

**DRAFT Internal Policy**  
**Cumulative impacts and the 401 Water Quality Certification and**  
**Isolated Wetland Programs**  
**NC Division of Water Quality**  
**October 3, 2002**  
**Version 1.6**

**Background**

Existing rules for the 401 Water Quality Certification Program (15A NCAC 2H .0506(b)(4) and (c)(4)) as well as those for the Isolated Wetland Permit Program (15A NCAC 2H .1300) require that DWQ determine that a project “does not result in cumulative impacts, based upon past or reasonably anticipated future impacts, that cause or will cause a violation of downstream water quality standards.” This internal policy is meant to give direction to DWQ Central and Regional Office staff on how to implement this rule. Cumulative impact is defined as those “environmental impacts resulting from incremental effects of an activity when added to other past, present, and reasonably foreseeable future activities regardless of what entities undertake such other actions” (taken from 15A NCAC 1A which are the rules implementing the State Environmental Policy Act).

It is important to note that the 401 Certification rules require an examination of cumulative impacts in terms of their impact on downstream water quality standards. This is a relatively narrow provision that requires DWQ staff to focus on downstream standards (narrative and numeric) rather than (for instance) the effect of the development on wildlife habitat. Therefore, only if that impact may (or will) cause a violation of downstream water quality standards is the project of concern in the context of cumulative impact for DWQ’s wetland permitting programs. However, water quality standards form the basis of all water quality regulation and permitting programs. This rule (although narrow in its scope since it focuses on downstream water quality) provides an essential tool for DWQ to use to manage cumulative impact. Water quality impairment is usually tied to urban runoff that can increase with road development. This policy is intended to address this regulatory requirement.

**Policy**

**I. DOT (and other public transportation) projects**

The major types of DOT projects and their need for different levels of cumulative analysis are outlined below. The three types of cumulative impact analysis with respect to this policy are 1) Generic description, 2) Qualitative analysis, and 3) Quantitative analysis.

- A. **Generic description:** Small-scale widening projects, bridge replacements projects and intersection improvement projects – These projects (which are often eligible for a Nationwide Permit 23 for Categorical Exclusions) normally have a low potential for cumulative impact since little (if any) new impervious surface is added and the projects are usually in already developed locales. DWQ believes that a generic description can be developed which addresses the cumulative impacts of the majority of these projects in the context of the 401 and isolated wetland rules. DWQ staff will prepare a draft narrative for this purpose for DOT staff review. However If DWQ staff determines that any of these projects may have growth-stimulating effects and downstream impacts, then either a formal narrative cumulative impact analysis (see B below) or (more rarely) a quantitative analysis (see C below) should be required of the applicant.
- B. **Qualitative Analysis:** Widening with new locations: Most of these projects have a low potential for cumulative impacts since these locations tend to be near existing roads and already developed areas. Therefore, a narrative cumulative impact analysis similar to that outlined in the DOT/DENR SEPA document (Guidance for Assessing Indirect and Cumulative Impacts of Transportation Projects in North Carolina. Volumes I and II. 2001, State of North Carolina Department of Transportation and Environmental and Natural Resources prepared by The Louis Berger Group, Inc., Cary, N.C.) should suffice for the 401 Certification and Isolated Wetland permitting

programs.<sup>1</sup> If DWQ staff determines that any of these projects may have growth-stimulating effects and downstream impacts, then a quantitative analysis should be required of the applicant (see below).

C. **Quantitative Analysis:** New location projects: Many of these projects will have growth-stimulating effects since new growth tends to occur on otherwise undeveloped property adjacent to the new road alignment. Therefore, these projects may result in cumulative impacts to water quality. The overall process to deal with new location projects is to address these three questions in sequence.

- 1 Is growth likely to be induced by the project? This may be indicated by projected land use changes or by the purpose and need of the project (i.e. if the project is specifically planned to stimulate growth). For instance, projects on new location near urban areas often have the greatest potential for cumulative impacts since they provide improved access to previously inaccessible sites.
- 2 Are existing uses of the water (as reflected in the classification of the waters) likely to be impacted by the growth? The following descriptions (categories a, b and c) should help clarify the answer to this question.
- 3 Are additional regulatory measures needed? (i.e., are there existing regulatory programs which can address these impacts?). For instance, the Phase II NPDES Stormwater Permit Program addresses stormwater runoff from development as do riparian buffer rules in place in several watersheds across the state. Finally in some cases, local governments already have land use control programs in place that adequately address stormwater runoff. In many cases, these programs should reduce or eliminate the need for additional regulatory measures.

If the answers to all three questions of these questions are yes, then a quantitative analysis of cumulative impact would be needed for the 401 Water Quality Certification. The following information describes this process in more detail

- a) *Water Supply, HQW and ORW classifications* –DWQ has several existing regulatory programs that address cumulative impacts. Specifically, the Water Supply Protection Program as well as the watershed-specific management plans for ORW and HQW watersheds provides considerable protection from cumulative impact on downstream water quality. In addition, DWQ often relies on other state permitting programs such as the High Quality Waters Best Management Practices developed by the Division of Land Resources for protection of water quality. DOT reports for these projects should describe and analyze these existing programs for a particular project to determine if they sufficiently protect these sensitive waters. In most cases, a narrative analysis based on the DOT/DENR SEPA report with clear reference to these existing DWQ permitting program as well as a description of the effectiveness of these programs in protecting water quality should be sufficient. However, if DWQ staff determines that a project appears to have growth-stimulating effects and downstream impacts that are not addressed by existing regulatory programs, then a quantitative analysis may be required.
- b) *Class C, B, SC and SB classifications* – The potential for cumulative analysis from these projects should be discussed utilizing the qualitative analysis described above for these stream classifications. If significant potential for cumulative impact is identified (for instance due to the presence of endangered aquatic species), then a quantitative analysis may be required.
- c) *Impaired Waters (303 (d) listed Waters), SA (Commercial Shellfishing) and Trout classification* – These watersheds warrant special attention with respect to cumulative impact analysis since there are often no existing regulatory programs of which adequately address pollution sources for these waters. With respect to the impaired waters, the reported parameter of concern and source (point versus non-point) of the contaminant should be examined to determine if the new location road and any induced development are likely to

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<sup>1</sup> These documents will need to be revised to explicitly refer to water quality-related issues for the 401 Certification Program. In the interim, DWQ believes that the procedures outlined in these documents will normally suffice for cumulative impact analysis for these projects.

further impact these waters. For instance, if the impaired water is listed as impacted for dioxin from point sources, it is very unlikely that a new road and its associated development would exacerbate the situation. In this case, a qualitative analysis of cumulative impacts will usually suffice. However, for Trout and SA waters as well as impaired waters which are impaired by pollutants likely increased by development (such as bacteria, nutrients or sedimentation), then a detailed, quantitative analysis should be conducted by DOT to determine 1) if cumulative impacts are likely and then (if impacts are predicted to occur) 2) what pollution control measures will be needed and how they are to be implemented. This analysis will often require watershed-level modeling using export coefficients, levels of treatment for BMP's and comparison to numerical water quality standards or numeric water quality goals. With respect to implementation, discussion with and commitment from local governments may be needed to address these cumulative impacts.

## **II. Other publicly-funded development projects**

Other publicly funded development projects may or may not result in cumulative impacts. For instance, the development of a regional, public park or a new library is unlikely to result in cumulative impacts. For these projects, a generic description similar to that described in step I A above should suffice. However, other projects will likely result in cumulative impacts and therefore, then either a formal qualitative cumulative impact analysis (see I B above) or (more rarely) a quantitative analysis (see I C above) should be required of the applicant. Examples of projects in this later category would be projects targeted to encourage development such as the Global TransPark and a county-funded industrial park. DWQ staff should use their professional judgment to determine if a publicly funded project is likely to result in cumulative impacts and would then need a quantitative analysis of this impact.

## **III. Private development projects**

Privately funded development projects are normally not subject to SEPA or NEPA and therefore, only rarely require formal environmental documentation. However, if these projects require 401 Water Quality Certification or an Isolated Wetland Permit, then the cumulative impact provisions of these rules are applicable.

Many private development projects are unlikely to cause cumulative impacts, including projects such as urban in-fill, most residential subdivisions, and small commercial developments as well as agricultural and silvicultural operations. However, some private projects may cause significant cumulative impacts on water quality. Therefore if a 401 Water Quality Certification or Isolated Wetland Permit is required, then either a qualitative or quantitative analysis of cumulative impact would be needed.

Some private development projects can clearly result in cumulative impact. Recent examples of this effect include the Streets at South Point Mall in Durham and the Landfall development in Wilmington. Often these developments are 1) relatively large, 2) involve commercial development, and 3) occur in otherwise relatively undeveloped landscapes with an impact on regional growth patterns. When these or similar characteristics are present with a private development project, then DWQ staff should use the guidance outlined in Section I.C. above to determine if a quantitative analysis of cumulative impacts is needed or whether a qualitative analysis will be sufficient.