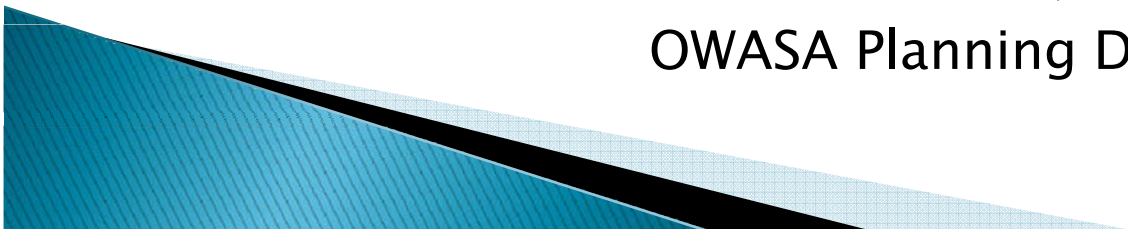


# Long-Range Water Supply Plan Update Draft Report

PRESENTATION TO THE CHAPEL HILL  
TOWN COUNCIL

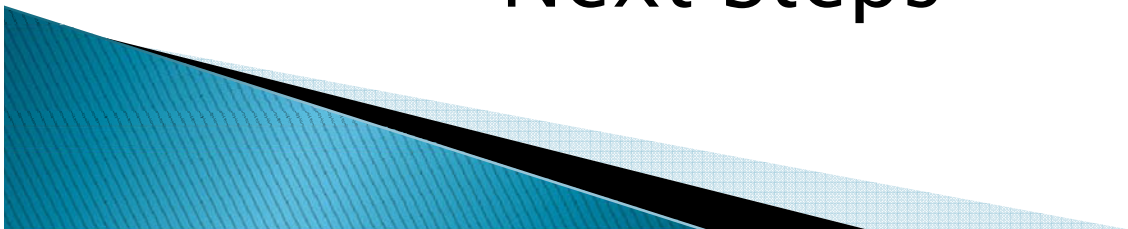
September 14, 2009

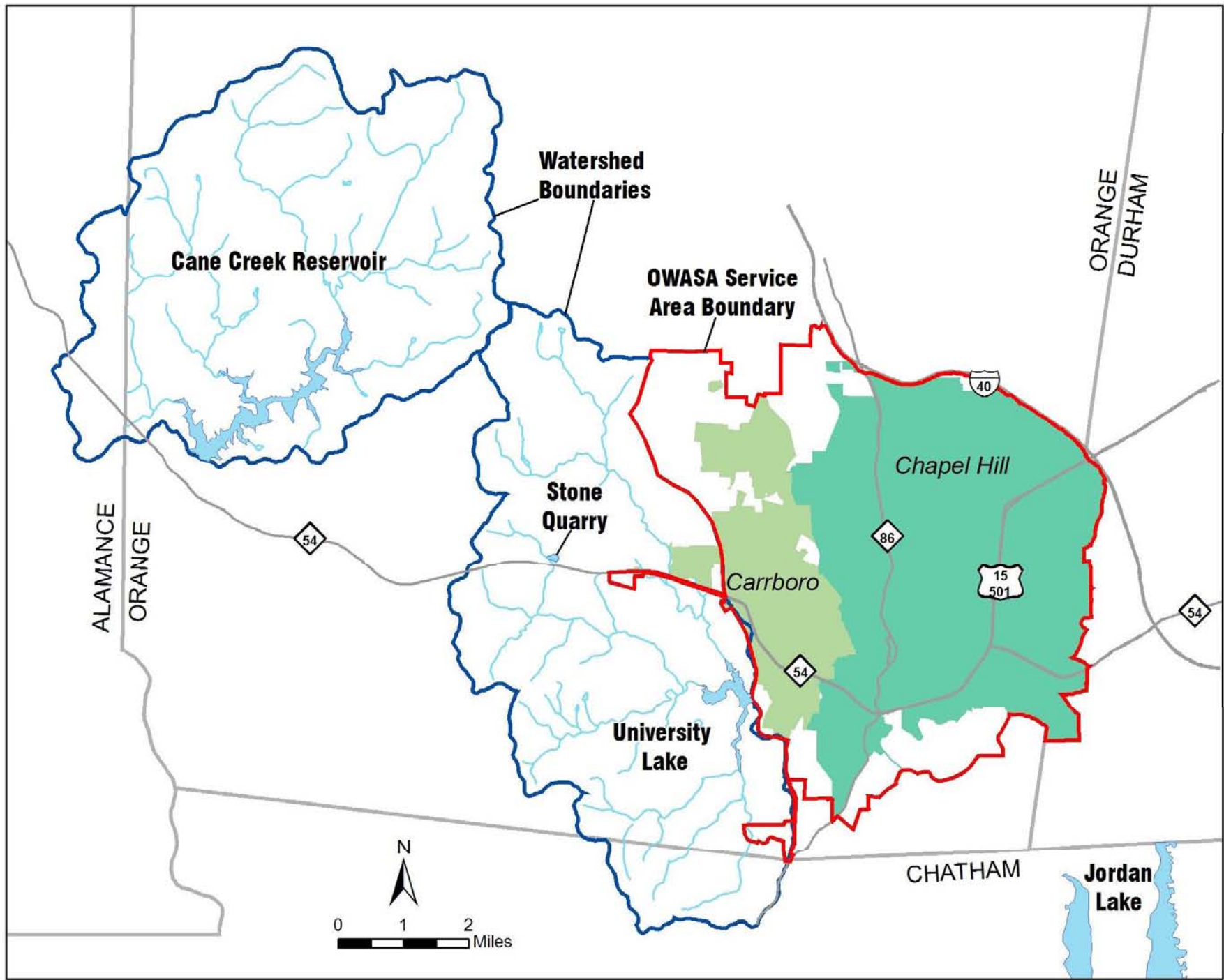
Ed Holland, AICP  
OWASA Planning Director



# OVERVIEW

- Future Water Needs
- Capacity of Existing System
- Options for the Future
- Summary & Recommendations
- Next Steps





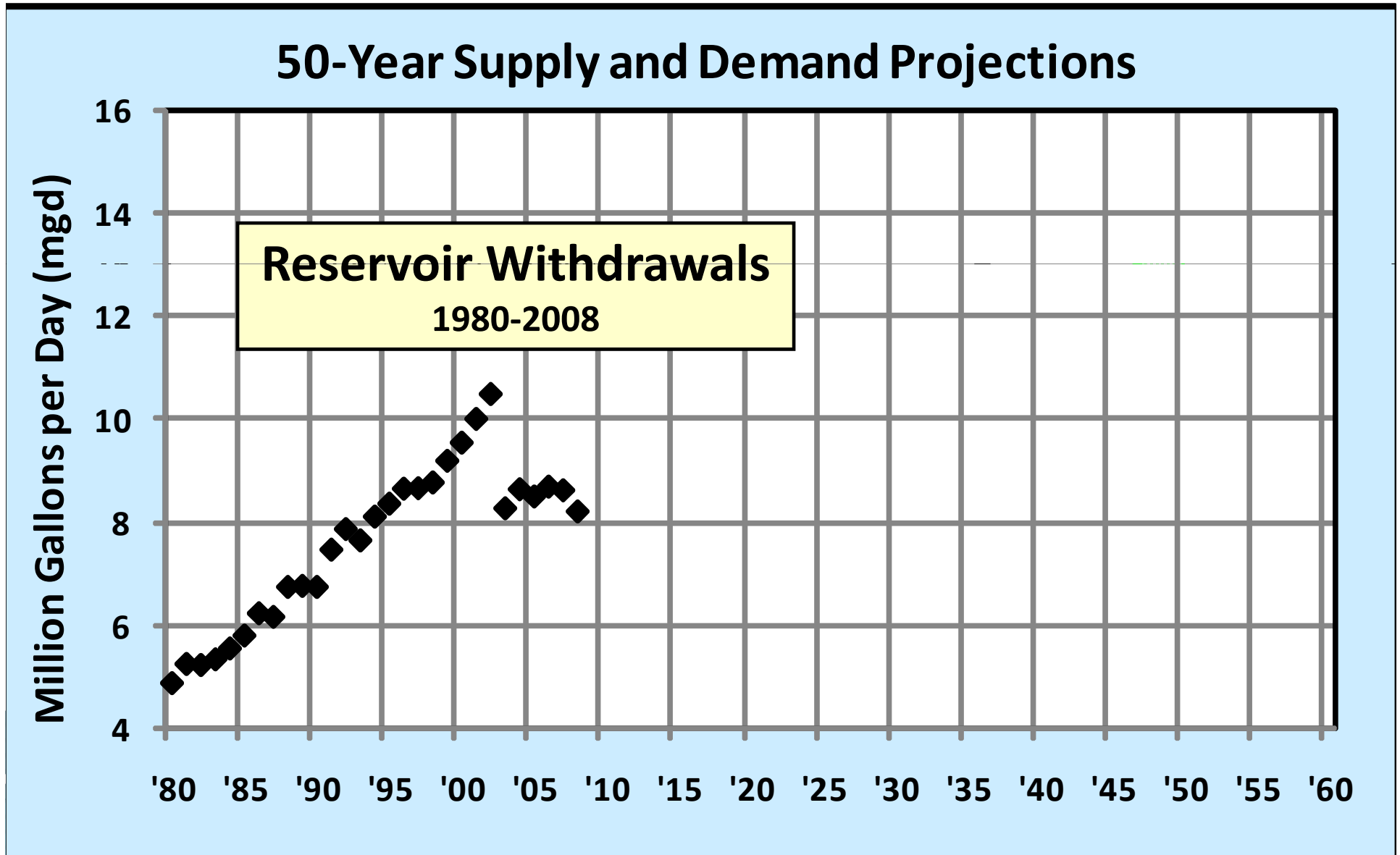
# How Much Water in 2060?

Projections based on:

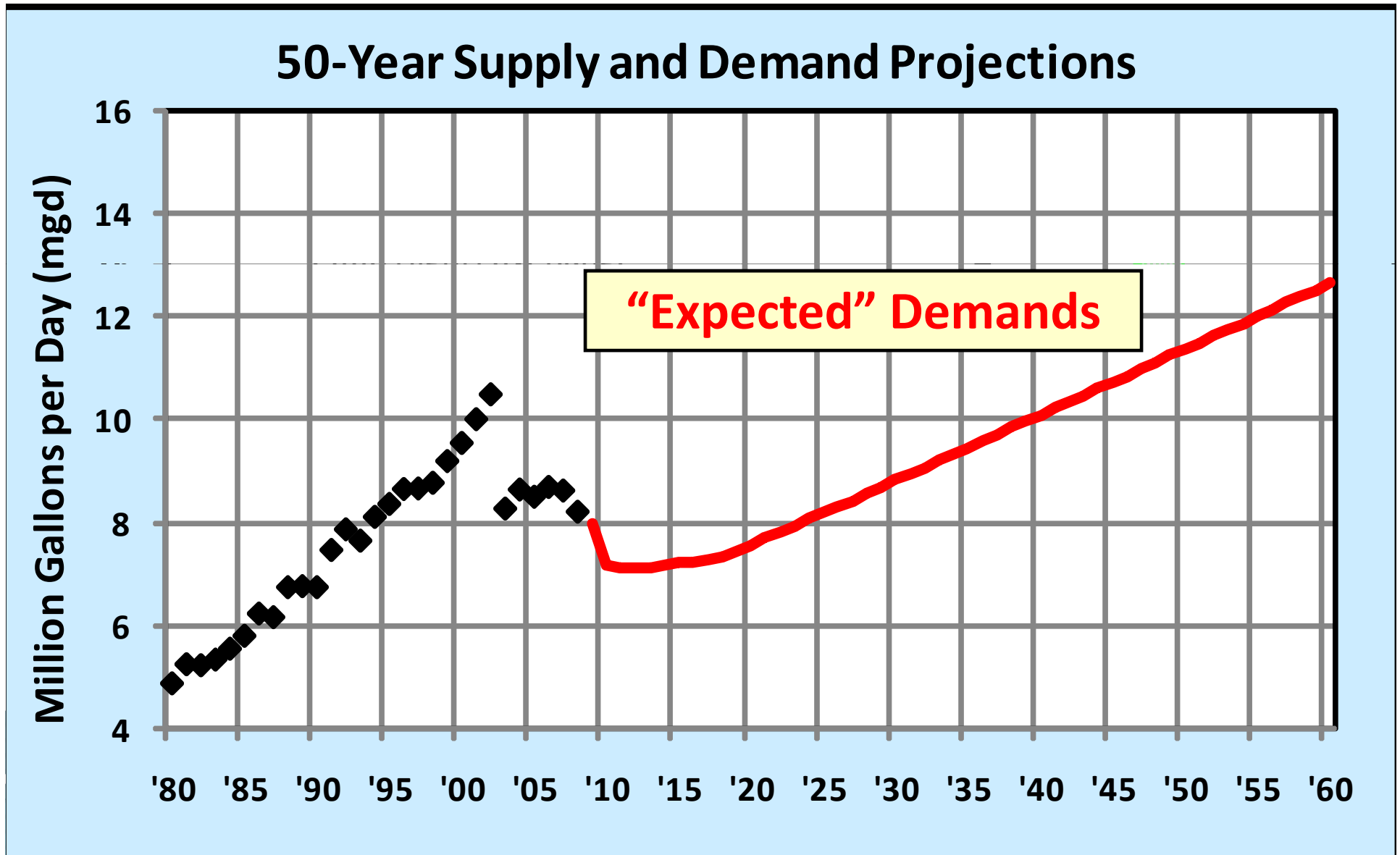
- Historical and recent consumption data
- Local development trends
- Long-range planning reports of Carrboro, Chapel Hill, Orange County, and UNC
- Best information available on Carolina North
- Meetings & discussions with UNC and local planning/economic development staff



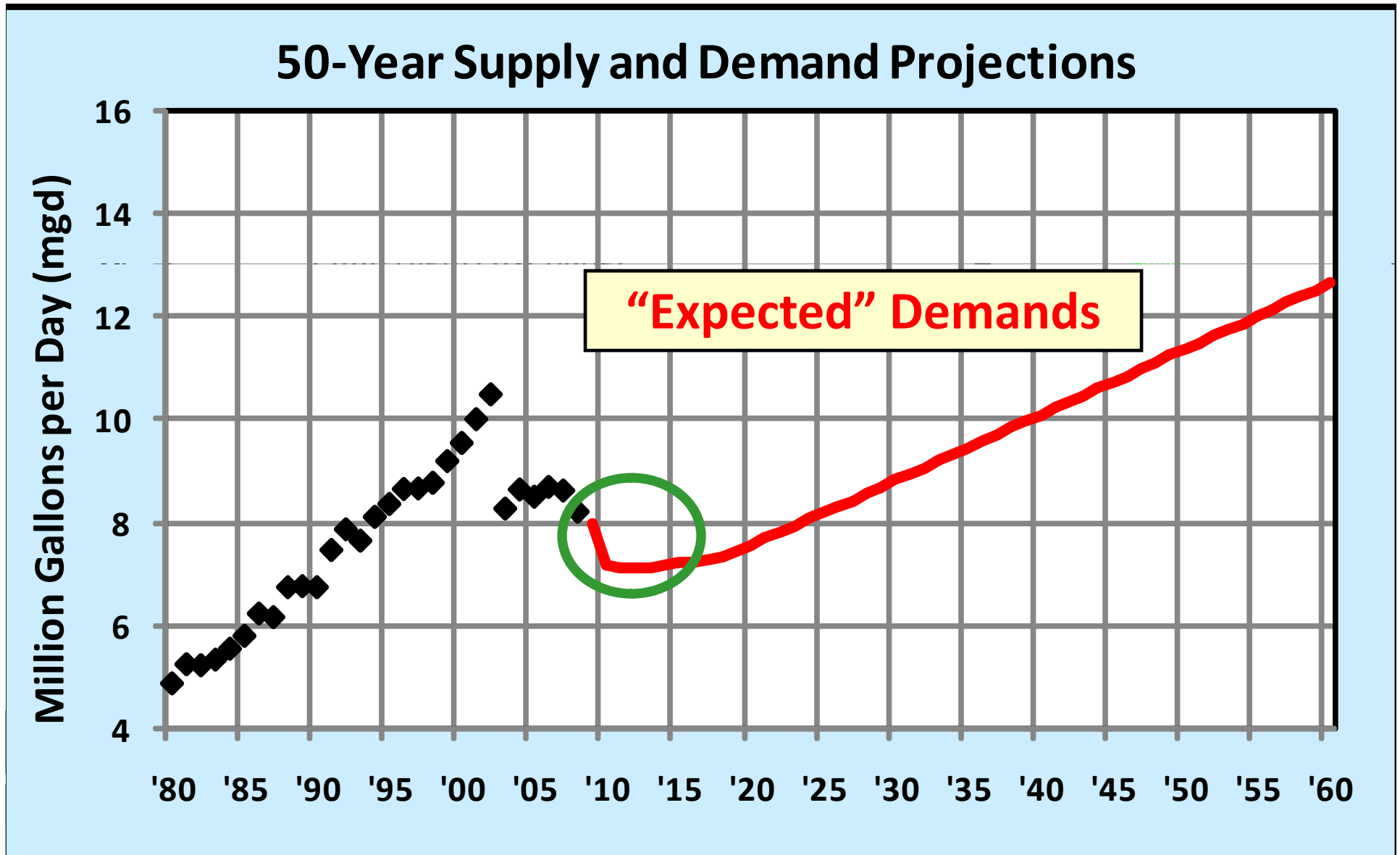
# Water Use: Past, Present, and Future



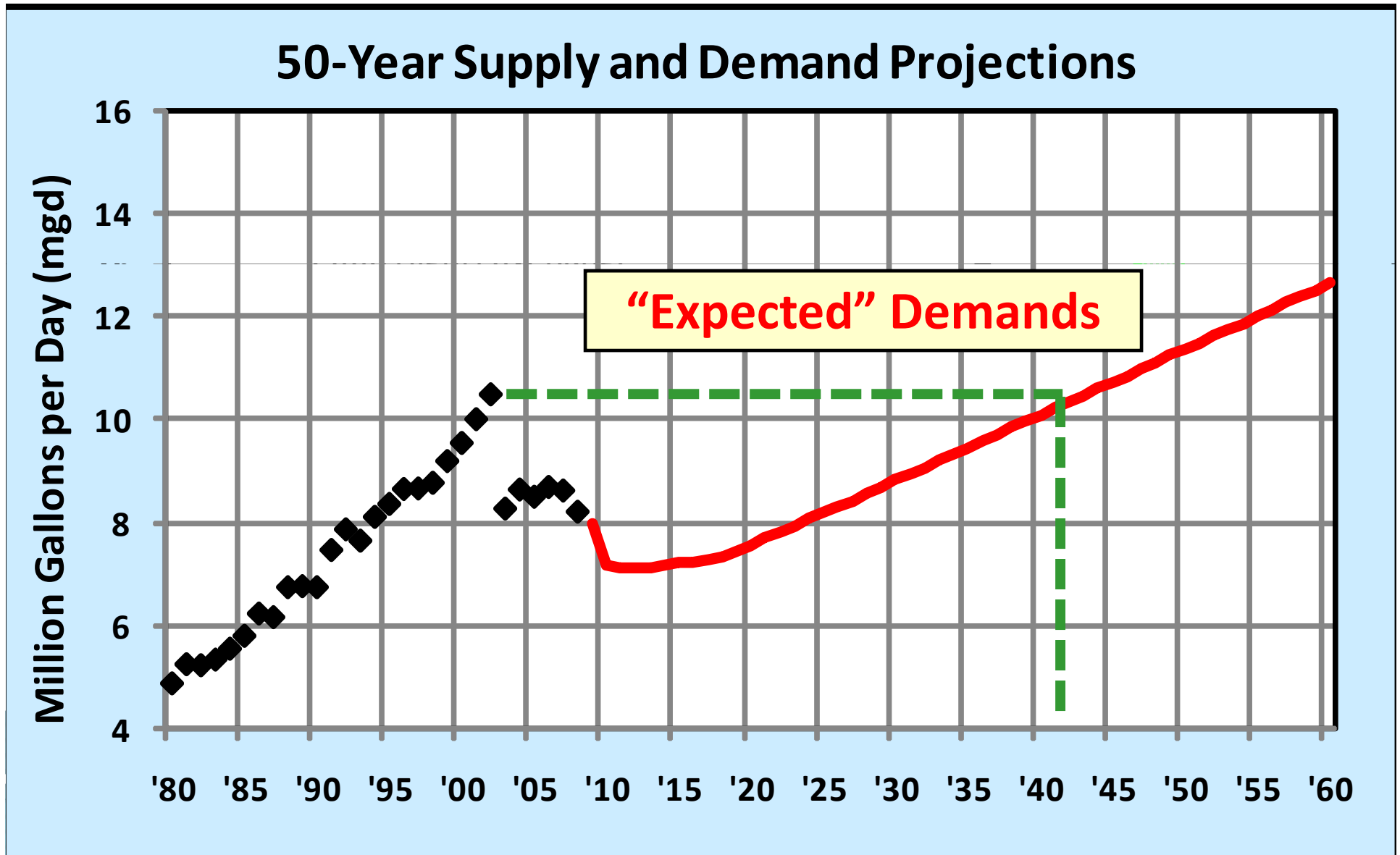
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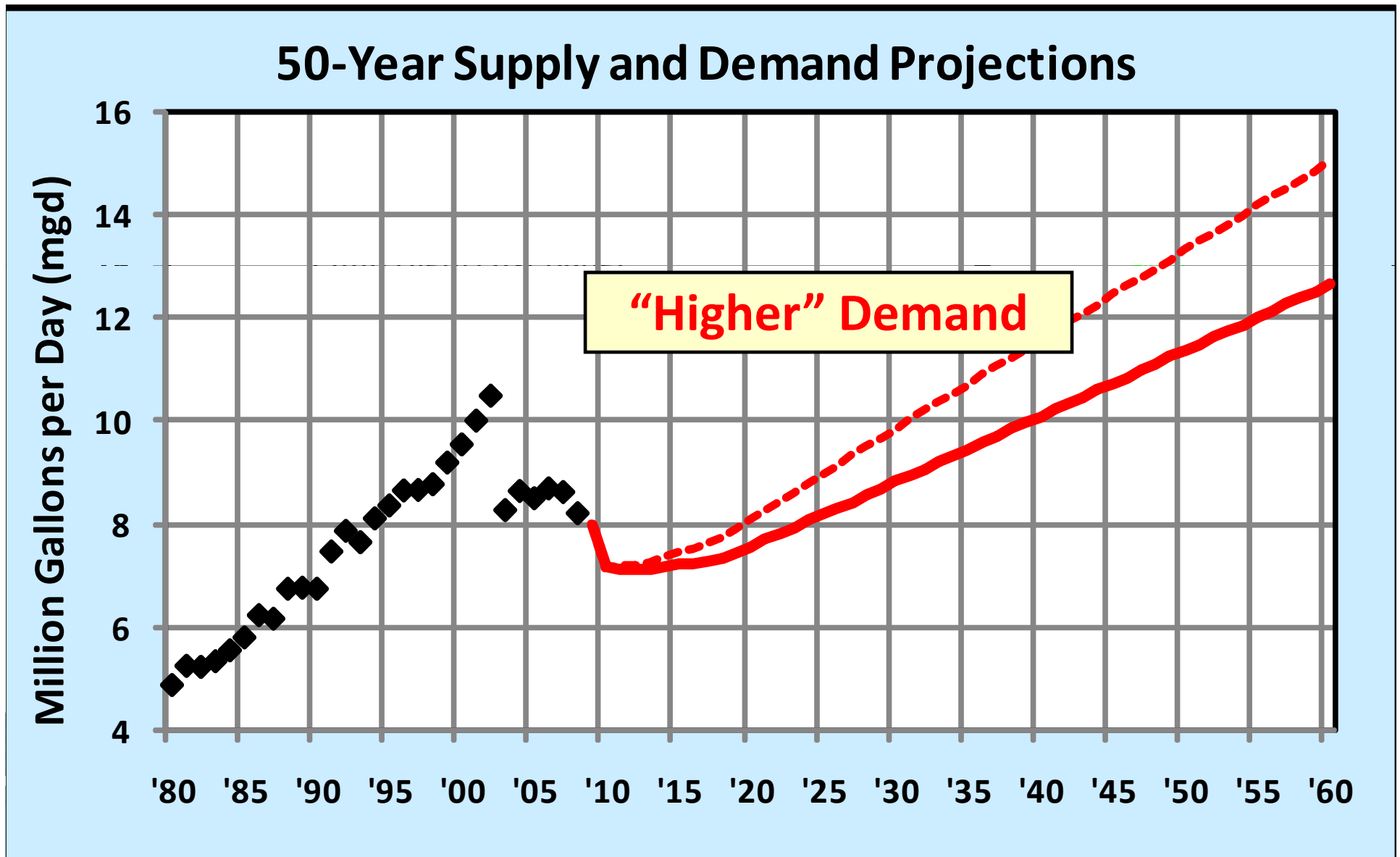


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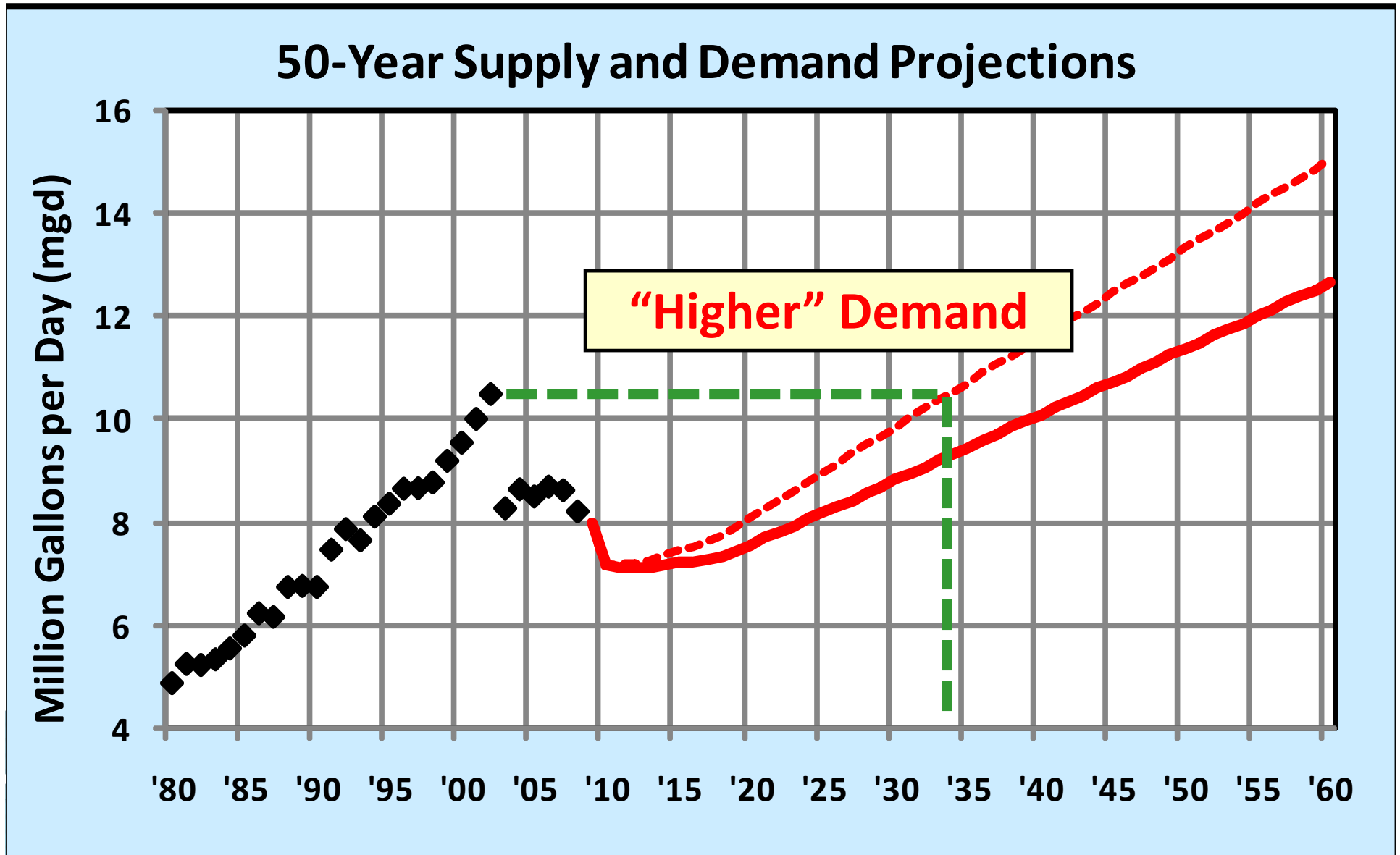




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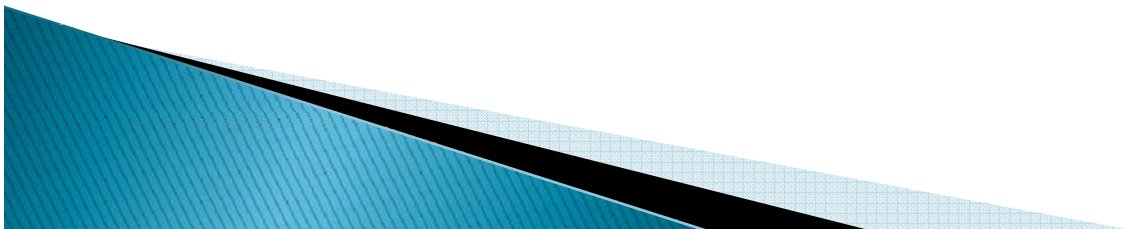
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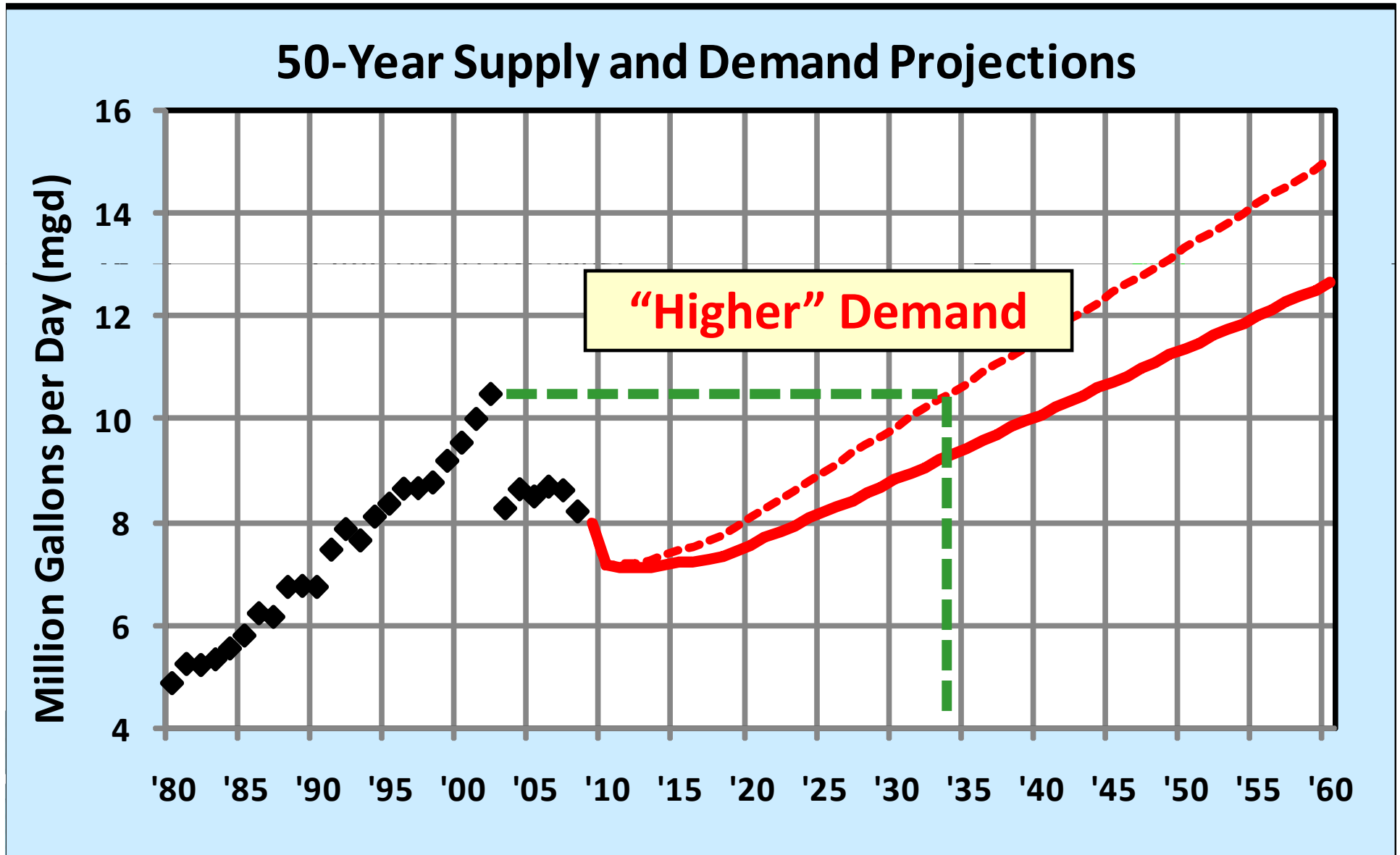
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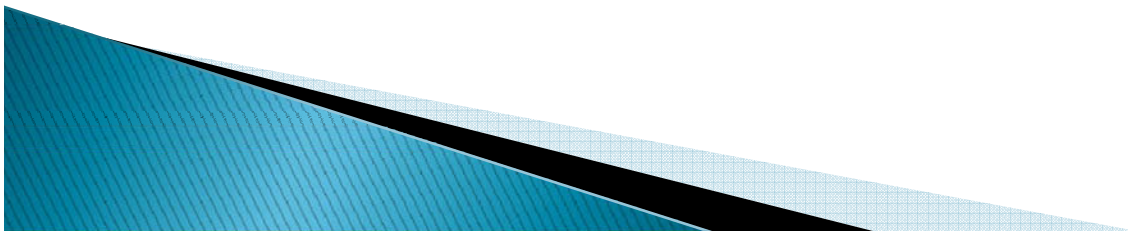
- One new “East 54”–scale mixed use project added each year through 2060
- 25% more non–residential (non–UNC) development than expected through 2060
- Carolina North: 25% more demand than expected, none is met with RCW or other NPW



# Water Use: Past, Present, and Future

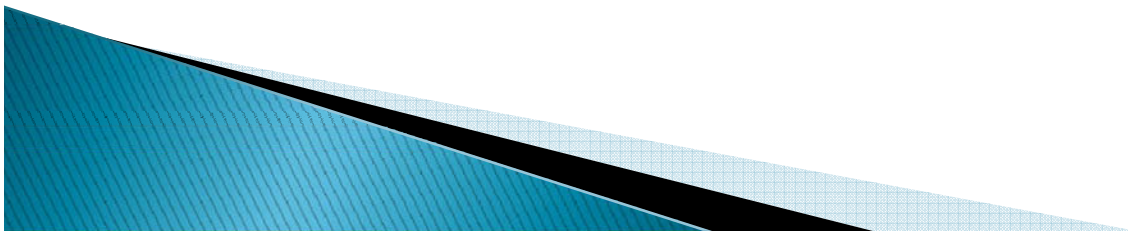


# What About Capacity?



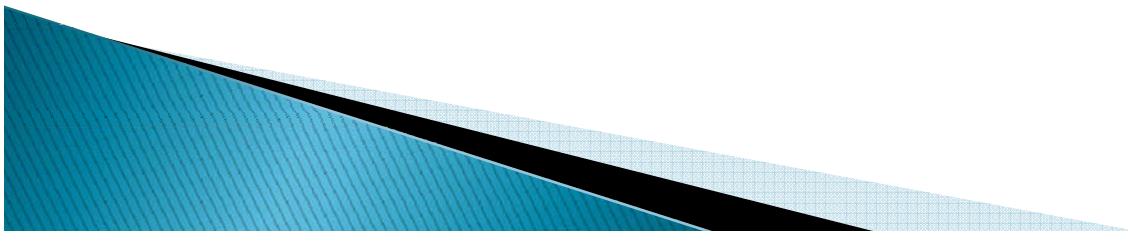
# “Yield”

- Amount of water available during a specified drought (2001–02 was our “drought of record”)



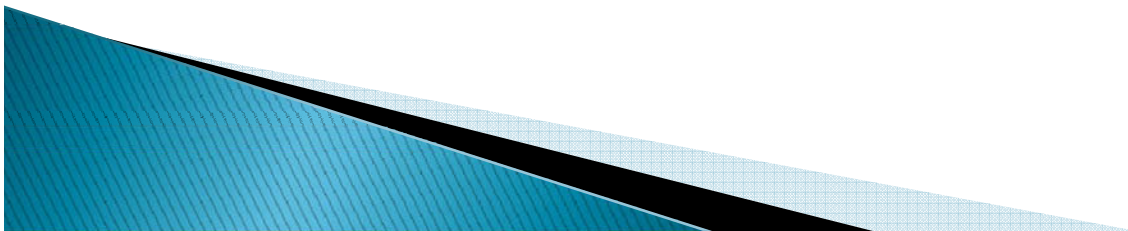
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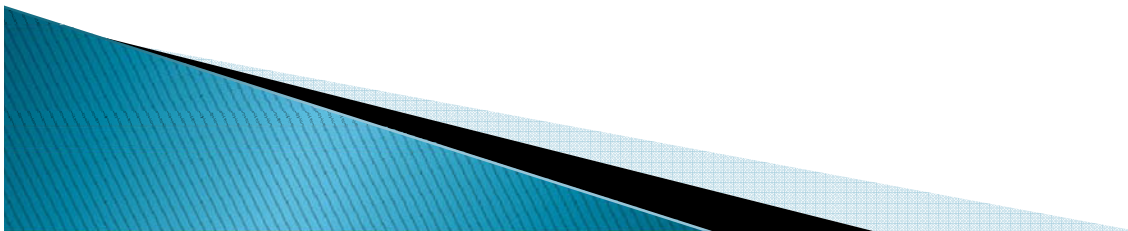
- Amount of water available during a specified drought (2001–02 was our “drought of record”)
- Previous estimates based on reservoir depletion
- New estimates based on a 20% storage reserve (~700 million gallons)





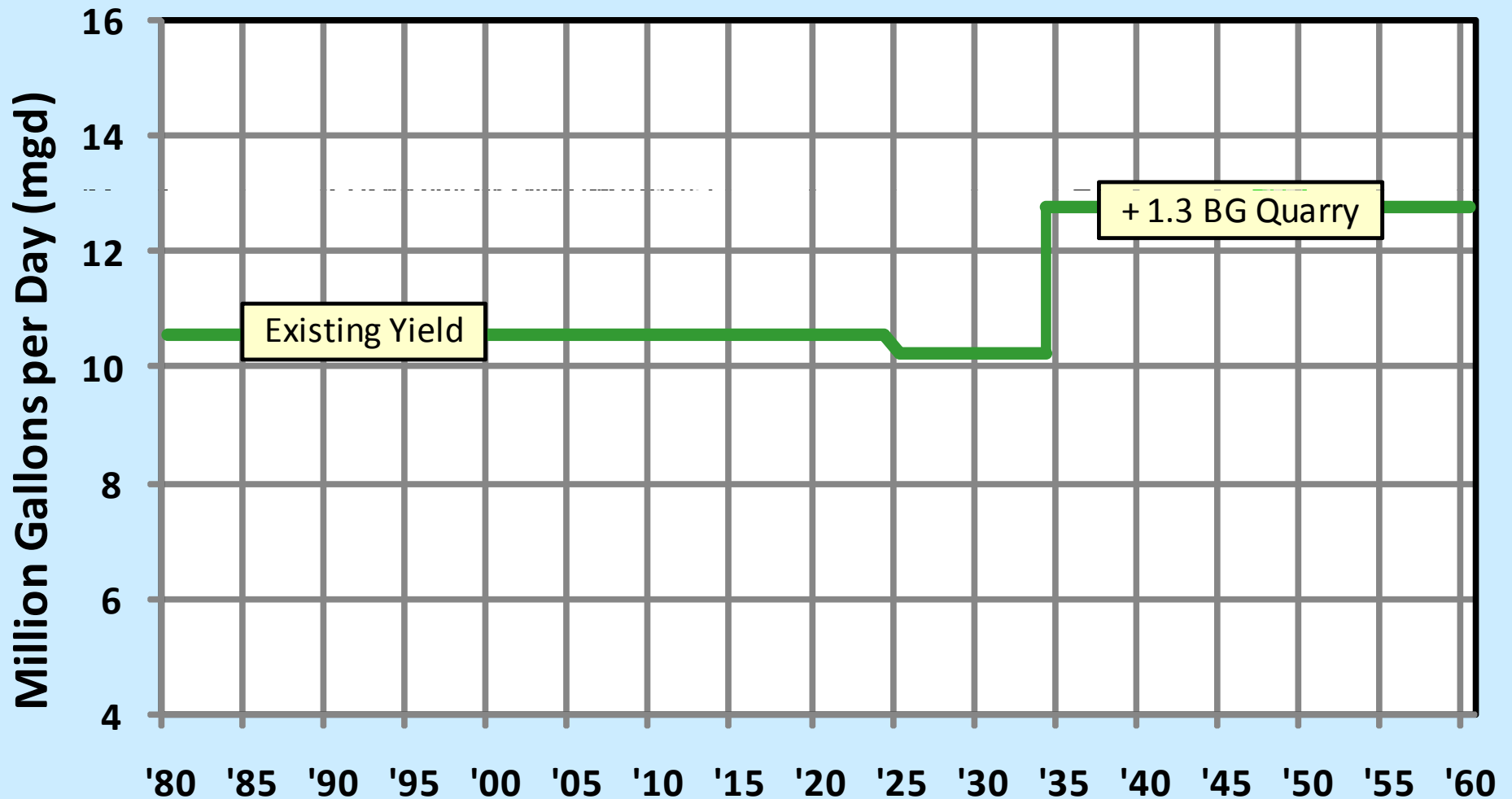
# “Yield”

- Amount of water available during a specified drought (2001–02 was our “drought of record”)
- Previous estimates based on reservoir depletion
- New estimates based on a 20% storage reserve (~700 million gallons)
- Previous Estimate: 11.7 mgd (total depletion)
- Updated Yield: 10.5 mgd (w/20% reserve)
- +1.3 BG Quarry: 12.7 mgd (w/20% reserve)

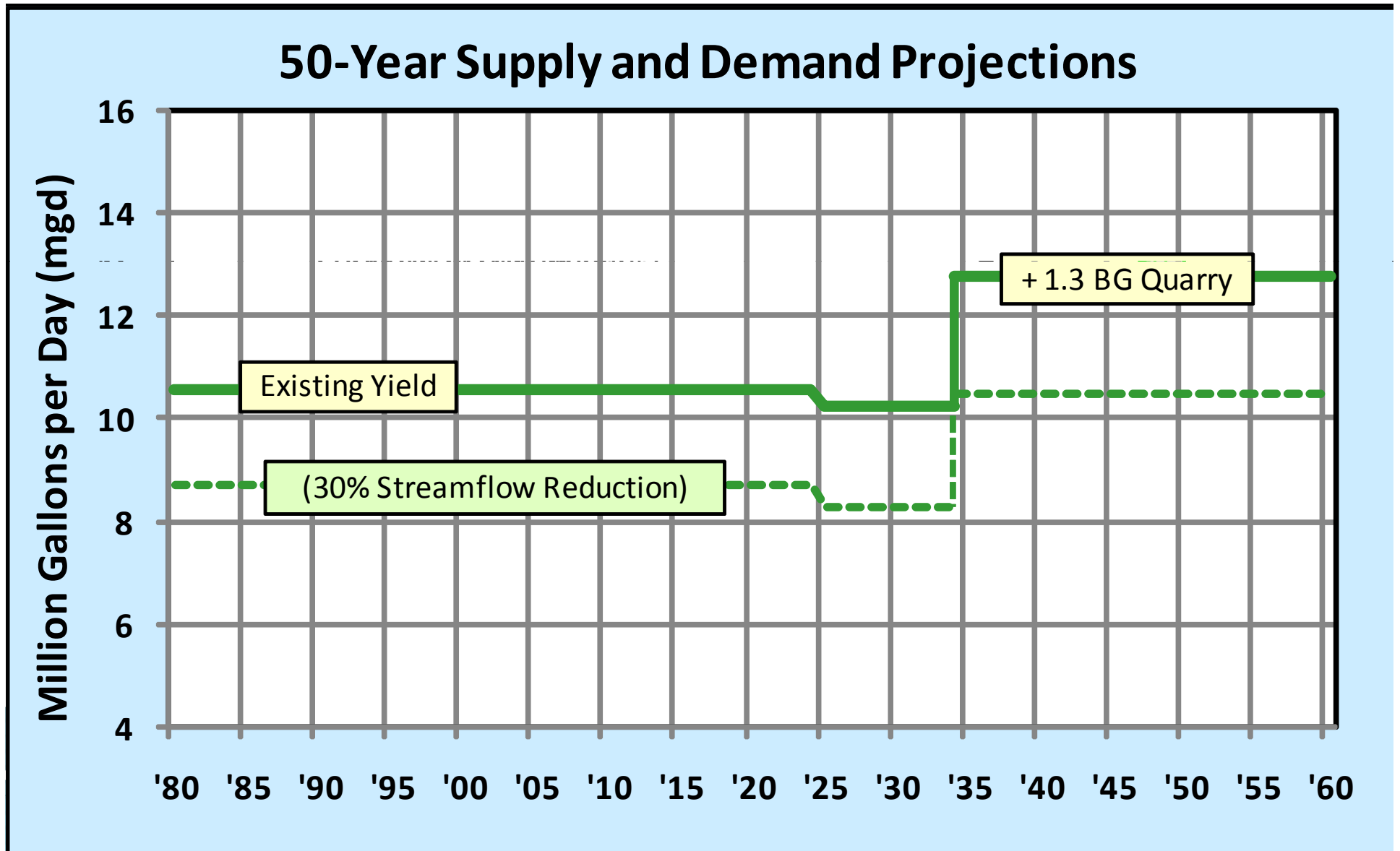


# Updated Yield Estimates

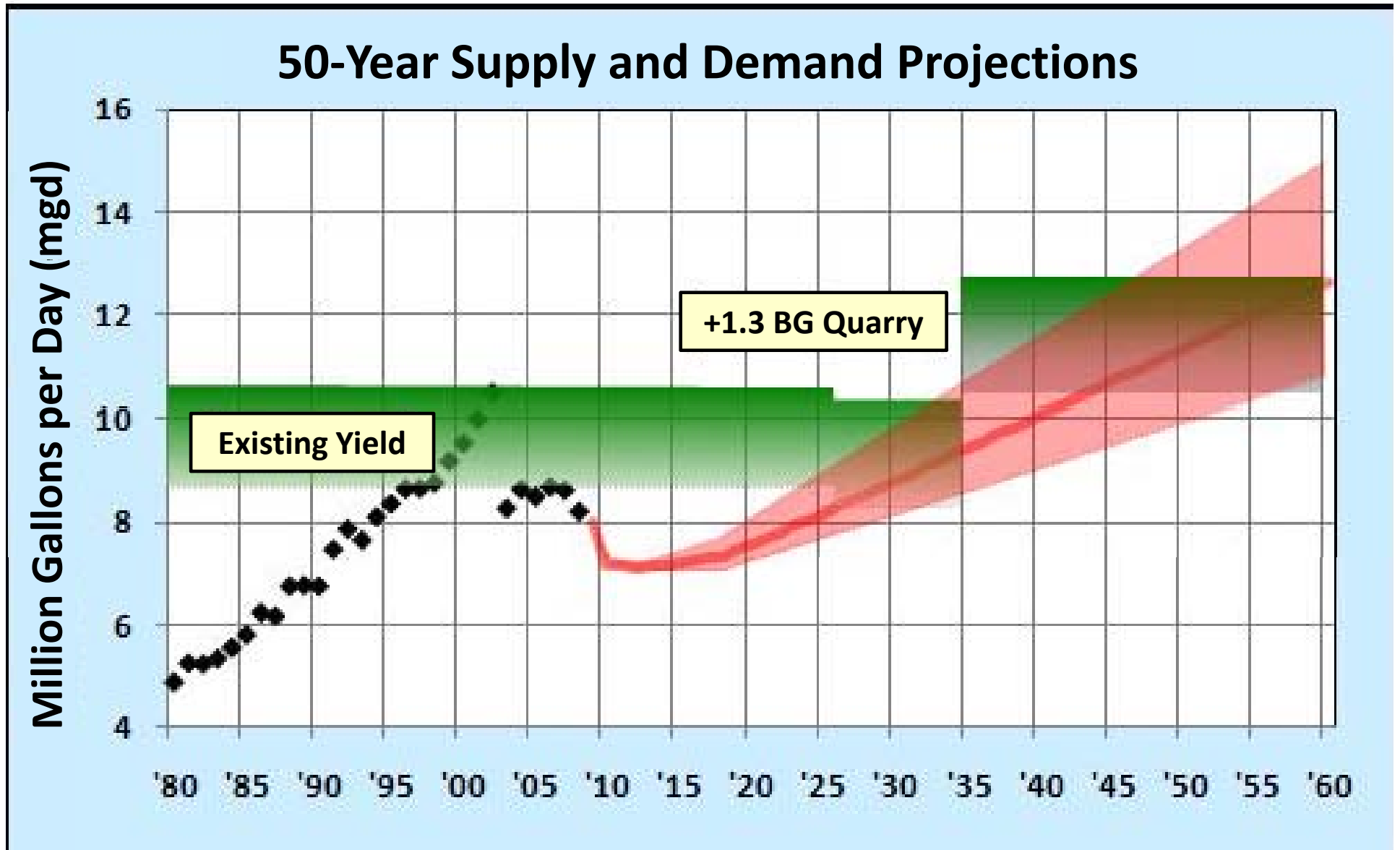
## 50-Year Supply and Demand Projections



# Updated Yield Estimates



# Existing and Future Supply



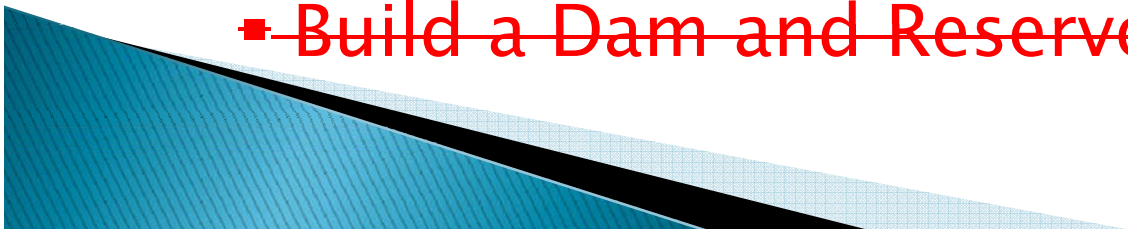
# Options for the Future?

- Expanded Quarry Reservoir
- Jordan Lake
- Expanded RCW System
- Toilet Rebates, etc.
- Purchase Water from Neighbors
- Permanent Haw River Intake
- Expand Cane Creek Reservoir
- Expand University Lake
- Dredge Sediment from University Lake
- Build a Dam and Reservoir on Sevenmile Crk



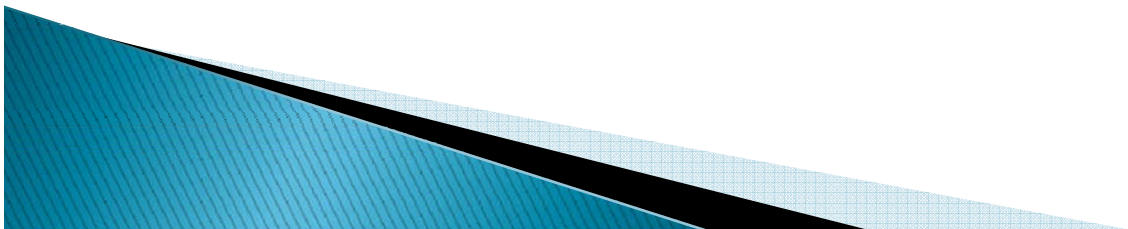
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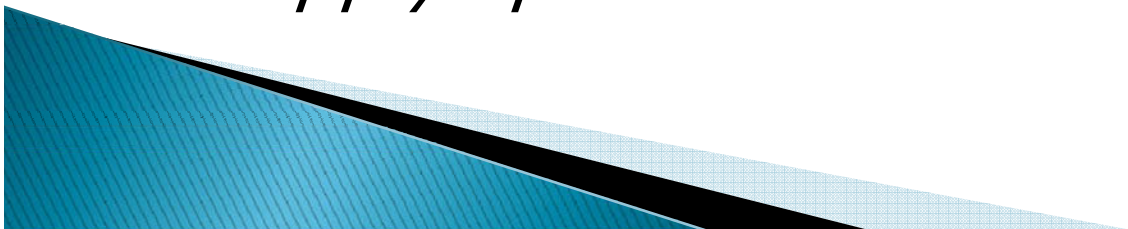
# Expanded Quarry





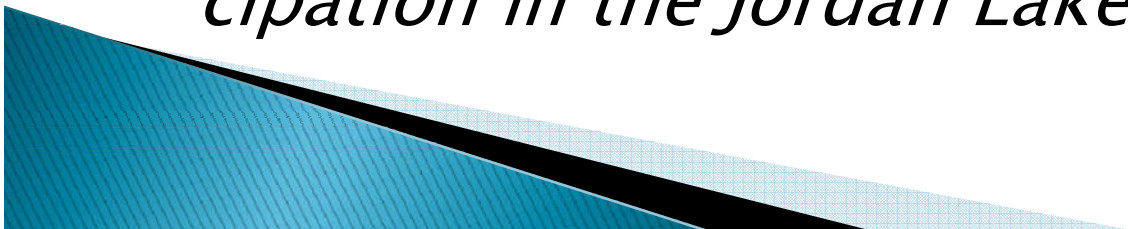
# Expanded Quarry

- To be filled from Cane Creek Reservoir
- 2–3 mgd of additional yield by 2035, less than \$2 million in capital costs (<\$1M/mgd)
- Adequate to meet expected demands under most conditions
- *Recommendation: Continue to pursue as the most cost-effective long term supplemental supply option.*



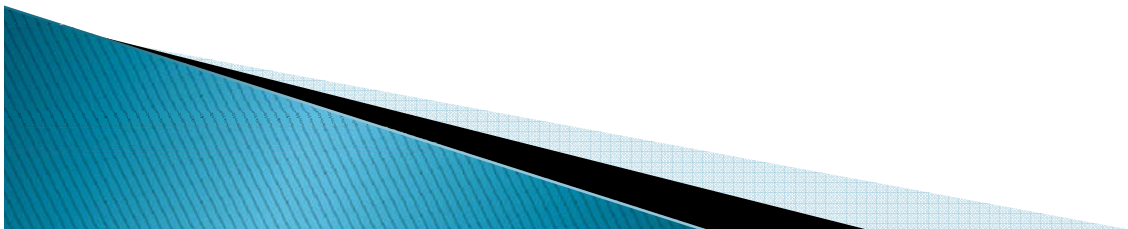
# Jordan Lake

- Important flexibility and redundancy of critical infrastructure
- OWASA's 5 mgd storage allocation can support more than 6 mgd of additional yield
- Independent (OWASA-only) facilities will not be permitted, and are less cost-effective than joint ventures
- *Recommendation: Pursue access to OWASA's storage allocation through continued participation in the Jordan Lake Partnership.*



# Expanded RCW System

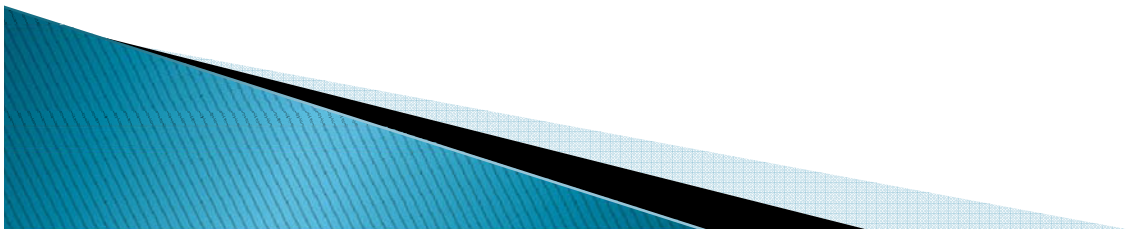
- Limited opportunities for further demand reduction (0.25 mgd), high capital costs (~\$30 million/mgd)
- *Recommendation: Do not invest OWASA funds to extend the RCW system, but recognize that new non-UNC customers may find RCW extensions or connections to be cost-effective on a case-by-case basis.*



# Toilet Rebates

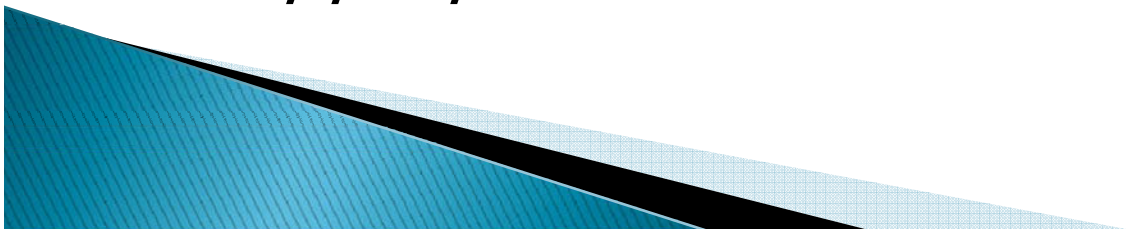
*(Or Other Water Conservation Investments)*

- Limited opportunities. 0.5 mgd demand reduction would require replacement of 28,000 toilets
- \$200 OWASA rebate ~ **\$11 million/mgd**
- *Recommendation: Continue to promote conservation through customer education, conservation pricing, etc., but without direct financial incentives.*



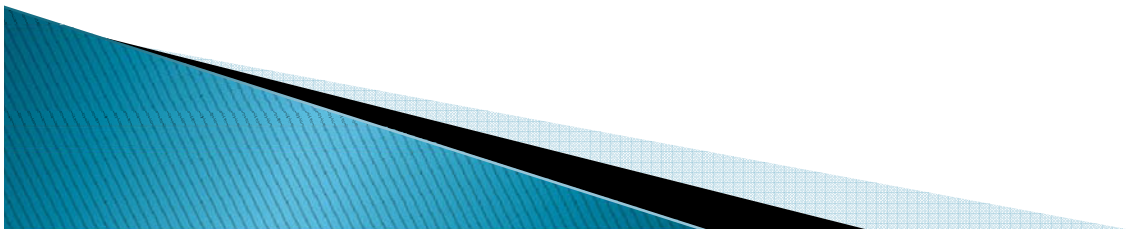
# Water Purchases

- Temporary purchases can be very cost-effective: 1 mgd @ \$3/thousand gallons = \$3,000 per day **~\$1 million per year**
- Can be “turned on & off” as needed
- Substantial additional capacity will be available via Cary/Durham
- *Recommendation: Engage neighboring utilities in discussions about permanent agreements to buy and sell water under appropriate conditions of supply & demand.*



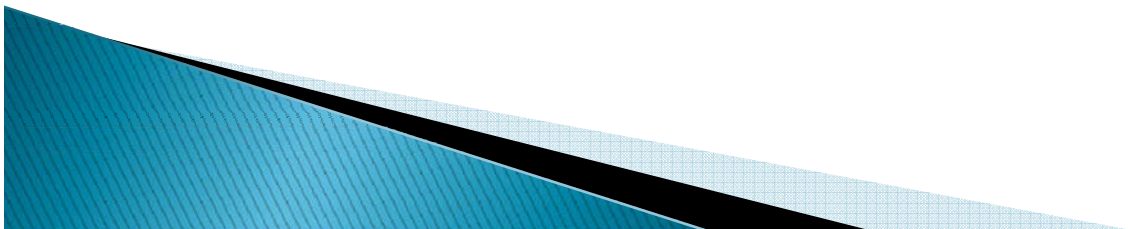
# Water Shortage Restrictions

- Have been very effective, *BUT* . . .
- They're inconvenient, expensive for customers
- Effects persist beyond the need to reduce use
- Result in unbudgeted revenue losses



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  - 1 mgd reduction = **\$3 million/year**
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# Water Shortage Restrictions

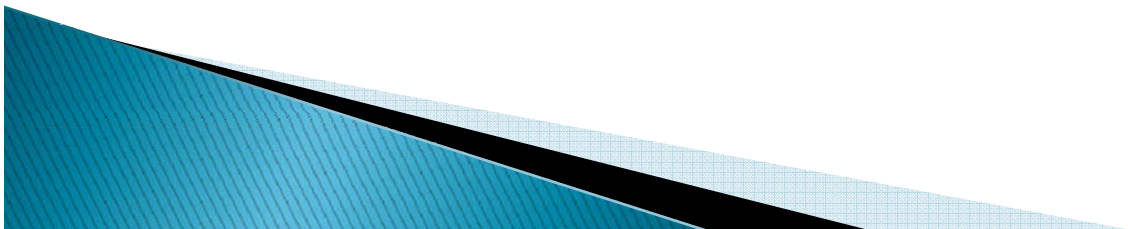
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- *Recommendation: If available in the future, OWASA should purchase water from neighbors before declaring a Water Supply Shortage.*





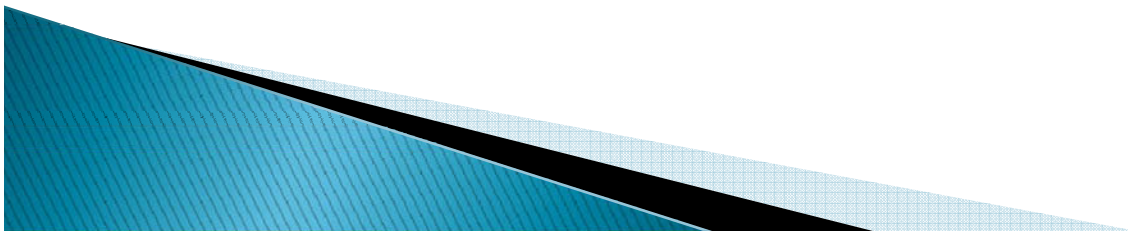
# Review:

- Expanded Quarry Reservoir
- Jordan Lake
- Permanent Haw River Intake
- Expanded RCW System
- Toilet Rebates
- Purchase Water from Neighbors



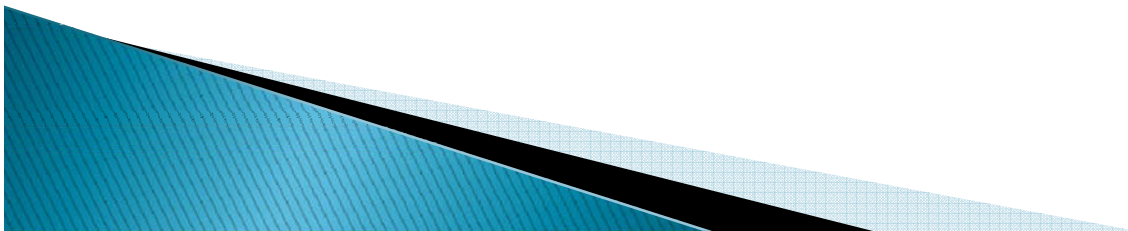
# Primary Recommendations

1. Proceed with expanded Quarry Reservoir, the most cost-effective long term supply source.



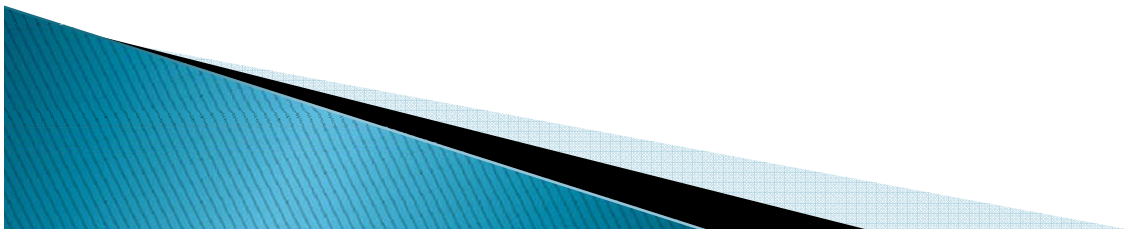
# Primary Recommendations

1. Proceed with expanded Quarry Reservoir, the most cost-effective long term supply source.
2. Continue to participate in planning activities of the Jordan Lake Partnership.



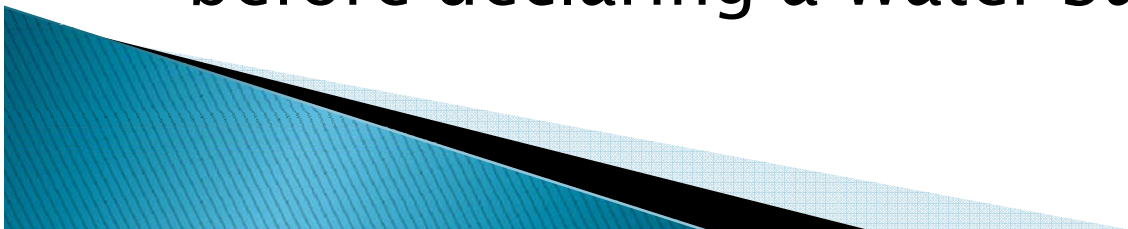
# Primary Recommendations

1. Proceed with expanded Quarry Reservoir, the most cost-effective long term supply source.
2. Continue to participate in planning activities of the Jordan Lake Partnership.
3. Develop purchase/sale agreements with neighboring utilities to secure the permanent ability to transfer water under appropriate conditions of supply and demand.



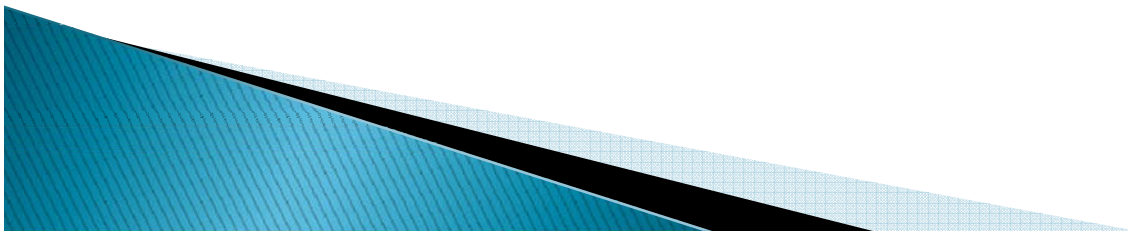
# Primary Recommendations

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2. Continue to participate in planning activities of the Jordan Lake Partnership.
3. Develop purchase/sale agreements with neighboring utilities to secure the permanent ability to transfer water under appropriate conditions of supply and demand.
4. When available in the future, purchase water before declaring a Water Supply Shortage.



# Summary

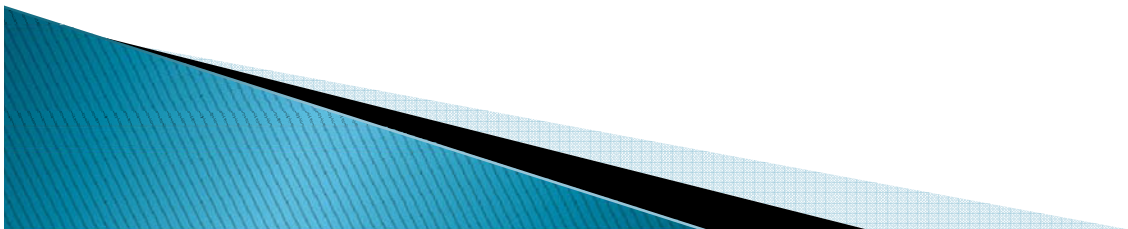
The long-range outlook for OWASA's water supply future is **very positive**, even under conservative high demand assumptions.



# Summary

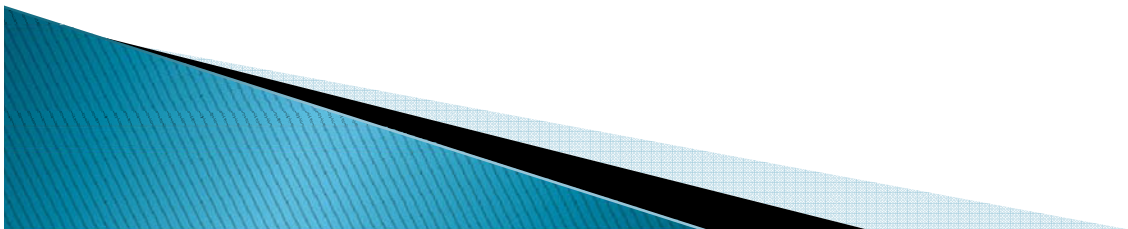
The long-range outlook for OWASA's water supply future is **very positive**, even under conservative high demand assumptions.

We anticipate no need for large water supply investments in the foreseeable future.



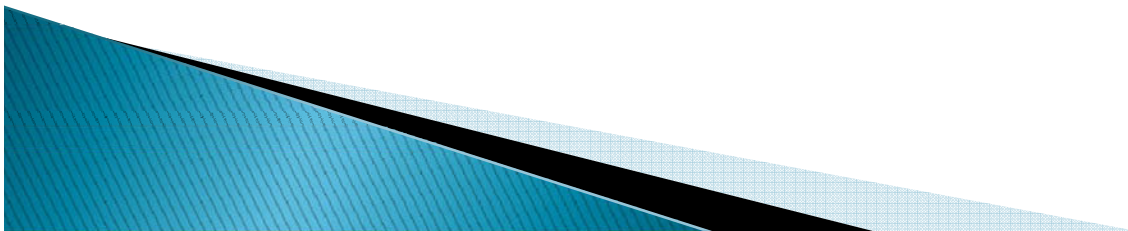
# NEXT STEPS

- Present findings to elected boards, get feedback from the community
- Public meeting for interested customers and others, November 11<sup>th</sup>, 7:00 pm CH Town Hall
- Prepare Final Report for adoption by OWASA Board

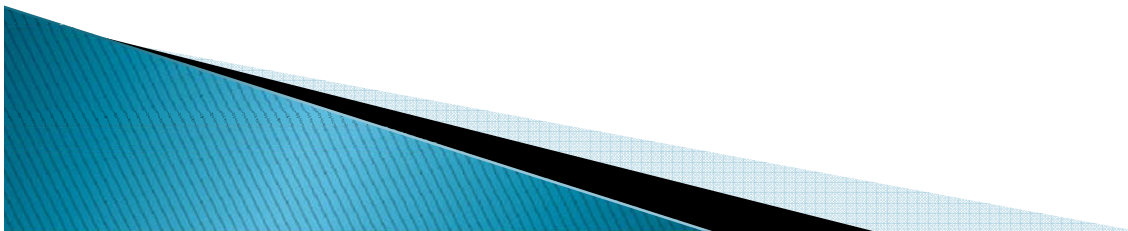




**Comments, Questions,  
Discussion?**



(Bonus Tracks)

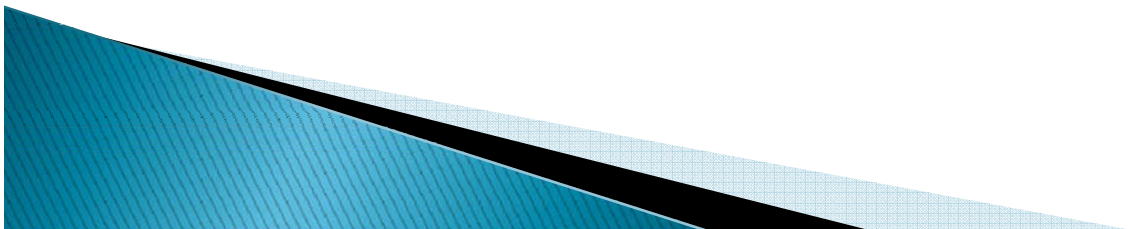


Existing & Expected Water Use	% of Existing Water Use	% of New Water Use
Single Family Detached Homes	33%	14%
Townhomes/Condominiums	5%	20%
Multifamily (master-metered)	19%	24%
Non-Residential (non-UNC)	13%	15%
UNC- Main Campus	24%	7%
UNC - Carolina North	0%	17%
UNC Hospitals	<u>5%</u>	<u>3%</u>
Total	100%	100%



# Expected Demands

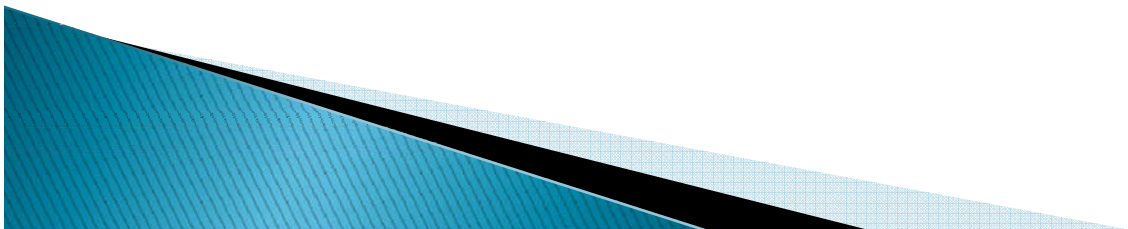
- Pace of development: will return to 20-year avg
- Reduced water consumption by all users: per actual OWASA 2004–2007 averages
- UNC Main Campus/Hospitals: buildout by 2028
- Carolina North: 2060 buildout, similar hospital/institutional mix as Main Campus, 25% of water needs will be met with RCW & other NPW



# “Higher” Demands

*Same as Expected, except:*

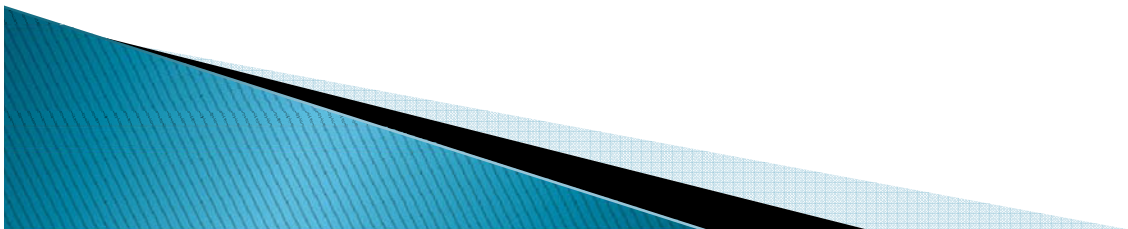
- One new “East 54”–scale mixed use project added each year through 2060
- 25% more non–residential (non–UNC) development than expected through 2060
- Carolina North: 25% more demand than expected, none is met with RCW or other NPW



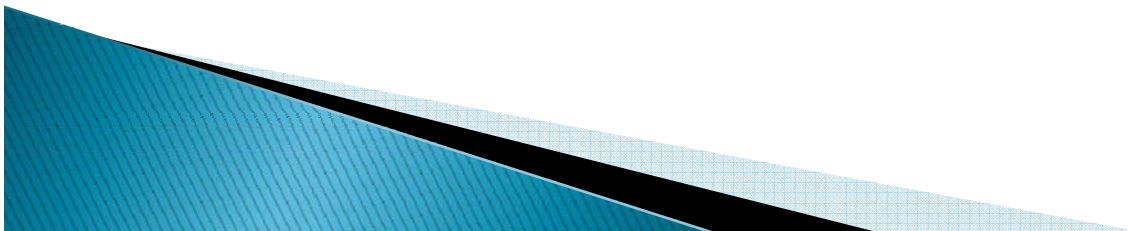
# “Lower” Demands

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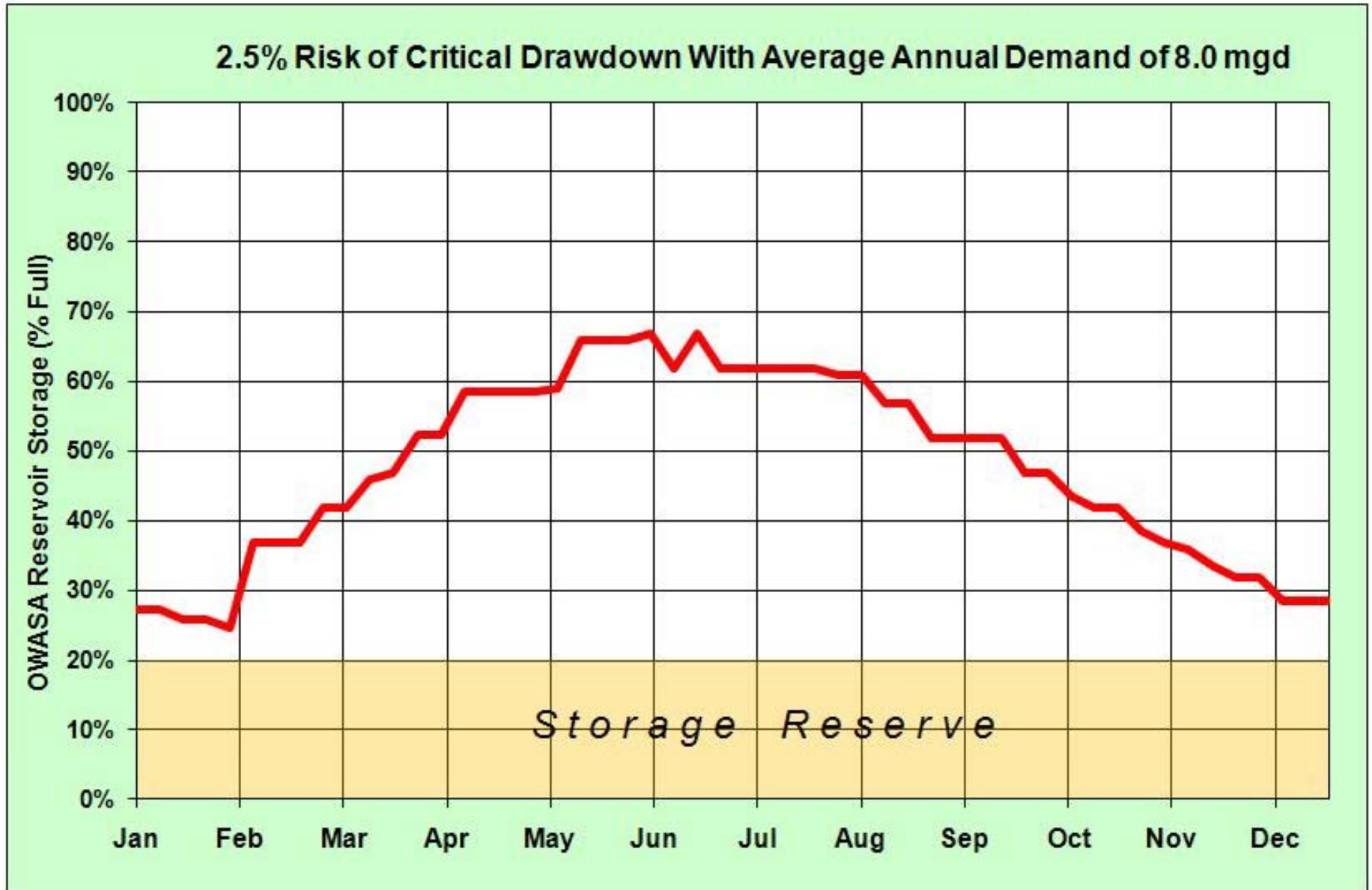
- 15% less non-UNC development through 2060
- Carolina North: 50% (rather than 25%) of water needs will be met with RCW & other NPW
- Additional conservation through 2060 by all users



**We See Little or No Risk of  
Depletion in the Foreseeable  
Future**

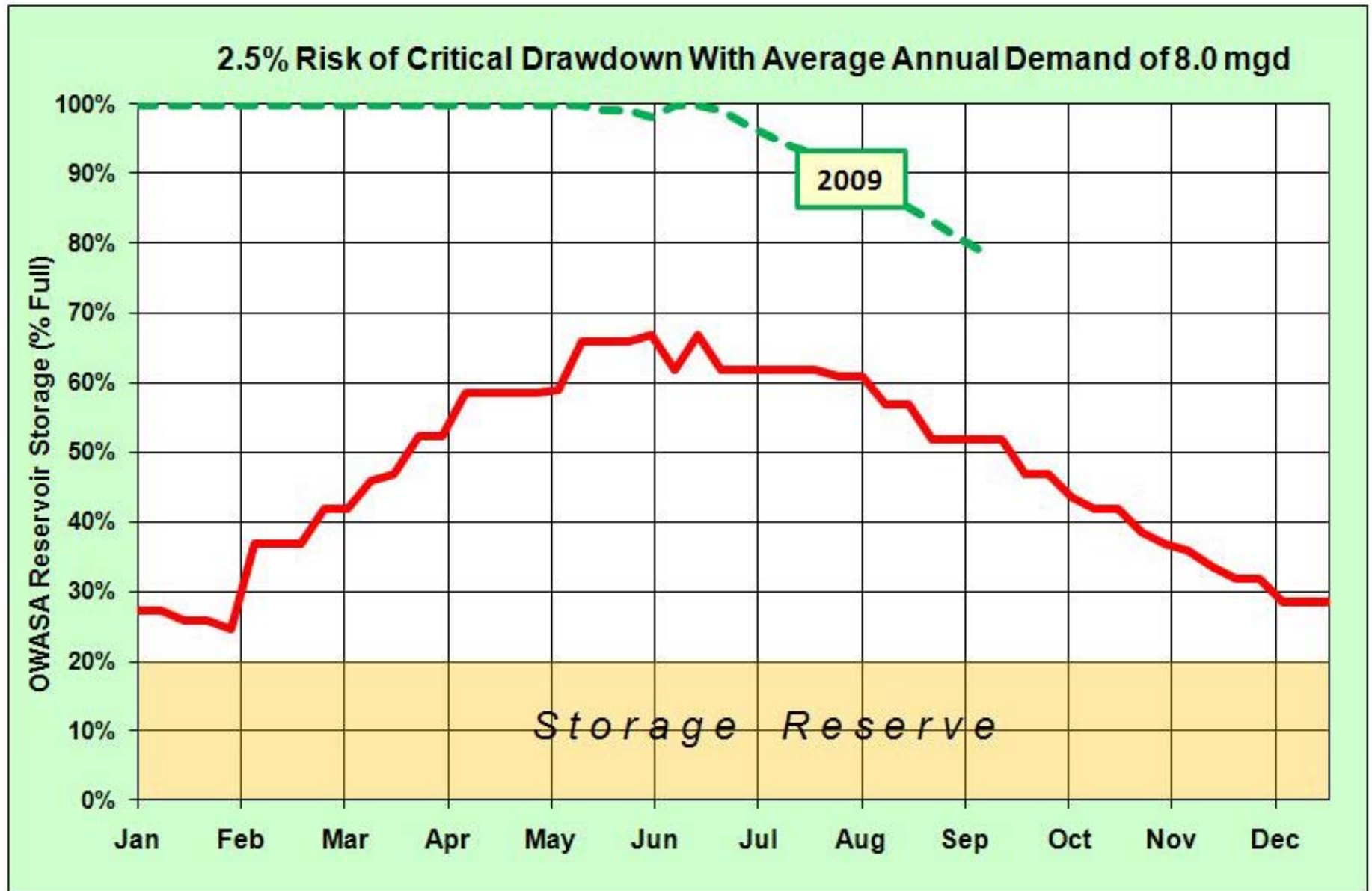


# Water Shortage Trigger Levels

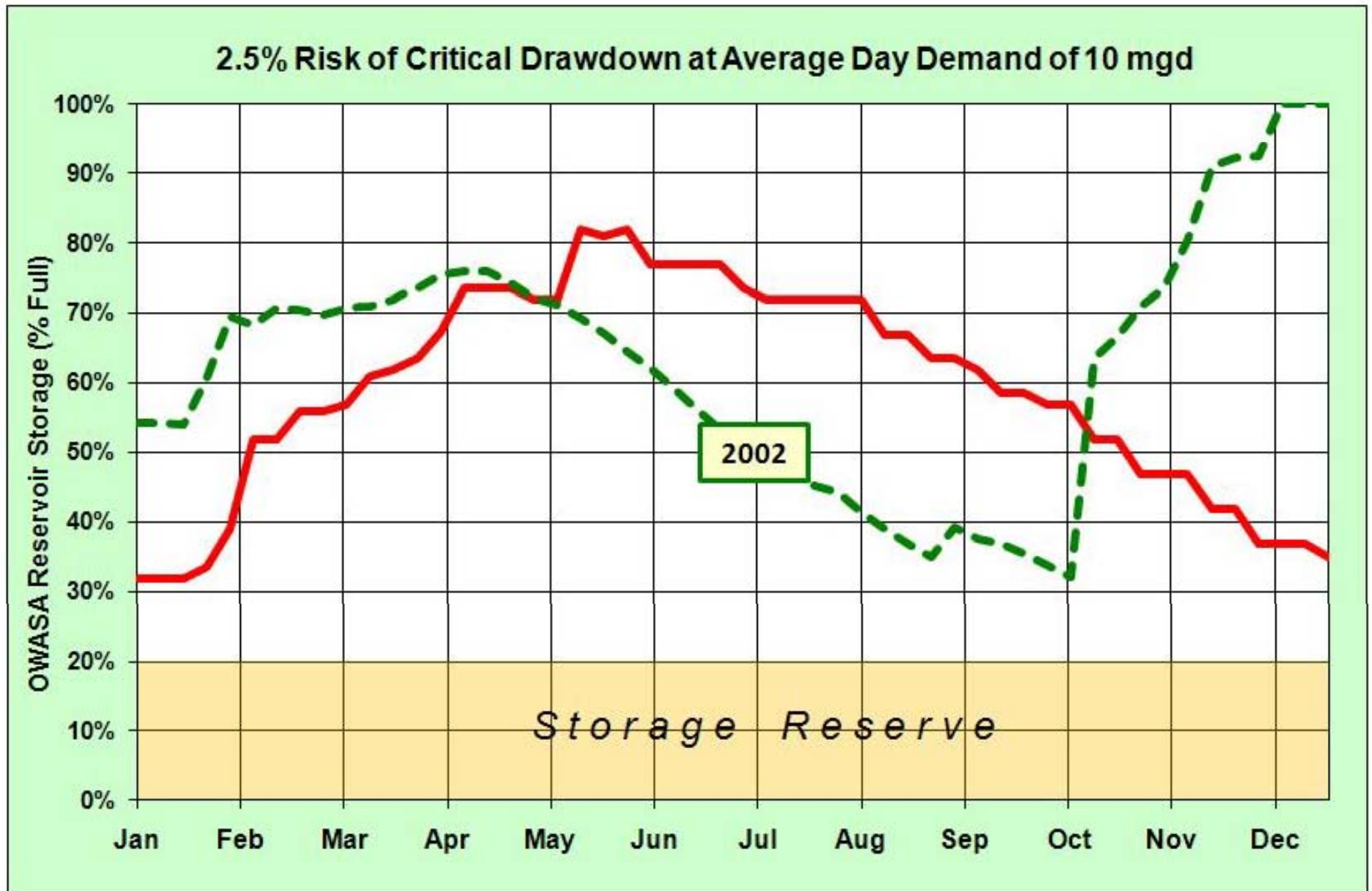




# Water Shortage Trigger Levels



# 2002 Storage Levels



# 2007-2008 Storage Levels

