

Town of Stem
Inventory of Selected Items for Nutrient
Loading Reduction

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Background

The Falls Lake Nutrient Management Strategy, developed and enforced by the North Carolina Department of Environment and Natural Resources (DENR), requires that local governments of jurisdictions within the Falls Lake watershed develop programs to reduce nutrient loading in the receiving waterbody. There are two stages to the strategy, the first of which requires each jurisdiction to submit, by January 2013, inventories characterizing the load reduction potential for six primary programs.

This document fulfills the Stage I load reduction inventory requirements under 15A NCAC 02B .0278(3), and describes the Town of Stem's opportunities for load reduction through the six means or techniques described in that section. It is submitted by the Town of Stem for approval by the Commission.

Stage I Load Reduction Programs

The Falls Lake Nutrient Management Strategy identifies six specific areas in which load reductions may be achieved. Under Stage I of the programs, local governments must develop inventories and characterize load reduction potential (to the extent that accounting methods allow) for each. The Town of Stem's programs and the associated load reduction potential are described below.

Wastewater Collection Systems

Nutrient loading can be reduced through the improvement of wastewater collection systems. Specifically, proper system maintenance will result in a reduction in both dry weather leaks to surface water and wet weather overflows, which will in turn reduce nutrient loading. In Stem, the South Granville Water and Sewer Authority (SGWASA) has jurisdiction over the wastewater collection system and treatment plant. As such, SGWASA is responsible for the maintenance of the system and is the beneficiary of any nutrient load reductions realized through that program. These load reductions are not expected to apply to Stem's load reduction program.

For reference, the map included as Appendix A displays the wastewater collection system throughout Stem.

Discharging Sand Filter Systems

There are no discharging sand filter systems within Stem. Therefore, there is no opportunity to achieve load reduction within this program.

Septic Systems

An inventory of septic systems that includes Stem is included in the *Person and Granville County Septic System Field Performance Assessment*, being completed by NC State. The results of this assessment will be presented under a separate cover from this inventory.

Utility Corridors

Utility corridors are commonly mowed areas surrounding above-ground components of utility infrastructure. Restoration of barren or grassy utility corridors to those supporting hardier vegetation

could reduce runoff via interception and consequently reduce nutrient loading. According to the Jordan/Falls Lake Stormwater Nutrient Loading Accounting Tool, the conversion of managed pervious cover (the assumed cover for utility corridors) to forested cover will yield load reductions of .85 lbs/ac/yr of N and .18 lb/ac/yr of P.

The Town of Stem has limited to no opportunities to replace or supplement existing vegetation with species which will reduce runoff in utility corridors. The reason is that in preliminary discussions with the utilities involved, they have expressed strongly that the current corridors are already cleared to the minimum widths that the utility requires. The power utilities sustain heavy fines from the Federal government for any outages that are attributable to vegetation.

Since this reduction would be contingent upon the application of a conservation easement on the land, as well as an agreement from an operational perspective that the utility could provide its services with a narrower easement, it is unlikely that significant reductions can be achieved from revegetation.

Fertilizer Management Plan

In many cases, fertilizers containing nutrients such as phosphorus, nitrogen, and potassium are applied to managed vegetation in excess of levels that can be taken up by the grass. Stormwater runoff can quickly transport remaining nutrients to receiving waterbodies. For local government-owned properties, this nutrient loading can be reduced with a variety of strategies, addressing fertilizer composition, application, and maintenance.

Currently the Town of Stem does not fertilize the properties it owns, and has no plan to adopt a fertilization program. Should Stem decide to commence a fertilization program, Stem will implement a fertilizer management plan for its properties within the Town's boundary.

Structural Stormwater Practices

There are some opportunities for retrofitting of BMPs (per DENR's Stormwater Best Management Practices Manual) in Stem. Opportunities that have been identified require further investigation to determine feasibility. Some BMPs have been implemented under water supply watershed rules while others are historic ponds likely built for other purposes. The following list describes these practices. These structures are also displayed on the map in Appendix A.

- Carriage Hills subdivision. Wet pond. Also, there is a possibility for new BMP in small open space wet area.
- Village subdivision. Wet pond. This could be a good option for a retrofit-enlarging the pond or implementing a modified outlet structure. Note that there is a small open space area downstream of the pond that could be a good area for building a new BMP.
- Prestwick Farms. Two large ponds on large lots in this subdivision. These appear to be historic ponds and could be an option for retrofits.
- School Street. Historic pond. This pond is privately owned. The owner has not been approached. This is likely a less viable option than those within subdivisions.

- Other options (not shown on map) include three other historic ponds that are privately owned within the town and could be retrofitted with new outlet structures
- Reserve at Prestwick. Wet pond. This pond is well-maintained. It may be a good candidate for retrofitting.
- Prestwick at the Highlands. Possibility for new BMP in open space area. Much of the subdivision drainage goes to this open space and so it could be a high impact option.

Wetlands and Riparian Buffers

Local governments may restore riparian buffers on developed or agricultural lands where riparian zones are currently under cultivation or other managed vegetative cover. Stem has investigated the potential for riparian area restoration and has not identified any opportunities to date. Riparian areas within the Town and within subdivisions appear to be in good condition and there appear to be few encroachments.

Jurisdictional wetlands are displayed the map included as Appendix A. DWQ has not specified accounting methods for nutrient load reduction through wetland restoration. Stem has not been able to identify any significant opportunities for wetlands restoration in the jurisdiction to date.

Appendix A. Nutrient Load Reduction Programs Reference Map

Town of Stem

