

**BMAP for the Upper Wakulla River
Recommendations predominantly for Leon County and residents of
unincorporated Leon County for the first 5 years
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The sources of nitrogen pollution to Wakulla Springs are well known; 1) COT sewer treatment spray fields, 2) septic tanks and 3) stormwater runoff that collects nitrogen from many sources included transportation, agriculture, nonresidential and residential land uses.

The first is essentially a point source and is centrally managed. This has enabled a relatively rapid, albeit expensive, solution to the nitrogen load from this facility. Over \$220 million has been invested in the COT sewer treatment plant in order to reduce nitrogen output to the lowest level possible by modern sewer plant technology. Also its capacity has been expanded so that all new development that is connected to COT sewer will have a very low nitrogen footprint on the Springs. This represents the contribution of two-thirds of the “stake holders” of Leon County (it’s residents), including people of all income levels.

The remaining large sources of nitrogen are the septic tanks in the unincorporated areas of Leon and Wakulla County. There are about 8,600 tanks in the BMAP priority 1 area (Wakulla Spring) and approximately another 7,200 in the priority 2 area (Spring Creek Springs). About 7,500 are in Leon County and the rest in Wakulla. There are another 30,000+ in Leon County, north of the Cody Scarp, more or less the rest of the county outside of TMDL priority areas.

Urban infill and reduction of urban sprawl are very important strategies in the reduction of nitrogen load to the springs from stormwater. All land within the Urban Services Area (USA) of Leon County has been zoned for development density far in excess of what can be supported by conventional septic systems. However, COT sewer is never going to be extended throughout the USA. The area is much too large. Also level of treatment provided by COT sewer is in excess of what is most likely needed in much of the unincorporated USA because this is not an area of great aquifer vulnerability. Therefore, less expensive, but environmentally and land use appropriate wastewater treatment systems are needed.

I. Wastewater Infrastructure Planning and Implementation

I propose that Leon County develop a long-range plan that addresses the full range of diversity of environmental and land use need for wastewater infrastructure AND management in the unincorporated area; identifying a revenue and funding source that can be sustained in order to accomplish the retrofit of thousands of septic systems and provide for new development; and provide centralized management. This is probably going to take most of the next

5 years. The details below are for descriptive, not prescriptive, and are provided as a means to generate useful discussion.

My recommendations are similar for Wakulla County, including the BMAP Priority area 2. However, some of the components may differ due to the already existing wastewater systems in Wakulla and their current management structures. However, a long-range wastewater management plan that includes centralized management of all systems types is also crucial for Wakulla.

1. **Study options for establishment of a responsible management entity (RME) that has characteristics of an EPA Level 4 or 5 of entity including:**
 - Scope and Responsibilities
 - Oversight and Administrative Structure
 - Planning and Financing of RME itself (not facilities)
 - Examples of existing RMEs of various levels of complexity
<http://water.epa.gov/infrastructure/septic/demos.cfm>
2. **Adopt preferred options and establish the RME**
3. **Establish regulations following Board of County Commission directives for:**
 - Wastewater Treatment Standard
 - Requirements for connection to facilities upon completion
4. **Wastewater Treatment Facilities Plan**
 - Develop an engineering study for the Primary Springshed Protection Zone (PSPZ) or the BMAP Priority 1 area to determine appropriate scale, capacity and location of facilities: sewer, cluster and onsite septic systems that reflect need for nitrogen reduction, existing land use and future land use.
 - Develop and institute engineering standards for privately built facilities
5. **Management and Facilities Financing Plan**
 - Establishment of fee structure for fiscally sound management of wastewater treatment facilities in unincorporated area
 - Develop plans for large capital costs of facilities
 - Develop plans for aid in retrofitting onsite septic systems when allowed by State law
 - Establish user fees for operations and maintenance of facilities with specific values to be determined as facilities are built
6. **Build a publicly financed demonstration cluster facility:**
 - Location criteria: in PSPZ/BMAP Priority 1 area with future land use designation for potential for economic development and private need for

- capacity increase, large numbers of existing septic systems in need of retrofit.
 - Identify an area that includes the commercial center and residential areas consisting of parcels that can be redeveloped or newly developed to support higher intensity and density development that will, most likely, benefit the most from a centralized wastewater system (locally centralized).
 - Consider a design that will allow for extension of services from the cluster system and/or integration into an extension of COT sewer
7. **Extension of COT sewer**
- Extend COT sewer into unincorporated areas of the USA in the PSPZ/BMAP priority 1 area (aka Lake Munson area)
8. **Create a connection assistance funding program**
- Devise fiscal tools to assist in retrofit/connection of existing homes and businesses to nitrogen reducing wastewater treatment facilities
 - Be cognizant of how “incentives” have failed in the past AND that two-thirds of the County residents, rich or poor, are already paying for nitrogen reduction of their wastewater without direct public assistance.
9. **Encourage private investment in wastewater systems that meet adopted standards**
- Allow private cluster systems to be built which will allow private landowners to develop to the current zoning capacity
 - Provide incentives to include capacity for retrofitting of existing development, similar to the manner in which existing stormwater problems are sometimes resolved with capacity from facilities for new private development.

II. New Stormwater Facility Engineering Standards to increase Nitrogen Reduction

Stormwater runoff in many parts of the PSPZ/BMAP priority 1 area percolates rapidly through the surface. This is a common characteristic of the high aquifer vulnerability of the area. In order for nitrogen to be removed from stormwater, it needs to sit above the water table in a biological active environment that supports the community of plants, bacteria and other organisms that will denitrify the runoff. This takes time. Rapidly percolating water is NOT treated.

As wastewater that supports higher density development is made available through public or private investment, more stormwater will be generated. There are also areas of relatively poor percolation in which flooding will be exacerbated with greater intensity of development.

Therefore, Leon County should perform a Woodville Basin Stormwater Treatment, Flooding and Management Plan. The Plan should consider new stormwater engineering treatment standards that require retention of water above the surface (or groundwater) for a period of time, in a biologically active community, that can result in substantial denitrification.

III. We know what hasn't worked.

A. Killearn Lakes

Leon County's current plan for meeting this wastewater infrastructure need is to identify target areas for the extension of COT sewer. This has not been an effective approach. The list of targeted areas has only gotten longer over time and when one area was sewerred, the net result was public infrastructure largely unused and very few houses connected to it.

In 2008, the County paid for an extension of COT sewer into a portion of Killearn Lakes to address a serious human health issue that resulted from poorly situated and maintained onsite septic systems previously permitted by Leon County. The capital costs for bringing the sewer to individual lots cost \$5.3 million and provided lines for 1365 residences, but not actual connections to the homes. Incentives to encourage residents to connect to the sewer and solve their health problems included a discount on connection fees provided by COT (\$750) and long-term low interest loan for covering the rest. COT was not allowed to require connections as per their contract with Leon County.

However, 4 years later, as of April 2012 (most recent information available), only 198 homes (14.5%) have connected, predominately due to complete septic system failures. The result is that the human health issue remains and revisits the area when rainfall is high.

This is evidence of the failure of the current planning strategy and its execution.

Therefore, to address nitrogen pollution to Wakulla Springs, the aquifer, surface waters and to provide for future compact, sustainable development, Leon County needs a long-range wastewater management plan that consists of more than "sewering" up neighborhoods when large sums of public funds become available (if ever).

B. Setting up straw man proposals

The Leon County Board of County Commissioners has already rejected one version of centralized management. But the proposal they rejected sought to finance, build and retrofit all 8,000 odd septic systems in a short period of time to the tune of \$221 million. This is untenable politically and financially. My recommendations are NOT to do it in this manner, but TO create a centralized management system, that can, over time and with predictability, address the

nitrogen and urban development issues.

C. Passing the buck

...onto other governments, ...onto other individuals