Wake County Board of Commissioners Growth, Land Use, and Environmental Committee September 10, 2018 10:00 a.m. Wake County Justice Center, Room 2800

Commissioners Present:

Sig Hutchinson-Vice Chair Matt Calabria (joined at 11:00 a.m.) John Burns

Wake County Staff Present:

David Ellis, County Manager; Johnna Rogers, Chief Operating Officer; Ben Canada, Assistant to the County Manager; Ken Murphy, Senior Assistant County Attorney; Joseph Threadcraft, Environmental Services Director; Michael Orbon, Water Quality Director; Evan Kane P.G., Water Quality Manager, Environmental Services; Amy Keyworth, Hydrogeologist, Environmental Services; Jennifer Heiss, Communications Specialist; Tim Maloney, Planning, Development and Inspections Director; Nancy Daly, Environmental Services Consultant; Chris Snow, Parks, Recreation and Open Space Director; Eric Staehle, Senior Facilities Project Manager; Jason Horton, Community Services Manager; Dave Goodwin, General Services Director; Frank Cope, Community Services Director; Kevin Witchger; Facilities Engineer; Mark Forestieri, Facilities, Design and Construction Director; Denise Hogan, Clerk to the Board; Yvonne Gilyard, Deputy Clerk to the Board, and Michelle Cerett, Executive Assistant to the Board.

Others Present: Jackie Giordano, League of Women Voters; Tom Earnhardt; Writer/Host, Exploring North Carolina; Robert Hinson, Citizens Energy Advisory Committee; Chad Wagner, USGS, Associate Director of Investigations.

Meeting Called to Order

Commissioner Burns called the meeting to order at 10:00 a.m.

Approval of the Minutes

Commissioner Burns moved, seconded by Commissioner Hutchinson, to approve the Growth, Land Use, and Environmental Committee minutes of the August 13, 2018 meeting. The minutes were approved.

Staff Update – Wake County Native Plants Initiative

Mr. Eric Staehle, Senior Facilities Project Manager, shared the discussion for today's meeting.

- Review
- Research Process
- Challenges / Design Considerations
- Opportunities for Impact
- · Preliminary Recommendations
- Summary Recommendations
- Continued Work
- Questions / Comments

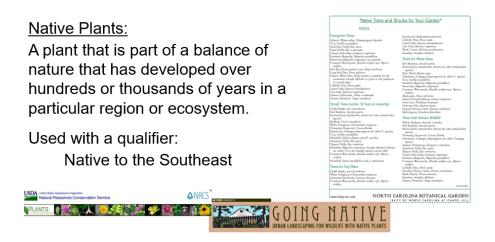
He shared the benefits of using native plants.

Native Species:

- Encourage stewardship of the land
- · Celebrate natural diversity
- Provide food and shelter for wildlife
- Create a sense of place
- Reduce water and maintenance needs
- Restore regional landscapes
- Withstand regional weather extremes
- Provide an educational opportunity
- Create a model for other development

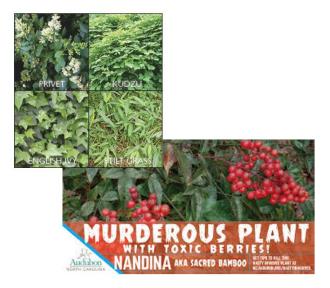


He shared the definition of native plants.



Mr. Staehle shared the definition of invasive plants.

Invasive Plants: A plant that is both non-native and able to establish on many sites, grow quickly, and spread to the point of disrupting plant communities and ecosystems.



He shared the contributors and the resources for the native plants initiative.

Contributors	Resources
Dr. Damon Waitt –NC Botanical Gardens	Wake County Documents
Landscape Architect Summit (10)	USDA-NRCS Plants Data Base
Wake County Planning	NC Native Plant Society
Wake County GSA Field Services	NC Botanical Gardens Lists
Campus Landscape Architects (2)	NCSU Cooperative Extension
Landscape Nurseries (5)	NC Invasive Plants Council
Landscape Contractors (3)	College Campus Design Guidelines
	Municipal Ordinances

Mr. Staehle shared the challenges of using native plants.

- Wake County projects located in various municipalities
- Project Types:
- Libraries, Parks, EMS stations, Solid Waste, Historic Sites
- Perception of native plant landscapes
- Formal, informal, transitions, entries, edges
- Availability / sourcing of native plant material
- Model examples / ordinances are scarce
- Every site / area is different
- Urban, suburban, rural, exposure, hydrology, soil type...

He shared the opportunities the county has to make an impact on the use of native plants. (3 slides)



Wake County Design Guidelines and Standards

Stormwater Control Measures



Wake County Unified Development Ordinance

Article 16 Landscaping and Tree Protection

16-10-3 Plant Material, Installation and Maintenance

(3) General Standards

All landscaping materials must comply with the American Nurseryman's Standards. Nonnative or invasive plant species may not be used for planting in landscaping and bufferyards (see the USDA list of these species). Native species used in replantings are encouraged over ornamentals. All species chosen for planting should be chosen from amongst those species that typically grow in our geographical area, Zone 7. The developer is responsible for researching the biological requirements of each species utilized in the plantings.

Wake County Design Guidelines and Standards

division 02 site

- .14 Landscaping General: .a Landscaping shall comply with minimum nursery standards.
 - **.b** County preference is the use of native plant species.
 - .c Turf Grass: Common Bermuda or Tall Fescue.
 - .d SOD: Variety as approved by the Owner.
 - .e Deciduous Trees: Container grown or Balled and Burlapped.
 - .f Deciduous Shrubs: Container grown or Balled and Burlapped. .g Coniferous and Broadleaf Evergreens: Container grown or Balled and Burlapped.
 - .g Conferous and Broadlear Evergreens: Container grown or Bailed .h Mulch: 4'' - 5'' pine straw or 3'' - 4'' triple shredded hardwood.
 - i Soil Amendments: Compost; fertilizer/lime as determined by soil tests.
 - .j Tree Protection Fencing: Comply with requirements of authorities having jurisdiction.

Appendix A: Nonnative Invasive Plants

These species are to be removed from the handscaping or buffers if discovered and definitely not plante Some of these are also on the federal nonicus weed lists. Please consult the USDA for the most current





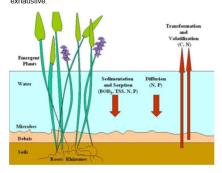
He shared measures being taken to control the effects storm water has on plants.

Stormwater Control Measures (SCM)

Wake County references NCDEQ Stormwater Design Manual

- SCM facility specific plants criteria are provided
 Stormwater Wetlands, Bio-Retention, Wet Ponds
- Native Plants and sourcing are required for specific SCM areas

The plant species listed in Tables 1-3 below have performed well in NC stormwater wetlands and can be reliably propagated in wetland plant nurseries. These lists are not exhaustive.



Mr. Staehle shared the preliminary recommendations for the Wake County Unified Development Ordinance updates.

- Revise the UDO to include and reference the most current invasive species list per NC Invasive Plants Council
- Revise the UDO to include and reference the most current noxious weeds list from NC Department of Agriculture and Consumer Services
- Require design professionals to indicate native species on all required landscape plans

He shared the Wake County design guidelines and standards updates.

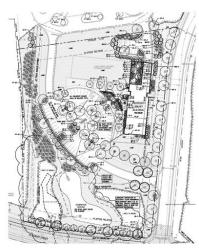
- Provide specific references for native plants/ invasive lists
 - USDA, NC Native Plant Society, NC Botanical Gardens
 - NC Invasive Plants Council, NC Dept of Ag and Consumer Services
- Increase use of native plants by establishing a minimum % of native plants required for each project
- Include native grasses in landscape plans
- Require design professionals to indicate native species on all submitted landscape plans
- Provide improved soil specifications
- Include educational signage for each project



He shared the preliminary recommendations to establish a model project to advance Native Plant usage.

Fuquay-Varina Public Library

- Increase % native plant species to 70% minimum
- · Provide educational signage -
 - Use of native plants on site and storm water wetlands

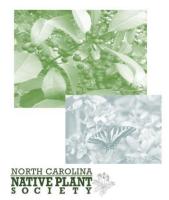


Mr. Staehle shared a summary of the recommendations.

- Create a Native Plants Resolution for Wake County Board of Commissioners
- Revise and Update Wake County UDO
- Revise and Update Wake County Design Guidelines and Standards
- Establish and advance the Fuquay-Varina Public Library as a model project
- Continue work on native plants initiative

He shared the continued work for the native plants initiative.

- Review opportunities to collaborate with municipalities on native plant requirements
- WakeNature Workshop Conservation Landscaping for Parks and Facilities
- Continue discussion with universities, landscape nurseries and other professionals
- Continue to review guidelines and standards



Mr. Tom Earnhardt, Writer/Host, Exploring North Carolina, said native plants are very important to our eco system. He spoke of the need for specific plants to attract the native insects.

Commissioner Hutchinson thanked Mr. Staehle and staff for all their work on this project. He said Wake County has the best bio diversity in the state.

Proposed 100% Renewable Energy Resolution

Mr. Dave Goodwin, General Services Director, provided an update on the renewable energy resolution.

Commissioner Burns said it is very important to get to 100 percent renewable energy. He said he would like to see every effort to make it happen. He proposed the following paragraphs be added to the resolution:

WHEREAS, climate change is expected to increasingly impact North Carolina's temperatures, precipitation and sea level with harmful consequences in coming years

WHEREAS, a just transition to 100% renewable energy can benefit low-income communities and communities of color that are disproportionately impacted by fossil

fuel pollution

WHEREAS, the United States Conference of Mayors in 2017 passed a resolution supporting 100% clean renewable energy community-wide for cities by 2035

WHEREAS, the Wake County Board of Commissioners believes that achieving Clean Energy by 2050 requires also having a goal of transitioning 80% of energy consumed by County operations from fossil fuel-based energy to such renewable sources by 2035

Commissioner Burns said he will provide staff with his proposed additions.

Mr. Goodwin said the county is taking steps towards renewable energy, but he is unable to commit to the suggested deadline.

Mr. David Ellis, County Manager, suggested presenting the revised resolution to the full board at the October 8th, 2018 Work Session.

General Discussion of RDU

Mr. Chris Snow, Parks, Recreation, and Open Space Director, provided a brief background on the potential uses for leased land near RDU airport.

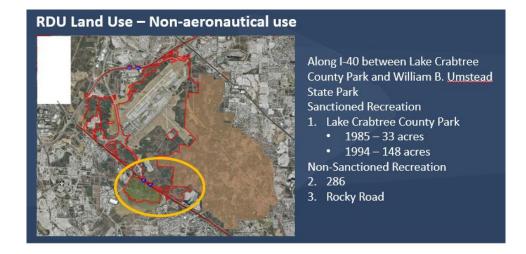
Mr. Snow shared the purpose of today's update.

Raleigh-Durham Airport Authority Land Lease • Background • Proposed Use of RDU Property • Lease Terms

He shared the RDU's Vision 2040 Master Plan.



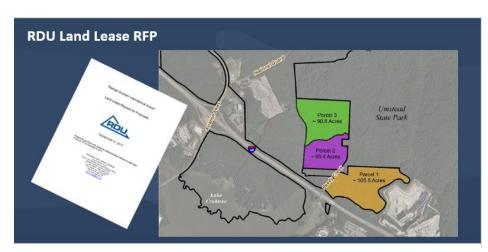
He shared a map of the non-aeronautical areas of the RDU land.



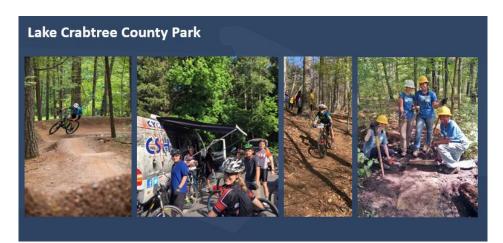
He shared the current uses of the non-aeronautical land.



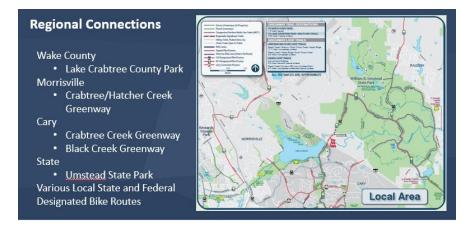




He shared information on Lake Crabtree County Park.



He shared the regional connections between Wake County parks/greenways and the RDU property.



Mr. Snow shared the current lease terms of the RDU land.



Mr. Snow said Crabtree County Park and Williams B. Umstead Park are the most used in the county with 300,000 visitors per year.

Commissioner Calabria joined the meeting at 11:00 a.m.

Commissioner Hutchinson said this is a very significant recreational opportunity for the county. He said the nationwide industry for outdoor recreation is \$650 billion annually, which is more than the pharmaceutical companies and the automotive sales industry combined.

Commissioner Hutchinson said North West Arkansas has a similar project which has produced 90,000 mountain bike tourists per year riding. He said they are spending \$1.8 million a month on building more trails and the economic impacts have been huge.

Commissioner Calabria echoed Commissioner Hutchinson's comments and said this is a great opportunity and should be pursued.

After discussion, it was decided Mr. Ellis would pursue the opportunity and report back to the full board.

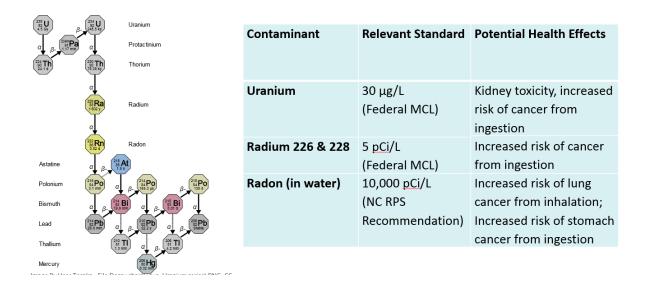
Update on Radiological Contaminants in Wake County Well Water

Mr. Evan Kane, Water Quality Manager, Environmental Services, shared an update on the studies being performed to identify contaminants in county well water.

Contaminant	Number of Tests	Percent Exceeding Standard			
Uranium	393	9.9%			
Pesticides - Bond Street Investigation	211	4.3%			
TCE	410	1.0%			
Nitrate	4,736	0.7%			

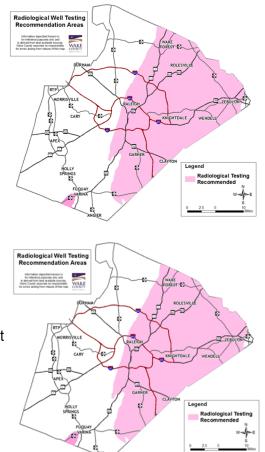
He shared the initial water test results, which were performed in 2016.

He shared the various contaminants that have been identified in county well water.



He shared the environmental services responses. (2 Slides)

- Prioritized Radiological Contaminants as #1 for Targeted Outreach Program
- · Delineated recommended testing area
- Developed complete, cost-effective testing package:
 - o Gross Alpha & Gross Beta Activity
 - o Radon in Water
 - o Indoor Air Radon test
- Identified treatment options
- Published test recommendations on website
- Printing test recommendations on new well permits
- · Revising testing rule for new wells
- Obtained expanded funding for contract lab in FY19 budget
- Educational presentations
- Networking with more experienced states, treatment contractors



Commissioner Burns asked about the options are for treating radiological contaminants in well water. Mr. Kane said treatment is case specific and could be as drastic as an advanced water softening system. He said the cost per household could be between \$1,000 and \$15,000, depending on the severity of the issue.

Commissioner Burns asked if this issue will cause an increase in requests from residents to connect to city water. Mr. Michael Orbon, Water Quality Manager, said staff has not seen an increase in requests yet but it is likely. He said the option will be feasible if the property is near a water line.

Mr. Kane said testing is being recommended to all new permit applicants. He said testing is voluntary but will become mandatory in the future. He said staff has obtained grant money to assist with the costs.

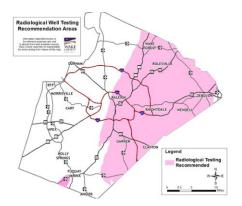
Commissioner Calabria asked if there are building practices homeowners can take to reduce the contamination possibility. Mr. Kane said there are none that he is aware of. He said he has seen one well contaminated while the well next door is not.

Mr. Kane shared the most recent well water quality test results. He said these samples were taken from the recommended testing area, which resulted in the increased numbers.

Contaminant	Number of Initial Tests	Percent Exceeding Standard or Goal
Gross Alpha	213	19%
Radon in Water	169	31%
ТСЕ	806	0%
Nitrate	5062	1%
Dieldrin	610	3%

He shared the estimated extent of unsafe water. He said two people have confirmed sickness related to well water contaminants.

- 20,000 existing wells in <u>Rads</u> Recommendation Area
- 20-30% exceedance rate = <u>4,000-6,000 households may have</u> <u>unhealthy levels of radiological</u> <u>contaminants in well water</u>
- o Already encountering sick individuals



Mr. Kane shared the two approaches to outreach.

Targeted Outreach

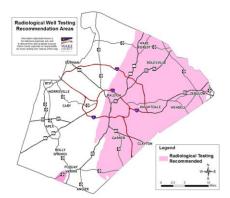
- Try to test ~1,000 properties around ~30 known contaminated wells
- ~10 years to test around all known contaminated wells

General Outreach

- Web presence & printed materials
- Outreach to contractors & health professionals

→Will lead to new discoveries of contaminated wells

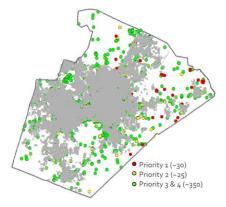
He shared the service delivery options.

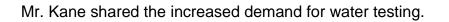


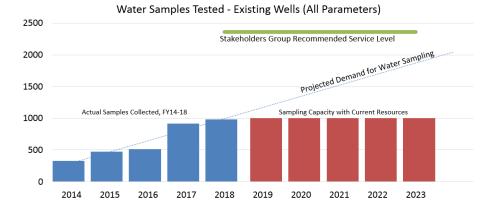
- Continue status quo for education, testing, technical assistance
 →~10 years continued exposure for many residents; not recommended
- Additional resources for education, testing, technical assistance
 →Shorten exposure time; stakeholder group recommendation
- Educate more broadly but let private sector handle testing
 →Extensive need for unbiased third party technical assistance remains
 (not recommended)

He shared the stakeholder group recommendation.

- · Increase outreach service level
 - Test around highest-priority sites in <5 years
 - Add 2 FTEs for education & outreach, sample collection, & technical assistance
 - Add 1 FTE to in-house lab
 - Increase contract lab budget







He shared the next steps.

- Continue outreach, testing, and technical assistance
- · Build awareness among home professionals and health community
 - Home builders
 - Home inspectors
 - o Water treatment professionals
 - Medical community
- Revise business plan
 - o Outcome: reduce number of people drinking contaminated water
 - Evaluate risks and options to reach outcome
 - Plan for appropriate level of resources, organizational options
- Prepare expansion budget request for 4 additional staff and expanded lab contract

Commissioner Calabria asked if there is a possibility of contracting with a water treatment provider that can do the work more cost efficiently. Mr. Kane said staff has not considered that, but he will make the recommendation.

Commissioner Hutchinson asked how residents are being notified of the potential issues. Mr. Kane said mailers are sent out to residents in affected areas. He said there are ground water awareness events. He said the communications office also provides information on the county website.

Mr. Kane said staff is at capacity and additional staff is needed to expand the testing services.

Commissioner Calabria asked if the testing is triaged to identify the issue. Mr. Orbon said it is possible to have two houses next to each other, but not both test positive. He said staff is reviewing the test results to see if they can find the source of the issue.

Commissioner Calabria thanked staff for bringing this issue forward.

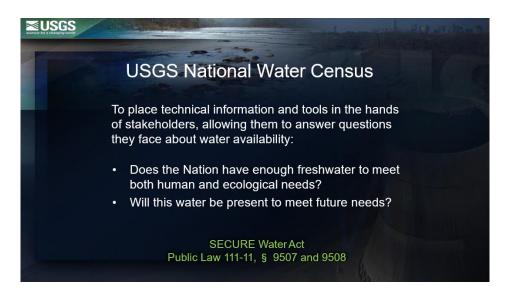
Commissioner Burns said the well testing procedures should be built into Uniform Development Ordinance and the Comprehensive Plans.

Commissioner Hutchinson said this is an urgent issue and a solution should be found as soon as possible.

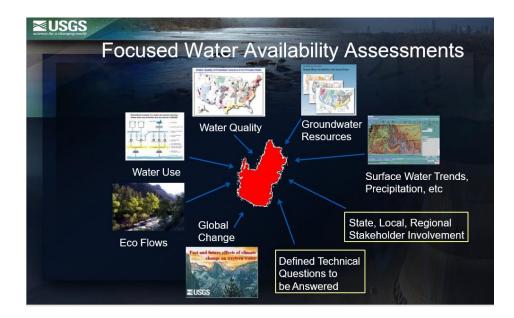
Countywide groundwater assessment/One Water initiative

Mr. Michael Orbon, Water Quality Manager, provided an update on the countywide groundwater assessment. He was joined by Mr. Chad Wagner, USGS, Associate Director of Investigations.

Mr. Wagner provided the purpose of the groundwater assessment.



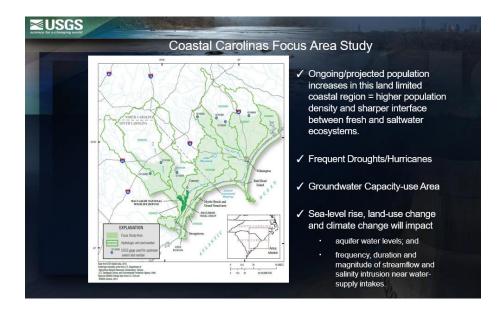
He shared the areas of focus for the assessment.



He shared the new and existing areas of focus for the study.



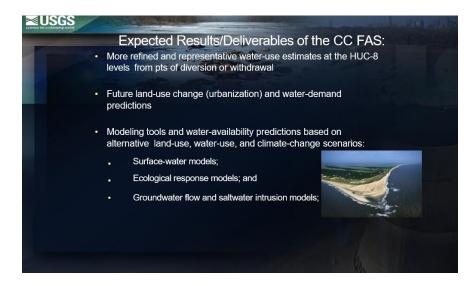
Mr. Wagner shared the Coastal Carolinas focus area study.



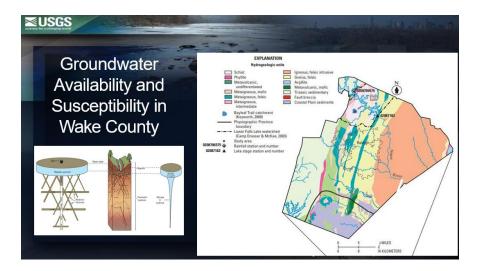
He shared the objectives and scope of the study.



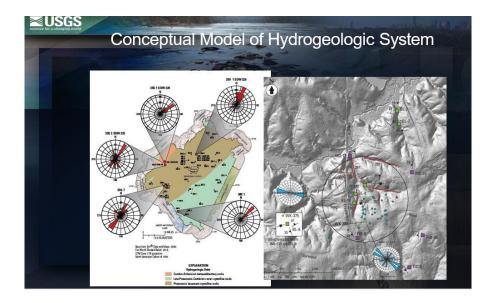
He shared the desired results of the study.



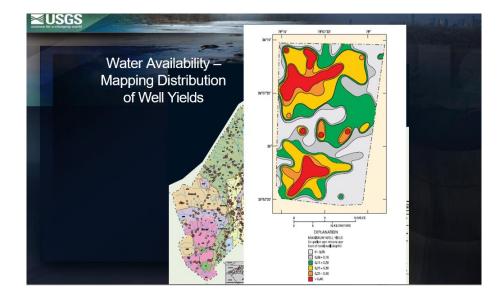
Mr. Wagner shared the sources of groundwater in Wake County.



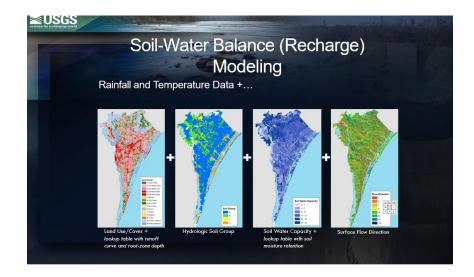
He shared the conceptual model of hydrogeologic system.



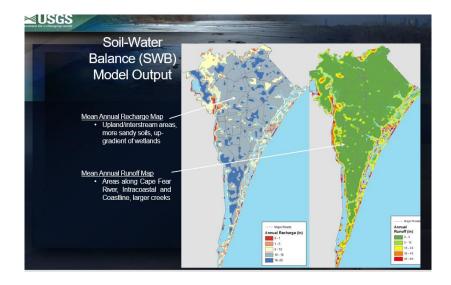
He shared the mapping distribution of well yields.



He shared a slide of the various water yields.



Mr. Wagner shared the density of recharge areas versus runoff areas.



He shared a land-change simulation.

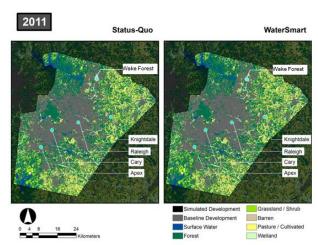


He shared two scenarios based on urbanization and population growth.

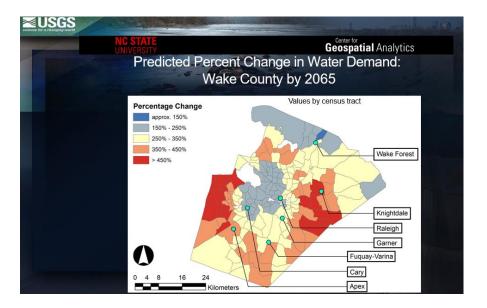
Science for a changing world	Statistical Statistics				
NC STATE UNIVERSITY		Geospatial Analytics			
Two urbanizat	ion scenarios	a - 12 - 1			
A CONTRACTOR	Status-Quo				
	Population	2.1 M			
	Per capita land consumption	2.5 people/unit			
	Spatial patterns of development	historical pattern of growth			
	Protected areas	N/A			
Projected year: 2065		WaterSmart			
	Population	2.1 M			
	Per capita land consumption	3 people/unit			
	Spatial patterns of development	infill (simple, cohesive patches)			
	Protected areas	riparian buffers, wetlands			

He shared a sample simulation of growth through 2065 for the two urbanization areas.

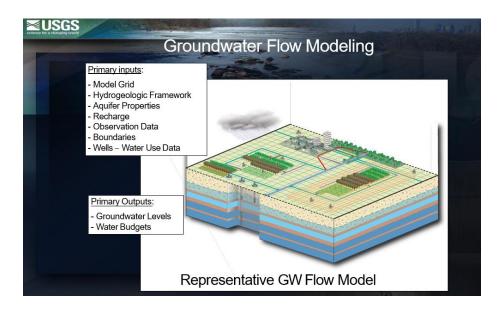
Example simulation of progressive growth to the year 2065 for our two urbanization scenarios.



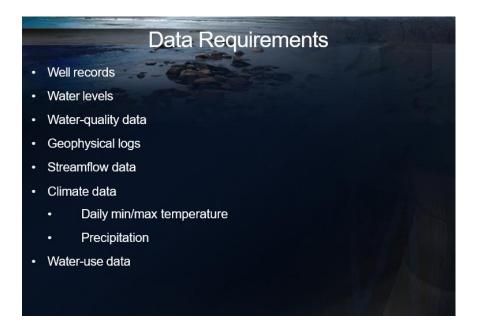
Mr. Wagner shared the predicted percent change for Wake County by 2065.



He shared a groundwater flow modeling.

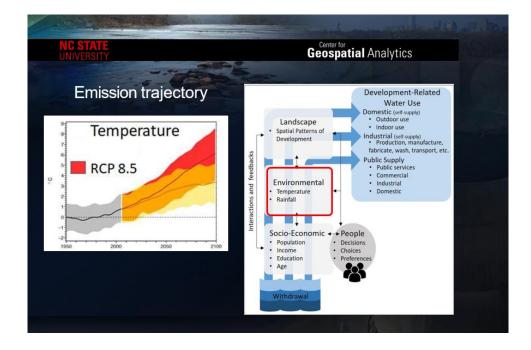


Mr. Wagner shared the data requirements for the plan.

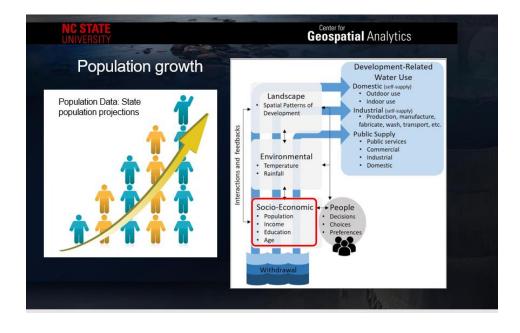


Mr. Orbon provided an update on the Water Quality Comprehensive Plan.

He shared the emission trajectory.



He shared the population growth information.



He shared the One Water initiative.

- Support USGS Studies that examine the integrated management of water in regions that can be used to project need for resources in areas of rapid population growth.
- The Wake County Water Partnership and Water Quality staff have developed a scope of work to create a One Water "50 Year Supply Plan" for Wake County.

Mr. Orbon shared the various phases for the plan.

Phases Proposed:

- 1. Snapshot
- 2. Dynamic Model
- 3. Integration of Plans

He shared the snapshot of the groundwater study for phase one.

This phase is an update of the Groundwater Study from 2003. It includes some of the recommendations from that study including a groundwater monitoring network.

- Development of a Groundwater Monitoring Network
- Begin data gathering and analysis from those wells
- Well Yield Distribution and Fracture Map
- Soil and Water Balance
- Develop a model for evaluation of current demand v. recharge

He shared the snapshot of the well network for phase one.

- The first effort in Year 1 and Year 2 is to develop the monitoring network. Wake County staff have begun identifying wells that will be available for this purpose.
- Working with USGS will allow sharing of the cost, since USGS has an interest in refining their planning initiatives nationwide.
- Water Quality proposes that data analysis and building of a model begin in Year 2 and Year 3 of the study.

• Staff will investigate opportunities to reduce the cost of elements of this study on a continuous basis.

He shared the slides of the dynamic model under phase 2.

Develop a model of the subsurface hydrology of Wake County that can be used for projections and planning with regard to water demand, recharge, and effects on surface flow.

- Work with USGS on developing this in MODFLOW.
- Calibrate the model.
- Add scenarios based on population growth, climate changes, and planning.
- The use of MODFLOW will make all of the data available for updating as trends in water use, population growth, or climate are noticed.
- This will give planners a tool to identify potential challenges and threats to groundwater supply, before problems occur.

He shared the integration plans for phase 3. (2 slides)

Work with a contractor to compile and integrate plans from Wake County, the City of Raleigh, the Town of Cary, the Town of Garner, and the Town of Fuquay-Varina into a larger model for the whole county.

- Review of other plans and integration
- Geospatial and Planning analysis of growth
- New demand calculations and Mod-flow update

Utilities and Wells Together

Combining the plans of all utilities in Wake County with a Groundwater Model will allow for more accurate projection of potential problems.

Projected service areas for utilities may resolve groundwater problems for residents or may not. These circumstances can be projected and added to the planning process.

He shared future planning.

Climate models can be integrated into the overall plan once it has reached an integrated model of surface water and groundwater demands.

He shared the timeline. (2 slides)

Agency	Federal fiscal year USGS Phase					TOTAL				
	FY2	019	FY 2020	FY 2021	F	Y 2022	FY 20	23		
Wake County	\$339	,000	\$266,000	\$209,000	\$:	190,000 \$122,0		00	\$1,126,000	
USGS	\$277	,000	\$136,000	\$88,000	\$	574,000	\$23,000		\$598,000	
Project Total	\$616	,000	\$402,000	\$297,000	\$2	264,000	\$145,000		\$1,724,000	
Federal fiscal year										
Agency		F١	Contractor Phase		TOTAL					
Wake Coun	ity		00,000	\$300,000			300,000		\$900,000	
Contracto	or		NA	NA	N		NA			
Project Tot	al	\$30	00,000	\$300,000	С	\$300,	,000	\$	900,000	

Mr. Orbon asked for board support to move the process forward.

Ms. Johnna Rogers, Chief Operating Officer, said it is difficult to commit to funding that many years in advance.

Commissioner Burns asked if agreeing to move forward would commit the county to those expenses. Mr. Orbon said no, staff will work out the details as necessary.

Ms. Rogers said if the board wanted to proceed, staff will review the financial options.

Commissioner Hutchinson moved, seconded by Commissioner Calabria, to approve the support of the GLUE Committee for the One Water Initiative. The motion passed unanimously.

Commissioner Burns said the next step is to bring the item to a Work Session.

Commissioner Burns thanked staff for their work on GLUE issues.

Adjourn

There being no further business, it was moved by Commissioner Hutchinson, seconded by Commissioner Calabria to adjourn the meeting at 12:07 p.m.

Respectfully submitted,

Michelle L. Cerett Executive Assistant to the Board