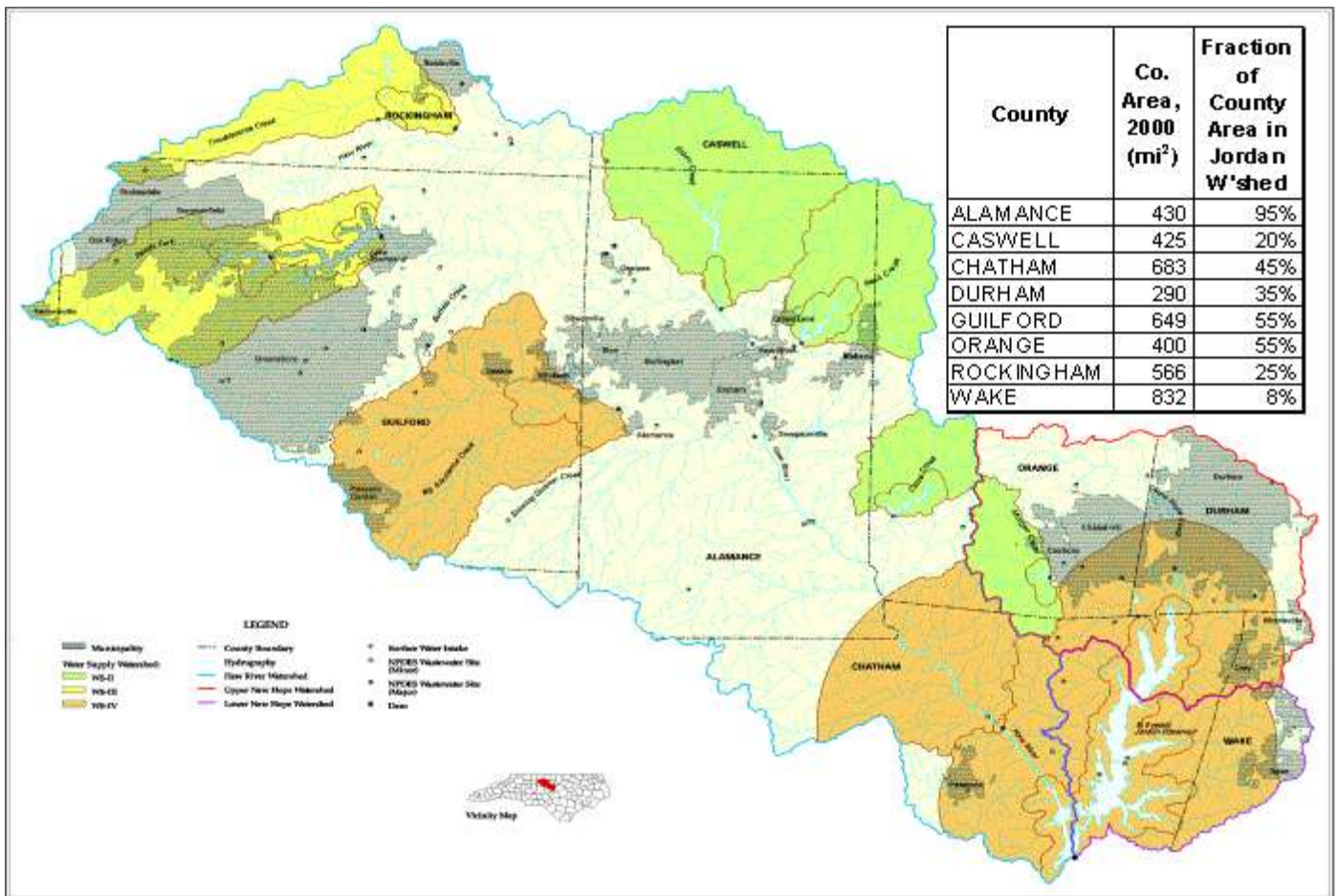


Rules Affecting Local Governments in the Jordan Nutrient Strategy

Excerpted from
*Report of Proceedings on Proposed Rules
 For the B. Everett Jordan Reservoir
 Water Supply Nutrient Strategy,
 May 8, 2008*



The following are brief summaries of rules that would affect local governments under the proposed Jordan Nutrient Strategy, along with a summary of projected cost estimates. This information is excerpted from a recent report to the North Carolina Environmental Management Commission. The Commission adopted the full set of 12 rules comprising the nutrient strategy at its May 8, 2008 meeting. The rules face review by the Rules Review Commission and the General Assembly before becoming effective. Projected effective date is currently summer 2009.

INDIVIDUAL RULES AND RECOMMENDED CHANGES

□ *Rule .0265, Stormwater Management for New Development*

Requires all local governments in the Jordan watershed to develop and implement programs to require stormwater controls on new development activities to meet subwatershed nutrient loading rate targets. Developers control nutrient export to certain levels onsite, and may meet remaining reduction needs through in-lieu fee payment to EEP or to local governments with a Division-approved local offset plan. Control of flows for stream protection is also required. Development in existing water supply watersheds shall also comply with the water supply watershed requirements where they are more stringent. Within one year of effective date, the Division must submit a model local program to the Commission for approval. Within another six months, local governments must submit programs for Division review and subsequent Commission approval. Within two and a half years after the effective date, local programs are implemented. Annual reports are required.

Hearing Officers' Recommended Changes

- Updated the offset option to the NC Ecosystem Enhancement Program to remove reference to rule 2B .0240, which was superseded by SL 2006-215 and SL 2007-438.
- Added options for developers to utilize private sellers for offsite reductions or their own offsite reduction activities, in addition to a local government-offered option.
- Tied all offset options to the requirements of trading rule .0269.
- Paralleling state/federal stormwater rule, local government public road projects that meet riparian buffer protection requirements are deemed compliant.
- Added 6 months to all implementation timeframes.

The Hearing Officers added the option to utilize private sellers of reduction credits and tied all offsets to the provisions of the trading rule based on their desire to provide all reasonable options for obtaining reductions including allowing for legitimate market-based options.

The Hearing Officers accepted the contention that public roads and other public linear infrastructure projects face unique constraints such that, at least until loading contributions from and management measures for them are better defined, it is reasonable to hold them to currently recognized practicable treatment expectations. In both this rule and the State & Federal Stormwater rule, they have revised the text to require that new public roads be held to the treatment requirements provided by the buffer rule. This allowance would not apply to roads within larger development projects, since such projects have available substantially greater design latitude for addressing road runoff.

□ *Rule .0266, Stormwater Management for Existing Development*

Requires all local governments – eight counties and 26 municipalities – to implement loading reduction measures on existing developed lands toward long-term load reduction targets for those lands. Local

governments conduct feasibility studies and submit program proposals for Division and Commission approval within three years after effective date. Programs propose implementation rate, nature and overall compliance timeframes. Local governments begin implementing load reduction activities four years after rule effective date. Programs for public education and illegal discharge elimination are implemented within two and a half years. Annual reports are required.

Hearing Officers' Recommended Changes

- Restructured the load reduction program element to require a plan to achieve half of each reduction goal within ten years after the effective date, with the option to propose an alternative timeframe if supporting technical analysis is provided. Added the requirement to provide, at ten years after the effective date, a revised load reduction program to address remaining needs, along with supporting technical analysis. Added criteria for technical analysis. Eliminated feasibility study language.
- Added detail to the process for determining local load reduction needs.
- Added to the definition of existing development.
- Added a monitoring option to allow local governments to identify high-loading catchments and treat them for proportionally greater reduction credit.
- Added several load-reducing activities to non-inclusive list.
- Added option for local governments to use private sellers of reduction credit pursuant to requirements of trading rule .0269.
- For clarity, labeled the two required elements under the rule as the load reduction program and the administrative program.
- Revised implementation timeframes to net effect that local governments are given an additional six months to submit and implement programs - now three and one-half years and four and one-half years after effective date, respectively.
- Added latitude for adaptive management changes to local programs and load accounting methods.

Given the untested nature of a management mandate to achieve reductions in nutrient loading from existing developed lands, the potential costs of implementation, and the level of concern expressed by local governments on both these counts, the Hearing Officers gave considerable attention to the need for and design of this rule. They determined, based on estimates of the nutrient contributions from developed lands, that a rule addressing existing development is necessary to support realistic expectations of achieving the strategy reduction goals. They find that the rule provides an appropriately measured, balanced and flexible structure for local governments to work within. They share local concerns over the technical achievability of a purely structural retrofit approach in the Upper New Hope Arm, but believe that the broad range of potential load-reducing activities and the long-term compliance flexibility afforded by the rule are a sound framework for working with local governments to achieve meaningful progress from this source. They also recognize that local governments are not called on to begin obtaining reductions until the fifth year after effective date, a preparation timeframe they believe to be generous but also necessary to allow further development of accounting methods and local preparation.

The Hearing Officers are sympathetic to local concerns that feasibility studies should precede rule requirements. However, they also recognize the need for initiation of management actions within reasonable timeframes and the ability of local governments to both generate funding for stormwater activities and best evaluate the suite of potential options available to each of them individually. The Hearing Officers revised the rule to require plans for achieving half of each load reduction goal within ten years to clarify the basis for evaluating load reduction programs, but retained the flexibility for local governments to propose different timeframes based on technical analysis. In doing so, they also intend to resolve questions over the purpose of feasibility studies, which these provisions replaced.

The Hearing Officers expanded the list of potential load-reducing activities with several additions that either were requested, e.g. improvement of existing ponds, or that they believe merit consideration by local governments. One activity they did not add due to current, largely federal regulatory barriers was regional, instream impoundments. The Hearing Officers believe that in certain cases, such as highly modified, hardened urban conveyances, this activity should be an available option, especially given that it can be significantly more cost-effective than a collection of smaller-scale controls. They recommend that staff revisit this issue with federal officials in light of the contributions of existing development to impairments as exemplified by Jordan Lake. A related activity that the Hearing Officers added, stream restoration without impoundment, is not regulatorily prohibitive and can potentially reduce nutrient export.

In evaluating potential avenues for more cost-effective reductions, the Hearing Officers found merit in the recommendation to allow instream monitoring to identify high-loading catchments that could be treated for more efficient reductions. This led them to add this concept as an option for local governments.

The Hearing Officers are sensitive to the potential costs that this rule in particular and the set of rules may impose on local governments. While agency rules cannot mandate legislative funding, the Hearing Officers include recommendations in this report for the Commission to deliver a resolution on the subject to the General Assembly. Also, for this rule to be effectively administered in a timely manner by the Division, the Hearing Officers believe that additional staff resources will be needed to avoid compromising coverage on other programs. They recommend that this need be included in the resolution.

□ ***Rule .0267 & .0268, Protection of and Mitigation for Existing Riparian Buffers***

Requires local governments to implement programs to protect existing vegetated riparian areas within 50 feet of and adjacent to intermittent and perennial streams, lakes, and ponds in the Jordan watershed. The first 30 feet adjacent to waters is largely undisturbed forest, while the outer 20 feet may be managed vegetation. Existing, ongoing activities within buffers may continue as long as these activities or uses meet the requirements of the rule, while a change in land use invokes the protections. These buffer requirements replace those under Water Supply rules, and provide local governments the option to require more stringent measures. The Division addresses activities of state and federal entities. Certain uses of land within the buffer are identified as exempt, allowable, or allowable with mitigation, while uses not listed are prohibited. The rule provides for mitigation where no practical alternatives exist, details variance requirements and forest-harvesting limitations, and requires local governments to ensure that new developments either avoid or mitigate buffer impacts. It requires local governments to make mitigation options available for certain activities based on avoidance and minimization criteria: 1) payment to the riparian buffer restoration fund administered by EEP, 2) donation of property, or 3) restoration or enhancement of a non-forested buffer.

Hearing Officers' Recommended Changes

.0267

- Shifted implementation responsibility from local governments to the Division for local and interlocal activities, forestry and agricultural activities, and activities in areas where there is no local program implementing NPDES stormwater, Water Supply Watershed requirements, or a voluntary local buffer initiative at the time of the activities. These are in addition to the Division implementing the rule on state and federal activities.
- Shifted review of appeals of local stream and buffer calls and variances from local governments to the Division.
- Clarified diffuse flow requirements.

- Numerous minor modifications to activities in the Table of Uses and to Forest Harvesting provisions.
- Added local development approval criteria, local program record-keeping requirements and oversight requirements for the Division.

.0268

- Added option of private mitigation banks approved by the Division to the EEP mitigation fee option.

The Hearing Officers found certain concerns expressed over local buffer implementation compelling and made a full evaluation of potential options. They considered placing full responsibility with the Division, with local governments, and various scenarios in between. Ultimately, in arriving at the division of responsibilities between local governments and the Division described above, they found that each competing scenario has advantages and drawbacks, that among them there is no ideal solution, but that this recommendation resolves concerns the Hearing Officers found most compelling.

They also determined that an element in the Purpose statement meriting clarification in this report involves the option for more stringent local standards. The Hearing Officers' intent with this language is that the 2-zone, 50-foot buffer required under this rule would serve as a minimum in all cases, and that local programs could establish more protective standards, but that use of the 30-foot and 100-foot Water Supply setbacks instead would not be considered more stringent.

Applying the same beliefs described for nutrient offsets in the trading rule below, the Hearing Officers see value in allowing participation by private sellers of buffer mitigation credit under this rule. Accordingly they have added language to that effect in the mitigation rule.

The NC Ecosystem Enhancement Program provided important comments regarding the apparent lack of buffer restoration opportunities in this watershed, most acutely in the Upper and Lower New Hope subwatersheds. Based on their assessment, EEP recommended that the rules allow use of restoration sites in other subwatersheds as a contingency. They also made recommendations related to both buffers and nutrient offsets. Given the interrelated nature of these issues, the evaluation of these comments is provided under the trading rule, .0269, below.

□ ***Rule .0269, Options for Offsetting Nutrient Loads***

Provides parties subject to the various rules - new development, existing development, State and Federal stormwater entities, agriculture, and point sources –options for alternative, offsite sources of loading reduction in addition to the EEP option. It requires that minimum onsite standards be met before seeking credit elsewhere. It sets criteria for those seeking to sell excess reductions, and would require Division approval.

Hearing Officers' Recommended Changes

- Revised agricultural prerequisites to reflect agriculture rule changes.
- Minor clarifications and organizational improvements throughout.

As structured, the New Development Stormwater, Wastewater, and State and Federal Stormwater rules provided an offset option to the NC EEP, relying on the offset fee established in Rule 15A NCAC 2B .0240. That rule has been repealed and functionally replaced by Session Law SL 2007-438. The Session Law establishes temporary offset rates specific to the Neuse and Tar-Pamlico River Basins and requires the Department to transition the EEP nutrient offset program to an actual cost-based design by September 2009. The Hearing Officers recognized that such a program would likely be in place at least two years

before any party subject to any of these rules would need to consider an offset option. They thus revised the EEP offset option in these rules to instead tie into the outcome of the process called for in the Session Law.

The Hearing Officers also felt strongly that parties subject to the rules in this strategy should, to the greatest extent feasible, be provided the flexibility of compliance options that rely on market forces to find the most cost-effective reductions in nutrient loading. They recognized the 2007 nutrient offset legislation SL 2007-438 as signaling the General Assembly's support of this concept. They agreed with several comments that advocated such an approach, and they added provisions to this effect to each of the above rules as well as to the Existing Development, Agriculture, and Buffer Mitigation rules.

They consider it important, however, to recognize that market-based trading is largely untested in this state and nationally, and that the design of a functional trading program that successfully enables more cost-effective reductions faces a number of challenges. Their intent is for the set of rules to provide for trading only to the extent that defensible accounting and administrative structures can be established to support it, and they believe that the rules include adequate qualifications to this effect. That notwithstanding, they find that Rule .0269 provides sound fundamental constraints and requirements for any such program, including minimum reasonable 'on-site' stewardship-based reduction expectations for individual rules.

The NC Ecosystem Enhancement Program provided important comments regarding the apparent lack of buffer restoration opportunities in this watershed, most acutely in the Upper and Lower New Hope subwatersheds. Based on their assessment, EEP recommended that the rules allow use of restoration sites in other subwatersheds as a contingency and that nutrient offset rates be based on the most expensive, "all-retrofit" scenario identified in a report developed by Research Triangle Institute¹ for the General Assembly during 2007 nutrient offset fee negotiations. The Hearing Officers recognize that the restoration needs of the individual lake arms are essentially independent of each other, and that it would be inappropriate to credit reductions made across subwatersheds. Nevertheless, they understand the limitations faced by EEP, and have revised all rules that offer the EEP offset option to make that offset contingent on availability and acceptance by EEP. They also appreciate EEP's very real concern with establishing adequate offset rates to address restoration opportunities that actually exist. They believe their revisions to the offset language in all rules as described above address this concern.

□ ***Rule .0270, Wastewater Discharge Requirements***

Distributes the total point source annual N and P mass loading goals for each arm in the form of annual mass allocations to existing dischargers within each of the three subwatersheds. Discharge concentration equivalents at full flow range from 3.04 mg/L TN and 0.23 mg/L TP in the Upper New Hope Arm to 5.30 mg/L TN and 0.67 mg/L TP in the Haw River Arm. As in the Neuse strategy, includes provisions for new and expanding dischargers, an option for group compliance and in-lieu offset fees to EEP for cap exceedance, and an option for transfer of allocation among individual dischargers. It also requires optimization of existing facilities, and improves protections against localized water quality degradation. Phosphorus compliance date is the first full year after effective date, while the Nitrogen compliance date is 2016.

Hearing Officers' Recommended Changes

¹ RTI International and Center for Watershed Protection, 2007. *A Study of the Costs Associated with Providing Nutrient Controls that are Adequate to Offset Point Source and Nonpoint Source Discharges of Nitrogen and Other Nutrients*. Final Report prepared for the Environmental Review Commission. June 2007.

- Revised the compliance date for nitrogen from 2016 to the fifth full calendar year after effective date, which would be 2014 assuming a 2009 effective date.
- Updated the offset option using the NC Ecosystem Enhancement Program to remove reference to rule 2B .0240, which was superceded by SL 2006-215 and SL 2007-438.
- Added option to utilize private sellers of offset credit.
- Added text to require dischargers to propose optimization measures within six months after the Division accepts the report detailing these measures.

The issue of greatest concern to stakeholders with regarding this rule was the compliance date for nitrogen allocations, which had been proposed in an early draft as 2011. That date was pushed back to 2016 in the public comment version, while the phosphorus compliance date was moved up to the first year after effective date. The Division proposed these changes in consideration of the extent of infrastructure improvements and expense that will be required for each parameter. The Hearing Officers evaluated this issue closely and concluded that the 2016 date would not be consistent with Session Law 1998-212, which amended the Clean Water Responsibility Act. Their recommendation reflects the direct application of requirements of the Act to the Jordan Reservoir case. After weighing the various interests, they concluded that the maximum time allowed for compliance under the legislation is the fifth calendar year following Commission's adoption of these rules, which would equate to the year 2014.

Comments from Haw dischargers represented that the reduction goals actually amount to reductions of 67% to 70% at the source based on current and proposed concentration limits. The potential impact of these comments compelled the Hearing Officers to explore this issue. They concluded that the comments reflect a misunderstanding of the requirements and that no such reductions are required for this group of facilities or others. The reduction goals refer to annual mass loads reaching the lake. For a given class of dischargers, one equivalent discharge concentration is identified that will satisfy the mass load goal at the lake using full permitted flows. Thus, reduction requirements for a given facility are affected by baseline flow and level of treatment as well as permitted flow, and vary greatly by facility. This is true in the Haw, where only two major facilities – one each in Greensboro and Burlington - must reduce nitrogen load below their baseline, and only those and one other will need to reduce phosphorus. During the baseline, these facilities discharged at higher concentrations - 13 to 15 mg/l nitrogen – and higher flows than other facilities. Having accounted for a large proportion of the nitrogen load in the baseline period, they must now make greater improvements to reach the same level of treatment as other dischargers. To meet the equivalent concentration target of 5.3 mg/l, they will need to reduce their baseline mass loads by 50% and 38% respectively. The remaining facilities in the Haw discharged at sufficiently lower nitrogen concentration and fraction of permitted flow that they can actually increase their mass loads of nitrogen. Greensboro's and Burlington's second plants are allowed to increase nitrogen loads by 17% and 5% over baseline, respectively, yielding net overall reduction requirements for the two cities of 15% and 22%. The other major dischargers will be allowed a 70% increase. In sum, the wastewater requirements in the Haw are much smaller in magnitude than represented in the comments and almost wholly confined to two facilities with large flows that lack nutrient removal.

Because all facilities are operating at less than permitted flows, their nitrogen limits will initially allow higher concentrations than at full permitted flow. As their flows continue to increase, all major Haw facilities will eventually have to add nitrogen removal processes to meet mass limits, but only the two noted above must make improvements by the 2014 compliance date.

FISCAL ANALYSIS REVISIONS

Original Fiscal Analysis

To meet requirements of the rulemaking process and to address stakeholder interest, Division staff estimated costs for the set of rules comprising the Jordan nutrient strategy. The Fiscal Analysis document, dated June 11, 2007, is available on the Jordan Nutrient Strategy website at: <http://h2o.enr.state.nc.us/nps/JordanNutrientStrategy.htm>. This fiscal analysis was reviewed and approved by DENR's Division of Budget, Planning and Analysis and the Office of State Budget and Management. The Office of the Governor and the Fiscal Research Division of the General Assembly also reviewed it. Staff made numerous revisions as a result of reviewers' input. The Commission also had opportunity to review the analysis before approving the rules to be taken to public comment.

Purpose of Revisions

Staff has developed revisions to our cost estimates to address several issues. In general, the public comments reflected a high level of concern over anticipated cost impacts of the rules, particularly the Existing Development rule. More specific reasons are that:

- Some technical issues were raised with Division cost estimates.
- Rule revisions by the Hearing Officers have affected some cost projections.
- Costs for Existing Development in the Fiscal Analysis were developed as worst-case projections of the full cost of rule compliance based on the assumed use of structural stormwater retrofits only, as well as purchasing all the land required for them. This has led to the widespread impression that costs will in fact be at least this great. The rule, on the other hand, allows for and identifies a wide range of load-reducing practices. We believe many of these options are available to local governments now and we expect more to become available as accounting is developed. Given the long-term nature of compliance, we also recognize the potential for local governments to find significant numbers of willing landowners for the use of structural retrofits, placing practices on private property or in easements and avoiding purchase costs. Overall, we expect the rule to be significantly less costly to implement than our fiscal estimate and others' projections would suggest.
- We recognize that in projecting beyond a handful of years the set of actions that will be taken to address Existing Development, the uncertainties become prohibitively large for several reasons. First, we expect to develop accounting tools during the first years that will allow credit for additional, more cost-effective alternative practices for which we cannot currently state the magnitude of reductions. Second, we recognize the extent to which other factors may play in to local decision-making. One factor that might not have been foreseen five years ago is how the current drought is driving real interest in technologies for capturing rainfall as a resource. Water-harvesting technologies also reduce nutrient loading, and will likely become more available and cost-effective with time. Third, several NOx emission air quality regulations currently in place are expected to result in reductions in nitrogen export from impervious surfaces over the next thirty years. The magnitude of this effect will be determined through monitoring of runoff.

Revisions Made

Of the numerous comments regarding our original fiscal calculations, we found several that raised compelling issues. Those criticisms are reflected in the revisions provided here. The full set of cost comments and staff replies can be found in the Comments/Replies section of this report. We revised costs for several rules as detailed below:

Rule .0265, Stormwater Management for New Development

Where we originally assumed smaller municipalities would hire contractors to draft ordinances, we increased the pay rate from \$36 per hour to \$100 per hour, resulting in a cost of \$128,000 to local governments.

Several local governments commented that implementation would require significant new staff resources and that we had not accounted for this. In fact, our fiscal analysis included local administration of new development stormwater programs together with buffer implementation staff costs, given their interrelated natures, and placed the costs in the buffer rule chapter. Based on the comments, we have increased those estimates, again under the Buffer Protection section.

Rule .0266, Stormwater Management for Existing Development

Considering the factors identified in the Purpose section above, we replace our original, 'full cost' estimate with an annual cost range, which includes a low-end estimate to accompany the worst-case value already given. We note that uncertainties around this annual range increase with each year of implementation.

The low-end estimate in Table 1 is based on the cost of new staff that local governments may hire to implement non-structural solutions such as ordinances. We assumed that 6 of the 8 counties and the 9 largest municipalities might each require one new staff person. This would include all municipalities with watershed populations of 10,000 or greater. We assumed that smaller municipalities could enter into agreements with larger ones or counties. We assumed an annual salary of \$50,000 per person, which equates to a total annual rule cost of \$750,000.

We also revised the worst-case estimate based on comments. One comment identified retrofit construction cost multipliers that were not available at the time of our original fiscal analysis released in August 2007 from a nationally recognized source, the Center for Watershed Protection. Our revisions use a uniform multiplier of two on construction costs for retrofits. Based on the same report, we also raise the planning cost from 25% to 32% of construction costs.

We agree with the comment recognizing that the costs of feasibility studies should be added, even if they take the form of opportunity costs for existing staff. We have included those estimates under Planning costs in years 1 through 3. We based our estimate on a proposal for FY08 Section 319 funding for a project to conduct feasibility studies for eight municipalities. We determined the proposed acreage of detailed watershed assessment in the application to be 8-16 square miles. We then multiplied the associated full cost of the proposed work, including grant request and match, of \$135,000 by 20-40 to reflect the approximately 312 square miles of developed land in the watershed. This yielded a total cost of \$2.7 - \$5.4 million, which we distributed over years 1 through 3.

Lastly, we agree with the comment that it appears unlikely that phosphorus reductions will be in short supply for any source. We thus remove the phosphorus trading credit we originally included in the Existing Development rule calculations, which totaled approximately \$10.8 million, raising the total cost estimate for the rule by this amount. While a large sum, it amounts to less than 2% of the total projected worst-case estimate.

Rule .0267 & .0268, Protection of and Mitigation for Existing Riparian Buffers

Based in part on experience in the Neuse and Tar-Pamlico Basins, we originally reasoned that only five small but growing municipalities would require new staff to implement the buffer provisions, and estimated those costs to total \$375,000/yr. For counties, the assumption of little development falling within ETJ's was one of two that we felt supported the assumption of no significant new costs to counties. The other was that all counties contain Water Supply Watersheds and implement stormwater and buffer programs for those purposes. In addition, at least Chatham County has undertaken a more stringent and involved buffer program than required by these rules.

However, given comments from several local governments and the fact that we were unable to survey all local governments on this issue during fiscal note development, we have increased our estimate of implementation staffing needs. We added three stormwater engineer positions for a total of eight, attributing these positions to the City of Durham, Alamance County, and Reidsville. With an estimated annual salary of \$75,000 per stormwater engineer, this equates to an annual cost of \$600,000 to local governments.

Based on comments from the NC Ecosystem Enhancement Program, we revised the buffer mitigation fee in Rule .0272 from \$0.70 per square foot to \$0.96 per square foot. Since we used this fee in our original calculation of mitigation costs to landowners, we revised our mitigation estimate under the buffer protection rule, which provides for the mitigation option. This raised total annual buffer-related costs from \$4.4 million to \$5.1 million.

Rule .0270, Wastewater Discharge Requirements

Advancing the nitrogen compliance date two years from 2016 to 2014 does not change the compliance cost but would result in earlier onset of the increased operation & maintenance costs associated with nitrogen removal. This is reflected in Table 1.

Rule .0271, Stormwater Requirements for State and Federal Entities

Changes to DOT requirements in this rule resulted in substantially lower costs to that agency. The rule was revised to deem new DOT road projects compliant with the rule if they meet the requirements of the Buffer Protection Rule (.0267). The DOT's buffer protection costs are included in cost totals for the Buffer Protection Rule. Thus, we removed all additional DOT new road costs from this rule, which amounted to \$2.1 million per year.

The requirements for existing DOT roadways were revised in the rule to a minimum implementation rate equating to 100 lb nitrogen reduction per year. The original state/federal cost estimate included a range of full costs based on three scenarios for existing DOT roads: offset payment to the EEP, a co-mingled drainage option, and DOT's worst-case, treatment-at-every-outfall scenario. To address the rule change, for the same reasons given in the Purpose discussion above, we revised the DOT full costs to an annual range to achieve the 100 lb N/yr reduction. Using two worst-case scenarios involving only structural retrofits, costs equated to \$576,000 - \$711,000 per year, beginning in year three.

Cost changes to universities and other state and federal entities other than the DOT directly reflect existing development cost revisions made to local governments because a more accurate method of estimating these entities' costs was unavailable. As in the original estimate, these costs were estimated using a fraction of all existing development costs based on proportional land cover acreage, which is 3.9%. The new cost range for universities and others is \$205,000 - \$1.3 million per year, replacing the original estimate of \$725,000.

Table 1 below is the summary cost table used in the original Fiscal Analysis with the revisions described here shaded in gray. Revised costs are struck-through.

Table 1: Revised Cost Estimates for the Jordan Rules

			Regulated Parties					Implementing Agencies					
			Total	Capital (Incl'g Land)	Operation / Maint.	Planning	Regul'y Transax'n	Other	Total	Regul'y Developm't	Monitor'g/ Rec-kpg	Permit-ting	Inspect/ Enforce
.0263	Nutrient Management		Regulated Party: Fertilizer Applicators. "Other" = Applicator's lost wages to attend NM Training					Implementing Agency: DWQ - \$0 new costs					
		2009	\$0	\$0	\$0	\$0	\$0	\$0					
		2010	\$0	\$0	\$0	\$0	\$0	\$0					
		2011	\$31,500	\$0	\$0	\$0	\$0	\$31,500					
		2012	\$31,500	\$0	\$0	\$0	\$0	\$31,500					
		2013	\$0	\$0	\$0	\$0	\$0	\$0					
	5-Yr Total:	\$63,000	\$0	\$0	\$0	\$0	\$63,000						
.0264	Agriculture		Regulated Party: Agricultural Community. "Other" = opportunity cost of converting crop acres to conserved cover. Cap costs shown assume full cost-share (full cap cost = x4).					Implementing Agency: DWQ - \$0 new costs					
		2009	\$298,000	\$190,000	\$57,100	\$0	\$0	\$50,500					
		2010	\$406,000	\$190,000	\$114,000	\$0	\$0	\$101,000					
		2011	\$513,000	\$190,000	\$171,000	\$0	\$0	\$151,000					
		2012	\$621,000	\$190,000	\$229,000	\$0	\$0	\$202,000					
		2013	\$728,000	\$190,000	\$286,000	\$0	\$0	\$252,000					
	5-Yr Total:	\$2,570,000	\$952,000	\$857,000	\$0	\$0	\$757,000						
.0265	Stormwater, New Dev.		Regulated Parties: Developers (Capital, Regulatory, Planning) & Property Owners (O&M)					Implementing Agency: DWQ - \$0 new costs					
		2009	\$0	\$0	\$0	\$0	\$0	\$0					
		2010	\$0	\$0	\$0	\$0	\$0	\$0					
		2011	\$203,000	\$167,000	\$19,800	\$16,300	\$0	\$0					
		2012	\$431,000	\$338,000	\$60,000	\$33,200	\$0	\$0					
		2013	\$479,000	\$344,000	\$100,800	\$33,700	\$0	\$0					
	5-Yr Total:	\$1,113,000	\$849,000	\$181,000	\$83,200	\$0	\$0						
		Regulated Party: Local Governments- \$0 (negligible regul'y transxn).					Implem. Agency: LG's - \$48,000 \$128,000, 2010, rule dvlp't. Other costs incorp'd in buffer rule imp.						
.0266	Stormwater, Existing Dev.		Regulated Party: Local Gov'ts - Feasibility Study Years 1-3 - Implementation begins yr. 5					Implementing Agency: DWQ - \$0 new costs					
		2009	\$900k - \$1.8m	\$0	\$0	\$900k - \$1.8m	\$0	\$0					
		2010	\$900k - \$1.8m	\$0	\$0	\$900k - \$1.8m	\$0	\$0					
		2011	\$900k - \$1.8m	\$0	\$0	\$900k - \$1.8m	\$0	\$0					
		2012	\$0	\$0	\$0	\$0	\$0	\$0					
		2013	\$750k-\$26m	\$750k - \$21.4m	\$0-\$140k	\$0-\$4.4m	\$0-\$54k	\$0					
			5-Yr Total:	\$16,400,000	\$14,500,000	\$108,000	\$1,720,000	\$54,300	-\$23,200				
	Full Cost	\$3.5m-\$31.4m	\$750k - \$21.4m	\$0-\$140k	\$2.7m-\$5.4m	\$0-\$54k	\$0						
		\$528,000,000	\$436,000,000	\$50,000,000	\$51,500,000	\$1,629,000	-\$10,800,000						
.0267	Riparian Buffer Protection		Regulated Party: Local Governments - \$0 (negligible o&m public land)					Implementing Agency: DWQ - \$0 new costs					
			Regulated Party: Property Owners - "Other" =opportunity cost of unharvested timber. Capital costs include mitigation (developers and DOT).					Implementing Agency: Local Governments - net net costs st-water & buffer permitting & compliance.					
		2009	\$1,004,000	\$955,000	\$3,910	\$45,500	\$0	\$0	\$48,000	\$ -48,000	\$0		
			\$993,000	\$955,000	\$3,910	\$34,100	\$0	\$0	\$128,000	\$ 128,000	\$0		
		2010	\$4,400,000	\$3,260,000	\$34,000	\$108,000	\$0	\$1,000,000	\$375,000	\$ -	\$375,000		
			\$5,080,000	\$3,950,000	\$34,000	\$96,000	\$0	\$1,000,000	\$600,000	\$ -	\$600,000		
		2011	\$4,430,000	\$3,260,000	\$64,100	\$108,000	\$0	\$1,000,000	\$375,000	\$ -	\$375,000		
			\$5,110,000	\$3,950,000	\$64,100	\$96,000	\$0	\$1,000,000	\$600,000	\$ -	\$600,000		
		2012	\$4,460,000	\$3,260,000	\$94,200	\$108,000	\$0	\$1,000,000	\$375,000	\$ -	\$375,000		
			\$5,140,000	\$3,260,000	\$94,200	\$108,000	\$0	\$1,000,000	\$600,000	\$ -	\$600,000		
		2013	\$4,490,000	\$3,260,000	\$124,000	\$108,000	\$0	\$1,000,000	\$375,000	\$ -	\$375,000		
			\$5,170,000	\$3,950,000	\$124,000	\$96,000	\$0	\$1,000,000	\$600,000	\$ -	\$600,000		
			5-Yr Total:	\$18,800,000	\$14,000,000	\$320,000	\$478,000	\$0	\$4,000,000	\$1,550,000	\$48,000	\$1,500,000	
		\$21,500,000	\$16,760,000	\$320,000	\$418,000	\$0	\$4,000,000	\$2,528,000	\$128,000	\$2,400,000			

Table 1: Revised Cost Estimates for the Jordan Rules (continued)

			Regulated Parties					Implementing Agencies						
			Total	Capital (Incl'g Land)	Operation / Maint.	Planning	Regul'y Transax'n	Other	Total	Regul'y Develop'm't	Monitor'g/ Rec-kpg	Permit- ting	Inspect/ Enforce	
.0270	Wastewater Dischargers		Regulated Party: Local Governments. Annual O&M starting Yr. 8 6 = \$12.1 m. Net costs post-HB515: 5-Yr Total = \$17.4 m, 7-Yr Total = \$65 m . \$62m					Implementing Agency: DWQ - \$0 new costs						
		2009	\$25,800,000	\$0	\$1,260,000	\$24,500,000	\$0	\$0						
		2010	\$25,800,000	\$0	\$1,260,000	\$24,500,000	\$0	\$0						
		2011	\$1,260,000	\$0	\$1,260,000	\$0	\$0	\$0						
		2012	\$1,260,000	\$0	\$1,260,000	\$0	\$0	\$0						
		2012	\$100,242,000	\$98,987,000	\$1,260,000	\$0	\$0	\$0						
		2013	\$1,260,000	\$0	\$1,260,000	\$0	\$0	\$0						
		2013	\$100,242,000	\$98,987,000	\$1,260,000	\$0	\$0	\$0						
		5-Yr Total	\$55,400,000	\$0	\$6,300,000	\$49,000,000	\$0	\$0						
		7-Yr Total	\$253,000,000	\$198,000,000	\$6,300,000	\$49,000,000	\$0	\$0						
		7-Yr Total	\$256,000,000	\$198,000,000	\$8,790,000	\$49,000,000	\$0	\$0						
					Regulated Party: Private (Domestic & Indust). Annual O&M starting Yr.8 6 = \$552k. Net costs post-HB515: 5-Yr Total = \$1.2m, 7-Yr Total = \$4.9m \$4.8m									
		2009	\$868,000	\$0	\$58,000	\$810,000	\$0	\$0						
		2010	\$868,000	\$0	\$58,000	\$810,000	\$0	\$0						
2011	\$58,000	\$0	\$58,000	\$0	\$0	\$0								
2012	\$58,000	\$0	\$58,000	\$0	\$0	\$0								
2012	\$3,336,000	\$3,278,000	\$58,000	\$0	\$0	\$0								
2013	\$58,000	\$0	\$58,000	\$0	\$0	\$0								
2013	\$3,336,000	\$3,278,000	\$58,000	\$0	\$0	\$0								
5-Yr Total	\$1,940,000	\$0	\$290,000	\$1,620,000	\$0	\$0								
7-Yr Total	\$8,466,000	\$6,556,000	\$290,000	\$1,620,000	\$0	\$0								
7-Yr Total	\$8,586,000	\$6,560,000	\$406,000	\$1,620,000	\$0	\$0								
.0271	State & Fed Stormwater		Regulated Party: State Entities - DOT and Universities. Includes new dev (Univ's begin Yr 1, DOT begins Yr 2.5) and existing dev (begins Yr 3 for DOT, Yr 5 for Univ's) costs.					Implementing Agency: DWQ - \$0 new costs						
		2009	\$16,000	\$13,000	\$2,000	\$1,000	\$0	\$0						
		2009	\$51k-\$86k	\$12.6k	\$2.2k	\$36.4k-\$71.5k	\$0	\$0						
		2010	\$16,000	\$13,000	\$2,000	\$1,000	\$0	\$0						
		2010	\$51k-\$86k	\$12.7k	\$2.3k	\$36.4k-\$71.5k	\$0	\$0						
		2011	\$1.9m-\$17m	\$1.9m-\$13m	\$2.3k-\$215k	\$1.2k-\$3.3m	\$0	\$0						
		2011	\$628k-\$798k	\$533k-590k	\$2.3k-\$65.9k	\$36.4k-\$199k	\$0	\$0						
		2012	\$1.9m-\$17m	\$1.9m-\$13m	\$2.3k-\$428k	\$1.2k-\$3.3m	\$0	\$0						
		2012	\$593k-\$728k	\$533k-590k	\$2.3k-\$65.9k	\$1.3k-\$129k	\$0	\$0						
		2013	\$2.6m-\$18m	\$2.5m-\$14m	\$8.1k-\$647k	\$68k-\$3.4m	\$0	\$0						
2013	\$611k-\$1.8m	\$606k-\$1.4m	\$3.9k-\$73k	\$1.3k-\$340k	\$0	\$0								
5-Yr Total	\$6.5m-\$52m	\$6.4m-\$40m	\$17k-\$1.3m	\$73k-\$10m	\$2.2k	\$0								
Full Cost	\$1.9m-\$3.5m	\$1.8m-\$2.5m	\$13k-\$209k	\$112k-\$811k	\$0	\$0								
Full Cost	\$78m-\$616m	\$75m-\$413m	\$2.0m-\$100m	\$2.0m-\$102m	\$4.3k	\$0								

.0268 Mitigation for Riparian Buffers - We report mitigation costs under the buffer protection rule since it sets the requirement to mitigate.
Goals (.0262), Offset Options (.0269), Buffer Mitigation Fee (.0272): These rules do not impose new requirements, and thus have no costs.
.0311 Cape Fear River Basin (Reclassification) - no new costs to dischargers to meet water quality standards.