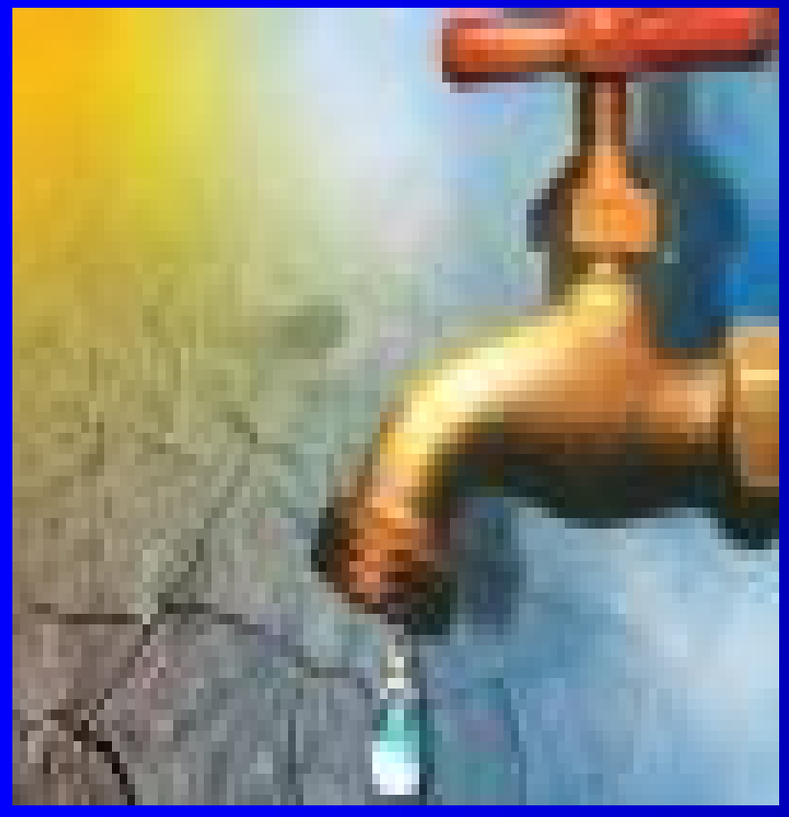
Water Resources in Orange County

January 31, 2008

Topics for Tonight

- Drought Update and Forecast
- Orange County Drought Response (“H2Orange”)
- History of Water Resources Protection
- Projected Population Growth
- Implications, Issues for the Future

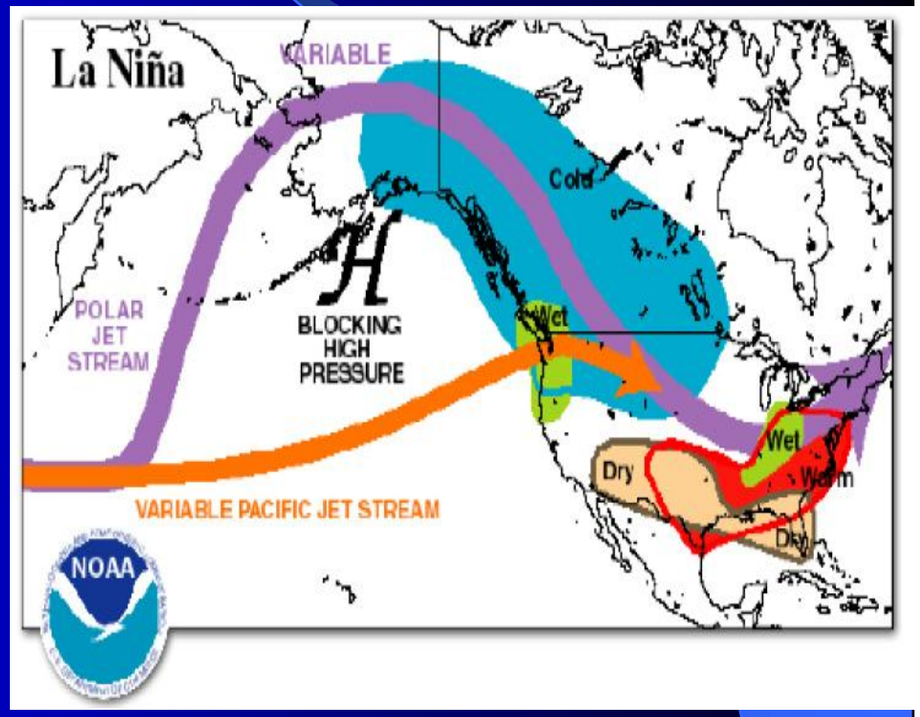
Drought Update



- 2007 One of Driest Years on Record
- Rainfall deficit –9 in
- Stream Gauges Below 10th percentile
- Need 13-16 inches thru March to Lessen Drought

Dealing with the Drought

- La Nina = below normal rainfall this spring
- Winter and spring are recharge times
- Expect little relief before high water loss/use months of the summer



H2Orange

- Water suppliers pursuing conservation…
- …but what about wells and rural areas?
- Joint project of several County departments to:
  - Explain ground water impacts
  - Note conservation is important for well users
  - Offer conservation tips

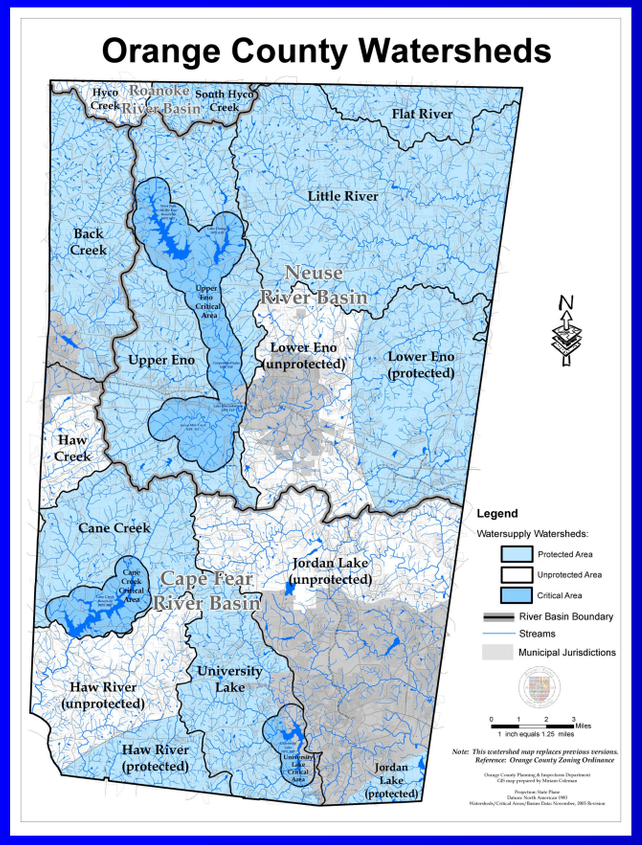
www.H2Orange.org

- Drought workshops in rural areas
- Next workshop – February, New Hope
- www.H2orange.org web site
- Drought Hotline – 644-3333

Watershed Protection History

- 1981 – First County in NC
- 1989 – University Lake Watershed
- 1990 – Little River/Lake Michie Watersheds
- 1992 – State Watershed Rules (Orange County chose to exceed minimums)

Watershed Protection



- Headwaters County
- We have **10** water supply watersheds
- Three technical studies have informed
- Non-structural philosophy – protect at the source

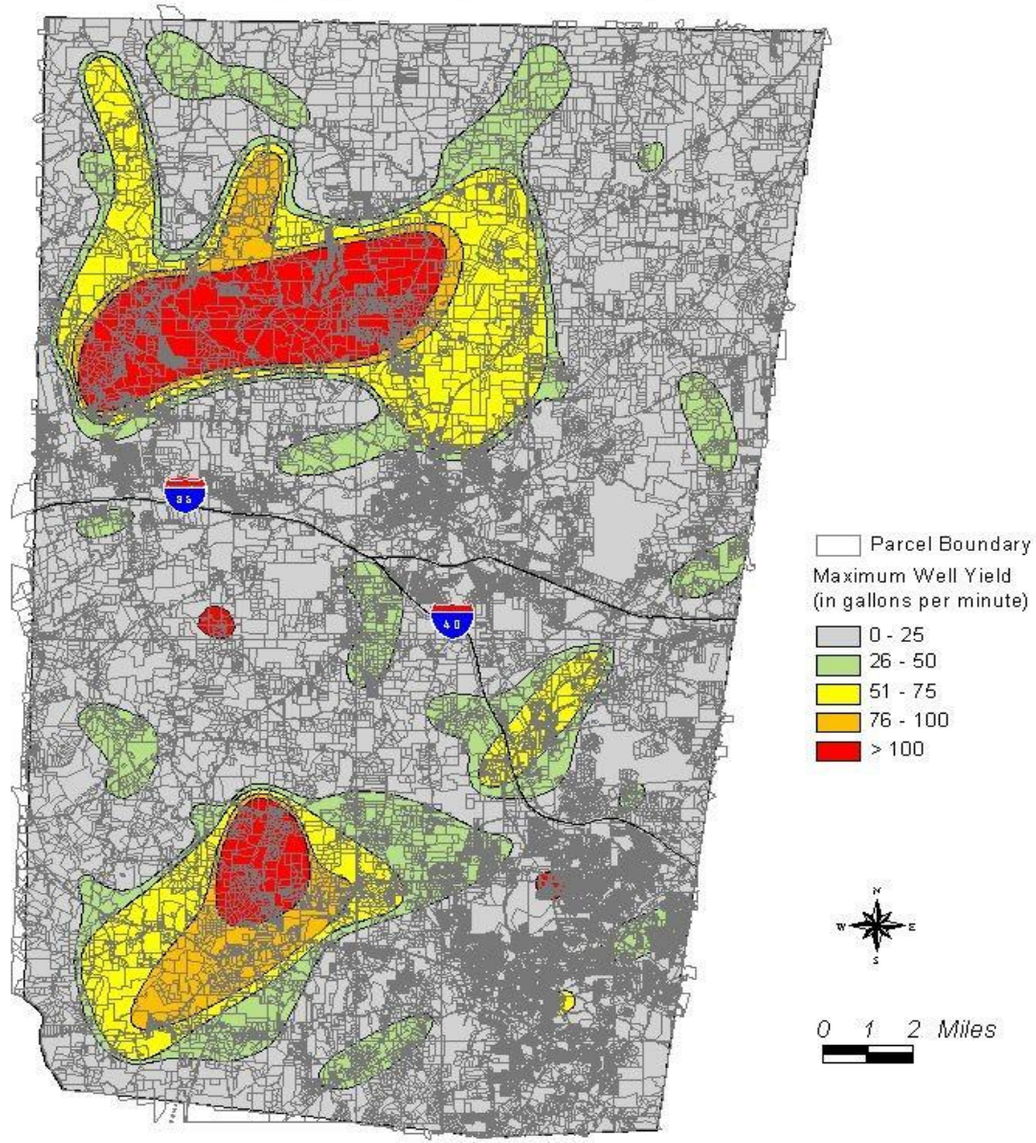
Ground Water

- 37% of County citizens rely on wells
- Average Orange County well
  - 300 feet deep
  - 18 gallons per minute
- 1991 - Rural Character Study - rural development and community wells?
- 1993-2001 – Series of studies with USGS

Water Resources Project

- 1996 – Ground Water Recharge Report
- 1999 – Groundwater Contamination Susceptibility Map report
- 2001 – Ground Water Investigation Report

Maximum Well Yield
(in gallons per minute)*



* Source: *Investigation of Ground-Water Availability and Quality in Orange County, North Carolina*
March, 2001

County of Orange
Environmental Resource
Conservation Department
April 25, 2002
M.Jones

Water Resources Committee 2001 Recommendations

- **Create "ground water monitoring system"**
- **Further research into radon in certain areas**
- **Consider a "water budget" approach to water resources planning**

Water Resources Committee 2001 Recommendations

- **Incorporate sustainable ground water yield into development decisions**
- **Consider requiring well site locations for all new subdivisions, and create "well reserve areas"**
- **Promote water conservation for all users**

Follow-Up Actions

- Environmental Responsibility Goal
- Water Resources Initiative / Water Resources Coordinator
- Observation Well Network

Population Projections

Township	2000	2010	2020
Bingham	6,181	7,726	9,658
Cedar Grove	4,930	6,187	7,765
Chapel Hill	76,578	94,574	116,799
Cheeks	7,064	8,547	10,342
Eno	6,092	7,128	8,340
Hillsborough	11,639	13,559	15,796
Little River	3,047	4,357	6,231
TOTAL	**115,531**	**142,079**	**174,931**

Remarkable Consistency?

- Chapel Hill Township = 66% (for last 40+ years)
- Chapel Hill and Carrboro = 53%
- Projections assume continuation - true?
- Hillsborough? Mebane? Rural?

% Population Change by Township 1990-2000

Bingham	+ 19%
Cedar Grove	+ 34%
Chapel Hill	+ 24%
Cheeks	+ 30%
Eno	+ 16%
Hillsborough	+ 15%
Little River	+ 40%

Water Resources Implications

- Will conservation ‘stick’ after the drought?
- Will it lessen demand? How much?
- Demographic change: Increased growth in rural areas and western & central Orange…impacts on Mebane, Hillsborough.
- More rural homes and wells…what is sustainable?