3-10-11

Model Local Stormwater Program for New Development

As Required by the
Falls New Development Stormwater Rule
15A NCAC 2B .0277

&
Guidance for Local Governments and Developers

For Approval by the
March 9th & 10th, 2011 Meetings of the
Water Quality Committee and
NC Environmental Management Commission

3-10-11

Table of Contents

Model Local Stormwater Program 5

Local Program Information for EMC Approval 5
Equivalent Program Option 7
Appendix of Supporting Information 7
Supplemental Information 7

Supplemental Program Guidance for Local Governments and Developers 9

1. Introduction to the New Development Rule 11

1-A. Background of Falls Nutrient Strategy 11
1-B. Purpose of the New Development Rule 12
1-C. Applicability of the New Development Rule 13
1-D. Implementation Timeframe of the New Development Rule 14

2. Guidance to Local Governments on Implementing Rule Requirements 16

2-A. Development Subject to Rule Requirements 16
1. New Development 17
2. Land Disturbance Thresholds 18
3. Summary of Permitting Thresholds 19
5. State and Federal Projects 20
2-B. Nutrient Control Requirements 21
1. Calculating Nitrogen and Phosphorus Export from New Development 21
2. Measures for Reducing Nitrogen and Phosphorus 23
3. Minimum Onsite Requirements 24
4. Offsite Partial Offset Options 26
5. Redevelopment 27
2-C. Related Requirements 29
1. Meeting Other Regulations 29
2. Calculating Peak Runoff Volume 29
3. Protecting Riparian Buffer Areas on New Development 30
2-D. BMP Maintenance 30
2-E. Land Use Planning Provisions (Optional) 31
2-F. Annual Reports 32

3-10-11

Appendices

Appendix A	15A NCAC 02B .0277 – Falls Water Supply Nutrient Strategy: Stormwater Management for New Development
Appendix B	15A NCAC 02B .0276 – Falls Water Supply Nutrient Strategy: Definitions
Appendix C	15A NCAC 02B .0282 – Falls Water Supply Nutrient Strategy: Options for Offsetting Nutrient Loads
Appendix D	15A NCAC 02B .0275 – Falls Water Supply Nutrient Strategy: Purpose and Scope
Appendix E	15A NCAC 02B .0281 – Falls Water Supply Nutrient Strategy: Stormwater Requirements for State and Federal Entities
Appendix F	15A NCAC 02B .0104 – Considerations/Assigning/Implementing Water Supply Classifications
Appendix G	15A NCAC 02B .0214 – Fresh Surface Water Quality Standards for Class C WS-II Waters
Appendix H	15A NCAC 02B .0215 – Fresh Surface Water Quality Standards for Class C WS-II Waters
Appendix I	15A NCAC 02B .0216 – Fresh Surface Water Quality Standards for Class C WS-II Waters
Appendix J	15A NCAC 02B .0240 – Nutrient Offset Payments
Appendix K	15A NCAC 02B .0274 – Nutrient Offset Payment Rates for the NC Ecosystem Enhancement Program
Appendix L	Falls Model Ordinance
Appendix M	Jordan/Falls Accounting Tool Worksheets and Users' Manual
Appendix N	The Nitrogen Cycle
Appendix O	Sources of Nitrogen in Developed Areas
Appendix P	Land Use Planning and Design Techniques
Appendix Q	Example Forms
Appendix R	Example Conservation Easement
Appendix S	Self-Assessment Tool

3-10-11

Model Local Stormwater Program

The Falls New Development Stormwater Rule, 15A NCAC 2B. 0277, sets out standards that named communities are to incorporate into local stormwater programs, and requires the Division of Water Quality to develop a model local stormwater program that embodies those standards to guide local program submittals. Following model approval by the NC Environmental Management Commission, local governments are given five months to return their programs for Commission approval.

This model local stormwater program identifies specific information that local governments will need to submit for their programs and provides a model local ordinance and nutrient load accounting tool as called for in the rule. We have divided the submittal requirements into three parts: 1) information that the Commission will approve, 2) appendices containing specific supporting information that will change over time, and 3) supplemental information that will aid the Division's review of program submittals.

Following this model program is a companion document containing guidance on implementing the rule. This guidance is written to assist local governments and developers. A set of appendices contains the model ordinance and a user's manual for the nutrient load accounting tool. It also includes reference information including: relevant rules from the Falls nutrient strategy, other rules referenced by the Falls New Development rule, example forms, and other support information that affected parties may find useful.

Local Program Information for EMC Approval

Local programs will need to provide the following minimum information for Commission approval:

- **Proposed adoption timeline and effective date** – Commission approval of the Model Program is proposed for March 10, 2011. Section 1-D of the supplemental program guidance describes the rule timeline requirements for the submittal, review, and adoption and implementation of local programs.
- **Other Stormwater Programs –** The rule requires adherence to certain other state stormwater regulations. The program should identify existing stormwater regulations within the jurisdiction, including water supply watershed, whether designated under Phase II NPDES and status of Phase II implementation.
- **Statement of Riparian Buffer Ordinance Compliance -** One aspect of development application review required by the rule is ensuring protection of riparian buffers, as discussed in Chapter 2-C.3and state whether, and if so, where they include that process description in their ordinance.
- **State and Federal Entities Implementation –** State whether the program will enforce the requirements of this rule on state and federal entities that do not have a Phase II NPDES stormwater permit. See Chapter 2-A.5. of the companion Guidance.

3-10-11

Area of Applicability – Include description of planning jurisdiction, responsibility for program in ETJ, any inter-jurisdictional agreement, and if applicable, extent of implementation of rule requirements outside Falls Watershed.

- **Minimum Qualifications of Stormwater Administrator -** State the minimum qualifications of the personnel who will be responsible for implementing the program, including stormwater plan review and BMP inspection. The Division prefers these persons to be registered North Carolina professional engineers with stormwater experience. Minimum qualifications are persons performing services only in their area of competence, including professional engineer, registered North Carolina professional surveyor, landscape architect, soil scientist, aquatic biologist, or a person certified by the North Carolina Cooperative Extension Service to approve stormwater management plans or to inspect BMPs.
- **Maintenance/Inspection Program -** Describe your intent regarding a program for ensuring maintenance of BMPs called for in the rule. Your maintenance program description should address the elements discussed in Section 2-D (BMP maintenance) of the companion Guidance, including:
    - Owner inspection and reporting requirements, including qualifications required of BMP inspectors;
    - Local government inspection and oversight program, including frequency of local government inspections;
    - Financial surety for long-term function; and
    - Database of practices installed.
- **Forms in Administrative Manual –** Provide a listing of forms to be used in the permitting and compliance process (See Appendix Q).
- **Ordinance –** Provide all sections of ordinance that will be necessary to implement the rule. This should include all subject areas covered by the model ordinance (see Appendix L).
- **Nutrient Loading Accounting Tool –** Provide a statement that you will use the Jordan / Falls nutrient load accounting tool provided in Appendix M or describe the method that will be used for accounting for nutrient loading and BMP implementation to meet rule requirements. In the latter case, please provide: documentation on that tool; an electronic version of the tool; a discussion of how it differs from the Jordan / Falls tool; and how it will be at least as protective as the Jordan/Falls tool.

Equivalent Program Option

Item (6) of the Falls New Development Rule provides local governments the option of requesting the Division accept the local government's implementation of another stormwater program or programs as satifying one or more of the requirements on Items (3) and (4) of the rule. The Division shall provide a determination on the acceptability of any such alternative prior to requesting Commission approval of local programs. Should a local government propose alternative requirements to achieve and maintain the rate targets described in the Rule, it shall include in its program submittal technical information demonstrating the adequacy of those requirments. At a mimimum the local government shall submit all of the information described in Sub-Item (6)(a) through (e) of the Rule.

3-10-11

Appendix of Supporting Information

Local programs are to include an appendix that contains detailed supporting information that will be updated periodically. Future revisions to this information will not require Commission or Division Director approval. The Program appendix shall include the following information:

- **Program Contacts and Professional Qualifications –** Names and contact information for the Stormwater Administrator and other personnel responsible for reviewing stormwater designs and performing and reviewing inspections.
- **Stormwater Map –** Provide most current map of jurisdictional boundaries. This map should be at a scale or resolution useful for implementation purposes, and be one that you will be prepared to update periodically as needed and report on in annual reports. This map may differ from a map you provided as part of your Falls Existing Development Stage I programs, since those requirements applied only to the area covered by your police powers. This map should include the following:
    - Preferably a zoning map.
    - Identify limits of planning jurisdiction.
    - Include delineation of Fallsboundaries.
    - Identify date of map.

  We prefer that you make the map available on a website and provide a link to that site. You may also submit the map as a digital file or a printed map.
- **Forms –** Provide a copy of all forms that you will use to carry out permitting and compliance, which should include the following:
    - Stormwater Permit Application
    - Sample Permit
    - As-Built Submittal Form w/ BMP Certification Statements
    - Operation and Maintenance Agreements for BMPs
    - Example Access Easement
    - Example Conservation Easement

Supplemental Information

Local governments are asked to provide the following supplemental information to aid the Division's review of your programs:

- **Program Approval** – Describe your local approval process and the status of your program's approval prior to submittal to the Division. Include a description of approval steps following Commission approval leading to implementation.
- **Ordinance Changes** – Provide a listing of ordinance sections created or revised to address the rule's requirements. If a local government finds a subject covered by the model ordinance unnecessary, provide a statement identifying the model ordinance section(s) and any supporting discussion to support your position.

3-10-11

- **Land use planning** – State whether you have conducted a review of local ordinances to identify potential modifications that would 1) reflect improved growth management practices 2) allow developers adequate flexibility to utilize planning measures to reduce impervious surfaces and 3) reduce untreated nutrient loading rates from developments as discussed in Chapter 2-E - Land Use Planning. If such a review has been conducted, please provide a summary of your findings and any actions taken.
- **Appeals Process –** (optional) Summarize the appeals processes that are described in your ordinance.
- **Exceeding Minimum Requirements –** (optional) Identify significant aspects of your proposed local program that go beyond the minimum requirements established in the rule, potentially including any of the following:
    - New Development Definition
    - Disturbance thresholds
    - Loading rate targets
    - Off-site thresholds
    - If your jurisdiction is partly outside the Falls watershed, whether you propose to apply the rule jurisdiction-wide
    - Redevelopment - require treatment on redevelopment that does not increase built-upon area?
- **Permitting Process** – (optional) Provide an outline and fact sheet describing the steps of the local permitting process for developers and engineers subject to the program requirements.

3-10-11

Supplemental Program Guidance for Local Governments and Developers

3-10-11

3-10-11

1. Introduction to the New Development Rule

The Falls New Development Stormwater Rule, 15A NCAC 02B .0277, is one of a comprehensive set of ten rules known as the Falls Nutrient Strategy. This chapter provides an overview of the Falls New Development Rule requirements and program implementation timeline. Guidance on how local governments can implement these requirements is provided in Chapter 2 of this document.

The following conventions will be used throughout document, unless otherwise stated:

- References to "the Rule" mean the Falls New Development Stormwater Rule, 15A NCAC 02B .0277 unless stipulated otherwise.
- The New Development Rule and any other DWQ rules referenced in the text are provided as appendices.
- References to "the Division" mean the Division of Water Quality unless stipulated otherwise.
- References to "the Model Ordinance" mean the Falls Model Stormwater Ordinance for New Development" developed by DWQ using the Jordam Model ordinance developed by the the UNC School of Government as a foundation.
- References to "the Tool" mean the Jordan/Falls Lake Stormwater Load Accounting Tool developed by North Carolina State University.
- Quoted rule text is set off with indents, italics, and quotation marks. Bold text is emphasis added by the Division.

1-A. Background of FallsNutrient Strategy

Falls of the Neuse Reservoir (a.k.a. Falls Lake) is a man-made reservoir filled in 1983. The 770 square-mile watershed to Falls Lake is located in the northeastern Piedmont of North Carolina and comprises the upper end of the Neuse River Basin. The watershed spans portions of six counties including parts of Durham and Raleigh. Over 90,000 people reside in the watershed with the population projected to double by the year 2025. Nine water supply reservoirs in the watershed, including Falls Lake, serve 450,000 people. Land cover in the watershed is approximately 58 percent forest, 18 percent agriculture, and 11 percent developed.

In 2005 the NC General Assembly passed SL 2005-190 (S981), which includes a requirement for the Commission to adopt a nutrient strategy for Falls Lake based on a calibrated nutrient response model. The 2009 regular legislative session produced Senate Bill 1020, a bill devoted to water quality improvements in Falls Lake. This bill revises the Commission adoption deadline to January 15, 2011 and added requirements aimed at water quality improvement in the watershed.

3-10-11

This mandate prompted a monitoring and modleing process that began in 2005.. Lake monitoring from 2005 to 2007, conducted under the direction of a Technical Advisory Committee (TAC), was used to develop the watershed and lake models that helped characterize conditions and the nutrient reductions needed to achieve nutrient related water quality standards throughout the lake. The watershed and lake modeling were completed by DWQ staff, with review and input from the TAC, in November 2008 and February 2009, respectively. Model results indicated the need for controls addressing a range of point and nonpoint sources. Model results indicated the need for controls addressing a range of point and nonpoint sources.

The Division also conducted an extensive stakeholder input process beginning in 2008 that carried through a formal public comment period on draft rules in summer 2010. The resulting set of rules was approved by the Commission in November 2010, followed by approval of the Rules Review Commission in December 2010. The approved rules went into effect on Janaury 15, 2011.

The Falls Nutrient Strategy is generally designed to reduce excess nutrients impacts, specifically nitrogen and phosphorus, into Falls Lake to reduce algal growth and other nutrient related water quality problems. The requirements of the strategy are similar to those already in place in the Neuse and Tar-Pamlico River Basins. The rules require major sources of nutrients to reduce loading that makes its way to Falls Lake to meet specific model-established percent reduction goals needed to restore water quality standards and full uses of the lake. The Falls strategy goes beyond previous strategies in requiring *all* local governments in the watershed to implement new development permitting requirements, in requiring load reductions from existing developed lands, and in directly regulating state and federal entities for stormwater control from both new and existing development.

1-B. Purpose of the New Development Rule

The Purpose Item of the New Development Rule sets out its purposes :

> *"(a) To achieve and maintain the nitrogen and phosphorus loading objectives established for Falls Reservoir in Rule 15A NCAC 02B .0275 from lands in the Falls watershed on which new development occurs;"*

The applicable loading goals in the referenced Falls Purpose and Scope Rule are defined in terms of percent reductions in annual mass loading of nitrogen and phosphorus in the Falls watershed, relative to a modeled baseline condition , with 2006 being the baseline year.. These percent goals are as follows:

Table 1 – Percent Reduction Goals

Reduction Goals	
N	P
40%	77%

> *"(b) To provide control for stormwater runoff from new development in Falls watershed to ensure that the integrity and nutrient processing function of receiving waters and associated riparian buffers are not compromised by erosive flows;" and*

Peak flow rates matching requirements included in the rule are intended to limit erosive flows. Peak flow requirements are discussed in Section 2-C-2.

> *"(c) To protect the water supply uses of Falls Reservoir and of designated water supplies throughout the Falls watershed from the potential impacts of new development."*

The rule identifies specific elements of Water Supply Watershed Rules that retain applicability in addition to nutrient reduction requirements imposed by this rule. Chief among those are the density thresholds at which treatment is required and the development density ceilings.

1-C. Applicability of the New Development Rule

The rule requires all local governments in the Falls watershed to implement requirements on new development activities within their planning jurisdictions as state in Items 2 and 3 of the rule:

> *"(2) APPLICABILITY. This Rule shall apply to those areas of new development that lie within the Falls watershed and the planning jurisdicition of a municiaplity or county that is identified in 15A NCAC 02B .0275."*

> *"(3)REQUIREMENTS. All local governments subject to this Rule shall develop stormwater management programs for submission to and approval by the Commission, to be implemented in areas described in Item (2) of this Rule.Nothing in this Rule preemprs local governments from establishing requirements that are more restrictive than those set forth in this Rule. Local government stormwater programs shall include the following elements and the standards contained in Item (4):"*

3-10-11

The affected local governments that are listed in the Falls Purpose and Scope Rule, 15A NCAC 02B .0275, and are the following:

Municipalities	Counties
Butner	Durham
Creedmoor	Franklin
Durham	Granville
Hillsborough	Orange
Raleigh	Person
Roxboro	Wake
Stem	
Wake Forest	

To assist local governments and others in determining the relationship of watershed boundaries to other geography, we provide a GIS layer of the Falls Watershed and the three subwatershed boundaries on the Division's Falls website: http://portal.ncdenr.org/web/wq/ps/nps/fallslake.

This will be particularly useful for jurisdictions that straddle the Falls watershed boundary. As described in the Model Program, local governments are required to develop maps of their jurisdictions with the Falls watershed boundaries overlaid and include these in their program appendix.

1-D. Implementation Timeframe of the New Development Rule

Item (4) of the rule establishes timeframes for implementation. We compile those here for reference, noting any assumptions made to derive dates from relative timespans used in the rule.

- January 15, 2011: Effective date of the Rule.
- March 10, 2011: Division takes Model Stormwater Program to the Commission for approval.

Assuming model approval by the Commission in March 2011:

- March 10, 2011: Local governments begin informing non-DOT state/federal entities who apply for local stormwater permits that they are subject to permitting by the Division under Rule 2B .0281. See Section 2-A-5 for further information.
- August 2011: Deadline for submittal of local Stormwater Programs to the Division.
- Janaury 2012: DWQ to bring recommendations on local programs to Commission .

Assuming Commission approval of local programs in January 2012:

3-10-11

- July, 2012: Implementation of local programs. This may include, by local determination, permitting of non-DOT state/federal entities. See Section 2-A.5. for further discussion.
- August, 2013 and annually: Local governments submit annual progress reports to the Commission.

2. Guidance to Local Governments on Implementing Rule Requirements

This chapter provides supplemental guidance for local governments and developers explaining how to implement or comply with the requirements of the New Development Rule. Local governments should refer to the Model Local Stormwater Program located at the beginning of this document for specific requirements for their local program submittals to the Division.

Local governments are required to adopt a new ordinance or revise existing ordinance to incorporate the Rule requirements to ensure compliance. A Model Ordinance can be found in Appendix L. The Model Ordinance is intended to serve as an acceptable ordinance design for meeting the local program requirements set out in Items (3) and (4) of the rule. Local governments may find some aspects of the model more comprehensive than the rule requirements. In some cases, differences are intentional and mirror Phase II NPDES Stormwater or Water Supply Watershed model language so that local governments may avoid having additional definitions to meet this rule and other state stormwater rules. We attempt to identify such cases in this guidance. In any case, we recognize that the model ordinance is not necessarily the only design for complying with the requirements of this rule.

For new development that exceeds certain land disturbance thresholds, developers will be required to submit stormwater management plans to the local governments demonstrating that rule requirements have been met. Local governments shall review these stormwater plans for compliance.

2-A. Development Subject to Rule Requirements

Items (3) and (4) of the rule sets out requirements to which local governments shall hold "new development". New development is defined in the Falls Definitions Rule as any development that is not "existing development". That rule then gives a definition for "existing development" and, more fundamentally, "development". We explain these definitions and how the model ordinance definitions fit with them below, but first we note the subsequent criteria that a local government would apply to "new development" to determine their appropriate action:

- For "new development", the rule sets out land disturbance thresholds that trigger the requirement for a stormwater management plan.

- Development that triggers submittal of a stormwater management plan will not necessarily be required to achieve nutrient reductions. This will depend on the untreated nutrient loading rates estimated for that development. This determination is described in Sections 2-B-1 and 2-B-2.

The set of definitions in the Falls New Development rule and supporting definitions found in other rules in the same section of rules, Section 2B of Title 15A, are the benchmarks to

which we will compare your ordinance. In the following subsection, we repeat those definitions regarding new development, then discuss the differences in these definitions from the model ordinance and local government options.

But first, why do model ordinance definitions sometimes vary from Falls rule definitions? This was done intentionally to mirror definitions used in the Phase II NPDES Stormwater Model Ordinance and Water Supply Watershed Model Ordinance, to minimize the need for local governments to add definitions to satisfy this rule. In general, where the same term is defined slightly differently between the model ordinance and a Falls New Development rule or other rule in Section 2B of Title 15A, the Model Ordinance definitions carry sufficiently close meaning to meet the requirements of the rule. We believe that adopting the set of definitions used in the model ordinance regarding development will meet the requirements of the Falls New Development rule without the need to also adopt a definition for "new development". A similar discussion is provided in a comment box in the model ordinance.

1. New Development

The Falls definitions Rule, 15A NCAC 02B .0276 provides these definitions for the terms used in the rule:

> "*(16) 'New development' means any development project that does not meet the definition of existing development set out in this Rule"*

> "*(7) 'Existing development' means development, other than that associated with agricultural or forest management activities that meets one of the following criteria:*
>
> *a) It either is built or has established a vested right based on statutory or common law as interpreted by the courts, for projects that do not require a state permit, as of the effective date of either local new development stormwater programs implemented under Rule 15A NCAC 02b .0277 [Falls New Stormwater Rule] or, for projects requiring a state permit, as of the applicable compliance date established in Rule 15A NCAC 02B .0281 (5) and (6)* [FallsState and Federal Entities Stormwater Rule].*; or*
>
> *b) It occurs after the compliance date set out in Sub-Item (5)(d) of Rule .0277* [New Development Rule] *but does not result in a net increase in built-upon area."*

The Falls Definitions Rule refers to another rule in the same section of administrative code, Rule 15A NCAC 2B .0202, to define the following term:

> "*(23) Development means any land disturbing activity which adds to or changes the amount of impervious or partially impervious cover on a land*

area or which otherwise decreases the infiltration of precipitation in the soil."

In short, "new development" under the Falls New Development rule is any development that is not vested and that results in a net increase in built-upon area. This apply equally to development on previously undeveloped lands, or greenfield development, and redevelopment. For elaboration on loading requirements on redevelopment, please see Section 2-B-5.

The defition of new develoent under this rule has a slightly narrower coverage than the foundation term "development" has, since "development" also includes disturbance that "otherwise decreases the infiltration of precipitation into the soil." The model ordinance definitions for "development" and "existing development" match the slightly broader foundation definition for "development" in Falls. The reason, again, is that the broader definition matches those used in the model ordinances for Phase II and WSW. By staying with the broader term, the Falls model ordinance allows local governments that implement one or both of these other stormwater programs to avoid adopting additional definitions for the slightly narrower scope of Falls "new development". However, local governments may certainly choose to add the rule's definition for "new development".

Rule 2B .0202 also defines built-upon area, which is used in the definition of "existing development" above:

"(13) Built-upon area means that portion of a development project that is covered by impervious or partially impervious cover including buildings, pavement, gravel areas (e.g. roads, parking lots, paths), recreation facilities (e.g. tennis courts), etc. (Note: Wooden slatted decks and the water area of a swimming pool are considered pervious.)"

The model ordinance uses a more updated form of this definition that additionally excludes pervious pavement from built-upon area *to the extent* that it allows infiltration of water. While the Division has not to date assigned pervious pavement specific infiltration credit in the Piedmont, such a refinement could occur in the future. Since the model ordinance definition makes the fate of pervious pavement conditional on its performance, the definition presents no conflict with the narrower 2B .0202 definition. By using the model ordinance definition, local governments can avoid that potential definition change in the future if the Division does credit pervious pavement with infiltration.

2. Land Disturbance Thresholds

The Rule establishes land disturbance thresholds that any activity that meets the definition of new development must exceed before a stormwater management plan is required:

"(3)(a) The requirement that a stormwater management plan shall be submitted for local government approval based on the standards in Item (4) for all proposed new

development disturbing ***one-half acre or more*** *for single family and duplex residential property and recreational facilities, and* ***12,000 square feet or more*** *for commercial, industrial, insitutional, multifamily residential, or local government property;"*

The definition of "land-disturbing activity" in Rule 2B .0202, which provides a foundational reference for the word "disturbing" as used above, is identical to the definition provided in the model ordinance. Both read as follows (from 2B .0202):

"(37) Land-disturbing activity means any use of the land that results in a change in the natural cover or topography that may cause or contribute to sedimentation."

The Division interprets these land disturbance thresholds as cumulative disturbances. If the project is part of a larger common plan of development or sale, and the larger common plan would exceed the applicable half-acre or acre threshold, even though multiple, separate or distinct activities take place at different times on different schedules, the development would require a stormwater plan.

3. Summary of Permitting Thresholds

In sum, local permitting thresholds are defined by narrowing from the broadest terms included in the definition to the most selective. That is, to require a stormwater plan under this rule, an activity must be land-disturbing, it must additionally be new development (in short, not vested and resulting in a net increase in built-upon area), and it must disturb at least the applicable acreage threshold of one-half or one acre. This logic would apply to not only to previously undeveloped, greenfield development but also to redevelopment projects.

Local governments may propose an alternative approach that tracks the rule more closely than the model ordinance, or any other approach that is at least as stringent as the requirements of the Rule.

Once a stormwater management plan is required, the proposed activity may be subject to nutrient reduction requirements, depending on whether it exceeds the rule's loading rate targets.

Example: A proposal to build a house on an undeveloped 5-acre lot of record in the county. Plan proposes to disturb 1.1 acres to build a 3,000 square foot house with a 1,000 square foot shed and 2,000 square feet of driveway. Assuming it's not vested, this would add impervious and would be residential that disturbs more than one acre, so it would qualify as "new development" and require a stormwater plan. Would it need to reduce nutrient loads? The Jordan/Falls accounting tool estimates untreated loads of approximately 1.63 lb N/ac/yr and .32 lb P/ac/yr, so no load reduction is necessary. (note that impervious footprints could vary significantly and affect the load value).

Below-Threshold Development
And Existing Development Requirements of 15A NCAC 02B .0278

The land disturbance thresholds of one-half acre and 12,000 sq/ft effectively set aside small-scale development such that its loads are not addressed under this rule, nor under the strategy except to the extent that such lands are previously developed. Such previously developed lands will potentially be captured in existing development load reduction assignments made to local governments. We recognize the small-scale gap in strategy coverage otherwise. A concerned local government may choose to close this gap by adopting lower disturbance thresholds.

Where below-threshold development occurs on previously developed lands, it presents a potential opportunity for local governments to achieve load reductions creditable under the existing development requirements provided such development reduces loads relative to the previous development. Conversely, below-threshold development on previously developed lands presents a potential liability to local governments under the existing development requirements if it increases loads relative to the previous development. The Redevelopment section below provides additional discussion on redevelopment relative to potential existing development requirements..

Vested Rights
The rule does not attempt to set any further procedural direction regarding vesting than that already in place in local government statute or derived from common law, as seen in the rule's definition of existing development above. Local governments shall be responsible for determining if a project is vested using existing process guidance.

4. State and Federal Projects

The Falls State and Federal Rule [Rule15A NCAC 02B .0281] establishes stormwater requirements to be implemented by the Division for new development on state and federal lands beginning upon Commission approval of the Jordan/Falls Accounting Tool, scheduled for March 10, 2011. Local governments may interpret Session Law 2006-246 as requiring them to apply the requirements of this rule to state and federal projects that do not have an NPDES stormwater permit. Program submittal requirements in the model program include an item calling for local governments to state whether they intend to permit state and federal projects relative to the requirements of this rule. Until such local programs area approved and implemented, the Division will implement the requirements of 15A NCAC 02B .0281 on state and federal projects in the watershed.

3-10-11

2-B. Nutrient Control Requirements

1. Calculating Nitrogen and Phosphorus Export from New Development

The Rule describes the nutrient loading rate targets that new development must meet:

"(4)(a) Nitrogen and phosphorus loads contributed by the proposed new development activity shall not exceed the unit-area mass loading rates for nitrogen and phosphorus, respectively, expressed in units of pounds per acre per year: 2.2 and 0.33 Proposed development that would replace or expand structures or improvements that existed as of December 2006, the end of the baseline period, and that would not result in a net increase in built-upon area shall not be required to meet the nutrient loading targets or high-density requirements except to the extent that the developers shall provide stormwater control at least equal to the previous development. Proposed development that would replace or expand existing structures or improvements and would result in a net increase in built-upon area shall have the option either to achieve at least the percentage loading redcution objectives stated in 15A NCAC 02B .0275 as applied to nitrogen and phosphorus loading from the previous development for the entire project site, or to meet the loading rate targets described in this item. These requirements shall supersede those identified in 15A NCAC 02B .0104(q). The developer shall determine the need for engineered stormwater controls to meet these loading rate targets by using the loading calculation method called for in Sub-Item (5)(a) or other equivalent method acceptable to the Division."

The rate targets described in Item (4)(a) were established by applying the strategy percentage reduction goals to a weighted average loading rate of undeveloped, developable land cover types in the subwatershed. The strategy percent goals and corresponding loading rate targets are provided in Table 2.

Table 2. Nutrient Loading Rate Targets, FallsNew Development

Reduction Goals[a]		Loading Rate Targets[b] (lbs/ac/yr)	
N	P	N	P
40%	77%	2.2	0.33

a: From Falls Purpose and Scope rule, 15A NCAC 2B .0275
b: From Falls New Development rule, Item (4)(a)

3-10-11

Load Estimation Tool
The Rule requires that the Division develop an accounting tool for nitrogen and phosphorus:

> *"(5)(a) No later than March 15, 2011, the Division shall submit a model local stormwater program, including a model local ordinance that embodies the criteria described in Items (3) and (4) of this Rule for the Commission approval. The model program shall include a tool that will allow developers to account for nutrient loading from development lands and loading changes due to BMP implementation to meet the requirements of Items (3) and (4) of this Rule…."*

The Division contracted with the Stormwater Team of the NCSU Department of Biological and Agricultural Engineering to develop an accounting tool for this purpose. Local government stormwater staff, developers, and Division staff participated in workshops to review a beta version of the tool in July 2010. The final Jordan/Falls Nutrient Accounting Tool can be downloaded at the Division's Falls website: http://portal.ncdenr.org/web/wq/ps/nps/fallslake. The users' manual can be found in Appendix M along with printouts of key pages of the tool.

Local governments may propose alternative load calculation approaches or adapt the process to be more applicable to their jurisdictions where they demonstrate such modifications to be equivalent. Any changes to the method should be adequately explained and supported with appropriate technical information, and must be approved by the Division and the Commission.

The tool is based on Schueler's Simple Method and runs either on Excel 2003 or 2007 spreadsheet software. For a given project, the methodology calculates an annual load export in lbs/ac/yr for both nitrogen and phosphorus based on event mean concentrations of nitrogen and phosphorus coupled with runoff flow estimates for each of a number of different urban land covers. The user inputs the square footage of each land cover on the site for pre- and post-development cases, selects the physiographic region, the soil hydrologic group, and the precipitation location of the site. The tool also provides the option of selecting generic lot sizes for residential development, as opposed to specific square footages of each land cover type on a development.When entering land use information into the tool, forested land must be considered as "managed pervious" or "lawn" unless it is subject to a conservation easement or another mechanism to insure it will not be managed by mowing, logging, fertilization etc. Examples of conservations easements can be found in Appendix R.

After the user inputs the required fields, the tool will calculate an average export loading rate for the development in lbs/ac/yr. The post-development nutrient loading rates will then be compared to the loading rate targets quoted above. If the post-development loading rates exceed the loading rate targets quoted above, then measures must be taken to reduce nutrients to those levels. The next two sections provide guidance on rule requirements and options for meeting loading rate targets.

It is likely that the accounting tool will be refined over time. The Division would provide those refinements to the jurisdictions for review and feedback as they are developed. For example, additional research may lead to refined export event mean concentration values for the various urban land covers.

2. Measures for Reducing Nitrogen and Phosphorus

The Jordan/Falls Accounting Tool described in the previous Section may be used to determine the pre- and post-development nutrient loading rates of the new development. If the post-development loading rates estimated by the accounting tool exceed the rate targets, measures must be taken to reduce the loading to meet them.

Planning measures can be used to reduce nutrient runoff from new development, and are discussed in Section 2-E. However, on-site nutrient-reducing BMPs are often necessary. Each BMP has different load reduction capabilities. BMPs can be selected in the Jordan/Falls Accounting Tool to see the reductions they achieve. Table 3 lists the set of current BMPs that can be used to achieve nutrient reductions. BMPs may be added to this list as better science is established. The rule requires that BMPs be built in accordance with the Division's Stormwater BMP Manual, which is available at: http://portal.ncdenr.org/web/wq/ws/su/bmp-manual.

Table 3 – Stormwater BMP Performance Specifications

BMP	TSS Removal Efficiency[a]	*Volume Reduction (Piedmont)*[b]	*Volume Reduction (Triassic)*[b]	*TN Effluent Concentration*[b] *(mg/L)*	*TP Effluent Concentration*[b] *(mg/L)*
Stormwater Wetland	85%	20%	15%	1.08	0.12
Bioretention w/o IWS	85%	35%	15%	1.0	0.12
Bioretention w/ IWS	85%	50%	35%	0.95	0.12
Wet Detention Basin	85%	10%	5%	1.01	0.11
Dry Extended Detention Basin	50%	0%	0%	1.20	0.20
Permeable Pavement*	0%	0%	0%	1.44	0.39
Rainwater Harvesting*	n/a	user defined	user defined	1.08	0.15
Grassed Swale	35%	0%	0%	1.21	0.26
Infiltration Device	85%	n/a	n/a	n/a	n/a
Restored Riparian Buffer	60%	n/a	n/a	n/a	n/a
Level Spreader/Filter Strip	40%	40%	20%	1.20	0.15
Sand Filter	85%	5%	5%	0.92	0.14
Greenroof*	0%	50%	50%	1.08	.12

[a] From DWQ Stormwater BMP Manual

[b] From Jordan/Falls Lake Stormwater Load Accounting Tool
*DWQ will continue to evaluate data on BMP practices.
**For Piedmont Physiographic/Geologic Region

While the NC Stormwater BMP Manual provides nitrogen and phosphorus percent removal efficiencies for these BMPs, the new Jordan/Falls Accounting Tool introduces a new innovation that moves away from these fixed percent nutrient removal efficiencies. It instead assumes the fixed effluent concentrations shown in the table specific to each BMP, regardless of the influent concentration. The designers of the tool have determined the need for this innovation to more accurately represent actual stormwater treatment processes, as supported by research nationwide and in other countries that study these practices. This design shift has at least two notable effects for the user. One, higher inflow nutrient concentrations result in great treatment efficiencies, and two, effluent concentration is one of two key factors in BMP selection for nutrient control.

A second improvement in the new tool is that it accounts for infiltration that occurs as stormwater passes through a BMP, crediting this loss of volume toward nutrient load reduction. This function varies across BMPs, as also shown in Table 3. This function raises another implication for users considering serial BMPs. An additional BMP that does not have a lower effluent concentration than the previous BMP may still reduce loading further through infiltration.

In addition to nutrient reducing planning measures and BMP implementation, developers have the option of providing full treatment onsite or using off-site options to partially offset their nitrogen and phosphorus reduction requirements, if specific onsite treatment reductions are firstmet. These onsite treatment requirements and offsite options are described in Section 2-B-4. Full treatment onsite may require more than one BMP in series depending on the level of impervious cover.

3. Minimum Onsite Requirements

Sub-Items (4)(b)(i) through (iv) establish the onsite treatment criteria required for New Development prior to using an offsite offset option.

"(4)(b) The developer shall have the option of offsetting part of the nitrogen and phosphorus load by implementing or funding offsite offset measures. Before using an offsite offset option, a development shall implement onsite structural stormwater controls that achieve one of the following levels of reductions:

(i) Proposed new development activity disturbing at least one-half acre but less than one acre of land for single family and duplex residential property and recreational facilities, except as stated in Sub-Item (4)(b)(iv), shall achieve 30 percent or more of the needed load reduction in both nitrogen and phosphorus loading onsite and shall meet any requirements for engineered stormwater controls described in Sub-Item (4)(e) of this Rule;

(ii) Proposed new development activity disturbing at least 12,000 but less than one acre of land for commercial, industrial, institutional, multifamily residential, or local government property, except as stated in Sub-Item

(4)(b)(iv), shall achieve 30 percent or more of the needed load reduction in both nitrogen and phosphorus loading onsite and shall meet any requirements for engineered stormwater controls described in Sub-Item (4)(e) of this Rule;

(iii) Except as stated in Sub-Item (4)(b)(iv), proposed new development activity that disturbs one acre of land or more shall achieve 50 percent or more of the needed load reduction in both nitrogen and phosphorus loading onsite and shall meet any requirements for engineered stormwater controls described in Sub-Item (4)(e) of this Rule; or

(iv) Proposed development that would replace or expand structures or improvements that existed as of December 2006 and that increases impervious surface within a local government's designated downtown area, regardless of area disturbed, shall achieve 30 percent of the needed load reduction in both nitrogen and phosphorus onsite, and shall meet any requirements for engineered stormwater controls described in Sub-Item (4)(e) of this Rule;"

The rule's onsite BMP requirements include the following:

"(4)(e) Stormwater systems shall be designed to control and treat the runoff generated from all surfaces by one inch of rainfall. …"

Taken together, we interpret these passages to mean that if a development exceeds the nutrient loading rate targets described in Table 2 before any BMPs are added, then onsite treatment must be provided for runoff from all surfaces to the level of nutrient redcution described in Sub-Item (4)(b) of the Falls Stormwater Rule.

The interpretation above does not fully answer the question of the spatial extent of site area that should be treated. While the offsite loading rate thresholds described in 2-B-4 provide some level of backstop, our expectation is that runoff from at least all impervious surfaces is to be captured, along with resulting attendant pervious areas within the drainage envelope of the stormwater practices, and treated for nutrient removal, recognizing practical limitations, and that the offsite nutrient thresholds described in 2-B-4 must at least be met. This policy is consistent with Division policy under Phase II NPDES stormwater and WSW stormwater.

Do I Have to Treat Offsite Run-On?

In many projects, adjacent lands drain onto the project site, either overland or in defined conveyances. Designers have an option for dealing with this "offsite run-on". They may choose to divert this runoff around or through their site without co-mingling it with site drainage. In this case, they are not required to provide any treatment or attenuation but need to be sure to respect downgradient property rights. Alternatively, they may choose to accept the offsite run-on and treat and attenuate it. In this case, they are required to size their practices to treat the entire catchment draining to them, including the offsite portion. If a site is designed to allow offsite run-on to drain to a BMP but the BMP is sized to handle only the onsite portion of the catchment, that BMP is in effect undersized and is not meeting requirements.

4. Offsite Partial Offset Options

Which Developments Can Use the Offsite Option?
Section (4)(b) and (c) of the New Development Rule allows for developers to achieve portions of their nutrient reduction needs through off-site offsets. and reads in part as follows:

"(b) The developer shall have the option of offsetting part of the nitrogen and phosphorus load by implementing or funding offsite offset measures. Before using an offsite offset option, a development shall implement onsite structural stormwater controls that achieve one of the following levels of reductions:"

"(c) Offsite offsetting measures shall achieve at least equivalent reductions in nitrogen and phosphorus loading to the remaining reduction needed onsite to comply with the loading rate targets set out in Sub-Item (4)(a) of this Item. A developer may use any measure that complies with the requirements of Rules .0240 and .0282. of this Section;"

Any development that first achieves the onsite load reduction requirements as described in Sub-Items (4)(b)(i) through (iv) of the Falls New Development Rule, may implement or fund offsite management measures that achieve the remaining nitrogen and phosphorus loading reductions needed to achieve the loading rate targets of Table 2 as opposed to providing additional BMPs onsite.

Who Approves Offsets, and What Requirements Must Offsets Meet?
All nutrient offset projects are required to obtain Division approval to sell credits, and the Division oversees the depletion of credits by banks. Local governments will be responsible for verifying developers' calculated offsite reduction needs and that developers have obtained approved credits before approving their project applications.

The last sentence of the Sub-Item (4)(c) quoted above states that all offsets shall meet the requirements of rule ***2B .0282, Options for Offsetting Nutrient Loads***, also referred to as the Falls trading rule, which is provided in Appendix C. The trading rule lays out basic requirements for parties who wish to buy or sell credits in Falls watershed. It applies to all parties in the watershed who wish to do so. It includes the following geographic restrictions to be adhered to by prospective buyers and sellers of credit:

"(i) Impacts in the upper Falls watershed as defined in Item (19) of 15A NCAC 02B .0276 may be offset only by load reductions achieved in the upper Falls watershed;" and

"(ii) Impacts in the lower Falls watershed as defined in Item (20) of 15A NCAC 02B .0276 shall be offset by load reductions achieved anywhere within the Falls watershed."

All nutrient offsets for impacts must be located within the Falls watershed. The Sub-items of the trading rule noted above further refine the geographic requirements of nutrient offsets within the Falls watershed.

Nutrient offset purchasers and providers are also required to comply with the ***Nutrient Offset Payment Rule, 15A NCAC 2B .0240***. This rule applies to all watersheds in the state where the offset option is in place and sets procedural requirements for all nutrient offset buyers, sellers and projects. The rule was amended effective September 2010 and revised procedures that had been mandated by session law up to that point. Local governments will need to ensure that developers meet certain requirements identified in this rule. The rule is provided in Appendix J.

A related rule, ***15A NCAC 2B .0274, Nutrient Offset Payment Rates for the NC Ecosystem Enhancement Program***, also effective September 2010, does not set requirements that local governments must implement, but it does dictate the price of offsets provided by the NC Ecosystem Enhancement Program. That rule establishes a process for the EEP to set its offset rates in all watersheds that have the offset option. That rule is provided in Appendix K. See the following webpage for a description of the EEP in-lieu payment process: http://www.nceep.net/pages/pay.htm.

5. Redevelopment

The rule sets out the following treatment expections for redevelopment projects under Sub-Item (4)(a) (***emphasis added***):

" Proposed development that would replace or expand structures or improvements that existed as of December 2006, the end of the baseline period, ***and that would not result in a net increase in built-upon area*** *shall not be required to meet the nutrient loading targets or high-density requirements except to the extent that the developer shall provide stormwater control at least equal to the previous development. Proposed development that would replace or expand existing structures or improvements* ***and would result in a net increase in built-upon area*** *shall have the option either to achieve at least the percentage loading reduction objectives stated in 15A NCAC 02B .0275 as applied to nitrogen and phosphorus loading from the previous development for the entire project site, or to meet the loading rate targets described in this Item. These requirements shall supersede those identified in 15A NCAC 02B .0104(q)."*

The two options for treatment of redevelopment that increases built-upon area as described in Sub-Item (4)(a) above and exceed the land disturbance thresholds described in Section 2-A-2 are further explained as follows:

3-10-11

1. The pre-existing nitrogen and phosphorus loading rates shall first be determined by using the Accounting Tool described in Section 2-B-1. Then the strategy percent reduction goals found in Table 2 shall be applied to the pre-development loading rates to determine the post-development nutrient loading target rates that must be achieved by the entire site; or

2. The entire site must meet the loading rate targets listed in Table 2.

The first option becomes the less stringent option as the percent impervious cover of redevelopment sites increases above some threshold. Given that the majority of redevelopment sites subject to the rule may be commercial/industrial in nature, the first option may be developers' overwhelming choice in practice.

To be clear, where there is a net increase in built-upon area, the rule calls for the entire redevelopment project to meet the nutrient requirements, not just the net increased built-upon area. All impervious should be captured and treated. In this case, this would be all impervious on the project site. This is a departure from the way redevelopment that increases built-upon area is handled under Phase II and WSW stormwater.

The Relationship of Redevelopment to Existing Development Requirements of 15A NCAC 02B .0278

Overall, redevelopment presents a potential opportunity for local governments to make incremental progress toward existing development load reduction needs. Essentially all redevelopment occurs on previously developed lands, which contribute nutrient loads to the total that local governments are required to reduce under the existing development requirement as described in Falls Lake Exisitng Development Rule 15A NCAC 02B .0278. Thus, any redevelopment that achieves net nutrient loading reductions relative to pre-existing conditions on that site generates creditable load reductions that local governments may use to meet their exisitng development reduction requirements. Those existing development requirements can be found in Item (3) of 15A NCAC 02B .0278.

Redevelopment that increases built-upon area and exceeds the land disturbance thresholds is required to reduce loads to a choice of two standards as described above, so it will necessarily generate load reductions that a local government may credit toward its existing development requirements.

Redevelopment that does not yield a net increase in built-upon area is not required to control nutrients except to the extent controlled by the previous development, which yields no change in nutrient loading. Local governments may elect to require nutrient reductions on this type of redevelopment project, and credit those load gains toward existing development requirements.

2-C. Related Requirements

1. Meeting Other Regulations

The Falls New Development Rule describes how new development in the Falls watershed is affected by other regulations in addition to the Rule:

"(4)(d) *Proposed new development subject to NPDES, water supply, and other state-mandated stormwater regulations shall comply with those regulations in addition to the other requirements of this Sub-Item. Proposed new development in any water supply watershed in the Falls watershed designated WS-II, WS-III, or WS-IV shall comply with the density-based restrictions, obligations, and requirements for engineered stormwater controls, clustering options, operation and maintenance responsibilities, vegetated setbacks, land application, and landfill provisions described in Section (3)(b)(i) and (3)(b)(ii) of the applicable Rule among 15A NCAC 02B .0214 through .0216. Provided, the allowance in watersupply watershed rules for 10 percent of a jurisdiction to be developed at up to 70 percent built-upon area without stormwater treatment shall not be available in the Falls watershed;"*

In accordance with this sub-item, new development will continue to have to comply with the other state regulations including NPDES Stormwater and Water Supply Watershed Rules. Rules .0214 through .0216 are the Water Supply Rules for Class WS-II, WS-III, and WS-IV respectively. Section (3)(b)(i) of each of the rules lays out the WS requirements throughout the WS Watershed, including the low and high density options and the 10/70 provision. Item (3)(b)(ii) of each rule lays out the requirements for areas within the critical area of the WS watershed, including low and high density options. These three WS rules are located in Appendices F through I.

Probably the most important aspects of the retained Water Supply Watershed requirements, once overlaid with requirements of this rule, are the density thresholds requirement treatment and the density ceilings. Since this rule sets no absolute limit on built-upon area, the Water Supply Watershed density ceilings serve as an additional limitation in all cases.

2. Calculating Peak Runoff Volume

Item (4)(e) and (f) of the rule describes the peak flow requirements:

"(4)(e) Stormwater systems shall be designed to control and treat the runoff generated from all surfaces by one inch of rainfall. The treatment volume shall be drawn down pursuant to standers specific to each practice as provided in the July 2007 version of the Stormwater Best Management Practices Manual published by the Division, or other at least technically equivalent standards acceptable to the Division.

"(4)(f) To ensure that the integrity and nutrient processing functions of receiving waters and associated riparian buffers are not compromised by erosive flows, stormwater flows from the new development shall not contribute to degradation of waters of the State. At a minimum, the new development shall not result in a net increase in peak flow leaving the site from pre-development conditions for the one-year, 24-hour storm event;"

The main reason that the rule requires a 1-year design storm for peak flow control is to protect stream channels from erosion. Development on land causes many changes in stormwater hydrology. One of the major causes of streambank erosion in urban streams is the increase in the frequency of the bankfull-flooding event. The bankfull-flooding event generally occurs at approximately a 1.5-year frequency. The Rule requires control of the 1-year storm to predevelopment levels to insure that the rate of release will be below bankfull and therefore less erosive to the stream channel.

Protecting streambanks from erosion is a crucial part of the overall Falls Strategy. Riparian buffers are protected under this program because in most situations they are effective at removing nitrogen resulting from nonpoint source pollution. The use of nitrogen reducing BMPs on new development does not obviate the need to maintain valuable riparian buffers.

Refer to Chapter 3.2 and 3.3 of the NC DWQ Stormwater BMP Manual for guidance on calculating peak flow: http://portal.ncdenr.org/web/wq/ws/su/bmp-manual

3. Protecting Riparian Buffer Areas on New Development

In addition to the requirements of the Rule, new development must also adhere to the requirements of the Neuse Buffer Protection and Mitigation Rules, as stated in the New Development Rule:

"(4)(h) *Proposed new development shall demonstrate compliance with the riparian buffer protection requirements of 15A NCAC 02B .0233 and .0242 or subsequent amendments or replacements to those requirements."*

2-D. BMP Maintenance

Where BMPs are implemented to achieve the nitrogen and phosphorus loading and flow attenuation requirements for a development, then pursuant to Item (3)(b) of the rule the local government is responsible for ensuring that BMPs continue to function for the life of the development. The Division believes that at minimum, annual inspection of BMPs by qualified personnel is needed to ensure ongoing performance.

To ensure annual maintenance, a local government may choose to charge property owners annual inspection fees or inspection and maintenance fees and assume responsibility for inspecting or maintaining all practices itself. A local government may instead choose to require the property owner to conduct annual inspections, while the local government establishes an inspection oversight program on a less frequent basis. Section 4 of the Model Ordinance provides for the latter approach. For local governments that choose the latter

approach, the Division would expect the local government to conduct routine review of all inspection reports submitted as well as site review of all permitted projects at least once every five years, or site inspections on a minimum of 20% of permitted projects each year.

For practices that are to be maintained by an association of owners, to address the need for major repair or complete replacement, the Division encourages local governments to require financial surety of the developer and subsequent owners as detailed in the model ordinance.

Local governments are encouraged to use the model ordinance language at Section 401(B) that requires inspections to be performed by qualified personnel of at least one of the types listed. The list includes individuals who have been "certified by the NC Cooperative Extension Service for stormwater treatment practice inspection and maintenance". We believe this provides a useful minimum standard of qualifications.

Under any approach, local governments will be expected to maintain a database of BMPs installed to comply with the requirements of this rule, to track activities associated with those BMPs, and to provide the Division access to this information upon request.

Example stormwater maintenance agreements and program are provided in Appendix Q.

2-E. Land Use Planning Provisions (Optional)

The site performance standard design of the rule provides local governments the opportunity to potentially aid developers from the standpoint of reducing a project's untreated loading rates via modifications to various ordinances that reflect improved growth management practices. A review of ordinances for this purpose would be elective on the part of local governments. For example, ordinance modifications that result in reduction of impervious surfaces reduce the need for BMPs to control nitrogen and phosphorus loading rates and peak stormwater flows and also reduce associated BMP maintenance concerns.

In developing local programs for submittal, affected jurisdictions are encouraged to review their local ordinances with regard to the following topics and show that they have provided adequate flexibility for developers to utilize planning measures to reduce impervious surfaces. This elective review is intended to look for opportunities where these measures could be allowed, or where obstacles to their use could be removed.

The Division asks that each jurisdiction report in their program submittal on whether that they have reviewed and considered the following planning techniques, and whether they made or will propose any changes as a result.

- Reducing road widths
- Reducing minimum parking requirements
- Minimizing use of curb and gutter
- Cluster or open-space developments
- Traditional neighborhood developments

- Mixed-use developments
- Low Impact Development principles
- Other impact-reducing approaches

Descriptions of these techniques are provided in Appendix P, and a Jurisdiction Self-Assessment Tool is found in Appendix S.

2-F. Annual Reports

Item (5)(e) of the New Development Rule requires local governments to submit annual reports after implementation begins:

> *"Upon implementation, subject local governments shall submit annual reports to the Division summarizing their activities in implementing each of the requirements in Items (3) and (4) of this Rule, including changes to nutrient loading."*

We support the concept of consolidating reporting requirements to the greatest extent feasible. It appears that the July-August timeframe would allow local governments to report on Phase II stormwater, Falls Existing Development Stage I, and this rule in one report. We propose then to require submittal of annual reports in August each year.

The requirements of Items (3) and (4) of the Rule are laid out in Chapter 2 of this model program. Components of the annual report shall include:

- Staffing changes of rule implementation staff since last year.
- Updated jurisdictional map with revision date, or statement of no changes from last year.
- Acres greenfield development and redevelopment by type (residential, commercial, and industrial) and acres of impervious land cover, based on plan approvals.
- Acres of greenfield development and redevelopment by type that exceed loading rate targets.
- # of BMPs by type implemented on-site, and pounds of nitrogen and phosphorus reduced by these BMPs.
- # and types of offsite options used and pounds reduced by these options
- Summary of maintenance activities conducted on BMPs constructed under this program:
    - # of inspection reports received;
    - # of site inspections by local government personnel;
    - Summary characterization of types of maintenance needed (optional)
- # and nature of any enforcement actions taken for violations of program requirements.

3-10-11