance relating to the provisions in Article XIX, Screening and Trees, and the associated appendices A and E.

Attachments: [Attachment A - Working Draft Ordinance 5-12-2017](#)

F. MATTERS BY BOARD MEMBERS

G. MATTERS BY TOWN MANAGER

H. MATTERS BY TOWN ATTORNEY

I. MATTERS BY TOWN CLERK



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Agenda Item Abstract

File Number:17-155

Agenda Date: 5/16/2017

File Type:Agendas

In Control: Board of Aldermen

Version: 1

TITLE:

Request-to-Set a Public Hearing on Land Use Ordinance Amendments Related to Solar Arrays

PURPOSE: The purpose of this agenda item is for the Board of Aldermen to consider setting a public hearing on amendments to the Land Use Ordinance related to roof and ground mounted solar arrays.

DEPARTMENT: Planning

CONTACT INFORMATION: Christina Moon - 919-918-7325, Marty Roupe - 919-918-7333, Randy Dodd - 919-918-7326, Bob Hornik - 919-929-3905

INFORMATION: In the summer of 2016, staff from Orange County and Chapel Hill reached out Carrboro to share information about the SolSmart program, and to invite the Town to collaborate and seek designation. (Information about SolSmart may be found at the following link: <http://www.gosparc.org/>.)

To date, Town participation in the program has involved a general public statement regarding solar, an intensive review of the Land Use Ordinance with recommendations to make the LUO more solar friendly, and arrangements for specialized training for inspections and fire department employees. The completion of this level of work has earned the Town Bronze status in the SolSmart program. The adoption of LUO amendments and the completion of specialized training may promote the Town to Silver or Gold status.

A draft ordinance (Attachment B) has been prepared which establishes new definitions for building and ground mounted solar arrays and assigns permitting requirements on the basis of size and intensity. The proposal includes an accessory solar array use category which would be allowed by-right in most zoning districts.

The Board of Aldermen must receive public comment before adopting amendments to the LUO. Orange County and Planning Board review are also needed. Staff has identified the Appearance Commission and the Environmental Advisory Board for referral as well as the subject matter of the proposed amendment falls within their areas of expertise.

FISCAL & STAFF IMPACT: Public hearings involve staff and public notice costs associated with advisory board and Board of Aldermen review.

RECOMMENDATION: Staff recommends that the Board of Aldermen consider the attached resolution, setting a public hearing for June 27, 2017 and referring the proposed amendment to Orange County,

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the Planning Board, the Appearance Commission and the Environmental Advisory Board.

**A RESOLUTION SETTING A PUBLIC HEARING ON AN ORDINANCE AMENDING THE
CARRBORO LAND USE ORDINANCE PROVISIONS RELATED TO SOLAR ARRAYS**

WHEREAS, the Board of Aldermen seeks to provide ample opportunities for the public to comment on proposed amendments to the Land Use Ordinance;

NOW, THEREFORE BE IT RESOLVED that the Board of Aldermen sets a public hearing on June 27, 2017, to consider adopting “An Ordinance Amending the Carrboro Land Use Ordinance Related to Solar Arrays.”

BE IT FURTHER RESOLVED that the draft ordinance is referred to Orange County, the Town of Carrboro Planning Board and the following Town of Carrboro advisory boards and commissions for consideration and recommendation prior to the specified public hearing date:

☒ Appearance Commission

☐ Recreation and Parks Commission

☐ Transportation Advisory Board

☐ Northern Transition Area Advisory
Committee

☒ Environmental Advisory Board

☐ _____

☐ Economic Sustainability Commission

☐ _____

This is the 16th day of May in the year 2017.

**AN ORDINANCE AMENDING TOWN OF CARRBORO LAND USE ORDINANCE
PROVISIONS RELATED TO SOLAR ARRAYS**

Draft 5-1-2017

THE BOARD OF ALDERMEN OF THE TOWN OF CARRBORO ORDAINS:

Section 1. Section 15-15 (Definitions) of the Carrboro Land Use Ordinance is amended by adding new subsections (113 through 117), as shown below, and renumbering the subsequent subsections accordingly.

(113) **SOLAR ARRAY** – A photovoltaic cell, module, panel or array that is accessory to the principal use of a property and is designed solely for the purpose of reducing or meeting on-site energy needs. Roof mounted or building integrated arrays must be on a permitted structure, or one that is exempt on the basis of its size. Roof mounted arrays may be no more than 2000 square feet in size. Ground mounted arrays may be no greater than: 500 square feet in R-2 and R-3 districts; 1000 square feet in R-7.5, R-10, and R-S.I.R districts; 2000 square feet in R-15 and R-20 districts; and 5000 square feet in other districts. In addition, ground mounted arrays may be no greater than 50% of the size of the building footprint of the primary structure. Solar water heating panels may also be accessory to the principal use of a property subject to the criteria described above.

(114) SOLAR ARRAY FACILITY – LEVEL 1

Level 1 roof mounted or building integrated arrays must be on a permitted structure. Level 1 ground mounted arrays may be no greater than 50% of the size of the building footprint of the primary structure. In addition, Level 1 roof mounted arrays may not be more than 10000 square feet and Level 1 ground mounted arrays must be not more than: 2000 square feet in R-10 and R-S.I.R; 3000 square feet in R-15 and R-20; and 10000 square feet in other districts.

(115) SOLAR ARRAY FACILITY – LEVEL 2

A Level 2 facility has a solar array (roof-mounted/building integrated or ground mounted) that does not qualify as an accessory or Level 1 facility and is not more than 1 acre.

(116) SOLAR ARRAY FACILITY – LEVEL 3

A Level 3 facility has a solar array greater than 1 acre.

(117) SOLAR WATER HEATER

A solar water heater is a system that uses a solar thermal collector to heat water. A solar water heater may also be accessory to the principal use of a property subject to the criteria described under “solar array” above.

Section 2. Section 15-146 (Table of Permissible Uses) is amended by adding three new use classifications: 17.501, “Solar Array Facility, Level 1,” 17.502, “Solar Array Facility, Level 2,” and 17.503, “Solar Array Facility, Level 3,” allowed with the use of the Designations Z,S,C in the zoning districts shown in the table below.

Use Classification	Solar Array	Zoning Districts					
		R-SIR, SIR2, R10, R-15, R-20	RR, B-1(C), B-1(G), B-2, B-3, B-3-T, B-4, M-1, M-2, CT	C, WR	B-5	WM-3	O, O/A
17.501	Level 1	Z	Z	S	Z	S	Z
17.502	Level 2		S	C	S	C	S
17.503	Level 3		C	C	C	C	C

Section 3. Section 15-150 (Accessory Uses) is amended by adding a new subsection (d), as shown below, and renumbering the subsequent subsections (d), (e) and (f), to (e), (f) and (g):

(d) Without limiting the generality of subsections (a) and (b), the following activities are regarded as accessory to residential and commercial principal uses so long as they satisfy the general criteria set forth above.

- (1) Solar Arrays, and solar water heaters, providing energy for the principal use on the property, in any zoning district.
- (2) The applicant must be able to demonstrate ownership of the subject property or permission by the owner to install the solar device.
- (3) The applicant must prepare and submit a site plan or sketch plan showing the following:
 - a. Installation of the array(s) shall not negatively affect compliance, or any condition of compliance of an existing land use permit or building permit.
 - b. The panels are designed, positioned, and oriented such that concentrated solar radiation or glare shall not be directed onto nearby properties or road rights-of-way, or shall otherwise create a safety hazard.
 - c. All on-site utility lines shall be placed underground.
 - d. The top of any roof mounted devices, located on the principal structure or any accessory structure, shall not exceed the maximum building height for the district in accordance with Section 15-185.
 - e. Ground mounted systems shall not exceed a maximum height of 15 feet from finished grade to the top of the device.
 1. The installation of the solar device and associated mechanical equipment shall not affect tree screening or buffer requirements outlined in Article XIX.
 2. Mechanical equipment, including batteries or other similar storage devices, shall be located within the required building setbacks as provided for in Section 15-184, and shall be shielded to avoid damage.
 3. All solar devices and mechanical equipment, including batteries or other similar storage devices, shall be located outside of the designated open

space, well/septic system areas as identified by Orange County Environmental Health, utility easements, water quality buffers as identified in Section 15-269.5 and Special Flood Hazard Areas.

Section 4. Article XI (Supplementary Use Regulations) is amended by adding a new Section 15-175.11 to read as follows:

Section 15-175.11 Solar Arrays

- (a) In addition to other applicable provisions of this chapter, use classifications 17.501 (Solar Array Level 1 Facility) and 17.502 (Solar Array Level 2 Facility) shall be subject to the following requirements:
 - (1) Installation of the array(s) shall (i) not negatively affect compliance, or any condition of compliance of an existing land use permit or building permit, or (ii) approval shall be subject to the modification of the subject permit.
 - (2) The panels are designed, positioned, and oriented such that concentrated solar radiation or glare shall not be directed onto nearby properties or road rights-of-way, or shall otherwise create a safety hazard.
 - (3) All on-site utility and transmission lines shall, to the extent feasible, be placed underground.
 - (4) A clearly visible warning sign concerning voltage must be placed at the base of all pad-mounted transformers and substations.
 - (5) The height of the array and supporting structures shall not exceed the height requirements of the underlying zoning district where the property is located as described in Section 15-185.
 - (6) Mechanical equipment, including batteries or other similar storage devices, shall be located within the required building setbacks as provided for in Section 15-184, and shall be shielded to avoid damage.
 - (7) All mechanical equipment, including any structure for batteries or storage cells, shall be completely enclosed by a minimum eight (8) foot high fence with a self-locking gate, and provided with a Type A-Screen.
 - (8) All solar devices and mechanical equipment, including batteries or other similar storage devices, shall be located outside of the designated open space, well/septic system areas as identified by Orange County Environmental Health, utility easements, water quality buffers as identified in Section 15-269.5 and Special Flood Hazard Areas.
 - (9) The facility shall have sufficient parking on site to accommodate the number of vehicles likely to be present on a regular basis.
 - (10) The applicant shall submit proof of liability insurance covering bodily injury and property damage demonstrating a minimum coverage limit of \$500,000.00 per occurrence.
- (b) In addition to other applicable provisions of this chapter, use classifications 17.503 (Solar Array Level 3 Facility) shall be subject to all of the requirements of use classifications 17.501 and 17.502 above as well as the following requirements:

- (1) A soils report denoting the types of soil on the property including detail on the compaction necessary to support the proposed development.
- (2) Demonstration of compliance with the decommissioning protocol, described below in paragraphs (a. through f) should the device become damaged, or removed from service.
 - a. The owner/operator of the facility is required to notify the Town Planning Director in writing 60 days prior to the planned cessation or abandonment of the facility for any reason. This notice shall provide the exact date when the use of the facility will cease.
 - b. Documentation shall be provided indicating that the public utility purchasing the power has been made aware of the decision.
 - c. The facility shall be removed within 12 months from the date the applicant ceases use of the facility.
 - d. Once the infrastructure is removed the property, the owner shall obtain the necessary Erosion Control permits to re-stabilize the property. The time frame for completion shall be determined by the Orange County Erosion Control Officer.
 - e. The owner shall provide financial security in form and amount acceptable to the County to secure the expense of dismantling and removing said structures.
 - f. Upon removal of the facility, the Planning Department shall cause a notice to be recorded with the Orange County Registrar of Deeds office indicating that the Conditional Use Permit has been revoked.

Section 5. All provisions of any Town Ordinance in conflict with this Ordinance are repealed.

Section 6. This Ordinance shall become effective upon adoption.



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Agenda Item Abstract

File Number:17-156

Agenda Date: 5/16/2017

File Type:Agendas

In Control: Board of Aldermen

Version: 1

TITLE:

A Request to Set a Public Hearing for the Abandonment of Rand Road Right of Way.

PURPOSE: The purpose for this meeting is to set a public hearing for the Town abandoning the current Rand Road right of way located within the South Green Development. The purpose of this abandonment is to prepare for the dedication of the relocated Rand Road upon completion of the South Green Development.

DEPARTMENT: Public Works

CONTACT INFORMATION: Anita Jones-McNair - 919-918-7381; Eric L. Marsh - 919-918-7426

INFORMATION: This resolution shall be published once a week for four (4) successive weeks prior to the hearing and a copy shall be sent by certified mail to the persons who, according to the county tax records, own property adjoining the right-of-way proposed to be closed. In addition a notice of the proposed closing and public hearing thereon shall be prominently posed in at least two places along the right-of-way to be closed. The public hearing will be held on June 27, 2017.

FISCAL & STAFF IMPACT: No fiscal or staff impacts are anticipated at this time.

RECOMMENDATION: It is recommended that the Board approve the attached resolution setting a public hearing for June 27, 2017.

A RESOLUTION DECLARING THE INTENT OF THE BOARD OF ALDERMEN
TO CLOSE RAND ROAD RIGHT-OF-WAY AND SETTING A PUBLIC HEARING TO
HEAR ALL PERSONS INTERESTED IN THIS PERMANENT CLOSING

Resolution No.

THE BOARD OF ADLERMEN OF THE TOWN OF CARRBORO RESOLVES:

Section 1. The Board of Aldermen hereby declares its intention to close a 46 foot wide section of right-of way known as Rand Road adjacent to the following two properties: PIN: 9778-78-1734 and PIN: 9778-78-3622.

Section 2. The Board of Aldermen hereby declares its intention to reserve its right, title and interest in any utility improvements or easements within the 46 foot wide right-of-way proposed for closing. This reservation shall also extend to utility improvements or easements owned by private utilities which at the time of the proposed street closing have a utility agreement or franchise with the Town. Such utilities shall include but are not limited to water, sewer, electrical, gas, telephone and cable television.

Section 3. The Board of Aldermen shall hold a public hearing on the proposed right-of-way closing at its regular meeting on June 27, 2017.

Section 4. This resolution shall be published once a week for four (4) successive weeks prior to the hearing and a copy shall be sent by certified mail to the persons who, according to the county tax records, own property adjoining the right-of-way proposed to be closed. In addition a notice of the proposed closing and public hearing thereon shall be prominently posed in at least two places along the right-of-way to be closed.

Section 5. Should the right-of-way be closed as proposed, then all right, title and interest, excluding utility improvements and easements, in the right-of-way closed pursuant to this order shall be conclusively presumed to be vested in those persons owning the parcels abutting the right-of-way.

Section 6. This resolution shall become effective upon adoption.

The foregoing resolution having been submitted to a vote received the following vote and was duly adopted this 16th day of May 2017:

Ayes:

Noes:

Absent or Excused:



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Agenda Item Abstract

File Number:17-161

Agenda Date: 5/16/2017

File Type:Agendas

In Control: Board of Aldermen

Version: 1

TITLE:

Update on Concept Plan for Affordable Commercial - Development Potential of Old 86 - Town Owned Property

PURPOSE: The purpose of the agenda item is to update the Board on the proposal to develop town-owned property for affordable commercial flex-space.

DEPARTMENT: Economic and Community Development

CONTACT INFORMATION: Annette Stone, AICP, ECD Director

INFORMATION: Available affordable space for flex warehouse/light manufacturing is very limited in Carrboro, therefore the Board of Aldermen directed staff to identify opportunities to lift barriers to develop this type of space. Availability and cost of land is a limiting factor affecting commercial development and the town's ability to attract or retain light manufacturing companies. Staff presented a concept plan to the Board in September 2016 for developing town-owned property located on Old 86 to create an affordable light manufacturing commercial park. The Board at that time directed staff to continue studying the feasibility of the project and to hold a community meeting and gather feedback from the neighbors. That meeting was held on May 11, 2017 at the Fire Station on Homestead Road.

The property, located approximately one mile north of Calvander was originally purchased by the town in 2001 for \$767,000 and was intended for a new public works facility. The town has now determined that this location is no longer needed for that purpose, therefore staff has begun studying the property for commercial development potential. Preliminary study reveals a building program of approximately 90,000 square feet of warehouse/flex commercial space is possible (see attachment 1). The attached site plan illustrates four (4) 20,000 square foot buildings and the possibility of two or more, smaller 5000 to 10,000 sq. ft. building footprints.

The 22 acre parcel is currently zoned RR, Rural Residential. Staff proposes the property to be rezoned Office and Assembly. The concept would be for the town to lease the land to a developer for a defined amount of time (20 - 30 years) who would build the project out and lease the buildings. Keeping land cost low will be key in keeping the project affordable for attracting and retaining local manufacturers, service providers, makers and artisans.

Agenda Date: 5/16/2017

File Type:Agendas

In Control: Board of Aldermen

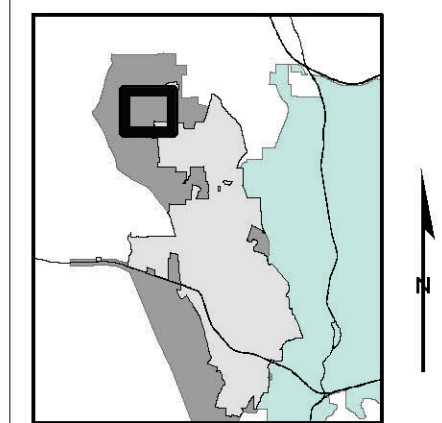
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The project would require extension of sewer which is available near Lake Hogan Farms, and a turning lane to accommodate turning traffic which should include employees, services vehicles, and delivery trucks only. Staff is working with the Town engineer and Jim Spencer Architects in estimating construction cost for the project.

In considering other possible uses for the property, the town could sell the land. An appraisal may be needed to determine value of the property.

FISCAL & STAFF IMPACT: Cost to hire design professionals for determining feasibility and cost estimating of the project and staff time.

RECOMMENDATION: Staff recommends the Board receive the update and provide further direction to staff.



Carrboro Chapel Hill

- Legend**
- Planning Jurisdiction
 - Properties
 - City Limits

**THIS MAP IS NOT A CERTIFIED SURVEY
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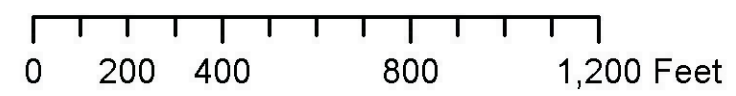
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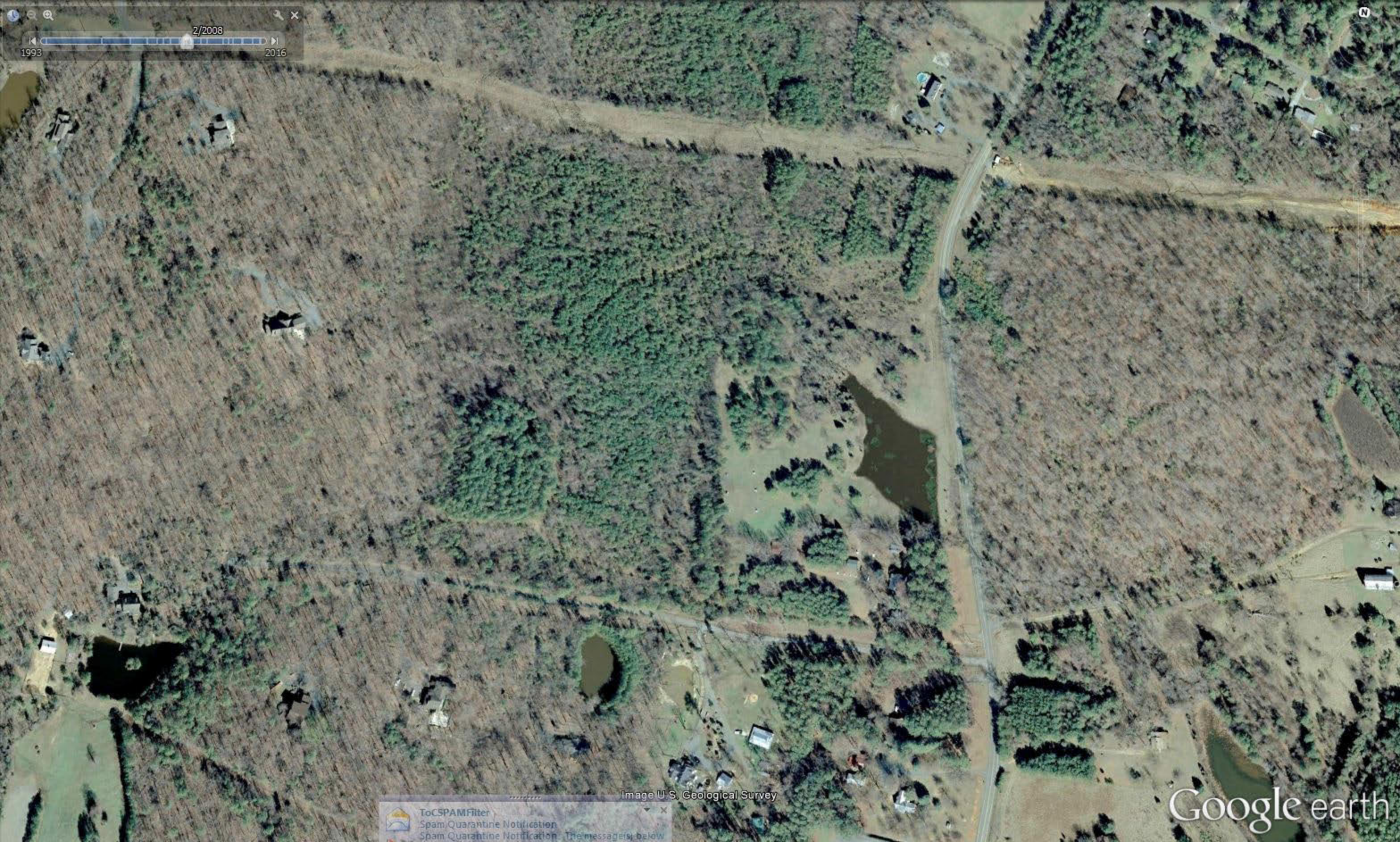
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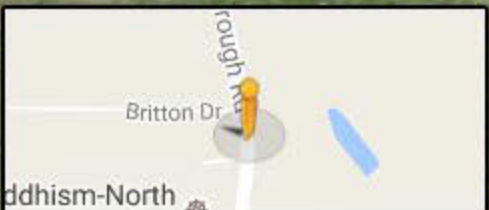
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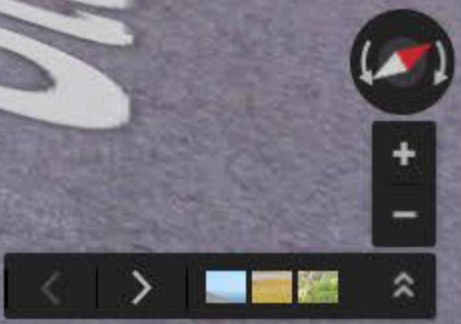
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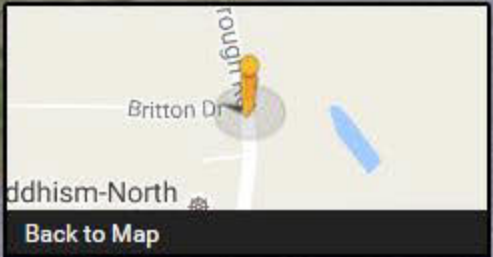




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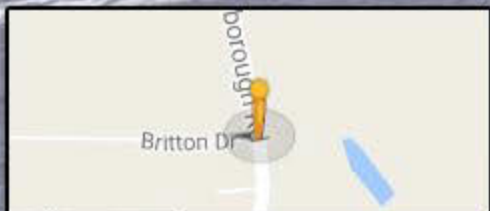




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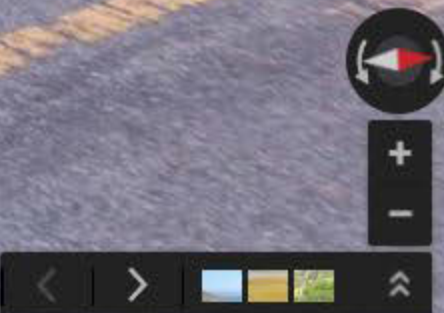


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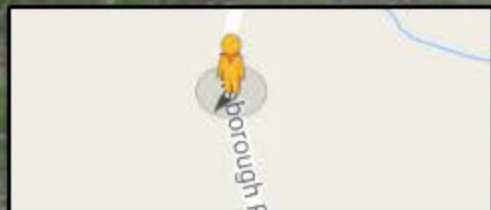
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Chapel Hill, North Carolina



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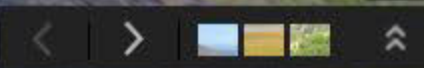


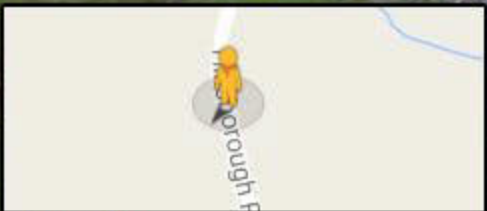
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Chapel Hill, North Carolina

Street View - Apr 2016



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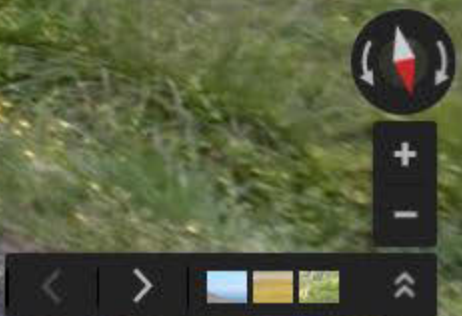


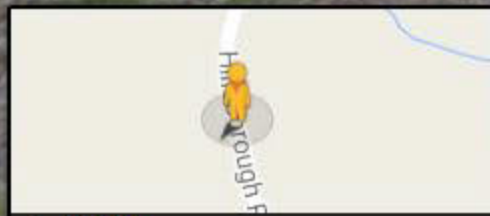
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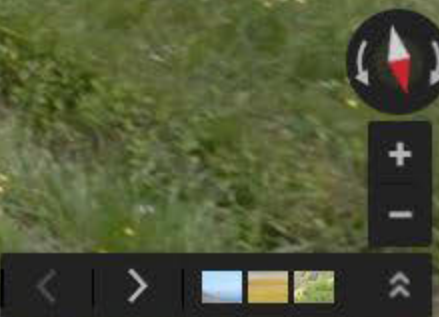


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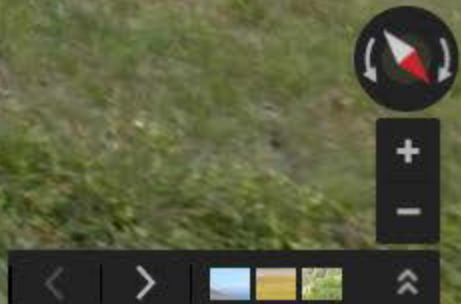


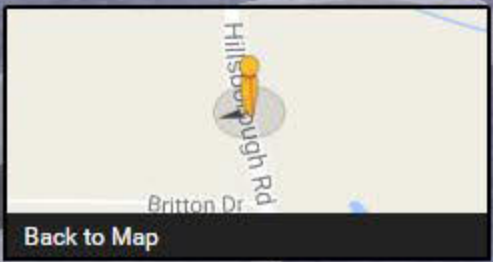
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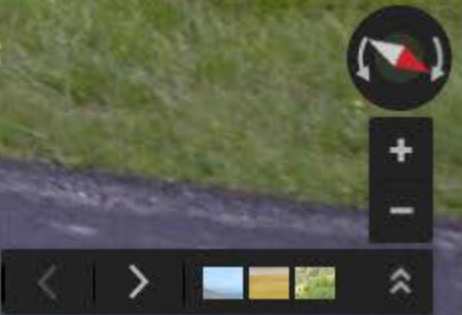
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Street View - Apr 2016



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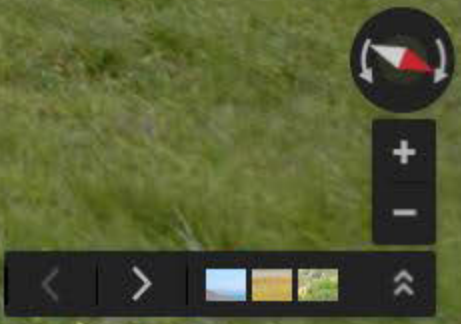


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Town of Carrboro

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Agenda Item Abstract

File Number:17-159

Agenda Date: 5/16/2017

File Type:Agendas

In Control: Board of Aldermen

Version: 1

TITLE:

Amendments to the Water and Sewer Management, Planning, and Boundary Agreement (WASMPBA)

PURPOSE: The purpose of this item is to provide possible amendments to the WASMPBA.

DEPARTMENT: Planning

CONTACT INFORMATION: Trish McGuire, pmcguire@townofcarrboro.org
<<mailto:pmcguire@townofcarrboro.org>>, 919-918-7327

INFORMATION: The Water and Sewer Management, Planning, and Boundary Agreement is an agreement signed in 2001 between Orange County, the Orange Water and Sewer Authority (OWASA), and the Towns of Chapel Hill, Carrboro, and Hillsborough. The agreement (included for reference purposes as Attachment C) provides a comprehensive county-wide system of utility service areas upon which signatory entities could rely when making decisions related to issues such as planning, land use, annexation, zoning, and growth management.

Possible amendments to the WASMPBA map and the Joint Planning Agreement were presented to the Board of Aldermen in February. Those amendments included JPA changes in Chapel Hill and Carrboro and WASMPBA amendments in Chapel Hill, Carrboro, and Hillsborough. WASMPBA amendments for Carrboro and Hillsborough are included at this time and include areas south of the Hillsborough Economic Development District (EDD) and areas in the vicinity of Smith Level Road in the Town of Carrboro's Extraterritorial Jurisdiction. Town of Chapel Hill staff are studying the possible amendments in the Millhouse Road area and are not ready to move forward.

Orange County/Hillsborough EDD Area

The proposed amendments in the Hillsborough EDD Area include:

- Designating 87.5 acres "Primary Service Area". This area is currently "Hillsborough Long-Term Interest Area". Designating the area "Primary Service Area" would allow extension of public water and sewer systems into the area.

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Version: 1

Orange County has received a Master Plan Development conditional zoning application that includes a large portion of the area proposed to become “Primary Service Area” (the area east of Old Highway 86). These WASMPBA amendments are prerequisites to considering amendments to land use and zoning designations that would allow for greater development potential in this general area, an area in which Orange County is planning to invest approximately \$1.6 million in sewer infrastructure. The area proposed for addition to the Primary Service Area is serviceable by gravity sewer.

Town of Carrboro ETJ/Smith Level Road Area

Town of Carrboro and OWASA staff began researching the status of this area when contacted by a person interested in possibly developing in the southern portion of the area proposed for “Primary Service Area” designation. As the map in Attachment 3 shows, many parcels in this area are already served by OWASA water and sewer systems, and have been since long before the WASMPBA was adopted (some services go back to the 1960s). The Town of Carrboro’s long-time zoning designation for the area is R-10 (Residential, 10,000 square feet per dwelling unit), with a Jordan Lake Overlay district. The effective density is two units to the acre for single-family and three units to the acre for multi-family, both of which are permissible. The minimum lot size of 10,000 square feet and the effective density is not compatible with onsite septic and well services.

Staffs has not determined why this area was not designated “Primary Service Area” when the WASMPBA was adopted in 2001, particularly since the area is not listed in the text of the Agreement (Section IV of Agreement in Attachment 4) as an exception area. Nevertheless, the adopted WASMPBA map currently designates the area in question as “OWASA Long-Term Interest Area” so new water or sewer connections cannot be permitted.

The proposed amendments in the Smith Level Road Area include:

- Designating 20.6 acres “Primary Service Area”.

Attachment A is a Resolution to approve the amendments with maps depicting the geographic extent of the amendment areas. The map in Attachment B shows the overall WASMPBA map with the proposed amendments overlaid on the map.

All signatory parties to the Agreement must approve the amendments before they are effective. Proposed dates for adoption consideration are:

Orange County

June 6, 2017

Agenda Date: 5/16/2017

File Type:Agendas

In Control: Board of Aldermen

Version: 1

Town of Carrboro	May 16
Town of Hillsborough	April 24 (work session); May 8
Town of Chapel Hill	June 12
OWASA	May 25 or June 8

Amendments to the WASMPBA require approval of all five signatory parties (Orange County, OWASA, and the Towns of Chapel Hill, Carrboro, and Hillsborough) through the regular agenda/decision process. A formal public hearing is not required.

FISCAL & STAFF IMPACT: No extraordinary staff and fiscal impacts are anticipated with adoption of the amendments. Some additional development potential and associated property tax revenues would be expected with development served by water and sewer services in the areas added to the Primary Service Area.

RECOMMENDATION: It is recommended that the Board of Aldermen adopt the resolution approving amendments to the Water and Sewer Management, Planning, and Boundary Agreement.

RESOLUTION APPROVING AMENDMENTS TO THE WASMPBA RELATED TO
HILLSBOROUGH'S LONG TERM INTEREST AREA AND CARRBORO'S ETJ

WHEREAS, in 2001, Carrboro, Chapel Hill, Hillsborough, Orange County, and OWASA adopted a Water and Sewer Management, Planning and Boundary Agreement ("Agreement"); and

WHEREAS, the Agreement was last amended on October 5, 2010, and

WHEREAS, The Town of Carrboro's staff has identified an area within the Town's Extraterritorial Jurisdiction currently extensively served by public water and sewer systems; and

WHEREAS, the identified area is currently designated as "OWASA Long-Term Interest Area" in the Agreement; and

WHEREAS, Orange County is planning to invest approximately \$1.6 million in sewer infrastructure to serve the southern portion of the Hillsborough Economic Development District, and

WHEREAS, additional lands are serviceable by gravity sewer lines but currently designated as either "Hillsborough Long-Term Interest Area" in the Agreement; and

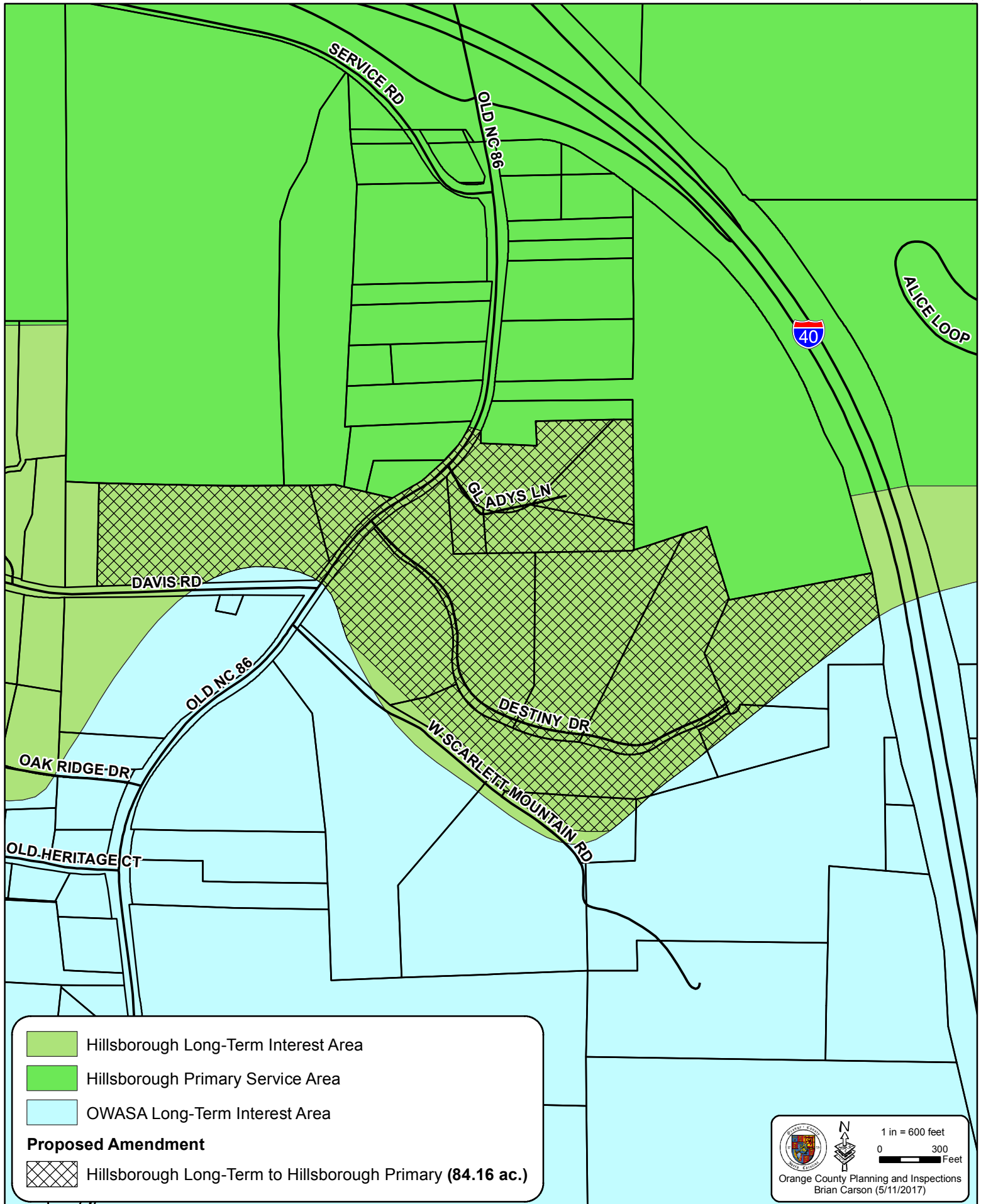
WHEREAS, Orange County finds it is a wise use of public funds to increase the development potential within this designated area, located immediately south of the Hillsborough Economic Development District; and

WHEREAS, amendments to the Agreement require the approval of all signatories to the Agreement.

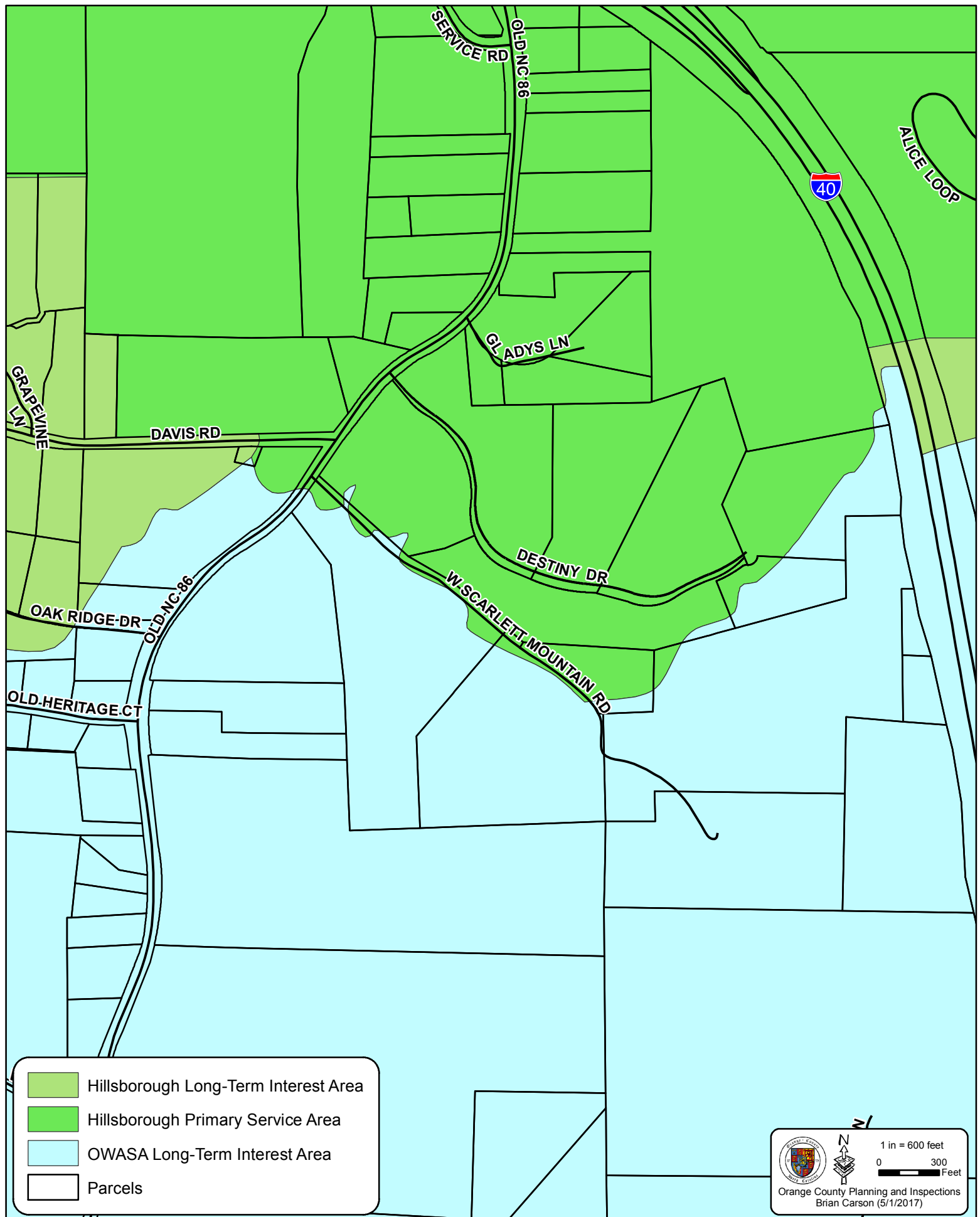
NOW THEREFORE, BE IT RESOLVED that the Carrboro Board of Aldermen approves amendments to Appendix A of the Agreement to designate additional "Primary Service Areas" as shown on the maps attached hereto.

Proposed WASMPBA Amendments - Hillsborough EDD Area

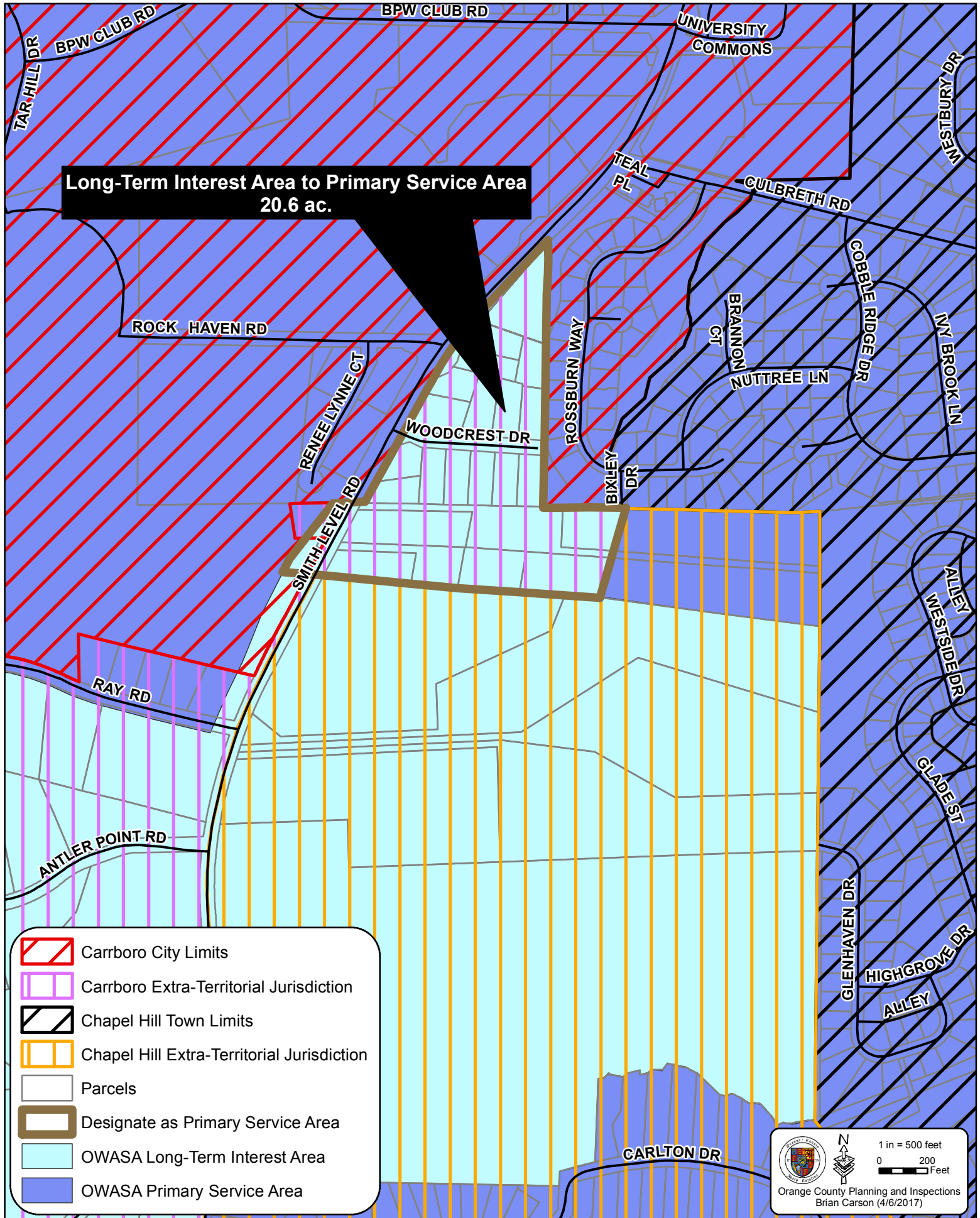
(Revised 5/11/2017)



WASMPBA Map, if Adopted - Hillsborough EDD Area



Proposed WASMPBA Amendments - Smith Level Road Area



Amended October 5, 2010 (Appendix A Map; Add Appendix F map; Text changes to Section IV, subsection B and Section III)

WATER AND SEWER MANAGEMENT, PLANNING AND BOUNDARY AGREEMENT

This AGREEMENT, made and entered into this 3rd day of December, 2001_ by and between the COUNTY OF ORANGE, a political subdivision of the State of North Carolina; the TOWN OF CARRBORO, the TOWN OF CHAPEL HILL, and the TOWN OF HILLSBOROUGH, municipal corporations duly created and existing under the laws of North Carolina; and the ORANGE WATER AND SEWER AUTHORITY, a public water and sewer authority duly created and existing under Chapter 162A, Article 1 of the North Carolina General Statutes.

WITNESSETH:

In consideration of mutual benefits regarding the definition of water and sewer service boundaries and the management and planning thereof, the parties to this agreement hereby mutually agree as follows:

I. PREAMBLE

A. Charge to the Water and Sewer Boundary Task Force

Since the mid-1980's, several attempts to define water and sewer service boundaries for Orange County and the municipalities of Chapel Hill, Carrboro and Hillsborough have been undertaken. In 1994, a Task Force was formed consisting of elected officials from Carrboro, Chapel Hill, Hillsborough and Orange County, as well as two members of the Orange Water and Sewer Authority Board of Directors. The charge to the Water and Sewer Service Boundary Task Force is attached as Appendix B.

B. Purpose of Water and Sewer Boundary Agreement

1. To provide a comprehensive, County-wide system of service areas for future utility development and interest areas for dealing with private water and wastewater system problems in areas without public water and sewer service.

2. To complement growth management objectives, land use plans and annexation plans in existing agreements, such as the Orange County-Chapel Hill-Carrboro Joint Planning Agreement and Joint Planning Area Land Use Plan
3. To resolve in advance and preclude future conflicts about future service areas and annexation areas.
4. To provide for predictable long-range water and sewer capital improvement planning and financing.
5. To provide for limitations on water and sewer service in certain areas, as defined.

II. HOW THE AGREEMENT WORKS

A. Effective Date of the Agreement

This agreement shall become effective upon execution by all of the parties and signature by the chief elected or appointed official.

B. Term of Agreement

This agreement shall remain in effect for ten (10) years from its execution, and shall be renewable as provided in the following subsection.

C. Procedure for renewal

At the end of each ten year term, the agreement shall renew automatically, unless written notice is provided of intent to withdraw as noted in subsection E below.

D. Procedure for proposing and acting on changes in agreement including boundaries

1. Any change to the agreement (including boundaries) requires approval of all parties to the agreement.
2. The addition of other parties to this agreement shall be by consent of the current parties.

E. Procedure for withdrawal from/decision not to renew the agreement

1. A party may not withdraw from the agreement, until it holds a public hearing on the proposed withdrawal followed by written notice to the other parties within 30 days of the public hearing. The withdrawal shall be effective one (1) year following receipt by the other parties of the written notice.
2. If a party to the agreement withdraws as provided above, the agreement remains in effect as to the other parties until all but one party withdraws in the manner provided for the in this agreement.

F. Accountability of Future Parties

Future utility providers that wish to become parties of this agreement must be financially and technically capable of providing water/sewer service to address public health emergencies or other identified public facility needs, as defined by the parties of the boundary agreement. The provider must have adequate system capacity, technical capability and financial assets to address system problems within its interest area without compromising service to current customers.

G. Courtesy Review of Development Proposals Within Service and Interest Areas

The water and sewer providers that are parties to this agreement will be provided courtesy review and the right to provide written input into utility design and the provision of easements for all new major subdivisions and other residential and nonresidential site plan approvals within their service area and interest area. The party to this agreement with development plan review authority shall retain approval authority for all development proposals within its planning jurisdiction.

H. Linkage with the Orange County-Chapel Hill-Carrboro Joint Planning Agreement and other future agreements

This agreement shall be made part of the Orange County-Chapel Hill-Carrboro Joint Planning Agreement, by reference, and to any future cooperative planning agreements that may be entered into among some or all of the parties. Termination of the Joint Planning Agreement or any other cooperative planning agreement does not terminate this agreement. Termination of this agreement can only be accomplished as provided in this agreement. Similarly, the withdrawal of a party from the Joint Planning Agreement or from any other cooperative planning agreement does not constitute withdrawal from this agreement. Withdrawal from this agreement can only be accomplished as provided in this agreement.

III. DEFINITIONS

Primary Service Area: An area (as shown on the Water and Sewer Service Boundary Map, which is Appendix A) where water and/or sewer service is now provided, or might reasonably be provided in the future, according to adopted plans and future amendments to adopted plans (hereinafter referred to as "service area")².

² As per the map in Appendix A, the Town of Hillsborough Long-Term Interest Area and Primary Service Agreement are combined and for purposes of this agreement is its Primary Service Area

OWASA Long-Term Interest Area: An area (as shown on the Water and Sewer Service Boundary Map, which is Appendix A) within which public water and/or sewer service is not anticipated to be made, but if such services are to be provided, OWASA will be the responsible utility service provider. Long-Term Interest Areas are not service areas, and do not include areas outside of Orange County. OWASA's Long-Term Interest Area is hereinafter referred to as OWASA's "interest area."

Orange County Long-Term Interest Area: The areas of Orange County planning jurisdiction (as shown on the Water and Sewer Service Boundary Map, which is Appendix A) not part of a Primary Service Area or another Long-Term Interest Area within which public water and/or sewer service is not anticipated to be made, but if such services are to be provided, Orange County will be responsible for coordinating the provision of utility service. Long-Term Interest Areas are not service areas, and do not include areas outside of Orange County. Orange County's Long-Term Interest Area is hereinafter referred to as Orange County's "interest area."

Added 10-5-2010

Hillsborough Long-Term Interest Area: An area (as shown on the Water and Sewer Service Boundary Map, which is Appendix A) within which public water and/or sewer service is not anticipated to be made, but if such services are to be provided, the Town of Hillsborough will be the responsible utility service provider. Long Term Interest Areas are not service areas, and do not include areas outside of Orange County. Hillsborough's Long-Term Interest Area is hereinafter referred to as Hillsborough's "interest area."

Essential Public Facility: A publicly-owned facility, or a facility wholly financed by Federal, State or local government (or a combination thereof) that provides a service for the health, safety and general welfare of County residents (for example, a school, fire station, public safety substation or solid waste convenience center).

Adverse Public Health Condition: An Adverse Public Health Condition exists in the case of a wastewater system(s) when it is (1) failing, (2) documented to be failing by the Orange County Health Department, and (3) no on-site repair is approvable or recommended by the Orange County Health Department; or, in the case of a well water supply system, it meets all of the following criteria:

- the well water supply system is contaminated with a microbial, chemical or other agent which is known to cause disease or other serious health effects;
- the well water supply system is not reparable to the point where the contamination can be eliminated;
- the water from the well water supply system is not treatable prior to withdrawal to the point where the threat of disease or serious health effects is eliminated; .
- there is no alternate location on-site for a new well water supply system which can be permitted under Orange County Health Department regulatory criteria in effect at the time of the contamination or an alternative site is unacceptable because widespread existence of contamination or because of the potential of contaminant migration to the alternate site. A description of these terms and their application is provided in Section VI of this Agreement.

Public Water or Public Sewer Service: The provision of water and/or sewer service by a party to this agreement. This definition does not include consulting services and/or technical assistance services.

Emergency Water Transfer: Any short-term transfer of raw water supply or finished drinking water supply from one service provider to assist another service provider in meeting water needs during:

- a) unanticipated disruptions or emergencies relating to raw or finished water supply. Such disruptions or emergencies may result from events including, but not limited to: (i) human error; ii) equipment or power failure; iii) supply contamination; iv) major fires, floods, droughts or other disasters; and v) operations or facility maintenance activities, or
- b) periods when temporary, short-term disruption of water supply or finished water service may occur as a result of planned or unplanned maintenance of major water supply, pumping, transmission, treatment, or storage facilities.

Non-Emergency Water Transfer: Any transfer from one water service provider to another water service provider of raw water supply or finished drinking water supply which is not an emergency water transfer.

Wastewater Transfer: Any transfer from one wastewater service provider to another wastewater service provider.

Water and/or Sewer Provider: A municipal corporation, county, private non-profit water system, or public water and sewer authority under the N.C. General Statutes that provides water and/or sewer service to the public.

IV. BOUNDARIES

A. Service Areas and Interest Area Boundaries

The service area and interest area boundaries are as shown in Appendix A.

B. Adherence to Boundaries

1. The boundaries on the map (Appendix A) define the areas in which the parties may provide water and sewer service, and no party to this agreement shall extend service beyond the designated boundaries, except as provided in this agreement. In no case shall service be extended beyond the boundaries of Orange County without the approval of the elected boards which exercise planning jurisdiction on either side of the County boundary. Any extension of lines or service into Chatham County requires the approval of Orange County, Chapel Hill or Carrboro, and OWASA.
2. OWASA presently provides water and sewer service outside of the OWASA Service Area shown on Appendix A as follows:

<u>Location</u>	<u>service provided</u>
Heritage Hills Subdivision	water and sewer
Rangewood Subdivision	water and sewer
Piney Mountain Subdivision	sewer only

OWASA may continue to provide water and sewer service and may extend water and sewer service within these subdivisions provided it does so consistent with OWASA policies and interlocal agreements related to these services that exist on the effective date of this agreement. Any change to those policies and interlocal agreements after the effective date of this agreement can only be accomplished by an amendment to this agreement.

Added 10-5-2010

3. The Town of Hillsborough presently provides water service outside of the proposed Hillsborough Primary Service Area shown in Appendix A as follows (see Map in Appendix F for precise locations):
 1. Along NC 86S to slightly south of New Hope Church Road
 2. Joppa Oaks, Byrdsville, Wyndfall, and Strayhorn Hills neighborhoods
 3. Wayside Baptist Church area
 4. Lands across Strouds Creek Rd from Mars Hill Baptist Church and Pathways Elementary School
 5. Portions of the Watkins Rd, former Mill Run subdivision and Perry farm
 6. Along Orange Grove Road southwest of Interstate 40 and along New Grady Brown School Road to Dimmocks Mill Road and along Old Grady Brown School Road

The Town of Hillsborough may continue to provide water service to these areas but may not extend water service in these areas or outside of the Primary Service Area.

V. PROCEDURES FOR PROVIDING SERVICE

A. Policy Issues

Planning and growth management issues are influenced by the location of water and sewer. This agreement is not intended to supersede other land use agreements made by the local governments.

B. Procedures for the provision of service within the Service Areas and Interest Areas

1. When water and sewer service provision is required to address an adverse public health condition, or to provide service to an essential public facility, the designated provider for the service area or interest area shall have the right of first refusal to provide such service.
2. Within the service areas and interest areas, the water and sewer provider will agree to provide service, as defined in this agreement, as system capacity, financial resources, and other reasonable utility considerations allow, and as provided in this agreement.

C. Policy of "first-refusal"

1. The designated water and sewer provider within a service area or interest area has first right to provide service if an adverse public health condition or essential public facility service need is established, and public water or public sewer service is determined to be required to address the adverse public health condition.
2. If the designated water and sewer provider declines to provide service, it must notify the other parties to the agreement with a statement of rationale.
3. The designated water and sewer provider may contract with another service provider to address the situation, in the manner prescribed in Section VI of this agreement, upon consultation with other jurisdictions.
4. If no other water and sewer provider is available, Orange County retains the right to address the adverse public health condition or essential public facility need in the manner prescribed in Section VI of this agreement.

VI. LIMITATIONS ON SERVICE

A. Prohibitions and Limitations on Extension Into Interest Areas

The development of land within interest areas is not projected to occur at urban densities, and therefore, public water and sewer service shall be prohibited in these areas, except as provided in this agreement {Section VI.B, VI.C, VI.D, VLF, VILA, VII.B, VILC}³. Individual onsite and small/community-scale alternative water supply and wastewater treatment systems not physically connected to central systems will be the primary methods of meeting the water and sewer service needs of existing and future development.

3. ibid.

B. Adverse Public Health Conditions

An exception to the prohibition of public water and sewer service in interest areas may be made to allow the extension of lines in the event the Orange County Health Department documents an "adverse public health condition."

An adverse public health condition exists where:

1. In the case of existing wastewater system(s), it meets all of the following criteria:
 - the wastewater system is failing;
 - the wastewater system is documented to be failing by the Orange County Health Department;
 - there is no on-site repair approvable or recommended by the Orange County Health Department.

The following terms used in the criteria above mean:

Failing Wastewater System: A wastewater system is failing when sewage or effluent is seeping or discharging to the ground surface or to surface waters. A permitted, properly-functioning non-discharge wastewater system (e.g., a spray-irrigation system) and a permitted, properly-functioning discharge system are not failing wastewater systems.

Approvable On-Site Repair: An approvable on-site wastewater system repair that can be completed in a designated repair area which is approvable under Orange County Health Department regulatory soil/site criteria in effect at the time of the needed repair.

Recommended On-Site Repair: A recommended on-site repair is one that is not an approvable on-site repair, but is one that in the best professional judgment of the Orange County Health Department will reasonably enable the system to function properly. A recommended on-site repair may incorporate engineered design (a design certified by an engineer to overcome all soil/site limitations in the particular situation), site or system modification, flow reduction or other measures calculated to improve functionality of the system.

2. In the case of an existing well water supply system(s), it meets all of the following criteria:
 - the well water supply system is contaminated with a microbial, chemical or other agent which is known to cause disease or other serious health effects;
 - the well water supply system is not reparable to the point where the contamination can be eliminated;
 - the water from the well water supply system is not treatable prior to withdrawal to the point where the threat of disease or serious health effects is eliminated;
 - there is no alternate location on-site for a new well water supply system which can be permitted under Orange County Health Department regulatory criteria in effect at

the time of the contamination or an alternative site is unacceptable because widespread existence of contamination or because of the potential of contaminant migration to the alternate site.

The following terms used in the criteria above mean:

Well: A well is any excavation that is cored, bored, drilled, jetted, dug or otherwise constructed for the purpose of locating, testing, developing, draining or recharging any ground water reserves or aquifer, or that may control, divert, or otherwise control the movement of water from or into any aquifer.

Well Water Supply System: A well water supply system is any well that is intended for use or is usable as a source of water supply for domestic use (including household purposes, farm livestock, or gardens) and the pump and pipe used in connection with or pertaining thereto, including well pumps, distribution pipes, plumbing pipes, tanks, fittings, and water treatment devices.

The Orange County Health Department shall make the determination as to whether an adverse public health condition exists, and shall make a recommendation on the appropriate remedy to the governmental entity(ies) in the appropriate interest area.

The final decision to use any particular means or tool for rectifying any particular adverse public health condition remains, through zoning regulations or other land use ordinances, with the governmental entity or entities having zoning or planning jurisdiction over the area where the adverse public health condition exists. In the Orange County-Chapel Hill-Carrboro Joint Planning Area, the Joint Development Review Areas shall be used to determine which of the JPA parties shall jointly decide on the appropriate means or tool for rectifying an adverse public health condition. Public water or public sewer lines extended to provide service to an adverse public health condition or essential public facility cannot be used for other purposes or other parties, except as provided in Section VLD.

C. Sizing of Lines Extended Into Interest Areas

The extension of public water or public sewer lines into an interest area shall be sized so as to comply with State technical and engineering regulations and only to serve the intended use, as defined in this agreement. However, in the case of a public water line extension,

provisions shall be made to address adequate line sizing for pressure and volume considerations.

D. Controlling Access to Lines In Interest Areas

Public water or public sewer lines extended to provide service to an adverse public health condition or essential public facility cannot be used for other purposes or other parties, except to remedy another adverse public health condition.

E. Siting of Essential Public Facilities Within Interest Areas

The location of some essential public facilities, particularly schools, requires special consideration for access to public water and sewer lines. Where possible, schools shall be sited in a manner that promotes the efficient use of existing water and sewer service. Preferably, a set of criteria governing such situations would be developed based on consultations between the appropriate school boards and the elected officials of affected jurisdictions, and applied as necessary. Publicly-owned facilities other than a public school shall be located in a manner that promotes the orderly provision of water and sewer service. The preferred method of connection is to lines that already exist, or in a manner that would minimize the need to extend existing lines.

F. Water and Sewer Service Into/Out of Orange County

Water and sewer service of any of the service providers that are parties to this agreement shall not be extended outside of the boundaries of Orange County without the approval of the elected boards which exercise planning jurisdiction on either side of the County boundary. Any extension of lines or service into Chatham County requires the approval of Orange County, Chapel Hill or Carrboro, and OWASA. This approval is not required when water and sewer service is required as a condition of annexation by the towns of Chapel Hill or Carrboro.

VII. WATER TRANSFERS AND WASTEWATER TRANSFERS

A. Emergency Water Transfers (This subsection shall not apply to any system operated by a municipality)

Emergency water transfers are transfers that:

1. Are made for short-term duration. For the purpose of this Agreement, short-term duration shall be reviewed at 30 days, 60 days and 90 days, with subsequent 90-day intervals up to one year, as per the following process:
 - a. After 30 days duration, a memo from the chief administrative officials of the service providers will be sent to the managers of the jurisdictions that are parties to this Agreement. The memo shall document the emergency, steps being taken to address the situation, and notify the managers of the potential for a longer period of the emergency water transfer.
 - b. At 60 days, the service provider sending the water shall notify its elected board (or, in the case of OWASA, the member government elected boards) on the status of the emergency and provide opportunity for the boards to review and comment on the situation. The receiving provider shall provide similar information.
 - c. Between 60 days and 90 days from inception of transfer, the elected boards which exercise planning jurisdiction on either side of the boundary in which the service is provided shall review and approve or not approve the continuation of the transfer beyond 90 days. If continuation of the transfer is approved, it may continue for an additional 90-day period. Approval shall be required for each subsequent 90-day period, with a maximum emergency water transfer duration of 365 days from inception. Lack of action by the elected boards as provided in this subsection constitutes approval for the subsequent 90-day period.
 - d. At the 30-day point, the service provider shall determine that adequate water and other resources and facility capacities are available to support the extended emergency transfer without adversely affecting the quality and quantity of water supply and services to customers within its service area, and without adversely affecting environmental quality within its service area;

AND

2. Are not intended to provide raw or finished water supply necessary to support new growth and development within the service area of the service provider receiving the transfer. Neither party shall, in

planning for future growth and associated increases in water supply needs, rely upon water from the other party supplied under this agreement to serve such growth.

- a. A service provider experiencing a water emergency and receiving emergency water transfers must agree to act expeditiously and adequately to mitigate and remove the causes of the emergency conditions.

B. Non-Emergency Water Transfers (This subsection shall not apply to the Town of Hillsborough until January 1, 2005.)

Non-emergency water transfers are only permitted with the approval of the Orange County Board of Commissioners and the elected or appointed boards of the service providers providing and/or receiving the transfer. If OWASA is the service provider, approval must come from the OWASA Board of Directors and the elected boards of Carrboro, Chapel Hill and Orange County.

C. Wastewater Transfers

Wastewater transfers are only permitted with the approval of the Orange County Board of Commissioners and the elected or appointed boards of the service providers providing the transfer. If OWASA is the service provider, approval must come from the OWASA Board of Directors and the elected boards of Carrboro, Chapel Hill and Orange County.

VIII. LINKAGE TO OTHER AGREEMENTS

Linkages to Other Agreements

There are a number of existing agreements among the parties to this agreement that are relevant to the management and planning of public water and sewer service. In addition, this agreement and those listed below should all be read together. Where inconsistencies exist, this agreement shall control, except as otherwise provided by law. Included among these relevant agreements with linkages are:

- Hillsborough-Durham Service Area Agreement
- OWASA-Durham Service Agreement
- Eno River Capacity Use Agreement
- Hillsborough/Orange-Alamance Water Systems Agreement
- OWASA-Hillsborough Service Agreement

- OWASA-Hillsborough Bulk Water Transfer Agreement
- Chapel Hill-Durham Annexation Agreement
- Mutual Aid Agreement
- Jordan Lake Allocations from NC DEHNR
- OWASA Agreements of Purchase and Sale between 1) OWASA and Carrboro, 2) OWASA and Chapel Hill, and 3) OWASA and UNC
- OWASA Agreement and Policy related to extensions of water and sewer into University Lake Watershed (applicable to water and sewer service to Rangewood Subdivision and Heritage Hills Subdivision)
- OWASA-Orange County Agreements related to Piney Mountain Subdivision sewer service

IX. APPENDICES

Amended 10-5-2010

- A. Water and Sewer Service Boundaries Map
- B. Charge to the Water and Sewer Boundary Task Force
- C. Toolbox of Remedies for Adverse Public Health Conditions
- D. Joint Planning Area Boundary Map
- E. Comprehensive Plan Land Use Maps for all Orange County local governments, and of Chatham County

Added 10-5-2010

- F. Town of Hillsborough Existing Water Service Outside of Primary Service Area

THIS AGREEMENT ENTERED INTO THIS 3rd DAY OF
December, 2001.

Benny F. Smith
 Chair, Orange County Board of Commissioners

Attest: Christy L. Smith
 Clerk to the Orange County Board of Commissioners



R. C. Smith
 Mayor, Town of Chapel Hill

Christy L. Smith
 Clerk, Town of Chapel Hill

Attest: David L. Williams
 Town Clerk, Town of Carrboro



Michael R. Nelson
 Mayor, Town of Carrboro

Attest: Anna L. Thompson
 Town Clerk, Town of Hillsborough

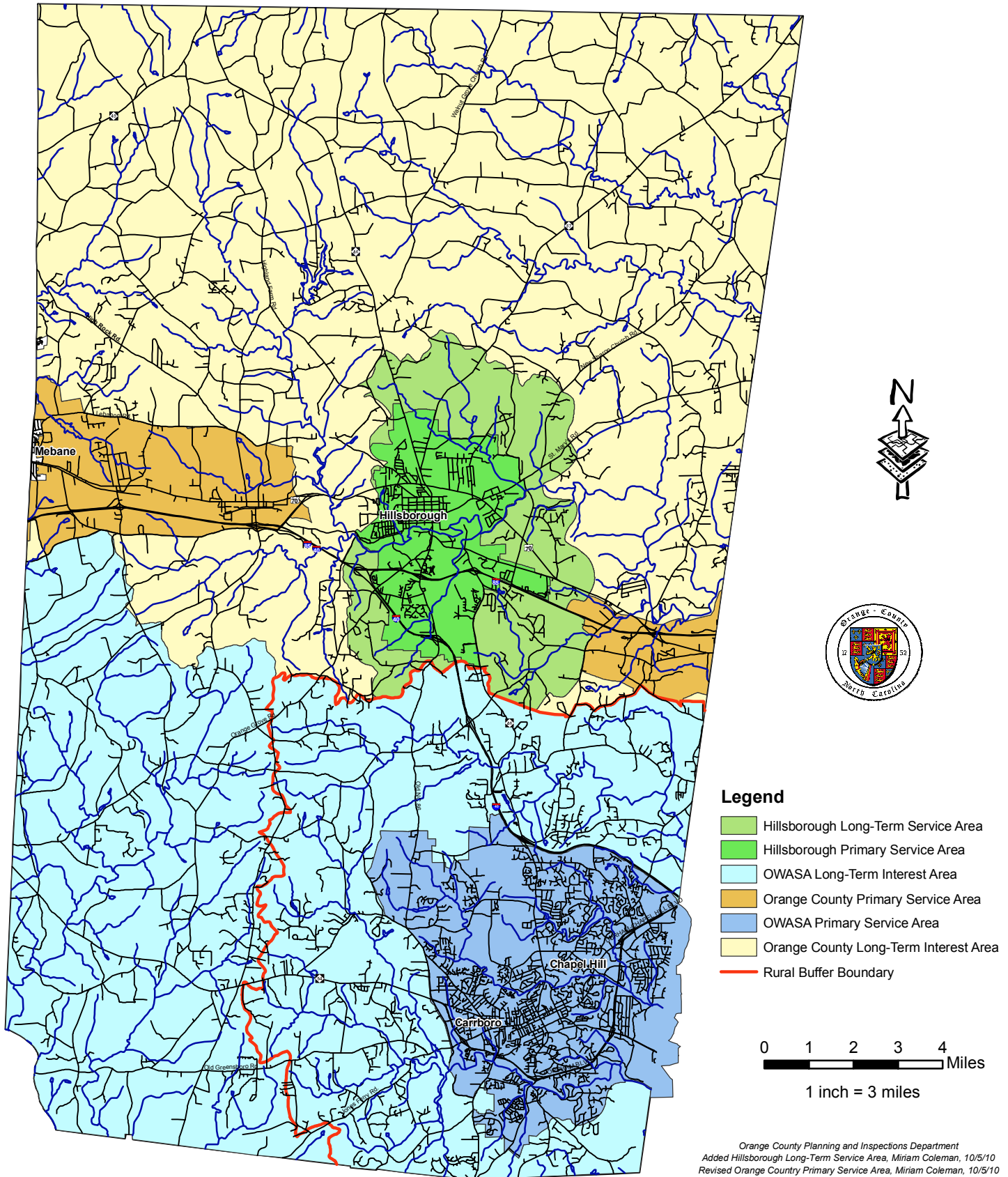


Steve Phillips
 Mayor, Town of Hillsborough

Bernadette Pelissier
 Chair, OWASA Board of Directors

Appendix A

Water and Sewer Management Planning and Boundary Agreement



Orange County Planning and Inspections Department
 Added Hillsborough Long-Term Service Area, Miriam Coleman, 10/5/10
 Revised Orange County Primary Service Area, Miriam Coleman, 10/5/10
 Updated Hillsborough Primary Service Area, Miriam Coleman, 10/22/08
 Updated Streets, Miriam Coleman, 2002
 Revised Map to show retracted Chapel Hill Urban Service Boundary, Carrie Whitehill, 11/14/01
 Original Map Prepared by Beth McFarland, 04/17/97

A RESOLUTION APPROVING A PROPOSED COMPOSITION OF AND CHARGE TO A COMMITTEE TO PROPOSE UTILITY SERVICE AREA BOUNDARIES, AND APPOINTING TWO COUNCIL MEMBERS TO SERVE ON THE COMMITTEE
(94-4-11/R-5)

BE IT RESOLVED that the Council of the Town of Chapel Hill approves the following composition of and charge to a committee to proposed utility service area boundaries.

Purposes of considering water and sewer service area boundaries:

To enable local governments and utilities to make long-term plans with known rather than continuously changing boundaries.

To eliminate or minimize the potential for conflicts regarding utility service areas and future annexation areas.

To complement the existing framework of land use plans under the Joint Planning and Cooperative Planning agreements.

Composition: Two representatives from each of the following entities:

Orange County Board of Commissioners
Hillsborough Board of Commissioners
Carrboro Board of Aldermen
Chapel Hill Town Council
Orange Water and Sewer Authority Board of Directors

Charge 1: To make a report and recommendations by October, 1994 to the Orange County Board of Commissioners, Hillsborough Board of Commissioners, Carrboro Board of Aldermen, Chapel Hill Town Council and Orange Water and Sewer Authority Board of Directors regarding long-term water and sewer service area boundaries in Orange County.

Charge 2: To develop a proposal for water and sewer service areas which is based on broad policy considerations of the elected boards, including those policies in intergovernmental planning agreements.

Charge 3: The Committee's report to be submitted in October, 1994 shall be considered a proposed basic framework as a starting point for developing an agreement(s). This report shall not include a discussion of oversight of community or alternative wastewater systems or of the timing of public water or sewer extensions within long-term service area boundaries.

Charge 4: If the boards represented on the Committee agree in principle on a proposal for long-term service area boundaries, the Committee shall draft a proposed agreement(s) for consideration by the local government and utility boards. This agreement may provide

that matters involving extension of public water and sewer in the Rural Buffer are to be separately discussed.

Charge 5: If the boards agree in principle on a proposed agreement, the Committee shall seek to meet with representatives of additional jurisdictions and utilities which may need to be included in agreement(s). The additional entities would include but not necessarily be limited to the Orange Alamance Water System, City of Durham, Mebane, Graham, etc. A proposed agreement with these additional entities would be submitted for consideration by all parties.

Footnotes: The Committee, and each of the boards involved in the process above, would hold public hearing(s) at such times as each determines appropriate. The Committee would be a public body with open meetings in accord with State law.

BE IT FURTHER RESOLVED that the Council appoints
and
to represent the Council on the Committee.

This the 11th day of April, 1994.

LAW OFFICES

COLEMAN, GLEDHILL & HARGRAVE

A PROFESSIONAL CORPORATION

129 E. TRYON STREET

P. O. DRAWER 1529

HILLSBOROUGH, NORTH CAROLINA 27278

919-732-2196

FAX 919-732-7997

March 2, 1998

FROM THE DESK OF
GEOFFREY E. GLEDHILL

Mr. Dave Stancil
Orange County Planning Department
Post Office Box 8181
Hillsborough, North Carolina 27278

**RE: Water and Sewer Boundary Agreement - Adverse Public
Health Condition**

Dear Dave:

Enclosed are the following:

1. A replacement for VI.A. of the draft Agreement which replacement contains the expanded definitions related to adverse public health conditions, both failing septic system and contaminated well water systems.

➡ 2. A three page document which includes a matrix of solutions for a failing septic system adverse public health condition and a contaminated well adverse public health condition that I have put together after several meetings with Paul Thames and Ron Holdway.

Using the format that you used in presenting this with the agenda materials for the March 3 Task Force Committee meeting, everything except the first paragraph in the first enclosure would be in bold and italicized. Some of this, principally a few definitions in the well water area, is new. Some of it is not but for some reason did not get incorporated into the draft of the agreement that was provided with the agenda for the meeting. Also, the very last paragraph has been expanded to include the notion that the use of an extension of a public water or public sewer line to correct an adverse public health conditions is limited.

During the Board of County Commissioners and OWASA meeting I gave you some editing suggestions for the emergency water transfers section. A copy of the document with the various suggestions and thoughts is enclosed. The bold, italicized sentence that concludes subsection A.1.c. should be eliminated from the section on emergency water transfers. That sentence deals with non emergency water transfers and should be in the

Mr. Dave Stancil
Page 2
March 2, 1998

section of the agreement related to non emergency water transfers. As you can see from my marginal notes about the non emergency water transfers section, I think it needs more work.

Please fax as much of this as you think would be helpful to those expected to attend the Committee meeting. At a minimum, please send the revised language for section VI.A. of the Agreement. As you know, I will not be able to attend the March 3, 1998 Committee meeting. I understand that Paul and Ron will attend and should be able to help with any questions on the adverse public health condition issue.

Very truly yours,

COLEMAN, GLEDHILL & HARGRAVE, P.C.



Geoffrey E. Gledhill

GEG/lsg
Enclosures
xc: Ron Holdway
Paul Thames

lsg-12
stancil.ltr

Matrix of Solutions

The categories of Interest Area applicable to each Interest Area defined in the Water and Sewer Boundary Agreement and the "tool bag" of remedies available to respond to an adverse public health condition are as follows:

FAILING EXISTING WASTEWATER SYSTEM

<u>Interest Area Categories</u>	<u>Remedies</u>
1. Transition 2. University Lake (CA and PW and Carrboro ETJ) 3. Cane Creek (CA and PW) and Upper Eno (CA) 4. All other protected watershed areas 5. Rural Buffer (not within a protected watershed) 6. AR/R1	*1. Offsite repair - individual *2. Offsite repair - community (WTMP program) *3. Offsite repair - community, OWASA operated (WTMP program) *4. public sewer *5. State permitted system 6. nothing and degrees of nothing 7. imminent health hazard declaration 8. premises vacating *9. pump and haul

*Regulatory, approvable repairs or actions

Matching the remedies to the Interest Area categories in a way that seems consistent with the discussion of the committee follows:

1. Offsite repair - individual: all categories of Interest Areas;
2. Offsite repair - community: Transition, AR/R1;
3. Offsite repair - community OWASA operated: all categories of Interest Areas;
4. public sewer: Transition, Rural Buffer (not in protected watershed), all other protected watersheds, AR/R1;
5. State permitted system: all categories of Interest Areas;
6. Nothing and degrees of nothing: all categories of Interest Areas;
7. Imminent health hazard declaration: all categories of Interest Areas;
8. premises vacating: all categories of Interest Areas.

CONTAMINATED WELL WATER SYSTEM

<u>Interest Area Categories</u>	<u>Remedies</u>
1. Transition 2. University Lake (CA and PW and Carrboro ETJ) 3. Cane Creek (CA and PW) and Upper Eno (CA) All other protected watershed areas 5. Rural Buffer (not within a protected watershed) 6. AR/R1	*1. Offsite repair - individual *2. Offsite repair - community (locally permitted) *3. Offsite repair - community other than municipal and water and sewer authority (State permitted) *4. public water - municipal, OWASA and Orange-Alamance Water System, Inc. 5. nothing and degrees of nothing 6. imminent health hazard declaration 7. premises vacating 8. water buffaloes/bottled water

*Regulatory approvable repairs or actions

Matching the remedies to the Interest Area categories in a way that seems consistent with the discussion of the committee follows:

1. Offsite repair - individual: all categories of Interest Areas;

2. Offsite repair - community (locally permitted): all categories of Interest Areas;

3. Offsite repair - community other than municipal and water and sewer authority (State permitted): all categories of Interest Areas;

4. public water: Transition, Rural Buffer (not in protected watershed), all other protected watersheds, AR/R1;

5. Nothing and degrees of nothing: all categories of Interest Areas;

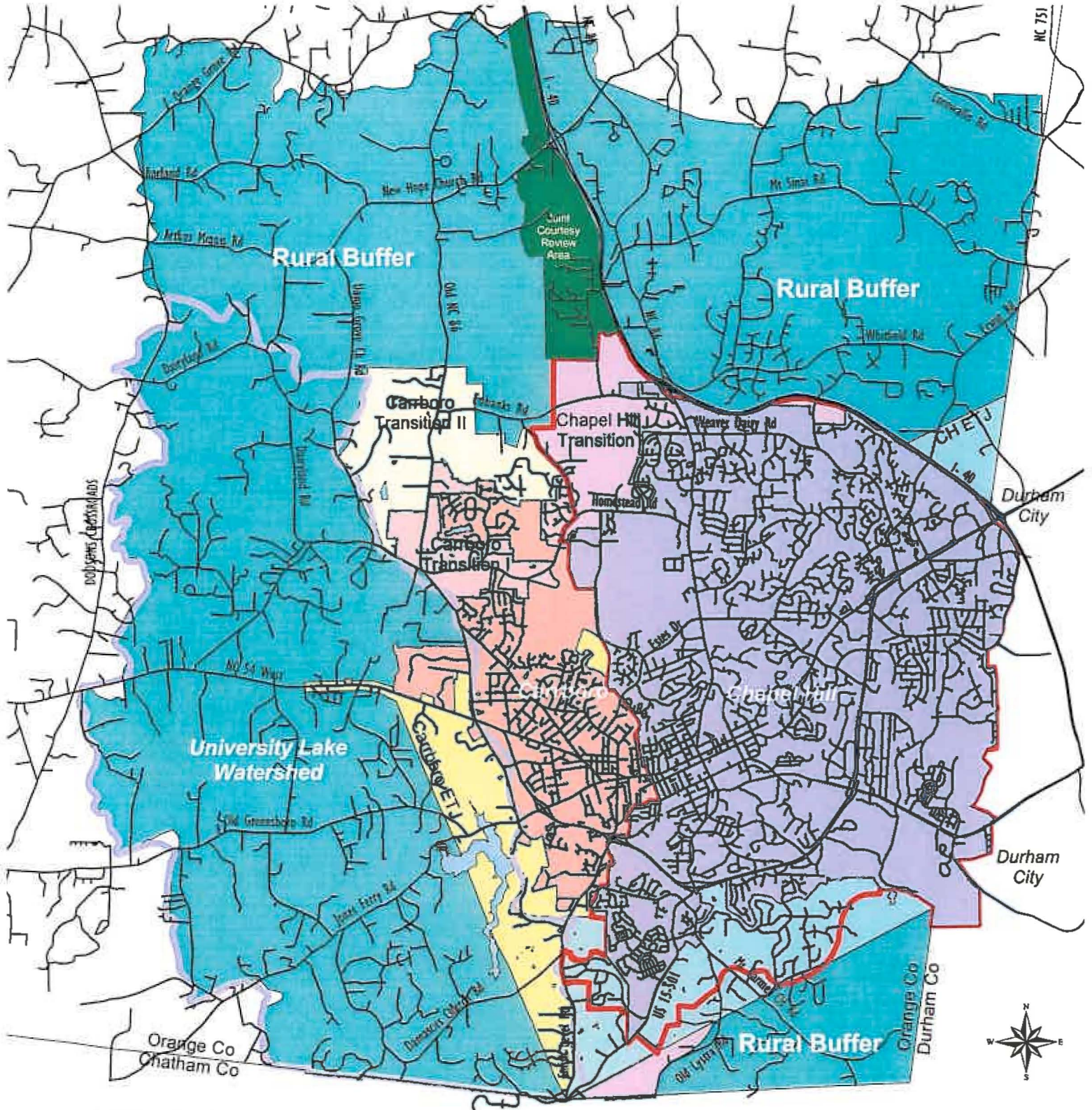
6. Imminent health hazard declaration: all categories of Interest Areas;

7. premises vacating: all categories of Interest Areas;

8. water buffaloes/bottled water: all categories of Interest Areas.

Appendix D Joint Planning Area Boundary Map

Attachment C-24



Chapel Hill Planning Areas

- Chapel Hill City Limits
- Chapel Hill ETJ
- Chapel Hill Urban Services Area

Carrboro Planning Areas

- Carrboro City Limits
- Carrboro ETJ

Orange County, Chapel Hill, Carrboro Joint Planning Agreement (JPA)

- Carrboro Transition I
- Carrboro Transition II
- Chapel Hill Transition Areas
- Rural Buffer, Orange County
- Joint Courtesy Review Area
- University Lake Watershed

2,000 0 2,000 4,000
Feet

Map prepared by
Orange County Planning
February 18, 2004

Appendix E

Comprehensive Plan Land Use Maps for all Orange County local governments, and of Chatham County

Land Use Maps for the following local governments follow:

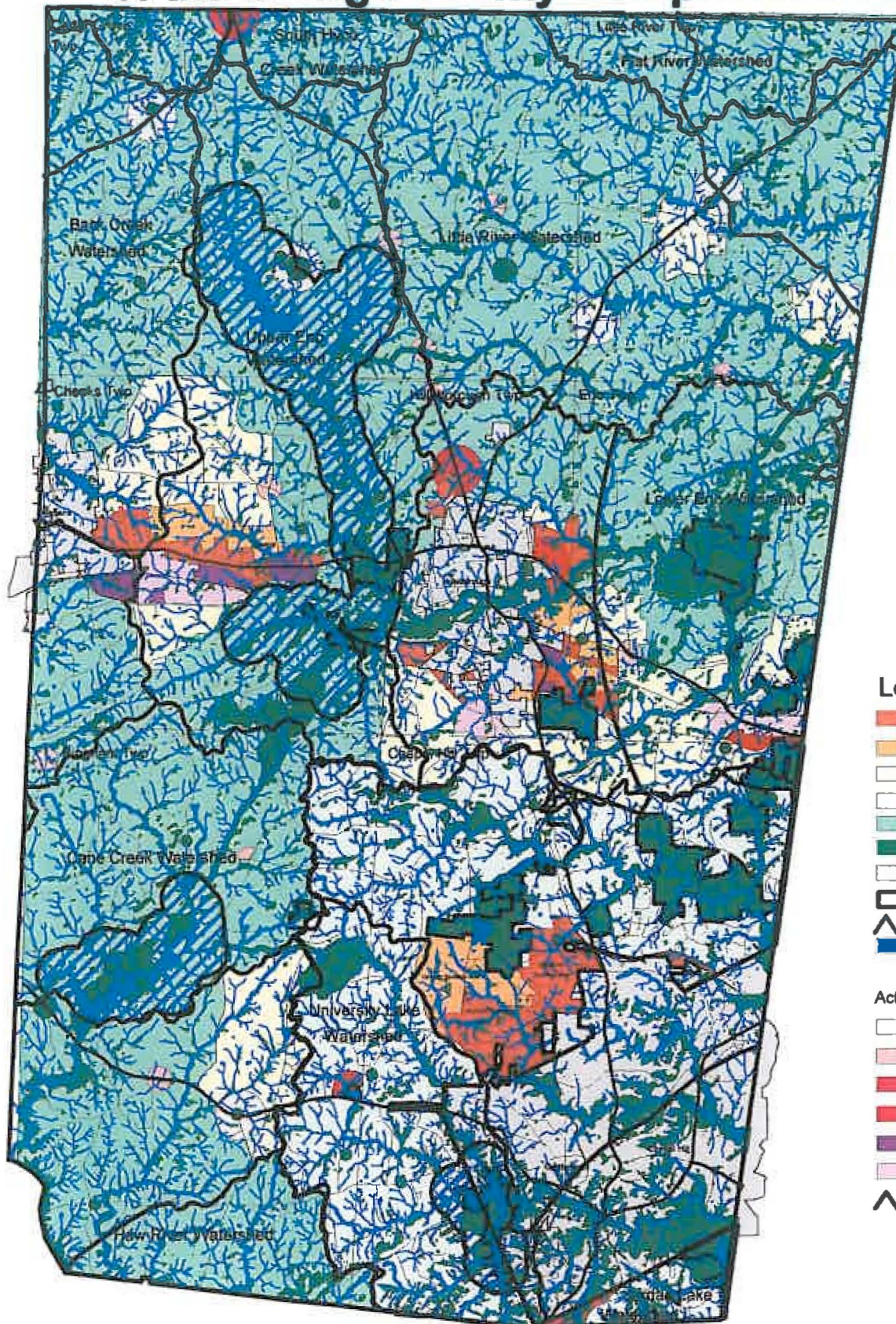
- **Orange County**
- **Chapel Hill**
- **Hillsborough**

Land Use Maps are not available for the following local governments and Zoning Maps are substituted:

- **Carrboro**
- **Chatham County**

LAND USE ELEMENT

of the Orange County Comprehensive Plan



Original Adoption Date: 9-8-81
Amended through: 6-29-00



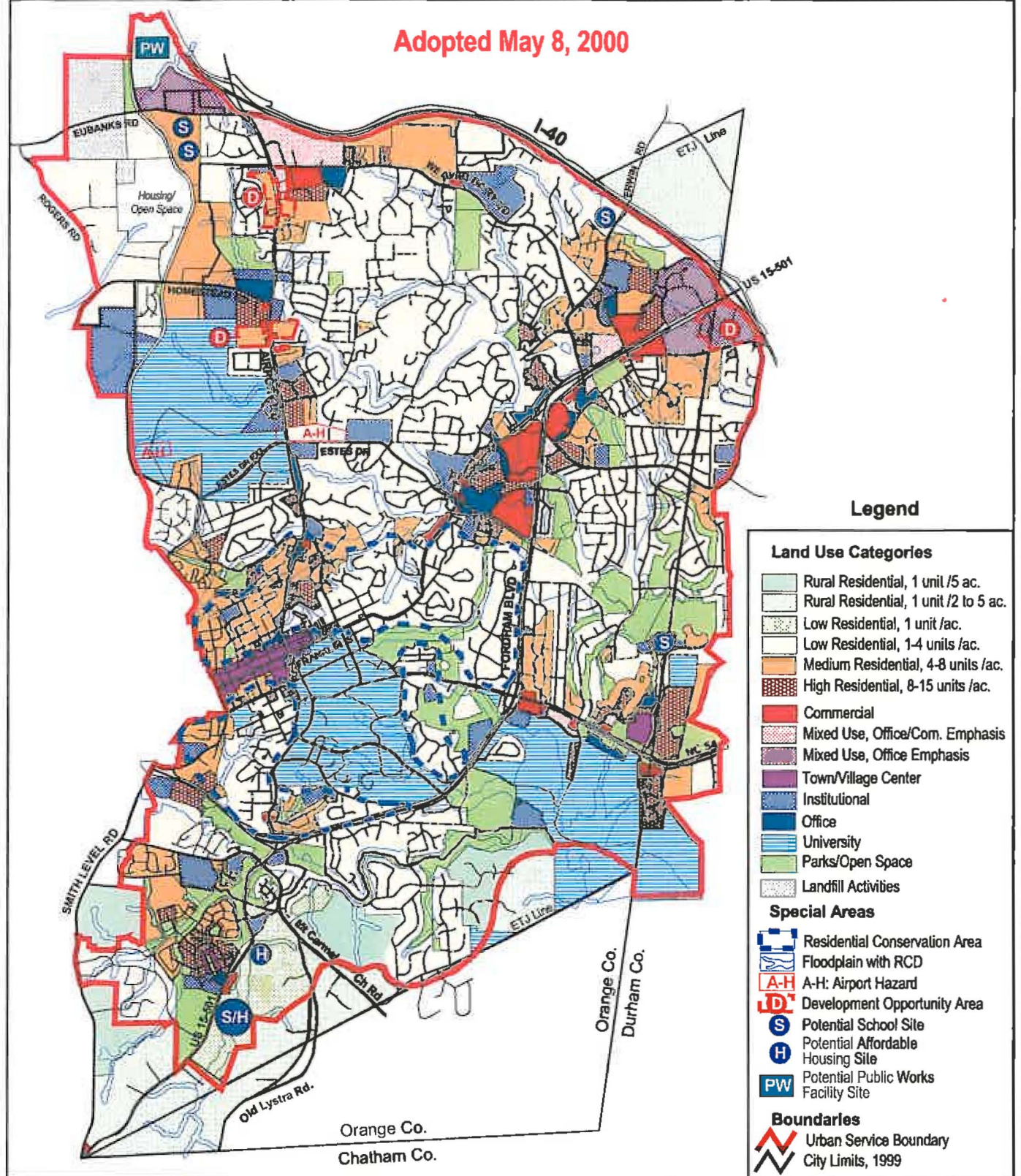
Legend:

- 10 year transition
- 20 year transition
- Rural Residential
- Rural Buffer
- Agricultural Residential
- Resource Protection Areas
- Municipal Jurisdictions
- Public Interest Areas
- Water Supply Watersheds
- Watershed Critical Areas

Activity Nodes

- Rural Community Node
- Rural Neighborhood Node
- Rural Industrial Node
- Commercial Node
- Commercial/Industrial Node
- Economic Development
- OC/CH/CA Joint Planning Area

Adopted May 8, 2000



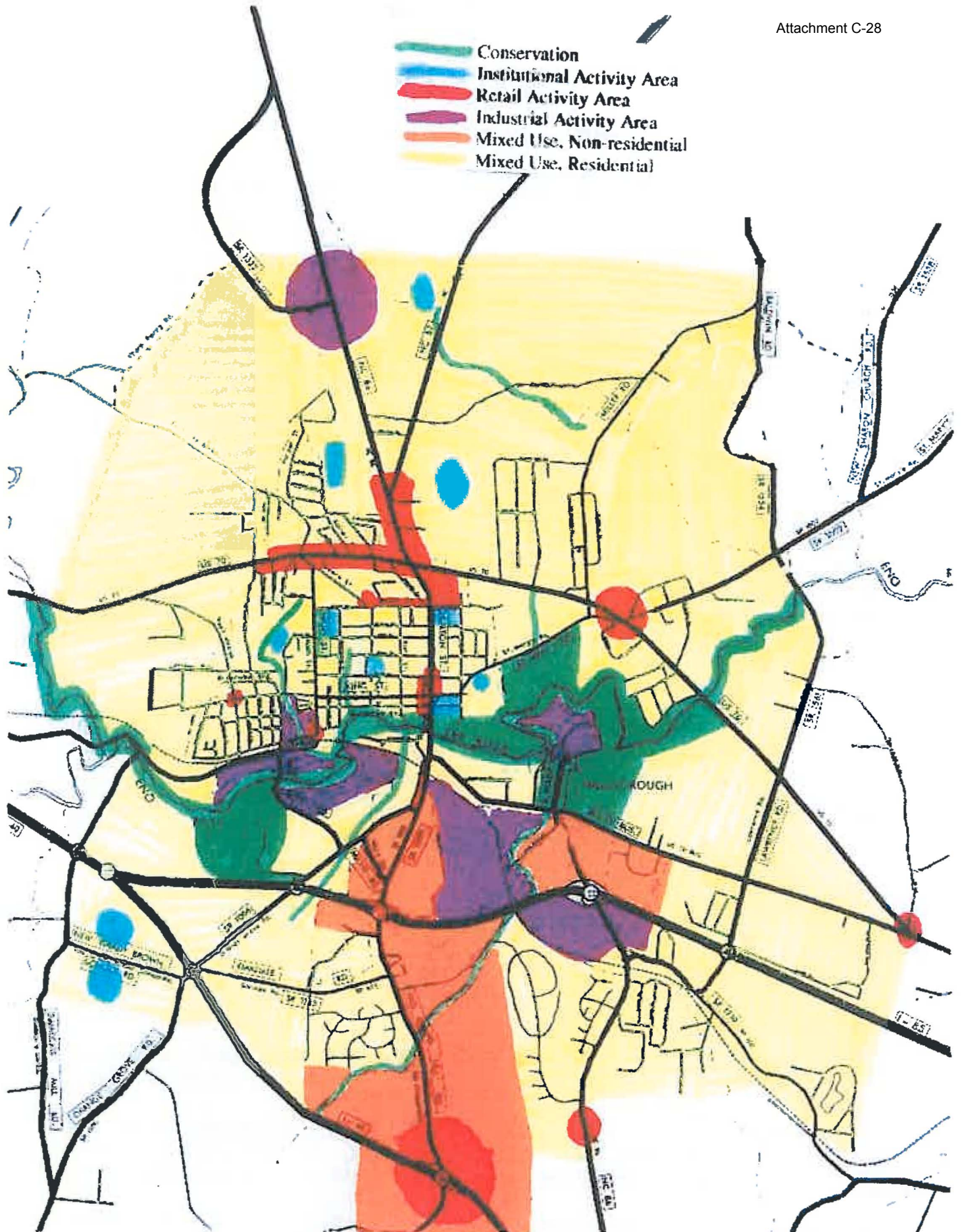
0.5 0 0.5 1 Miles

The Land Use Plan

Comprehensive Plan

Chapel Hill, North Carolina

Revised Nov. 13, 2000



Future Land Use Map

From: *Revised Vision 2010 Town of Hillsborough Comprehensive Plan, Adopted March 13, 2000*

Carrboro Zoning and Development

Legend

Current Development

- Conditional Use Permit
- Special Use Permit
- Zoning Permit

- Carrboro City Limit
- Planning Jurisdiction Boundary

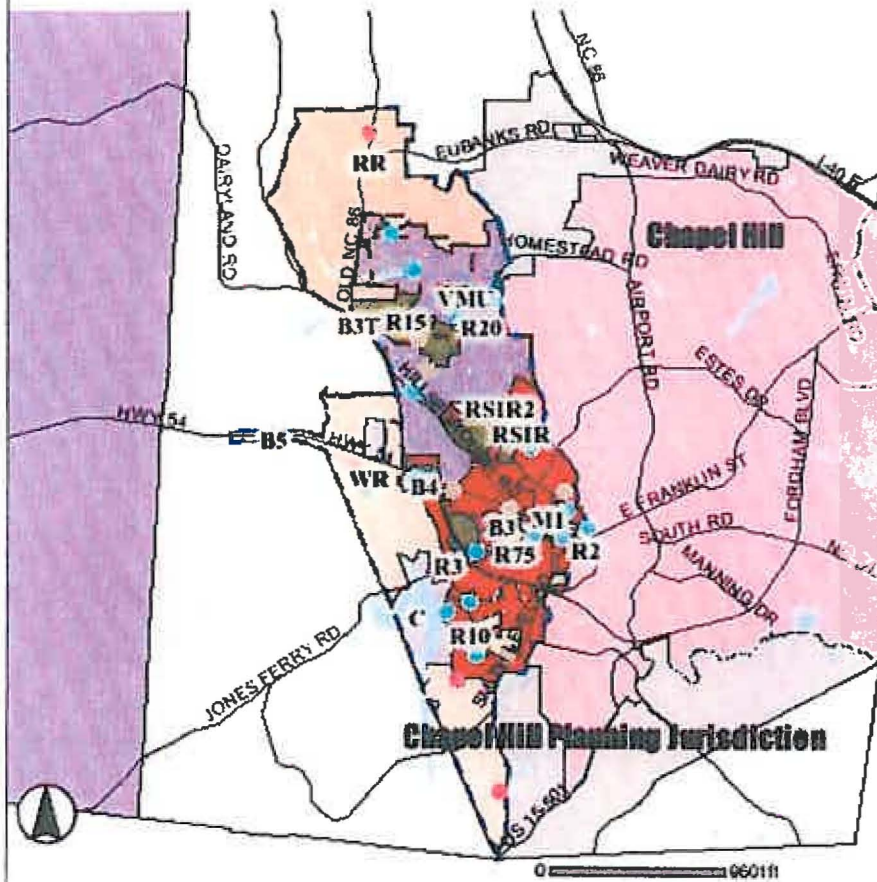
Water Bodies

Carrboro Zoning

- DIC
- DIG
- D2
- D3
- D3T
- D4
- D5
- C
- CT
- EAT
- JWP
- M1
- MPO
- O
- OA
- R10
- R15
- R2
- R20
- R3
- R75
- R100
- RR
- RS/R
- RS/R2
- VMJ
- WMJ
- WR

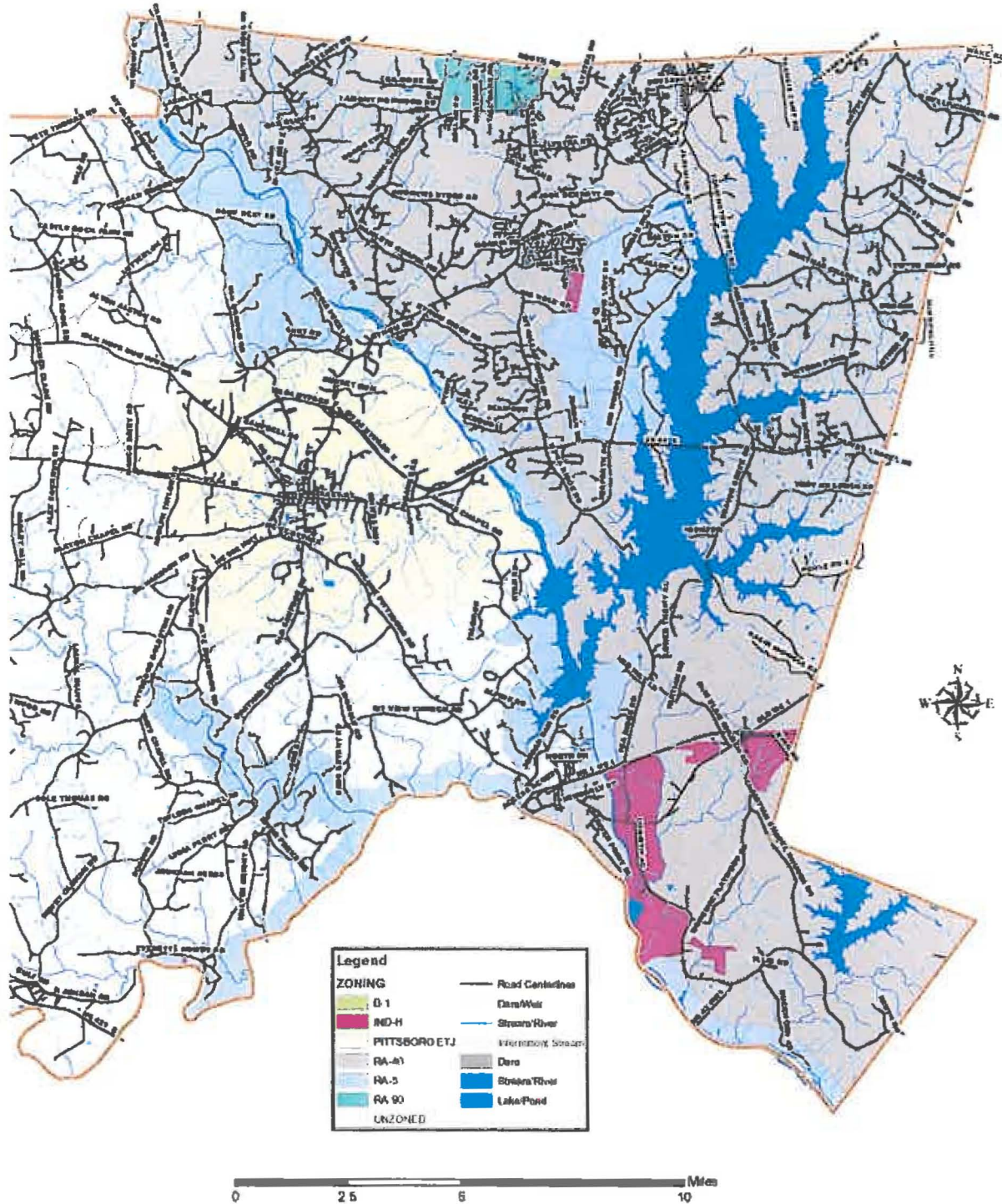
Boundaries

- ST
- CCL
- CGT
- CHC
- CHP
- CHT
- CKT
- ET
- ETJ
- HBT
- LRT
- TAI
- TAJ



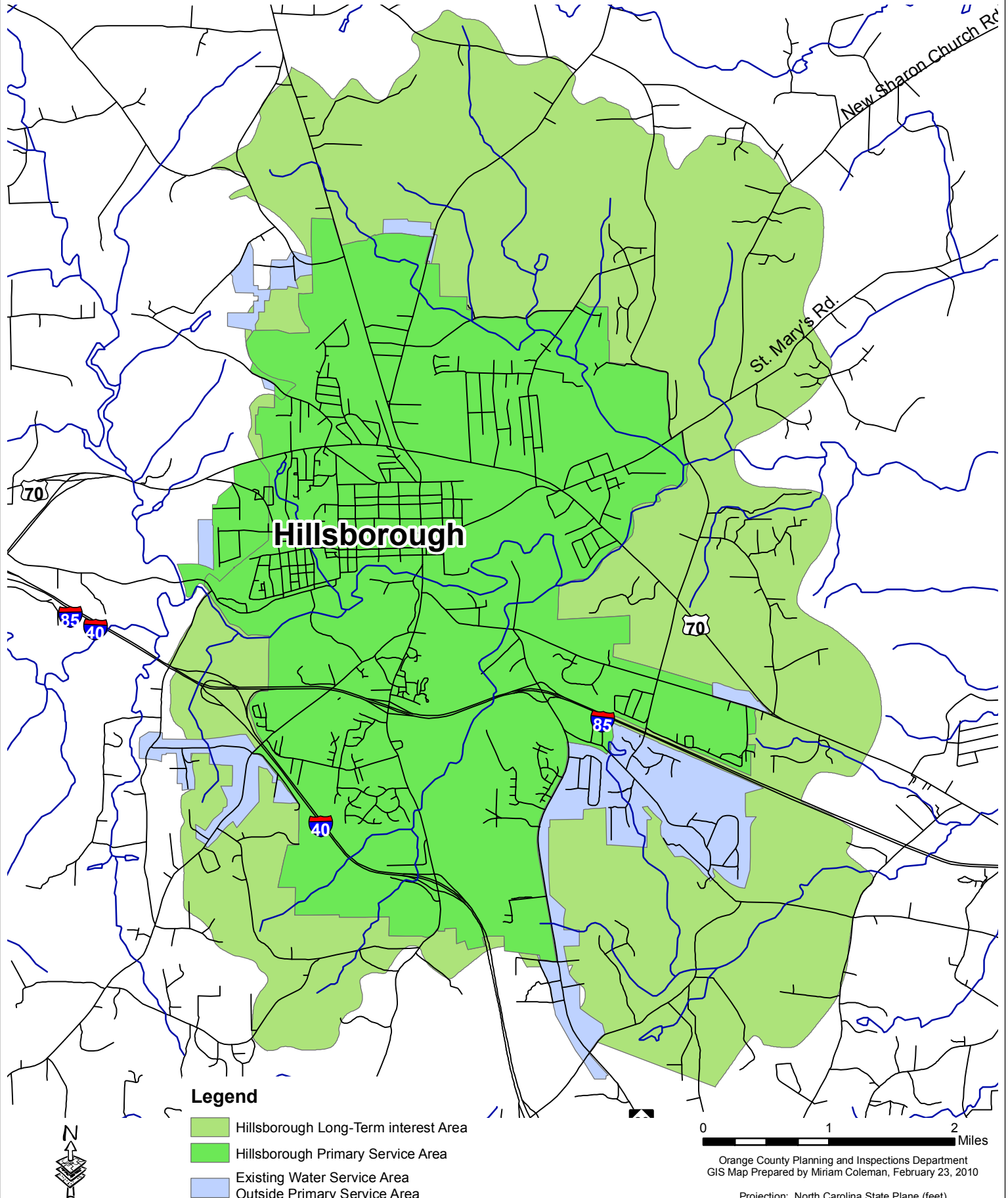
Chatham County

MAJOR ZONING DISTRICTS



Town of Hillsborough Existing Water Service Outside of Primary Service Area - Appendix F

Attachment C-31





Town of Carrboro

Town Hall
301 W. Main St.
Carrboro, NC 27510

Agenda Item Abstract

File Number:17-152

Agenda Date: 5/16/2017

File Type:Agendas

In Control: Board of Aldermen

Version: 1

TITLE:

Discussion on Land Use Ordinance Amendments relating to Tree Protection, Canopy Shade Coverage and Replacement Standards

PURPOSE: The purpose of this item is for the Board to discuss potential text amendments to the Land Use Ordinance relating to the provisions in Article XIX, Screening and Trees, and the associated appendices A and E.

DEPARTMENT: Planning

CONTACT INFORMATION: Christina Moon - 919-918-7325, Marty Roupe - 919-918-7333, Bob Hornik - 919-929-3905

INFORMATION: At the May 27, 2014 Board of Aldermen meeting, the Board adopted text amendments to the Land Use Ordinance (LUO) to update the provisions for tree protection and tree replacement, and to establish new requirements for canopy cover. The amendments were also intended to incorporate more recent technology with regard to the tree planting techniques described in the appendices.

At the time of adoption it was anticipated that certain aspects of the amendments, might need further refinement, particularly the sections relating to canopy cover. Now, three years later, staff has heard from applicants seeking land use permits in the downtown (B-1(C), B-1(G) and B-2 districts) that certain provisions can be difficult to satisfy while maintaining their desired building program-often a larger building on an infill lot. Board members have also noted the occasional tension between different ordinance provisions. For example, it may be difficult to plant new trees and retain a ten-foot sidewalk (Pizzeria Mercato) or to retain trees while improving site circulation or access to trash/recycling (Carolina Car Wash).

The attached draft ordinance is designed to create an opportunity for minor deviations from the provisions in Article XIX, Screening and Trees, for certain situations while retaining the overall intent to protect trees during construction, and to plant new trees for improved shading and canopy cover (Attachment A). Other changes-a new calculation worksheet in the appendices, updated plant lists and minor formatting improvements are designed for better ease of reading. Staff is also considering combining all of the plants lists into a single table.

Due to the complex nature of the text amendments with lists and tables from the body of the LUO and from the appendices, staff is seeking input from the Board on the "working" draft, with a tentative schedule for staff to bring back a more polished version in late August or September with a request to set a public hearing for

Agenda Date: 5/16/2017

File Type:Agendas

In Control: Board of Aldermen

Version: 1

September or October..

FISCAL & STAFF IMPACT: There are no fiscal impacts association with the discussion of this item.

RECOMMENDATION: Staff recommends that the Board of Aldermen discuss the draft ordinance and provide feedback. .

**AN ORDINANCE AMENDING TOWN OF CARRBORO LAND USE ORDINANCE
PROVISIONS RELATING TO TREE PROTECTION, AND SHADING AND CANOPY
REQUIREMENTS**

Draft 5-12-2017

THE BOARD OF ALDERMEN OF THE TOWN OF CARRBORO ORDAINS:

Section 1. Section 15-314 (Board Findings and Declaration of Policy on Protecting Trees and Other Plants), subsection (a)(2) is amended to read as follows:

(2) Trees, shrubs, and other plants appreciably reduce carbon emissions by shading buildings thereby lowering energy use to cool buildings, and also store carbon as biomass; and

Section 2. Section 15-315 of Article XIX, (Definitions) is rewritten as follows:

Section 15-315 Definitions

Unless otherwise specifically provided, or unless the context clearly indicates otherwise, the words and phrases defined below shall have the meaning indicated when used in this Part.

- (1) CANOPY TREE. A healthy evergreen or deciduous tree species that matures at a height of at least thirty (30) feet.
- (2) DRIPLINE. Perimeter formed by the points farthest away from the trunk of a tree where precipitation falling from the branches of that tree lands on the ground.
- (3) CLEARCUTTING. The large-scale, indiscriminate removal of trees, shrubs, and undergrowth with the intention of preparing real property for nonagricultural purposes.
- (4) HABITAT. The natural environment in which an animal, plant, or other type of organism lives. It is made up of physical factors such as soil, moisture, range of temperature, and availability of light as well as biotic factors such as the availability of food, nesting sites, and shelter.
- (5) SPECIMEN OR RARE TREE. Any healthy tree that:
 - a. Has a trunk diameter at breast height (dbh) of twenty-four (24) inches or more for pine tree species; or
 - b. Has a trunk dbh of eighteen (18) inches or more for any species besides pine tree species; or
 - c. Has a trunk dbh of twelve (12) inches or more in the case of any of the species from the following list of North Carolina native canopy tree genera; or

Aesculus (Ohio Buckeye)

Chamaecyparis (Atlantic White Cedar)

Carya (Southern Shagbark Hickory)

Diospyros (Persimmon)

Fagus (Beech)

Juniperus (Eastern Red Cedar)

Magnolia (Magnolia)

Pinus (Longleaf pine)

Taxodium (Bald cypress)

Tsuga (Hemlock)

Ulmus (American Elm)

- d. has a trunk dbh of six (6) inches or more in the case of the species from the following list of North Carolina native understory tree genera: or

<i>Amelanchier</i> (Serviceberry)	<i>Halesia</i> (Silverbell)
<i>Asimina</i> (Pawpaw)	<i>Hamamelis</i> (Witch-hazel)
<i>Carpinus</i> (Hornbeam)	<i>Ilex</i> (Holly)
<i>Cercis</i> (Redbud)	<i>Ostrya</i> (Hophornbeam)
<i>Chionanthus</i> (Fringetree)	<i>Oxydendrum</i> (Sourwood)
<i>Cornus</i> (Dogwood)	<i>Sassafras</i> (Sassafras)
<i>Crataegus</i> (Hawthorn)	

- e. is listed as a State or National Champion by the North Carolina Forest Service or the American Forestry Association; or
- f. provides unique habitat for any endangered or threatened wildlife species protected by Federal law; or
- g. has been cited by the Board of Aldermen as being historically significant; or
- h. any other tree species listed in the North Carolina Natural Heritage Program as being significantly rare, of special concern, threatened, or endangered.
- (6) TREE. A perennial woody plant, single or multiple trunks, with few if any branches on its lower part, which at maturity will obtain a minimum six (6) inch caliper.
- (7) TREE CANOPY. The combined area encompassing the drip zones of all canopy trees.
- (8) TREE PROTECTION PERIMETER. That area within a circle drawn with the tree's trunk as the center. Radius is dependent upon site conditions and the relative tolerance of tree species to construction damage. Standard accepted radius is 1-1.5 feet per diameter inch of tree to be retained.
- (9) TREE STAND. An aggregation of trees occupying a specific area and generally uniform in species composition, size, age, arrangement, and condition that distinguishes it from vegetation in adjoining areas.

Section 3. Section 15-317 (Retention and Protection of Specimen and Rare Trees), subsections (a) through (c) are rewritten to read as follows:

Section 15-317 Retention and Protection of Specimen and Rare Trees

(a) Every development shall retain all existing specimen and rare trees. When a site would be so unreasonably burdened by the retention of all such trees that a choice must be made as to which trees will be retained, the following criteria shall be used by the applicant, in consultation with the land use administrator and a landscape or forestry profession, who is a certified arborist, to evaluate the trees for the purpose of deciding which to retain:

- (1) The rareness of the species, relative to the species representation on the site and to the species representation within the region and the state. This shall be the most important criterion in the evaluation;

- (2) Size and age, large old trees being considered more valuable than smaller, younger trees of the same species;
- (3) The expected longevity of the tree, including such factors as the tree's relative health at the time of the evaluation;
- (4) The hardiness of the tree, including wind firmness, climatic requirements, susceptibility to insects and diseases;
- (5) Aesthetic values, including flowers, fruit, form characteristics, potential for autumn coloration;
- (6) Size at maturity; and
- (7) Potential to provide shading.

(b) Flexible approaches such as adjustments to lot layout, placement of buildings and paved surfaces and location of utilities should be pursued in order to save rare and specimen trees.

(c) Subsurface disturbance within the Tree Protection Perimeter around any tree to be retained in accordance with (a) above, shall be limited to the minimum extent practicable as determined by a certified arborist during construction or after completion of the development.

Section 4. Section 15-318 (Shade Trees in Parking Lots), is amended to read as follows:

(a) Vehicle accommodation areas containing more than four parking spaces that are required by Section 15-296 must be shaded by deciduous trees (either retained or planted by developer) that have or will have when fully mature a trunk at least twelve inches in diameter. When trees are planted by the developer to satisfy the requirements of this subsection, the developer shall choose trees that meet the standards set forth in Appendix E. As part of the redevelopment of an infill lot in the B-1(C), B-1(G) or B-2 districts, up to 25% of the shading requirement may be from existing or proposed buildings providing shadow as identified in the provisions of Appendix A, A-6 (26).

(b) Each tree of the type described in subsection (a) shall be presumed to shade a circular area having a radius of fifteen feet with the trunk of the tree as the center, and there must be sufficient trees so that, using this standard, thirty-five percent of the vehicle accommodation area will be shaded.

(c) No paving may be placed within 15 feet (measured from the trunk) of any tree retained to comply with subsection (a), unless such tree is eighteen inches or greater in diameter or a very rare species as described in Section 15-315, in which case no paving may be placed within the Tree Protection Perimeter for such trees as described in 15-315(8). New trees planted to comply with subsection (a) shall be located so that they are surrounded by at least 200 square feet of unpaved area. Notwithstanding the foregoing, new trees planted on infill lots in the B-1(C),

B-1(G) or B-2 districts may be surrounded by less than 200 square feet of unpaved area if installed with an urban tree planting system, specified by a professional engineer and landscape architect or certified arborist, that will ensure the survival of the tree for its typical life expectancy.

(d) Vehicle accommodation areas shall be laid out and detailed to prevent vehicles from striking trees. Vehicles will be presumed to have a body overhang of three feet six inches.

(e) The foregoing requirements shall not apply to 19.100 classification uses where such uses do not involve the construction of a permanent structure and are conducted not more than two days per week on the site of a vehicle accommodation area that is used primarily in connection with another use. Furthermore, when a 19.100 classification use meeting the foregoing requirements is installed on a lot that is nonconforming with respect to the shading requirements of this section, the lot shall not be required to comply with these shading requirements solely because of installation of such use, even though a new permit applicable to the entire lot may be required.

Section 5. Section 15-319 (Tree Canopy coverage Standards) is rewritten to read as follows:

Section 15-319 Tree Canopy Coverage Standards

(a) Minimum Canopy Coverage Standards. Subject to the remaining provisions of this section, the following minimum tree canopy coverage percentages are required within the boundaries of every lot or tract for which a zoning, special use, or conditional use permit is issued, exclusive of required cleared active recreation areas, water bodies, access easements, public and private right-of-way, stormwater and utility easements.

(b) Zoning permit applications for structures that are exempt from building permit requirements, or are the lessor of either i) additions to existing permitted structures that do not exceed 25% of an existing building footprint or ii) do not increase the footprint of the existing building by more than 250 square feet, shall be exempt from the tree canopy standards.

Table 1: Minimum Tree Canopy Coverage Standards

Land Use	Minimum Canopy Coverage
Residential	40%
Other than residential excluding districts (B-1(C), (B-1(G), (B-2)	30%
Other than residential in districts (B-1(C), (B-1(G), (B-2)	15%

- (1) When a tract is subdivided and pursuant to the provisions of Article XIII the developer sets aside open space areas or recreation areas that contain canopy trees (with a minimum caliper of six inches) or when a developer of a subdivision plants canopy trees to comply with the shading requirements of Article XIII, the total tree canopy area so preserved or established shall be credited against the minimum canopy coverage percentages set forth above. The remaining required tree canopy coverage area shall be allocated by the subdivider among the subdivided lots, and this allocation shall be shown on

the recorded plat of such subdivision with a disclosure note that such trees, to fulfill the requirements of this section, shall be subject to maintenance and replacement.

(c) **Modifications to Canopy Coverage Standards.** The permit issuing authority may approve a development application that does not fully comply with the canopy coverage standards when it finds that the application substantially (50 % or more) complies with these standards and that such a deviation:

- (1) Enables the development to better achieve other Town objectives such as: i) the promotion of solar access to encourage active and passive solar technology for water and space heating and renewable energy generation, ii) improved stormwater management, and iii) the preservation of established landscapes professionally designed and installed by an architect or landscape architect; or
- (2) Is for property enrolled in the present use value taxation program or subject to a forest management plan; or
- (3) Is part of the redevelopment of an infill lot in the B-1(C), B-1(G) or B-2 districts, where the applicant is seeking a reduction of the shading requirement per Section 15-318, and has planted trees in the right-of-way to count toward the canopy coverage.

Large expanses of open space, meadowland, or manicured lawn shall not satisfy the canopy coverage standards of this section.

(d) **Implementation of Standards.** Compliance with the tree canopy standards shall be achieved as follows:

- (1) **Protection of existing tree canopy.** The extent of existing tree canopy coverage retained at the time of permit application may be documented by survey or by using current aerial photographs available on the Town's web page or similar resource. Protection of the existing tree canopy will be demonstrated by the tree protection plan required by Section 15-320.
- (2) **Replacement of canopy.** If the existing protected tree canopy is less than the minimum standard as shown in Table 1, the deficit shall be made up by the planting of additional trees as provided herein:
 - a. One (1) or more replacement tree(s) shall be planted in accordance with an approved planting plan. When trees are planted by the developer to satisfy the requirements of this subsection, the developer shall choose trees that meet the standards set forth in Appendix E. Each tree shall be presumed to create a canopy circular area with the trunk of the tree as the center, and there must be sufficient trees so that, using this standard, the canopy requirements in 15-319(a) are met.

- b. Canopy trees planted to meet the Town's screening and parking lot shading standards can be counted toward the replacement canopy tree calculation.
- c. Supplemental canopy trees planted to complete the canopy coverage requirements shall be planted no less than twenty (20) feet from any other proposed or existing canopy tree.
- d. Replacement trees that are planted in an adjacent right-of-way may count toward total tree canopy.
- e. Replacement tree caliper shall be at least two and one-half (2.5) inches at installation.

Section 6. Appendix A, Section A-5. (Existing, Natural, Man-Made and Legal Features) (b)(2), is rewritten to read as follows:

(b) Existing natural features:

- (1) Tree line of wooded areas.
- (2) The location and sizes of all trees which are to be retained in accordance with Section 15-317, and which are to be removed; a written justification for the need to remove any specimen or rare species trees protected by the provisions of Article XIX, along with a description of the extent of the hardship that would occur if such removal were not permitted to occur.

Section 7. Appendix A, Section A-6. (Proposed Changes in Existing Features or New Features), provisions (b)(23) and (b)(24) are rewritten to read as follows:

- (23) Proposed plantings or construction of other devices to comply with the screening requirements of Article XIX, Part I, as well as proposed plantings of trees to comply with the shading, street tree, and canopy requirements of Article XIX, Part II. Plans shall label shrubbery by common or scientific name, show the distance between plants and indicate the height at the time of planting and expected mature height and width. Plans shall label trees by common or scientific name, show the circles of the mature crowns (major trees shall be drawn at diameter = 30 feet; dwarf or decorative trees shall be drawn at their actual mature crown), and indicate the height at the time of planting.
- (24) A Tree Protection Plan, will be completed and stamped by a certified arborist or landscape architect, illustrating the methods proposed to be used to protect, during construction, the trees that are required to be protected under the provisions of Chapter XIX including specifications as to how the grade, drainage, and aeration will be maintained around the trees. The location of all rare and specimen trees to be retained on the site that will not be within the area to be disturbed by construction activities near a building site, or near roads within the development shall also be shown on the plan, along with a note stating that these trees will not be within the area to be disturbed by construction activities. The Administrator may recommend that applicants consult with experts in arboriculture, landscape architecture or forestry about appropriate tree protection methods for the particular conditions and species in question, and request that their contractors review two

videotapes on tree protection during construction developed by the International Society of Arboriculture, entitled “Effect of Building Construction on Trees in Wooded Lots” and “Avoidance of Construction Damage to Trees on Wooded Lots” that are on file in the Public Works Department.

Section 8. Appendix E (Screening and Trees – Guide for Landscaping), provision title for E-3) shall be amended to read as follows:

E-3 Formulas for Calculating Thirty-five Percent Shading of Paved Vehicle Accommodation Areas and Tree Canopy Deficit Replacement.

Section 9. Appendix E-1 (Guide for Protecting Existing Trees), (b) shall be amended to read as follows:

E-1 Guide for Protecting Existing Trees

Section 15-317 provides for the retention and protection of large trees when land is developed. In order to better ensure the survival of existing trees, the developer should heed the following guidelines:

(a) Protect trees with fencing and armoring (if needed) during the entire construction period. The fence should enclose an area 1-1.5 feet x the diameter inches of the tree to be retained. The area inside the fence should be off limits and no work should take place inside the tree preservation zone. **(REWRITTEN 06/24/14)**

(b) Avoid excavations beneath the crown of the tree as required by Section 15-317(c).

Section 10. Appendix E-2 (Standards for Street and Parking Lot Trees), shall be amended to read as follows:

Trees planted in compliance with the requirements of Sections 15-316, 15-318 and 15-319 should have most or all of the following qualities. The trees recommended in Section E-10 represent the best combinations of these characteristics.

Section 11. Appendix E-3 (Formulas for Calculating 35% Shading of Vehicle Accommodation Areas and Tree Canopy Deficit Replacement) shall be rewritten to include a new formula for determining the number of replacement trees required to presumptively satisfy the tree canopy requirements of Section 15-319, as follows:

E-3 Formulas for Calculating 35% Shading of Vehicle Accommodation Areas and Tree Canopy Deficit Replacement

Following is an elementary formula for determining the number of shade trees required in and around parking lots in order to presumptively satisfy the shading requirements of Section 15-318.

1. Calculate square footage of the vehicle accommodation area. Include parking spaces, driveways, loading areas, sidewalks, and other circulation areas. Do not include building area and any area which will remain completely undeveloped: _____ sq. ft.
2. Multiply _____ x .35
3. Areas to be shaded: _____ sq. ft.

- Add:
4. Area shaded by existing trees to be retained in and around the vehicle accommodation area: * _____ sq. ft.
5. Area shaded by required screening trees, if any: * _____ sq. ft.
6. Area shaded by required street trees, if any: * _____ sq. ft.
7. Subtotal: _____ sq. ft.
(if line #7 is greater than line #3, then the shading requirement has been met. If not, go on to line #8)
8. Enter the difference between line #7 and line #3: _____ sq. ft.
9. Divide line #8: ÷ 707
10. Total number of shade trees required within the vehicle accommodation area: _____ trees

*Existing trees retained in compliance with Section 15-316 will be credited according to their actual crown radius. Shaded area may be calculated as follows: $3.14 \times (\text{crown radius})^2 = \text{shaded area}$

Trees planted within the vehicle accommodation area are credited with shading 707 sq. ft. (Based on a crown radius of 15) New or existing trees on the perimeter of the parking lot are credited for having only half a crown over the vehicle accommodation area (e.g., new perimeter trees will be credited for shading 354 sq. ft.). Generally, all trees planted in compliance with the screening requirements of Article XIX, Part I and the street tree requirements of Section 15-315 will be considered perimeter trees. When smaller trees such as Dogwoods are planted, the credited shading area will be adjusted downward to 314 sq. ft. for interior trees and 157 sq. ft. for perimeter trees. (Based on a crown radius of 10 ft.) **(REWRITTEN 06/24/14)**

Formulas for Calculating the Number of Replacement Trees Required to Satisfy the Tree Canopy Deficit

Following is an elementary formula for determining the number of replacement trees required to presumptively satisfy the tree canopy requirements of Section 15-319.

1. Enter square footage of the site to which canopy standards apply (15-319(a)): _____ sq. ft.
2. Multiply (by 40%, 30%, or 15% depending on the Land Use) _____ x .4, .3, or .15
3. Canopy Required _____ sq. ft.

- Add:
4. Canopy from existing trees to be retained: * _____ sq. ft.
5. Canopy area of required screening trees, if any: _____ sq. ft.
6. Canopy area of required shade trees, if any: _____ sq. ft.
7. Subtotal (add lines 4-6) _____ sq. ft.

(if line #7 is greater than line #3, then the canopy requirement has been met. If not, go on to line #8)

- | | | |
|----|--|---------------|
| 8. | Enter the difference between line #7 and line #3 | _____ sq. ft. |
| | Divide line #8: | ÷ 707 |
| 9. | Total number of replacement trees required**: | _____ trees |

*Existing trees retained will be credited according to their actual crown radius on the site as determined by survey or aerial photography.

**The actual number of replacement trees to be planted will be determined as described below.

Trees planted that are generally recognized as canopy or overstory trees are credited with shading 707 sq. ft. (based on a crown radius of 15'). New trees planted within 5' of the lot line are credited for having only half a crown (e.g., new perimeter trees will be credited for 354 sq. ft.). When smaller trees generally recognized as understory trees such as Dogwoods are planted, the credited area will be adjusted downward to 314 sq. ft. for interior trees and 157 sq. ft. for perimeter trees (based on a crown radius of 10').

Section 12. Appendix E-9 (Guide for Planning Shrubs) is amended to read as follows:

E-9 Guide for Planting Shrubs

Shrubs planted for screening purpose should be given a proper culture and sufficient room in which to grow. Many of the guidelines for tree planting listed in Section E-5 also apply to shrubs. However, because specific requirements vary considerably between shrub types, this Appendix does not attempt to generalize the needs of all shrubs. For detailed planting information on individual species, refer to: Landscape Plants of the Southeast by R. Gordon Halfacre and Anne R. Shawcroft. A copy of this book is available in the Carrboro Planning Department or by contacting Sparks Press, P.O. Box 26747, Raleigh, N.C. 27611.

Section 13. Appendix E-10 (Recommended Trees and Shrubs) is rewritten read as follows:

E-10 Lists of Recommended Trees and Shrubs

The following lists indicate plants which will meet the screening, shading, and tree canopy replacement requirements of Article XIX of the Land Use Ordinance. Additional desirable aspects of plants are also provided. The lists are not intended to be comprehensive, but rather are intended as guidance for species that are appropriate.

Plants were selected for inclusion on these lists according to two principal criteria: i.) suitability for the Piedmont of North Carolina and support of Piedmont ecosystems and food webs; and ii.) hardiness/tolerance for local conditions and ease of maintenance. When selecting new plantings for a particular site, a developer should first consider the type of plants which are thriving on or near the site. Species native to the Piedmont of North Carolina should be favored. When trees are planted to replace native tree specimens removed, native tree species should always be selected.

Further information on recommended native plants is available from the North Carolina Native Plant Society. The Land Use Administrator has the discretion to not approve of planting plans to comply with Article XIX that substantially deviate from the list provided.

The plantings marked with an (±) on the following lists are appropriate for planting within plantings strips -- as defined under Section 15-216, Subsection (j).

Sections E-11 through E-16 contain descriptions of the trees and shrubs listed here.

Section 14. Appendix E-11 (Small Trees for Partial Screening) is amended to read as follows:

The following trees are recommended for use in all types of screens. Though smaller than the trees listed in planting lists E-12 and E-13, each of these trees will reach a height of at least 20 feet. Selections marked with an (*) are also recommended as shade trees and may be credited for meeting the 35% shading requirement for paved parking lots.

Section 15. The title for Appendix E-15 (Large Shrubs for Evergreen Screening) is amended to read as follows:

E-15 Large Shrubs and Trees for Evergreen Screening

Section 16. Appendix E-16 is amended to remove table (F) E-16 Assorted Plantings for Broken Screens.

Section 17. Appendix E-17 (List of Invasive Plant Species) is rewritten to read as follows:

E-17 Invasive Plant Species

Invasive plant species identified by the North Carolina Native Plant Society are prohibited from planting for all plantings to comply with Article XIX.