



Triangle J Council of
Governments

Smart Growth and Water Resources Collaboratives Joint Meeting Focus: Innovative Stormwater Management

Meeting Notes

Thursday, March 7th, 2018
Triangle J Council of Governments

1. Welcome (10 mins.)

*Cindy Perry, Pittsboro, and TJ Cawley, Morrisville
Water Resources Committee Co-Chairs*

2. Introductions (5 mins.)

People I haven't met:

Melody Wilkins, Albemarle Commission—new to water apparently

Beth Canada, OWASA

Allison Weakley, Chapel Hill

3. Optimizing Land Conservation Investments (45 mins.)

Michele Eddy, Environmental Engineer, RTI

RTI recently completed a project for the Catawba Wateree Water Management Group (CWWMG) to develop an innovative approach to optimize land conservation investments based on benefits to water supply. Michele will present this work and invites discussion on the implications in land use planning and impacts to water resources.

“ID-ing and prioritizing hot spots for land use change impacts on water supply in the catawba-wateree watershed to guide conservation investments”

Funder: Water Research Fdn with Duke Energy WR Fund; Client: Catawba-Wateree WMG

Estimating changes in flow and sediment delivery due to climate, land use and water use change

ID hotspots of disproportionate impact

Cost of conservation

RTI is a nonprofit research institution

WaterFALL model: rainfall-runoff simulator run on very small catchments based on NHD, land cover, soils, surface water and groundwater and human interactions. Have catchments down to a single streamline. (I wonder how this is different from Larry Band's model?)

Modeled over time to include climate change projections and land use change (based on watershed plan)

Have multiple scenarios to distill down whether driver is climate, land use, ?

Using 30 years of daily streamflow data

Hotspots defined not just as high land use change, but also conservation opportunity.

Scaled approach: To help people zoom in on where they want to take action.

Reservoir scale > HUC 12 scale > catchment-scale

At each scale, ID which watershed unit contributes most to changes in the next larger size watershed

Also did watershed-wide catchment screening, for those who wanted a big picture approach (land conservancies?)

See slides for reservoir scale criteria for prioritizing. Prioritized areas have either a high risk, high potential for conservation, or both.

Ed: Did you quantify the threat of development? Michelle: no, RTI recommends that users do this based on local knowledge. RTI used future land use scenarios from EPA's "icluse" (?) future land use projections

More customizability of criteria at catchment scale—see slides. "AAPC-Sed" encompasses combination of percent change in hydrology and sediment. >25% change = hotspot.

Developed idealized (not planning-level) mitigation scenario where all natural lands are protected, agricultural lands are developed, and developed areas become more intensely developed. Then put economic values on benefits, via "benefits transfer" method.

Hard to put economic benefits on flows—not many people have done that. Instead, relative ranking.

Costs: parcel-level tax-assessed value (a max cost, more expensive than easements)

Net benefit for sediment: often more costly to conserve; but some areas with net benefits. Hydrology: high/low

Included treatment costs at reservoir. Only did sediment, no nutrients

Recommendations:

Developed spatial priorities for smart development based on all data described above

At local level, combine these findings with local knowledge such as zoning

CWWMG thought it'd be good to develop a centralized fund for the basin

RTI developed a user-friendly interface for CWWMG to be able to use the tool themselves; create scenarios

Nancy: How will you keep the data updated? GIS funded by grant

Michelle: Not planning more model runs currently; would require future work

Sid: costs based on fee simple land purchase? Michelle: yes

Jim: Future model scenario: Did you change the non-conserved parcels to account for people living in those areas? Michelle: No

Michael Orbon: How account for sediment during vs post-construction? Michelle: don't account for it; higher level

Jen: How did CWWMG come about, and decide they wanted to do this?

Michelle; FERC relicensing: stewardship mandate to form group, do work thru basin. 18 utilities and Duke energy pay into a centralized fund based on the amount of water that they use.

Jen: Did they come to you? Michelle: No, we came to them, with Bill's help.

Bill: 50 year master plan. If don't take some actions, will run out of water. Suite of options includes preserving capacity of reservoirs, reducing sediment. Bill played matchmaker between RTI and CWWMG because he saw need/skill match-up

Bill: Obviously can't conserve all land; but other strategies are available and this work provides the info

Michelle: A big part of this project was setting up the framework. It can be translated to other areas.

Bill: RTI brought the ability to look at all drivers and their impacts.

Nancy: USGS did SPARROW modeling of N and P at the same scale. Relationship to this? Pulling it in?

Michelle: That would be a good idea; we could do that

Jen: Weighting for upstream vs downstream?

Michelle: Model incorporates cumulative flow; could use headwaters as criteria; don't currently

4. Upper Cape Fear Conservation Assessment (30 mins.)

Leigh Ann Hammerbacher, Triangle Land Conservancy

Leigh Ann, Senior Associate Director of Conservation, will give an overview of the assessment model currently being developed for the Upper Cape Fear watershed.

Grant from Triangle Comm Fdn as part of JLOWA to develop a model for source water protection

When prioritizing, want to create a ranking to maximize conservation values, since can't buy everything

UNCWI/Durham Water Mgmt: Lake Michie Watershed: ID'd priorities for protection

Want to do the same for Jordan Lake Watershed, Upper Cape Fear

GIS model: stack suitability analysis; couldn't have totally independent variables, but pulled in all expertise in room

Conservation goals: Protect water sources and conveyances, pervious uplands, water infiltration and retention, and vulnerable areas. Also done on NHD+ level.

How they modeled protecting water source and conveyance: catchment flow accumulation, distance from stream and waterbody, ...

Conserving upland: See slides

Protecting infiltration and retention: wetlands, floodplains

Vulnerable areas: frequently inundated, steep slopes, highly erodible soils

Stacked everything, assembled stakeholders, and developed weighted suitability analysis
Calculated average scores for parcels > 10 acres and isolated priority parcels scoring above mean
Priority parcels mostly fall outside of urban areas, because of >10 acres. Could run for city (have run model for every cell in WS.) But conservation less effective in urban areas because passed threshold of imperviousness for WQ

Wanted to get input on growth projections to incorporate

Next steps:

Stakeholder weighting of model, March 27th, JLOW

Ryan Parks, conservation intern, Duke MEM (engineering, she said?)

Nancy: Does it include land ownership right now?

Leigh Ann: Can query out land ownership from parcel data

Sid: Future growth: Community Viz—current and future land use and growth projections. Can run scenarios if you take certain parcels out of development, where does the growth go?

Jen/Sid: Could Community Viz be done for upper cape fear? (currently just triangle)

Jen: Land use changes can change catchments. How often does that happen and how often would it need to be remodeled?

Michelle: NHD+ is not updated regularly, but it'd take a huge land use change to change catchment since based on elevation.

Leigh Ann: wanted to include new NLCD; not out yet. Michelle: Released every 5 years or so.

Jim: There's been discussion of developing a land conservation credit for nutrients—a challenging conversation—how do developers react to conservation? Do they develop somewhere else? Do they not develop? It becomes challenging at larger scales.

Leigh Ann: Lack of knowledge/data about nutrient modeling; have tried to quantify for Falls Rules; NCSU funded through Collaborative to quantify nutrient reduction from conservation lands

Ed (?): Utility perspective: We'll be providing water forever. Everything that can be developed, will.

Bill: The Piedmont's future is Atlanta.

Nancy: Have to consider restoration cost savings of long-term conservation

5. Questions & Open Discussion (30 mins.)

We encourage you to engage in discussion about land conservation and other conservation practices and their impact on water quality. What are your organizations doing in this realm? Where do you hope the region can go with conservation? What are your thoughts on current policy frameworks related to conservation tools?

Jen: What costs do we need that we don't have?

TJ: Value of open space; property values adjacent to open space

Ed: Allowing public access to conservancies builds support.

Michelle: Public health benefits—couldn't find a way to value it economically—but added to their model adjacency to parks/open space and miles of trails.

Sid: Would be great if Leigh Ann and Michelle came up with conservation easement costs of conservation scenarios. More efficient use of funds.

Peter Raabe: Has anyone done a calculation of water quantity benefits of conservation?

Jen: This isn't a quantification question, just a regular data question. Can we glean any data from the city (of Raleigh)?

Ed: We quantify it as loss of reservoir volume, which is really expensive—dredging or building another reservoir

Michael Orbon: Groundwater recharge vs baseflow—Elon research or conference data??

Nancy: Have to capture carbon sequestration (in the benefits?) too.

Michelle: considered/discussed in report, but couldn't analyze on granular enough scale

Bill: Raleigh drives the priority in the watershed, although don't provide the majority of funds. How do you establish priorities? More willing sellers than money (*me: why?*)

Michael: More people willing to sell fee simple or easement? Bo: Farmers more willing to sell if getting out of business; otherwise, easement because want to live on land

Jen: What are OWASA's long-term conservation goals?

Name (?): More easements because of costs. Have used Community Viz for longterm water supply plan.

Ed Harrison: Took a while to find out it was one farm causing most of pollution in one reach of Cane Creek watershed. Getting easement and changing cattle practices eventually solved problem (challenging acquisition.)

Jen: Raleigh's role in land acquisition? Michael: studying expanding tree canopy, GSI

Goal: Preserve 30% of open space across Wake Co

TJ: Morrisville playing catch-up on infrastructure: open space won't be a priority for a while; didn't plan ahead enough to do meaningful conservation.

TJ: Is the 30% goal a stretch? Michael: Continuing to engage public; increase density

Jen: Thoughts on current policy frameworks related to conservation tools?

Ed: Bring back state conservation tax credit for donation of conservation land.

Bill: First state to create this tax credit, as well as first state to repeal it, because it cost the state money.

Michael: fixed rate? Bill: Could get 25% of sale as tax credit. Problem: lots of land-rich but tax-poor people. VA, GA: Can sell your tax credits.

Jen: Clarify? Bill: Town could buy tax credit

Jen/Bill: Cheaper alternative to buyout programs

Jim: Nutrient strategies' current regulatory framework in Jordan WS (some implemented, some not): No disagreement on broader value of land conservation. But sometimes it becomes a zero sum question; conservation one place vs retrofitting. Collaboratory finishing models by end of year; then start rulemaking. Achieving WQ goals as well as others.

Peter: How does floodplain protection and restoration play into the equation? If hurricane had gone a little further west, would be talking about buyouts here too. Avoided flood damage. Getting people out of I-80 corridor.

Ed Harrison: Buyouts in Chapel Hill. Other munis have done some too (Raleigh, Durham, Cary.)

Future meeting topic suggestion: recap what got done in legislative long session.
NC League of Munis?

Ed Harrison: Want water resources page to be updated with these meeting times. It's really hard to find the date and time/whether it's happening unless you have the original email.

2019 Meeting Calendar

Mark your calendars! The meeting schedule for 2019 has been set. All meetings will be held from 2-4pm @ TJCOG.

Thursday, June 20th - Joint Smart Growth & Water Resources Collaborative meeting (Topic TBD)

Thursday, September 19th - Joint Smart Growth & Water Resources Collaborative meeting (Topic TBD)

Thursday, December 12th - Joint Smart Growth & Water Resources Collaborative meeting (Topic TBD)