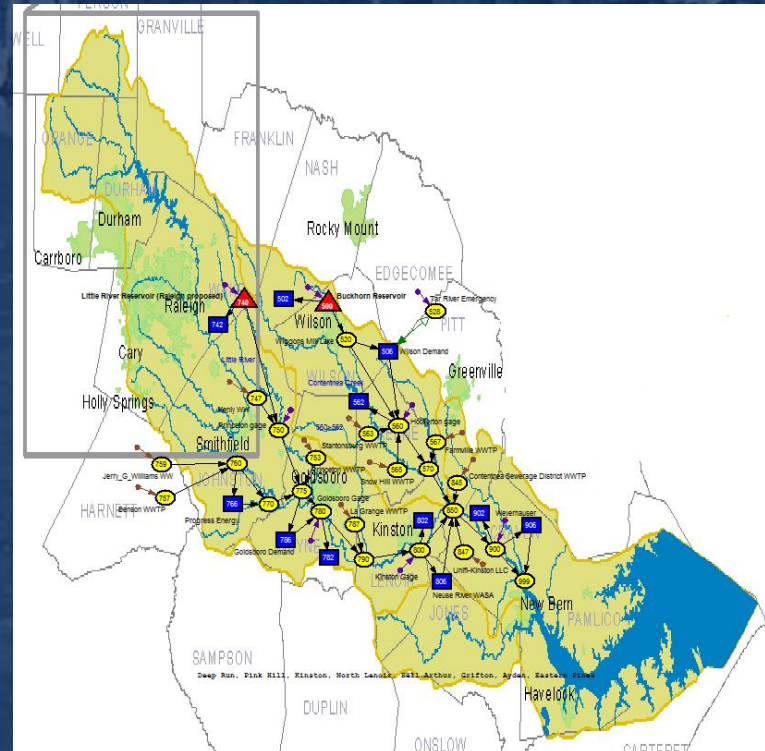




City Of Raleigh
North Carolina

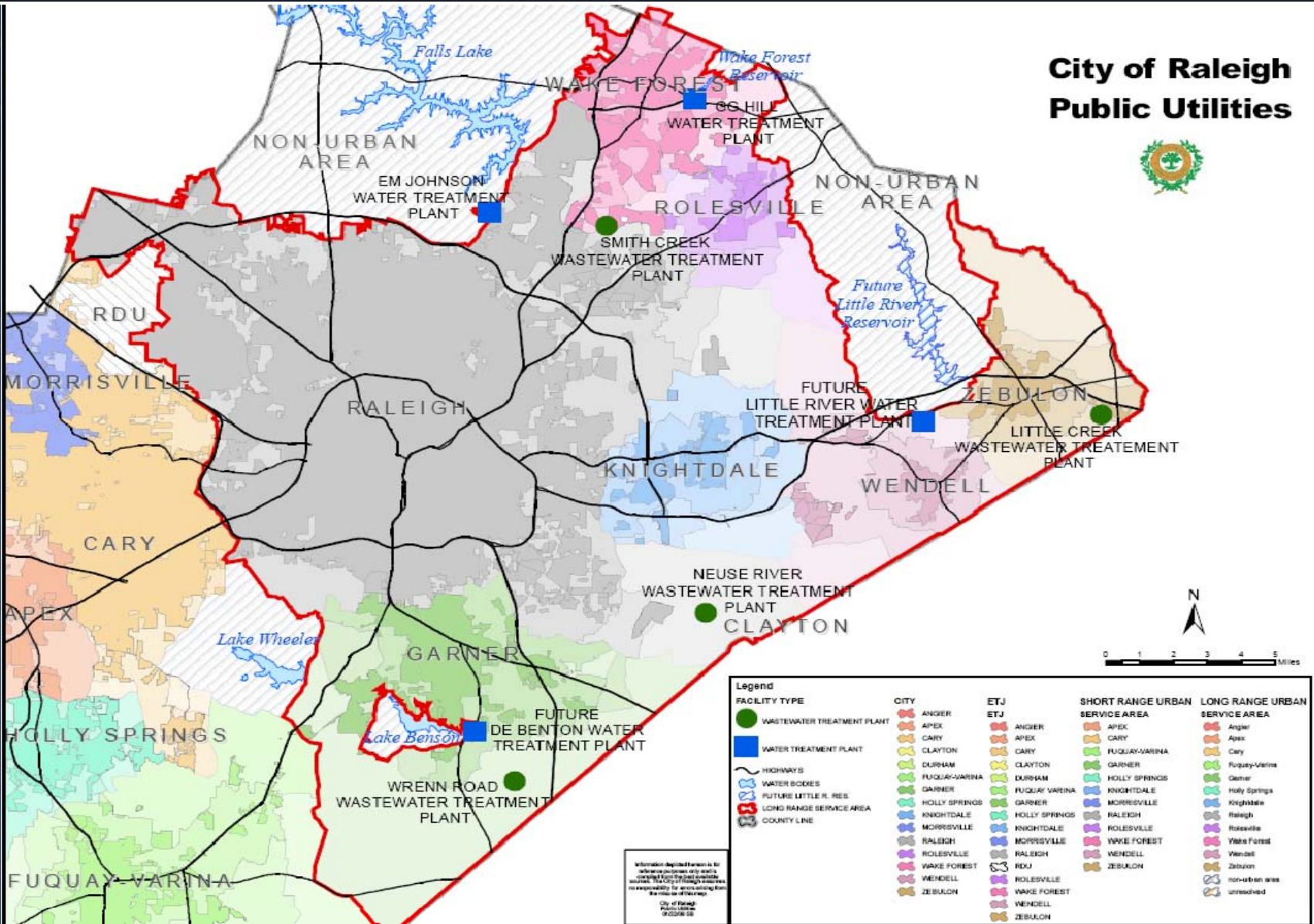
City of Raleigh Long Range Water Supply Update

Wake County Sustainability Task Force



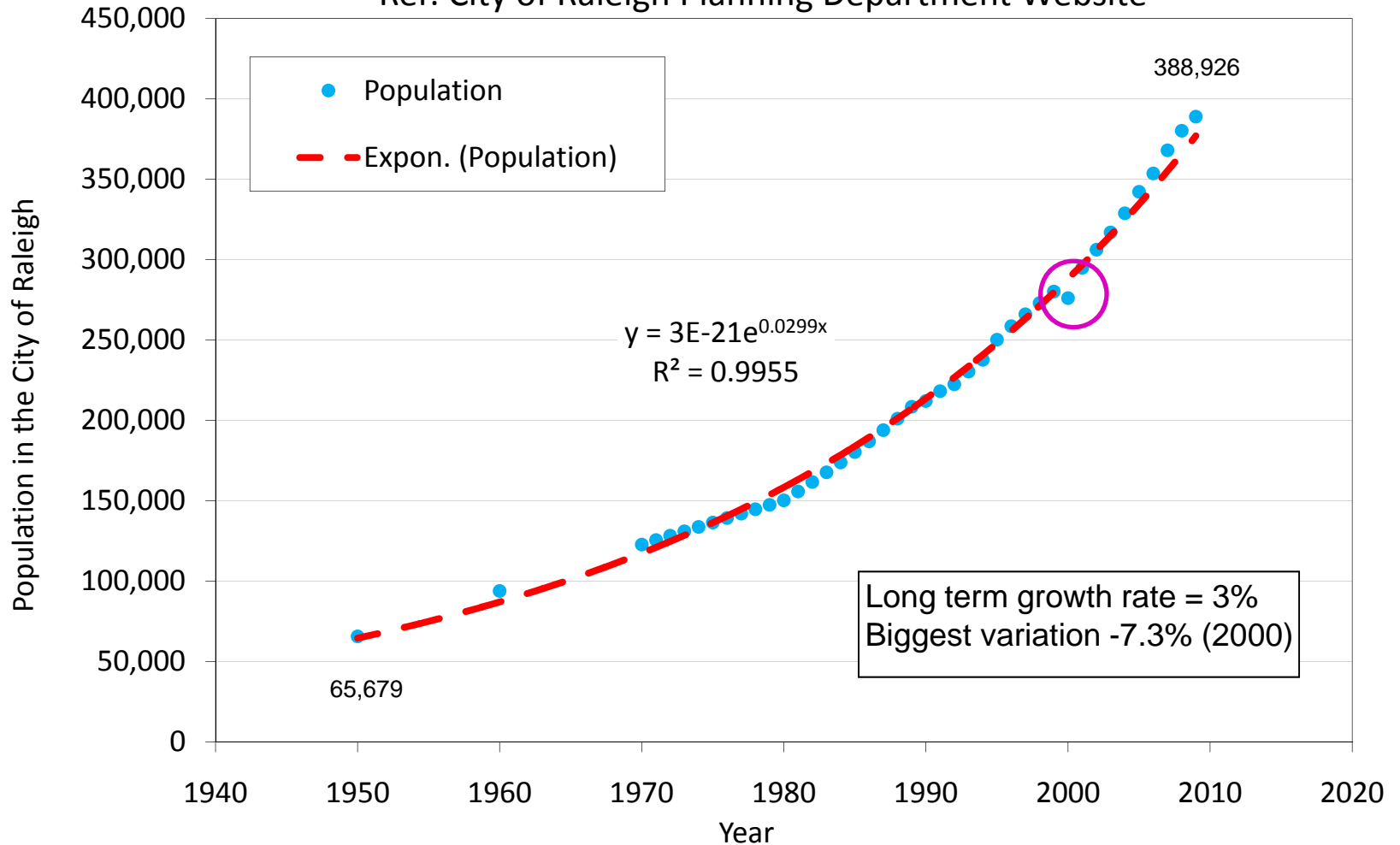
June 17, 2010

Raleigh Public Utilities Service Area

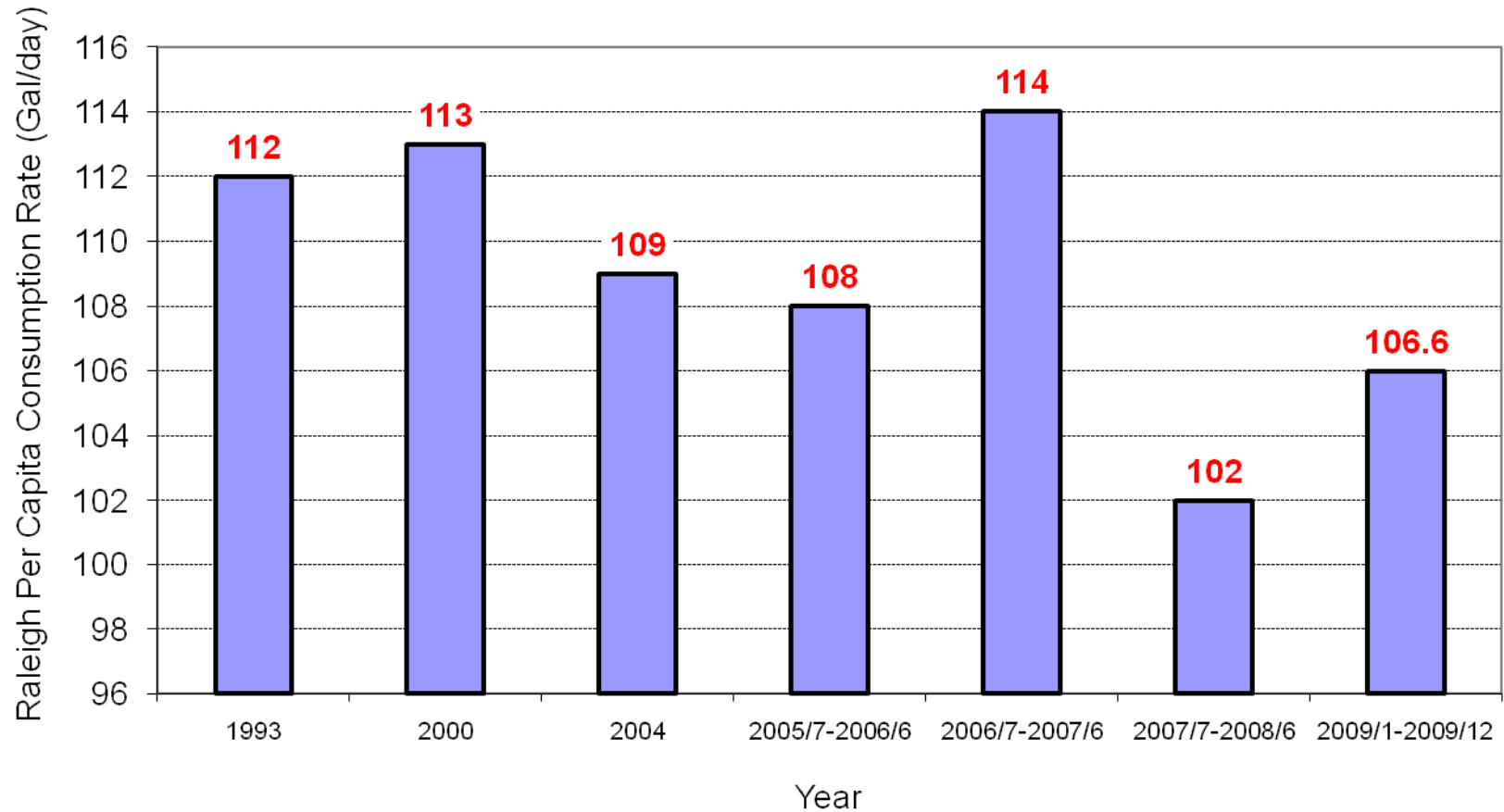


Population Growth Variation

Historical Population Data for the City of Raleigh
Ref: City of Raleigh Planning Department Website

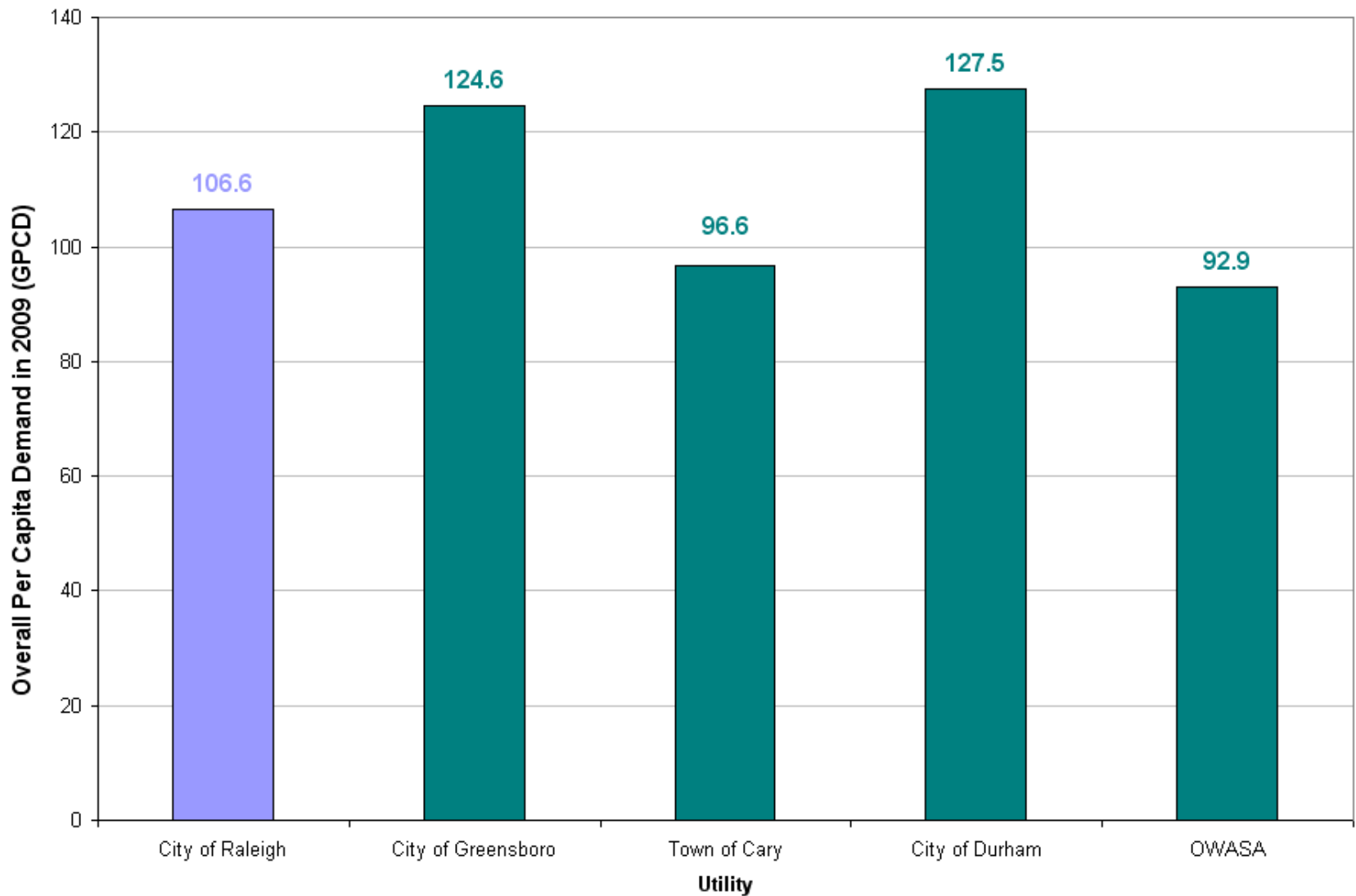


Historical Per-Capita Water Consumption

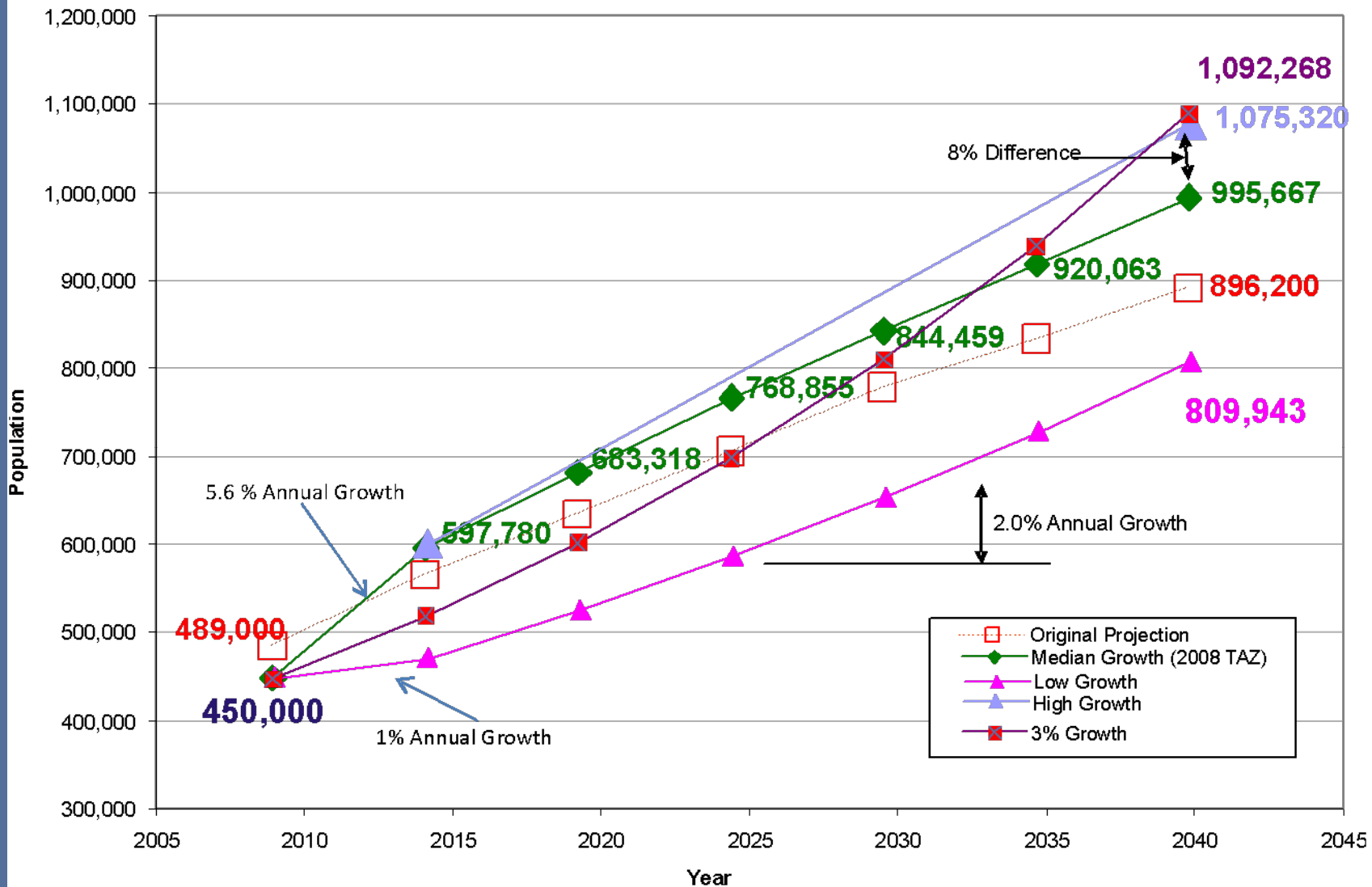


(Data based on 1993 Pitometer Water Distribution Study, 2001 Raleigh Water System Master Plan Update, 2008 Raleigh Water Quality Study and Master Plan Update, and 2006-2008 billing data and TAZ population projection)

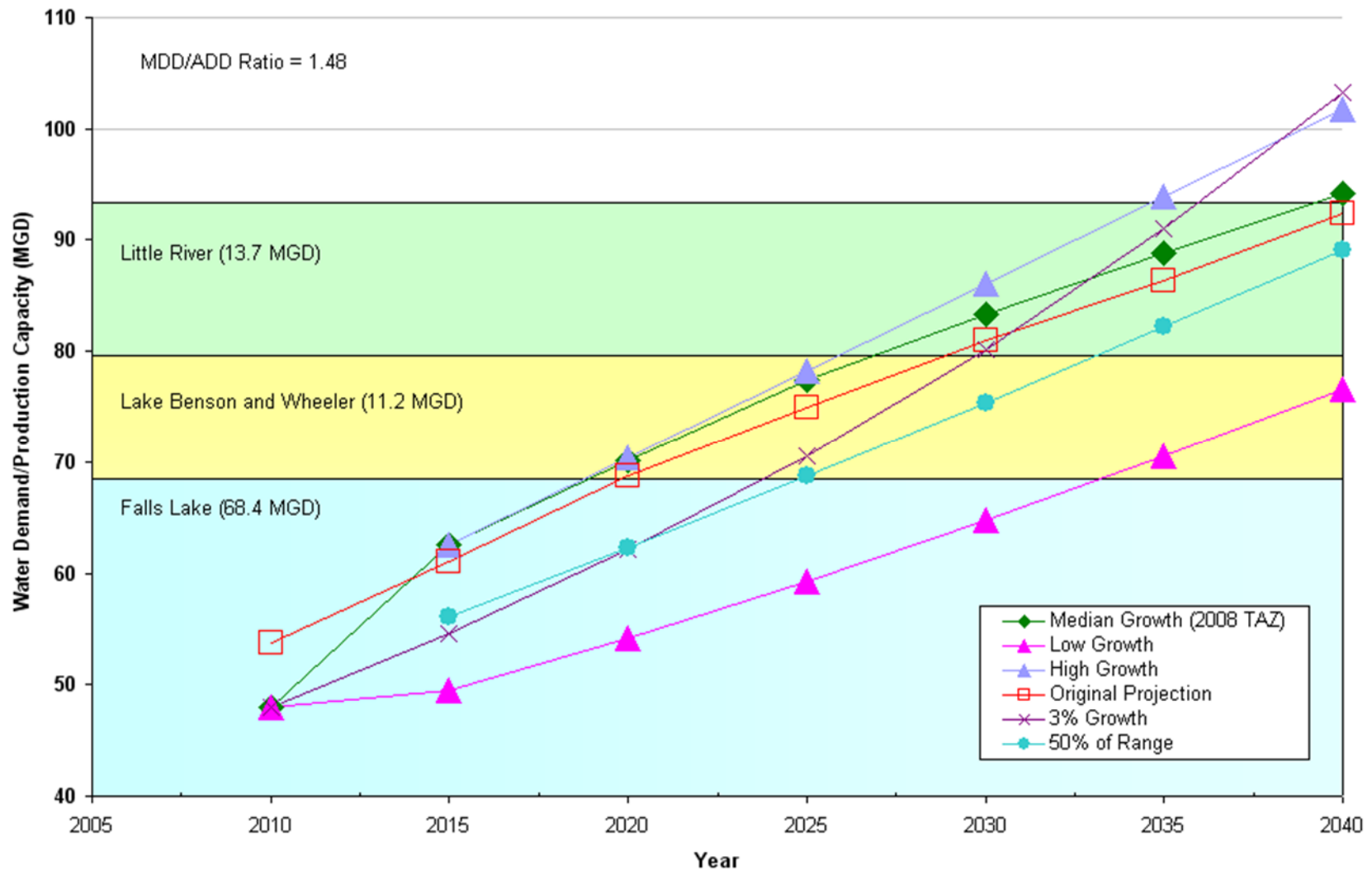
Per-Capita Consumption Comparison(2009 Data)



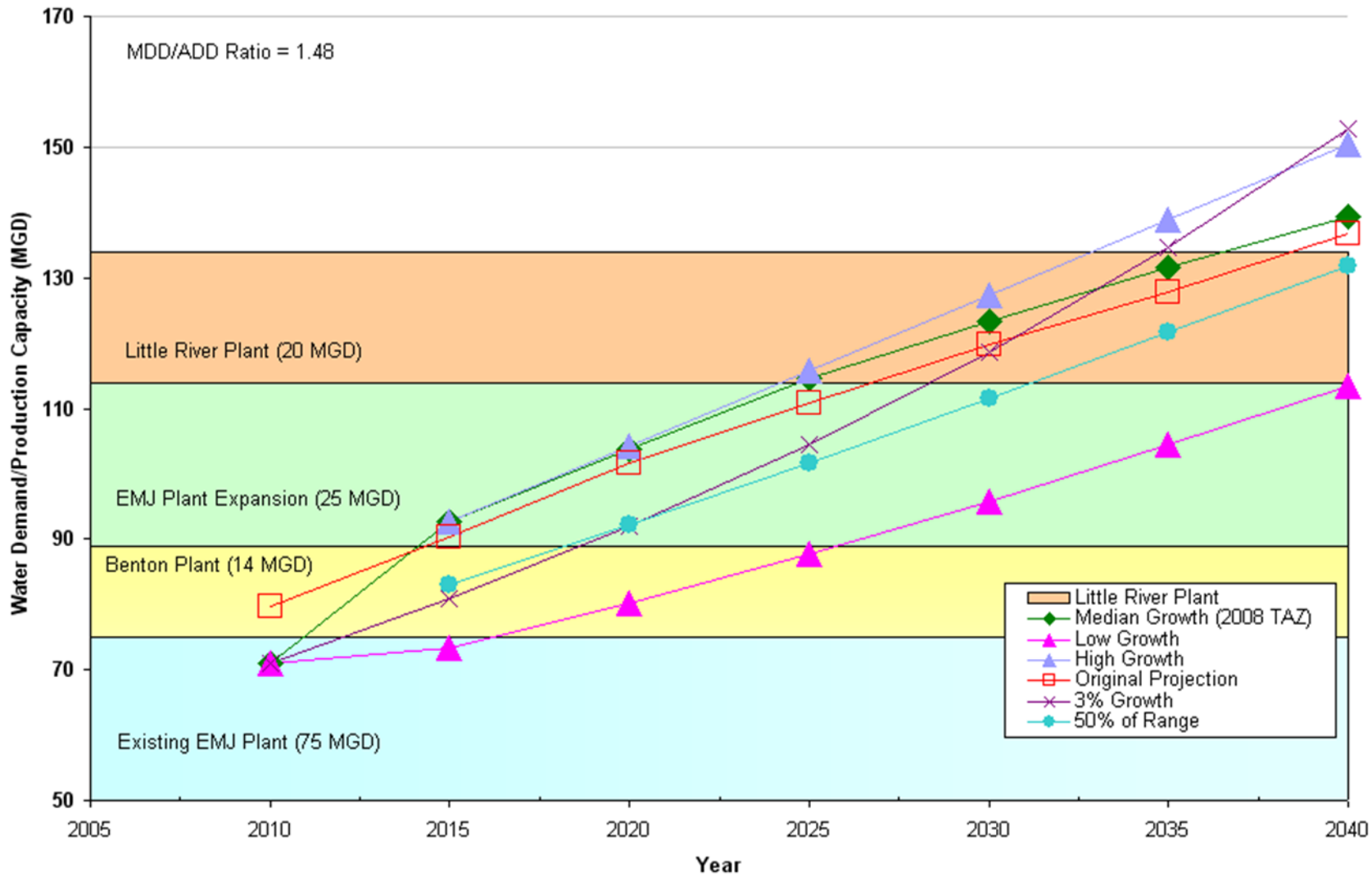
Potential Range of Population Projection



Average Day Water Demand Projection (50-Year Safe Yield)



Maximum Day Water Demand Projection (MDD/ADD = 1.48)



Existing and Proposed Water Sources

■ Purpose and Need

Interim Results

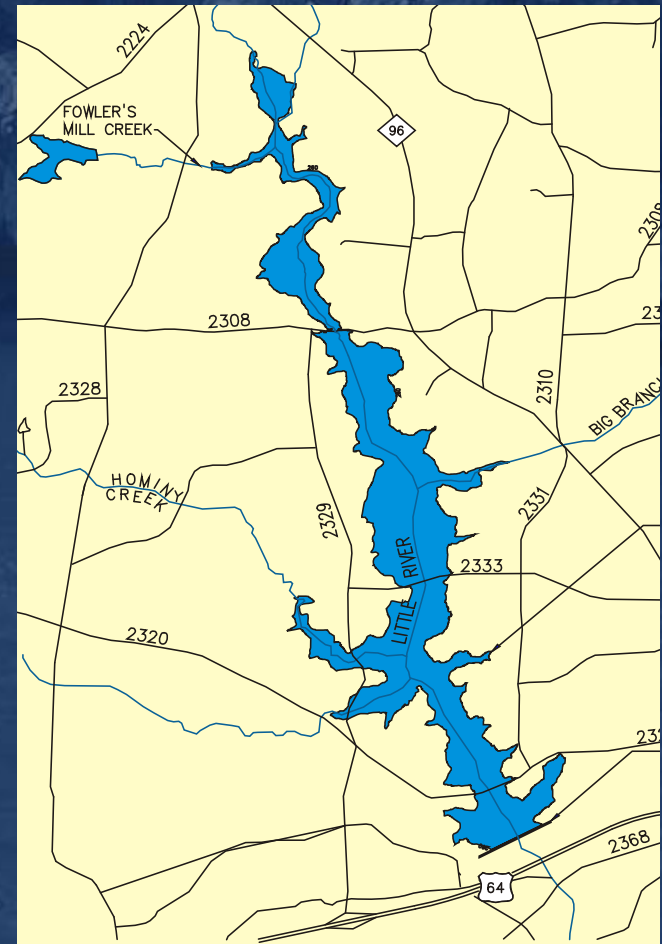
WATER SUPPLY SOURCE	RELIABLE YIELD (mgd)	
	50-YEAR	RECORD DROUGHT
1. Falls Lake	68.4	63.4
2. Swift Creek	11.2	13.6
3. Proposed Little River Reservoir ¹	13.7	12.6
TOTAL	93.3	89.6

1. Estimates include 1989 DWR allowance for instream flow of 3.3 cfs reduced in tiers as storage declines.

Requirements for Alternatives to Proposed Project

- Alternatives, either singly or in combination, must provide equivalent yield and related treatment capacity and system interconnections

Dam Height	39 ft.
Normal Pool Elevation	260 ft. mean sea level
Lake Surface Area	1,150 acres
Wetlands: Streams:	573 acres 38,000 LF
Water Supply Storage	3.7 billion gallons (11,400 acre-feet)
Water Supply Yield	13.7 million gallons per day (50-year basis)
Water Treatment Plant Capacity	20 MGD



Alternatives to Proposed Project

A. Falls Lake

1. Seasonal Raising of Falls Lake Normal Pool
2. Dredge Falls Lake to Increase Volume Sufficient to Replace Proposed Project
3. Reallocate Storage in Sediment Pool
4. Reallocate Storage in Water Quality Portion of Conservation Pool

B. Expand Lake Benson/Wheeler (Swift Creek)

C. Jordan Lake

D. Kerr Lake

E. Middle Creek

F. Buffalo Creek

G. River or Stream Intake (No Raw Water Storage)

1. Neuse River Intake Near Richland Creek
2. Neuse River Intake Upstream of Neuse River WWTP (NRWWTP)

Alternatives to Proposed Project

H. Offline Storage

1. Neuse River Intake Near Richland Creek w/Offline Storage
2. Neuse River Intake Upstream of NRWTP w/Offline Storage
3. Convert Existing Quarries for Low Flow Augmentation

I. Development of Groundwater Supplies

1. Multiple Local Wells
2. Aquifer Storage and Recovery
3. PCS Phosphate Mine

J. Purchase Water from Existing Systems

K. Water Conservation/Water Efficiency Measures

L. Wastewater Reuse

M. Combination of Alternatives

N. No Action

O. Other Lakes

1. Harris Lake
2. Stormwater Lakes

Other On-Going Studies and Efforts

In Flow Stream Study- An effort to quantify the water required in the Little River to support ecological integrity down stream of the proposed Reservoir: preliminary results due in September

Mitigation Acquisition- An effort to acquire adequate wetlands and stream restoration credit for any potential water resource project.

Engineering Alternatives Analysis: On-Going.

Draft Environmental Impact Statement: Draft Due September 2010

Water Use Statistics

Daily indoor per capita water use is 69.3 gallons. Here is how it breaks down:

Use	<u>Gallons per Capita</u>	<u>Percentage of Total Daily Use</u>
Showers	11.6	16.8%
Clothes Washers	15.0	21.7%
Dishwashers	1.0	1.4%
Toilets	18.5	26.7%
Baths	1.2	1.7%
Leaks	9.5	13.7%
Faucets	10.9	15.7%
Other Domestic Uses	1.6	2.2%

By installing more efficient water fixtures and regularly checking for leaks, households can reduce daily per capita water use by about 35% to about 45.2 gallons per day :

Use	<u>Gallons per Capita</u>	<u>Percentage of Total Daily Use</u>
Showers	8.8	19.5%
Clothes Washers	10.0	22.1%
Toilets	8.2	18.0%
Dishwashers	0.7	1.5%
Baths	1.2	2.7%
Leaks	4.0	8.8%
Faucets	10.8	23.9%
Other Domestic Uses	1.6	3.4%

Source: [Handbook of Water Use and Conservation](#), Amy Vickers

Necessary Per Capita Reduction to Avoid New Storage Requirements

Growth Scenario	Population	50-Year Re-occurring Yield of Existing Lakes (MGD)	Drought of Record Yield of Existing Lakes (MGD)	Necessary Service Area Residential GPCD 50-Year Yield	Necessary Service Area Residential GPCD for Drought of Record
Low Growth	809,943	79.6	77	64	61
Original Projection	896,200	79.6	77	55	52
Median Growth (2008 TAZ)	995,667	79.6	77	46	43
High Growth	1,075,320	79.6	77	40	38
3% Historic Service Growth	1,092,268	79.6	77	39	36



Questions?