

# UNRBA Technical Advisory Committee January 13, 2005 Meeting Summary

Prepared January 20, 2005

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*Our mission: To preserve and protect the water quality in the Upper Neuse River Basin through innovative, cost effective and environmentally sound strategies and to create a coalition of local governments and stakeholders in a water resources partnership.*

## **Introductions and Meeting Objectives**

The Technical Advisory Committee of the Upper Neuse River Basin Association (UNRBA) met at 1:00 P.M. on Thursday, January 13, 2005 in the Triangle J Council of Governments conference room. Chris Dreps began the meeting by asking participants to introduce themselves. He also sent around a sign-in sheet asking people to indicate their interest in learning more about any of the current UNRBA projects. The meeting objectives were:

- UNRBA projects update;
- discuss Upper Neuse Site Evaluation Tool; and
- discuss January 26 presentation of the SET to the Board of Directors.

Meeting attendees are listed below.

Name	Organization	E-mail address or phone
Chris Dreps	UNRBA	dreps@tjcog.org
Sarah Bruce	TJCOG	sbruce@tjcog.org
Katie Ertmer	Franklin County Planning	Kertmer@co.franklin.nc.us
Shelby Powell	Kerr-Tar COG	spowell@kerrtarco.org
Scott Miles	Town of Wake Forest	Scott.miles@ci.wake-forest.nc.us
Deborah Amaral	NC Ecosystem Enhancement Program	Deborah.Amaral@ncmail.net
Nancy Newell	City of Durham, Water Mgmt. Dept.	Nancy.Newell@durhamnc.gov
John Cox	City of Durham Stormwater	jcox@ci.durham.nc.us
Mark Senior	City of Raleigh	Mark.senior@ci.raleigh.nc.us
Will Autry	Orange Co. Sed. & Erosion	wautry@co.orange.nc.us
Marti Gibson	City of Raleigh	Marti.gibson@ci.raleigh.nc.us
Margaret Hauth	Town of Hillsborough	Margaret.Hauth@hillsboroughnc.org
Amy Moran	City of Raleigh Stormwater	amy.moran@ci.raleigh.nc.us
Rich Gannon	DWQ	rich.gannon@ncmail.net
Ben Brown	City of Raleigh Stormwater	ben.brown@ci.raleigh.nc.us
Melinda Clark	Wake County	Melinda.Clark@co.wake.nc.us
Perry Sugg	NC Ecosystem Enhancement Program	perry.sugg@ncmail.net
Scott Job	Tetra Tech	scott.job@tetrattech.com
Heather Fisher	Tetra Tech	heather.fisher@tetrattech.com
Kimberly Brewer	Tetra Tech	kimberly.brewer@tetrattech.com

**UNRBA Projects Update** (For details about specific projects, see the "Projects and Activities" page at [www.unrba.org](http://www.unrba.org).)

### *Watershed Evaluation Tool (WET)*

Chris Dreps updated the TAC on progress with the WET. The WET is a GIS-based watershed delineation tool that UNRBA is developing in conjunction with the US

Geological Survey (USGS) and the NC Ecosystem Enhancement Program. USGS will present monitoring recommendations at the end of February, and the draft WET is slated for the end of April.

*Little River Riparian Corridor Conservation Plan*

Chris Dreps gave an update on the Plan, which is funded by Clean Water Management Trust through the Eno River Association (ERA). The goal of the Plan is to prioritize lands for protection in the Little River watershed. The GIS landscape analysis is complete, and the next step is to overlay parcels data and start identifying priority tracts.

*Little Lick Creek Local Watershed Plan*

Chris Dreps gave a brief update of the Plan's progress. The kickoff meeting has been held, stakeholders have been identified, and the first technical memorandum has been drafted (including watershed characterization, DWQ water quality analysis, and watershed programs reviews). Next, watershed planning goals will be set, field work will be conducted, and subwatershed-level analyses will be performed.

*Site Evaluation Tool (SET)*

Chris Dreps gave an update on the progress of the SET. The draft SET and the User Guide have been completed. Next, test examples will be presented to the UNRBA Board of Directors, the User Guide will be updated, and local trainings will be planned.

*Upper Neuse Implementation Plan*

Watershed Program Reviews have been drafted for Upper Neuse jurisdictions. Next, UNRBA will ask local government staff to review the results. UNRBA will then analyze policy gaps for each local jurisdiction. The TAC agreed that implementation planning should be the focus of the next TAC meeting.

**Site Evaluation Tool**

Chris Dreps discussed the SET and examples of its application. The SET is a Microsoft Excel-based spreadsheet tool that UNRBA is developing with Tetra Tech. The SET can be used to estimate impacts of development on water quality, predict the effectiveness of BMPs, and estimate costs of stormwater management. The user can analyze and compare combined effects of multiple practices and BMP configurations. The SET may help UNRBA and local governments implement the Upper Neuse Watershed Management Plan and evaluate compliance with Neuse nitrogen reduction rules, water supply watershed rules, and NPDES Phase II requirements.

Kimberly Brewer of Tetra Tech mentioned that the TAC SET Task Group did a great deal of work to guide this project. The SET Task Group included developers, DWQ, planners, and members of local governments. The group met more than 4 times and did homework between meetings.

The SET developed by Tetra Tech for UNRBA is similar to the tool adopted by Huntersville, with several enhancements. It now includes a target selection menu customized for the needs of UNRBA jurisdictions, an expanded BMP menu, the ability to

estimate peak flow using two methods, storm event hydrographs, and a cost estimation subroutine.

To demonstrate how the SET works, Chris Dreps presented the application of the SET to two sites, a low-density residential site and a bank redevelopment site. (An attendee pointed out that some local governments, particularly those in rural areas, would not consider a site with 43 units on 6 acres “low-density” residential.) For each site, site design characteristics of a conventional approach to stormwater management and an innovative approach were entered into the SET; results of the SET’s calculations show the different impacts of each design in terms of pollution targets met and targets exceeded.

The SET contains a cost-estimation subroutine that allows users to compare the cost of different treatment options by infrastructure, maintenance, and land opportunity costs as well as dollar per pollutant removed. The cost per pollutant removed, or cost effectiveness ratio, will be useful once a user has met a pollutant loading target and wants to find a BMP system that is cost-effective.

The SET Cost Component can be used to estimate the cost savings from using low-impact conveyance measures instead of curb and gutter. The cost savings in sidewalk, roads, and stormwater pipes can also be demonstrated.

A participant asked if the tool accounts for changes in costs over time. Heather Fisher explained that the tool is designed so that the unit costs can be updated when new cost information is available. Kimberly Brewer added that the tool automatically adjusts for inflation.

The SET allows the user to select which rules apply in the particular development area. The choice of applicable rules is reflected in outputs that show whether certain regulatory target values were met by the project as a whole.

Comparison of SET results for conventional vs. innovative stormwater management on a low-density residential site:

Management Goal	Conventional	Innovative
UN N removal	No	Yes
UN P removal	No	Yes
Peak flows	Yes	Yes
Volume control	No	Yes
Sediment removal	0%	81%
Cost comparison	\$397,000	\$305,000

The SET can calculate impacts for as many as 10 different drainage areas, and multiple BMPs can be entered for each drainage area. BMP volumetric information is an optional input. The tool can calculate pre- and post-development peak flows for three events: 1-year 24-hour, 2-year 24-hour, and 10-year 24-hour storms.

With regard to buffers, the SET uses a methodology similar to the Neuse rules. Because the Neuse rules require 50-foot stream buffers, no BMP credit is given for buffers up to 50 feet. Only restored buffers or buffers larger than 50 feet in width receive credit as a BMP in the SET. A participant commented that it is important to give credit for buffers greater than 50 feet even if the local government requirements are greater than 50 feet, in order to provide an incentive for larger buffers.

Scott Job of Tetra Tech emphasized that it is important to only give credit for protected forests in the land use calculations, as unprotected forests could be built on at a later date. John Cox mentioned that for certain types of development proposals, it is easier to figure out what the ultimate site design will be. Some types of plans make this determination difficult to make, and the SET user should be conservative when determining what the area to be developed is (e.g., unprotected open space in the tract area might be excluded).

The TAC discussed whether requirements for total suspended solids applied and whether different jurisdictions' design criteria met these requirements. John Cox stated that not all the BMPs in the state's design manual achieve 85% TSS removal.

A participant asked whether the SET accounted for the order of the BMPs in the "treatment train." The SET does not account for the order in which BMPs are structured in the treatment train; however, the calculation results in the same level of treatment regardless of the order of the BMPs in the "treatment train".

Another participant asked whether the SET could be updated with new design criteria and removal efficiency information. UNRBA may provide future updates to the SET when better information becomes available or the SET can be updated manually with this information. The tool can also be set up in a way that prevents unauthorized users from changing the preset values underlying the calculations.

The second example Chris Dreps presented was a redevelopment of a commercial use (a small bank was to be demolished and replaced by a larger bank in a different site location).

Comparison of conventional vs. innovative stormwater management on a commercial redevelopment site:

Management Goal	Conventional	Innovative
UN N removal	No	Yes
UN P removal	No	Yes
Peak flows	No	Yes
Volume control	Yes	Yes
Cost comparison	\$59,000	\$85,000

There was considerable discussion among TAC members of how to handle redevelopment in the SET. Some jurisdictions such as Durham require additional reductions from redevelopment (i.e., they require that developers do more than mitigate the difference in pre- and post-development conditions), but most jurisdictions focus on the difference between pre- and post-development impervious area, or the newly developed portion of the site. John Cox suggested that there be some sort of supplement that explained each jurisdiction's methodology with regard to redevelopment.

#### **TAC Recommendations regarding Presentation of the SET to the Board of Directors**

A presentation on the SET will be made to the Board of Directors on January 26, 2005. Chris requested that the TAC participate in presenting the SET to the Board of Directors.

The TAC recommended that no more than two sites be presented to the Board of Directors in detail; any other examples should be summarized briefly.

One participant noted the need to provide an example of residential development of an even lower density. Perry Sugg and Will Autry told the TAC about a low-density site in Hillsborough that may be a potential beta testing example. Chris Dreps will work with Will Autry to obtain site plans for the subdivision.

The TAC did not express any reservations about using non-Upper Neuse sites to beta test the SET.

#### **Next TAC Meeting**

Chris will email dates in March to TAC members to solicit responses regarding their availabilities.