

## D. Infrastructure

### Transportation

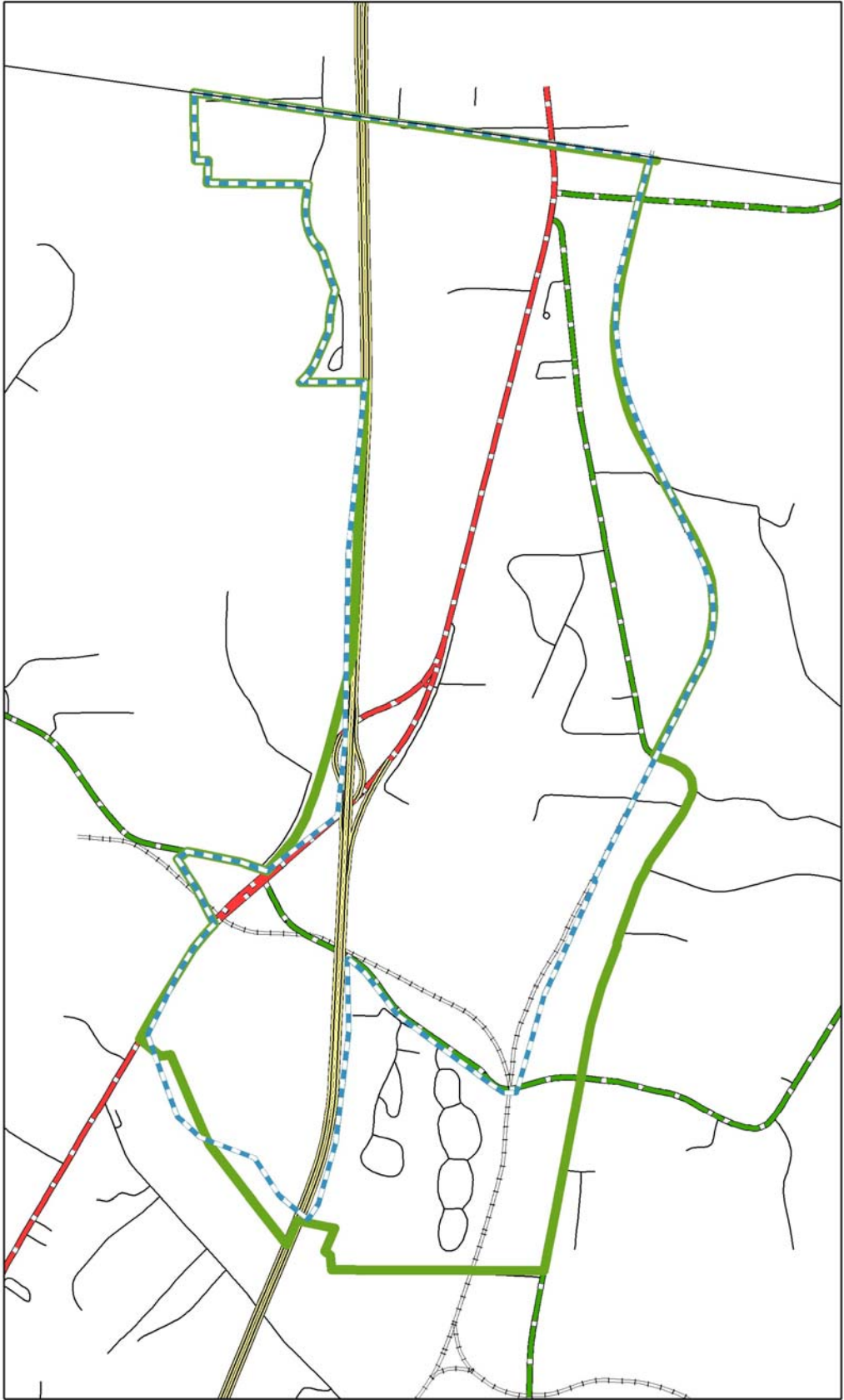
#### Roads

As part of county-wide transportation planning, roads in the Focus area have been classified using a road classification system refined from the NC Department of Transportation's classification system. Classification categories and general descriptions are as follows:

<b>Category</b>	<b>General Description</b>
Interstate	Major traffic-carrying facilities that are part of the Federal Interstate Highway system; trip length characteristics are predominantly long-distance intra- and inter-state. Right-of-way width is a minimum of 230-feet and can increase to over 300-feet, depending on the number of lanes.
Arterial	The primary traffic-carrying facilities in the county; trip length and travel density characteristics of substantial inter-county travel or of serving urban-type development; typically would include rural freeways. Right-of-way width is typically 70- to 110-feet, depending on the number of lanes and whether bicycle lanes are provided.
Collector	Facilities that generally service intra-county travel. Provides the network connection between local roads and the arterial system. Shorter lengths, lower volumes, and more land access than the arterial system. Right-of-way width is typically 60- to 100-feet, depending on the number of lanes and whether bicycle lanes are provided.
Local	Primarily serves as access to adjacent land use. Any traffic is local in nature, therefore volumes and length are relatively low. Local roads comprise all remaining public roads not classified as a higher function. Right-of-way width is typically 60- to 80-feet.

Map 13 depicts the road classifications in the Focus area.

# Eno EDD Area Small Area Plan - Road Classifications



0 1,500 Feet

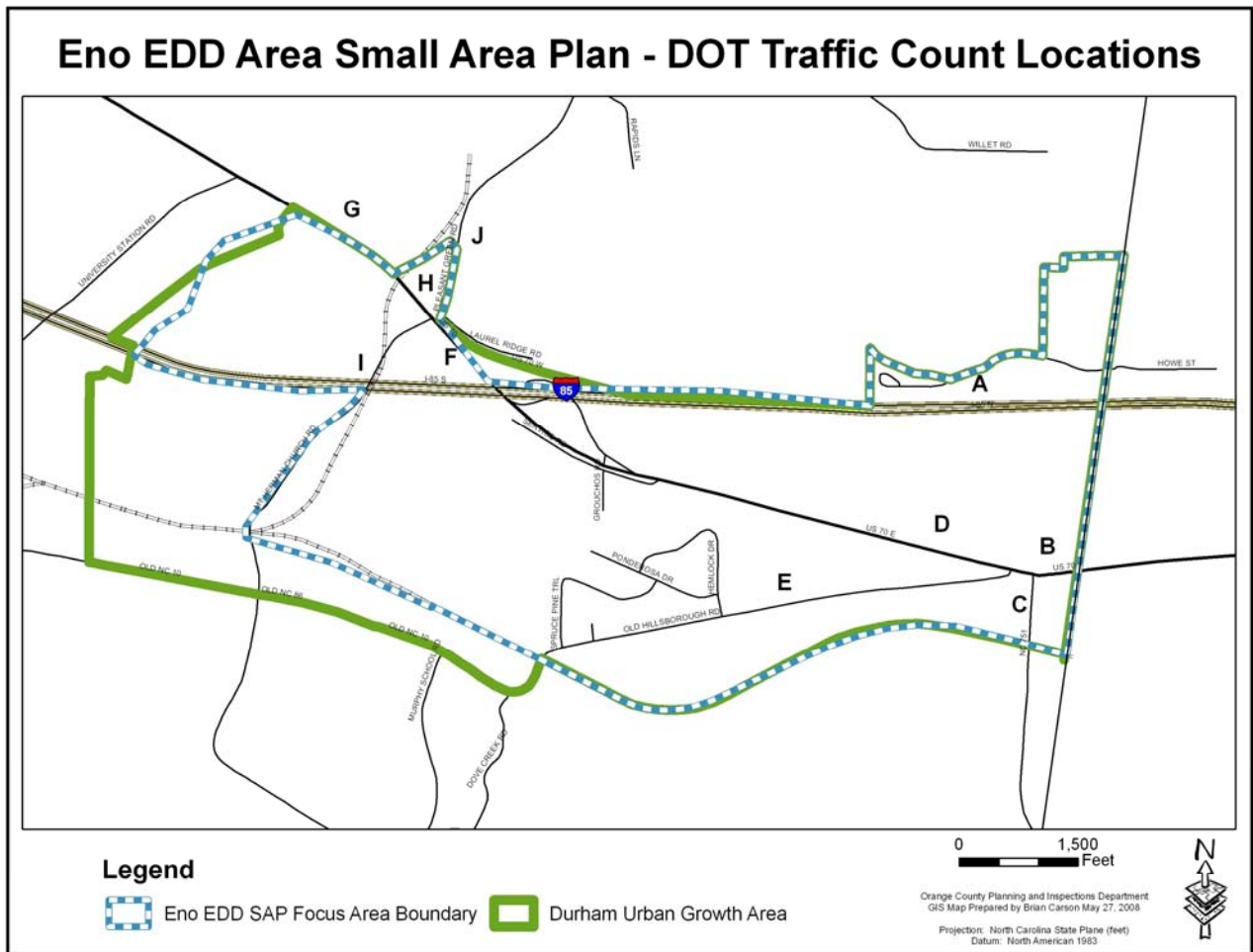
Orange County Planning and Inspections Department  
GIS Map Prepared by Brian Carson/Miriam Coleman May 27, 2008

Projection: North Carolina State Plane (feet)  
Datum: North American 1983

- Legend**
- Eno EDD SAP Focus Area Boundary
  - Durham Urban Growth Area v4
  - Interstate
  - Arterial
  - Collector
  - Local

Map 14 depicts the points at which the North Carolina Department of Transportation (DOT) collects traffic count data. The Table on the next page shows the Average Daily Traffic counts collected by the (DOT) from 1999 to 2006. DOT does not collect traffic count data at every collection site every year. Years for which no data was collected at a specific point do not have a value in the chart showing the count.

Map 14



Average Daily Traffic Counts, by Year  
1999-2006

(See map for ID locations)

ID	Location	1999	2000	2001	2002	2003	2004	2005	2006
A	I-85 Just west of Durham County line near I 85/US 70 intersection		46,000	47,000	50,000	42,000	53,000	51,000	49,000
B	US-70 Near Durham County Line	8,600		8,900		8,400		9,600	
C	NC-751 Near US 70	5,400		5,400		5,000		5,700	
D	US-70 West Of Durham County line Just West of Old No. 10	7,500		7,300		6,500		7,400	
E	Dove Creek Rd (Old No. 10) Near Hemlock Road	2,400		2,100		2,300		2,100	
F	I-85 between Pleasant Green Rd and US 70					37,000			41,000
G	US-70 Northwest Of Southern RR	12,000		13,000					
H	US-70 Between Southern RR And Pleasant Green Rd (Power Plant Rd)		12,000			12,000	11,000	12,000	12,000
I	Pleasant Green Rd (Power Plant Rd) Near Intersection with I-85	2,900		2,700		2,700		2,600	
J	Pleasant Green Rd (Power Plant Rd) Just North of US 70	3,400		3,400		3,600		3,900	

Average Daily Traffic relates directly to a concept called “Level of Service” (LOS). LOS calculations attempt to describe the traffic conditions of a given roadway as it relates to the carrying capacity of the road. The following are descriptions of LOS:

Level of Service	Description of Operating Condition
A	Free flow. Individual users are virtually unaffected by the presence of others in the traffic stream. Freedom to select desired speeds and maneuver within the traffic stream is extremely high.
B	Stable flow but the presence of other users in the traffic stream begins to be noticed. Freedom to select desired speeds is relatively unaffected, but there is a slight decline in the freedom to maneuver within the traffic stream.
C	Stable flow but marks the beginning of the range in flow in which the operation of individual users becomes significantly affected by interactions with others in the traffic stream. Selection of speed affected and maneuvering within the traffic stream requires substantial vigilance on the part of the user.
D	High-density but stable flow. Speed and freedom to maneuver are severely restricted. Small increases in traffic flow will generally cause operational problems at this level.
E	Operating conditions at or near the capacity level. Speeds are reduced to a low, but relatively uniform level. Freedom to maneuver within the traffic stream is extremely difficult.
F	Forced or breakdown flow. In the extreme, speed can be reduced to zero.

*Source: Highway Capacity Manual, Transportation Research Board, 1985.*

For reference, many local governments adopt policies requiring that new development not decrease LOS below level C or D. Whether Level C or D is chosen depends upon the individual policy decision of the local government and/or the jurisdiction having maintenance control.

Determining the LOS for a given roadway involves complex calculations taking into account factors such as roadway grades and lane width. However, generalized tables have been developed to serve as a guide in determining LOS using Average Daily Traffic (ADT) counts. The following table depicts the information relevant to the planning area:

<b>Average Daily Traffic and Generalized Level of Service</b>					
Total Number of Lanes	<b>A</b>	<b>B</b>	<b>C</b>	<b>D</b>	<b>E</b>
<b>Freeways in Urbanizing Areas</b>					
4	23,500	38,700	52,500	62,200	69,100
6	36,400	59,800	81,100	96,000	106,700
8	49,100	80,900	109,600	129,800	144,400
<b>State Two-Way Arterials</b> (Less than 2 signalized intersections per mile)					
2, Undivided	*	4,000	13,100	15,500	16,300
<b>State Two-Way Arterials</b> (2 to 4.5 signalized intersections per mile)					
2, Undivided	*	*	10,500	14,500	15,300
<b>Major County Roadways</b>					
2, Undivided	*	*	7,000	13,600	14,600
<b>Signalized Intersections on Major County Roadways</b>					
2, Undivided	*	*	4,400	9,400	12,000

\* - Not Determined

Source: Florida Department of Transportation, Systems Planning Office

The Orange County/North Carolina DOT road classifications that correspond to the categories shown above are as follows:

Interstate: Freeways in Urbanizing Areas  
 Arterial: State Two-Way Arterials  
 Collector: Major County Roadways  
 Local: (not addressed)

Comparison of Average Daily Traffic (ADT) Counts and Generalized Level of Service shows that all roadways within the Focus Area are operating at Level of Service (LOS) C or better. ID Points A, G, and H are the areas with LOS at or just slightly better than "C."

## Rail

Although rail traffic has decreased considerably in North Carolina, the Southern Railway right-of-way, which is the southerly boundary of the Focus Area, is still used for general rail transport and intrastate commuter service provided by Amtrak. Additionally, the spur line to Chapel Hill, west of the Focus area, is still used at least twice a week for deliveries to the UNC campus.

The Triangle Transit Authority (TTA) completed final plans for Phase I of its regional commuter rail service in the Triangle and attempted to procure Federal funding to implement Phase I service that would link Raleigh, Cary and Durham. However, due to changes in federal cost-effectiveness guidelines, the project has been shelved for the near future. At this time, the future of Triangle commuter rail service is in limbo due to funding considerations.

Historically, University Station was located near the spur rail line that reaches to Chapel Hill. UNC students, faculty, and visitors would have used University Station in their travels to and from campus and other areas. If the Region pursues commuter rail in the future, the spur line to Chapel Hill would likely become an important connector within the rail network.

### **Pedestrian/Bicycle Facilities**

The Focus Area does not contain pedestrian facilities (sidewalks) adjacent to any of the major thoroughfares. US 70 has paved shoulders that vary between 1 and 2 feet wide on both sides of the highway. The extra width, while not providing a full bicycle lane, provides extra road width and enhances safety for bicycling. Other roads in the Focus Area, such as Old NC 10, would require additional pavement and possibly right-of-way to be widened enough to include bicycle lanes.

### **Bus, Car/Van Pool, and Park 'n Ride Lots**

General bus services do not serve the Eno EDD area at this time. However, Orange Public Transit (OPT) provides social service transit service for area senior citizens and low income residents who can arrange for transportation to and from medical appointments through OPT.

Triangle Transit Authority (TTA) operates a ridesharing matching service for commuters who are interested in carpooling. In addition, TTA operates vanpools that are made up of at least seven commuters who live and work near each other and who share approximately the same work hours. One leg of the vanpool's trip must begin or end in Wake, Durham, or Orange County. TTA provides the van, pays for gas and insurance; and arranges, oversees, and pays for all maintenance. Riders pay a monthly fare based on the average daily round-trip mileage. Commuters who are interested in joining a vanpool may contact TTA to inquire about joining an existing vanpool or starting a new vanpool.

At the present time, there are no official park 'n ride lots located in the Eno EDD area.

## **Utilities**

### **Communications**

#### **Telephone**

Land-line telephone service in the Focus Area is provided by Verizon.

Cellular phone service in Orange County is provided by nine (9) providers. The Focus Area has good wireless phone coverage, given its proximity to the Interstate and providers' desires to provide the highest quality of cell phone coverage along the Interstates.

#### **Internet Service**

Time Warner Cable offers Road Runner broadband service in the Focus Area. Additionally, Verizon provides DSL service in the Focus Area.

### **Natural Gas and Electric Power**

The Focus Area is not currently served with natural gas. Natural gas service lines are located just to the east of the Focus area within Durham County and could likely be extended into the Focus Area. Property owners within the Focus Area who desire gas service rely on individual propane tanks for any natural gas needs.

Electric service in the Focus area is provided either by Duke Power or Piedmont Electrical Membership Cooperative.

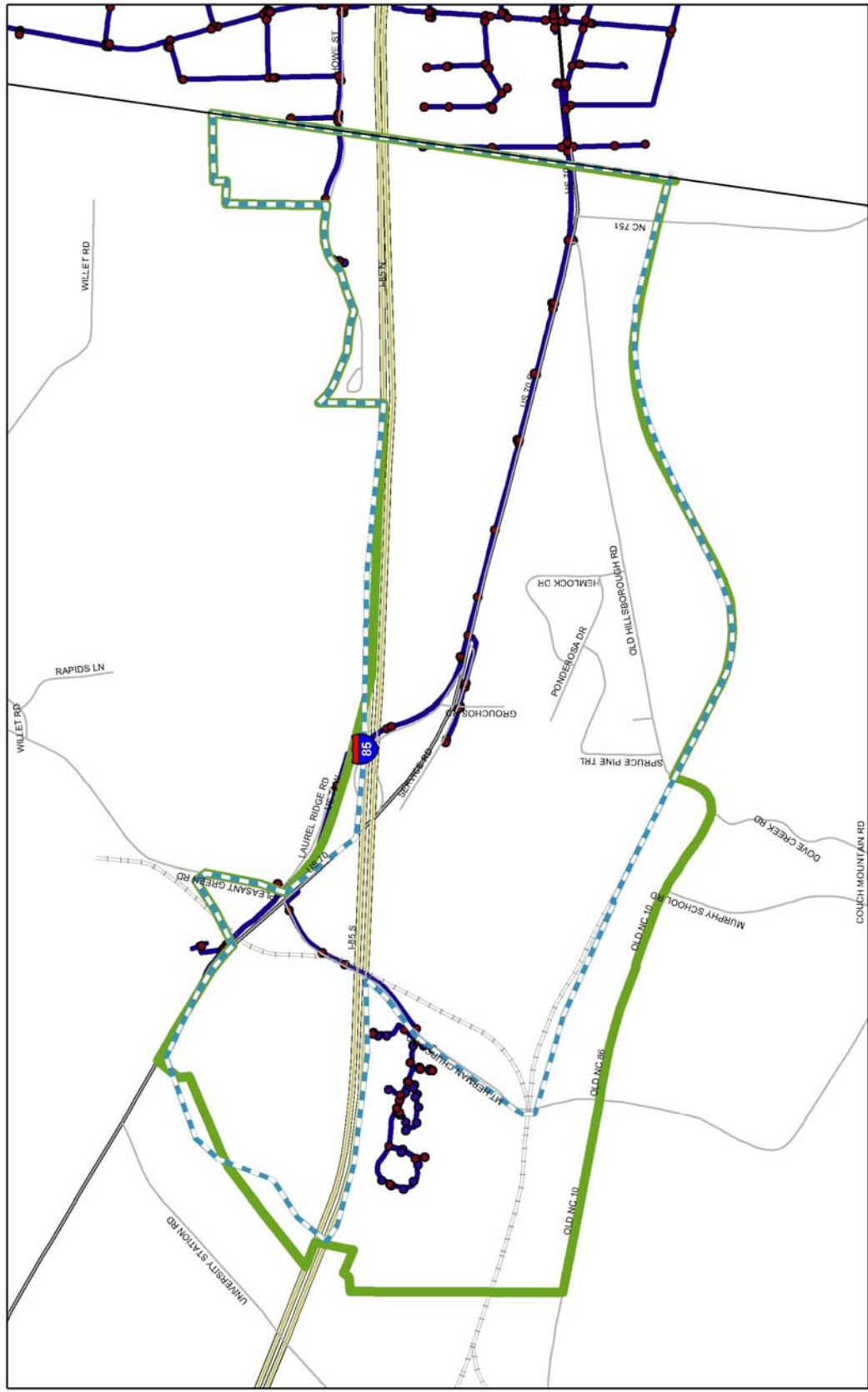
### **Water Service**

The City of Durham provides water service to small portions of its Urban Growth Area in Orange County. As Map 15 shows, a water distribution main (16") is located along Highway 70. The line serves as emergency transfer interconnect with the Town of Hillsborough and also serves a mobile home park west of Mt. Herman Church Road. The water line also provides fire hydrants along U.S. 70.

Whispering Pines subdivision is served by a community water system.

Interlocal agreements would be necessary between the City of Durham and Orange County for further connections or service area.

# Eno EDD Area Small Area Plan - Water Lines



0 1,500 Feet

Orange County Planning and Inspections Department  
 GIS Map Prepared by Miriam Coleman May 27, 2008

Projection: North Carolina State Plane (feet)  
 Datum: North American 1983

- Legend**
- Eno EDD SAP Focus Area Boundary
  - Durham Urban Growth Area v4
  - Water Source Points
  - Water Net Junctions
  - Water Distribution Main

## **Sanitary Sewer Service**

There is no public sanitary sewer system in the area except for one mobile home park (L&W) that has a private sewer force main that pumps back along US 70 to terminal gravity sewer line along the Orange County/Durham County border. This line was installed a number of years ago as an emergency measure when the park's septic system failed.

Interlocal agreements would be necessary between the City of Durham and Orange County to extend sewer service to the area.

## **Water and Sewer Management Planning and Boundary Agreement**

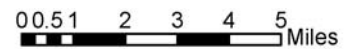
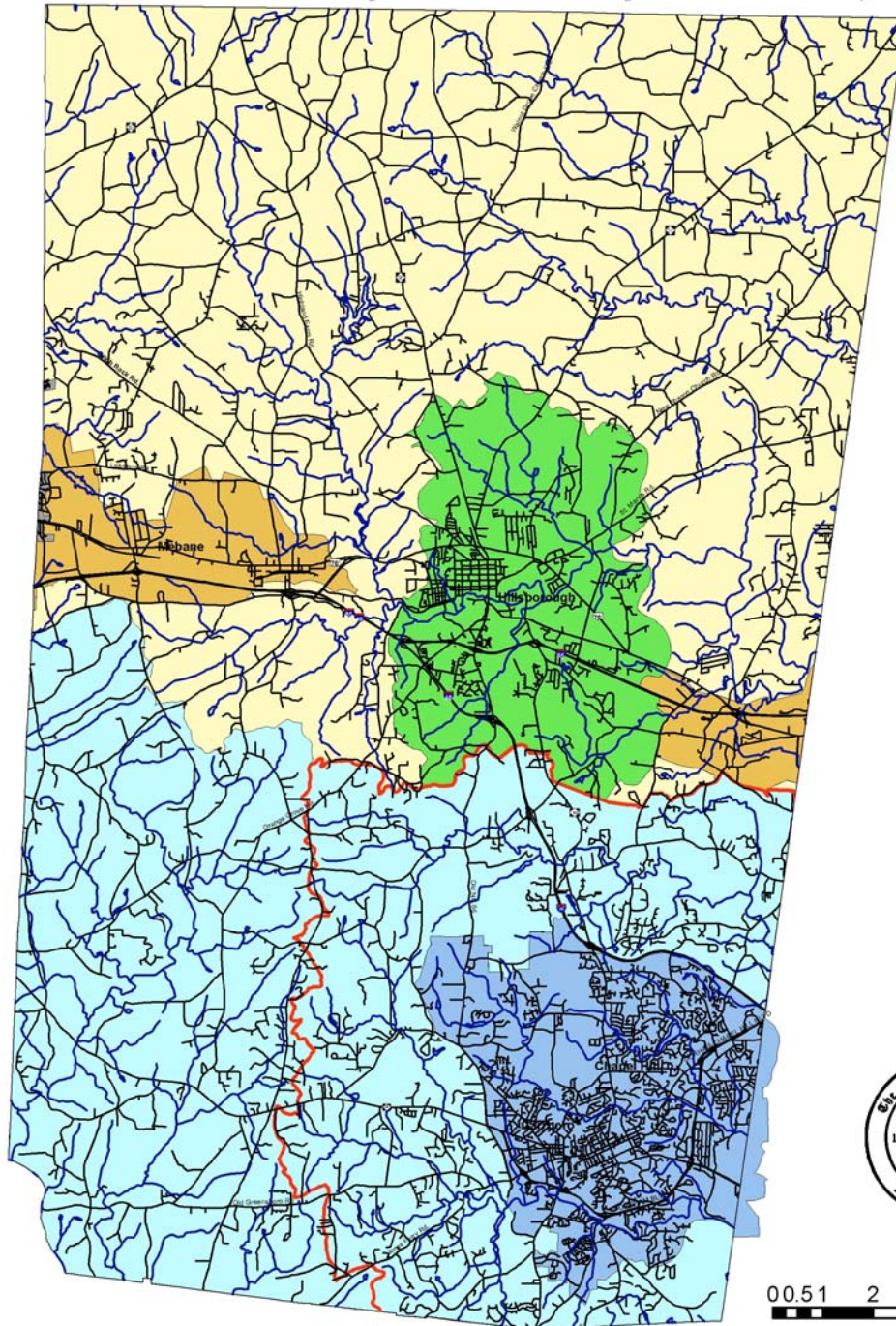
As a result of many years of discussion among the local governments located in Orange County and the Orange Water and Sewer Authority (OWASA), in 2001 Orange County, OWASA, and the Towns of Chapel Hill, Carrboro, and Hillsborough entered into a Water and Sewer Management Planning and Boundary Agreement (WSMPBA). The agreement provided a comprehensive county-wide system of utility service areas upon which the signatory entities could rely when making decisions related to issues such as planning, land use, annexation, zoning, and growth management.

The agreement is in effect for 10 years and will renew automatically unless a signatory party provides a notice of intent to withdraw by following the process outlined in the agreement. All parties to the agreement must approve any changes to the service boundaries shown on the WSMPBA map.

Map 16 is the WSMPBA map approved by the signatory parties. Primary Service Areas shown on the map are those areas where water and/or sewer service is now provided, or might reasonably be provided in the future. Long-Term Interest Areas are those areas within which public water and/or sewer service is not anticipated to be provided but if such services were to be provided for "emergency" purposes due to private system failures, the designated party would be the service provider.

# Appendix A

## Water and Sewer Management Planning and Boundary Agreement



Legend	
Water and Sewer Boundaries	
	Hillsborough Primary Service Area
	OWASA Long-Term Interest Area
	Orange County Primary Service Area
	OWASA Primary Service Area
	Orange County Long-Term Interest Area
	Rural Buffer Boundary

Orange County Planning and Inspections Department  
Updated Streets, Miriam Coleman, 2002  
Revised Map to show retracted Chapel Hill Urban Service Boundary  
Prepared by Carrie Whitehill  
11/14/01  
Original Map Prepared by Beth McFarland  
04/17/97