

# Source Water Protection Plan for Lincoln County Water System

PWS ID # 01-55-015



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We would like to thank Jay Frick, the NC Source Water Protection Coordinator for his leadership in putting this plan together. The Source Water Assessment and Protection Report (SWAP) prepared by the North Carolina Public Water Supply Section (PWSS) provided an excellent resource for beginning this planning process. Another invaluable resource contributing to this effort was The North Carolina Source Water Protection Guidebook, Developing a Local Surface Water Protection Plan, made available by the PWSS in 2006.

## **Executive Summary**

Lake Norman is one of Lincoln County's most valuable assets, serving as the County's primary drinking water source and key community amenity. While robust economic development benefits our community and our quality of life, the rapid growth we are experiencing threatens some of our natural resources, including Lake Norman. This Source Water Protection Plan is designed to help protect Lake Norman, both today for our community and for future generations.

This plan was drafted by a committee of local citizens (the SWP committee). The plan includes six land use recommendations to provide long term protection of the County's eastern drinking water source and its immediate 1,497-acre watershed (see page 13 for details). The recommendations are as follows:

- 1) Purchase and protect (with a conservation easement) a key 116-acre tract of forestland located in the watershed (most important recommendation);
- 2) Pursue the conservation of other land in the watershed as practical;
- 3) Enact and implement a storm water ordinance;
- 4) Enact an overlay district for the watershed with stricter regulations for controlling contaminants;
- 5) Assumption by the County of current NC State enforcement of the Lake Norman shoreline buffer; and
- 6) Research ways to reduce sewer spills from the lift stations in or near the watershed.

The Committee strongly recommends adoption and implementation of this plan to help ensure the purity and adequacy of the drinking water drawn from Little Creek Cove. In addition to cleaner water, implementation of this plan will provide needed park land and nature preserve, and will raise awareness in the community of the importance of the lake, sources of contamination and the lake's vulnerability.

Adoption of the plan may also make Lincoln County eligible for a low interest-long term (1%, 20 year) loan program through the NC DENR for purchase of the vulnerable and important 116 acre parcel (recommendation #1 above). The loan, along with proposed funding from NC Parks & Recreation Trust Fund would provide needed capital for purchase and protection of the 116 acres which is now under option by Lincoln County.

## Introduction

Source water is untreated water from lakes, streams, reservoirs, or ground water that is used as a drinking water supply. Source water quality can be threatened by many everyday activities and land uses, ranging from industrial wastes to chemicals applied to lawns. Source Water Protection (SWP) is the process of identifying and managing potential sources of contamination that may impact a drinking water supply. The ultimate goal of SWP is to prevent contaminants from entering a source of public drinking water.

The North Carolina Source Water Protection Program (SWPP) is a voluntary program designed to support local efforts to protect public drinking water sources. The State has no regulatory or mandatory compliance authority to enforce a county's SWPP. The SWPP is administered by the Public Water Supply (PWS) Section of the North Carolina Department of Environment and Natural Resources (DENR). A key feature of the SWPP is that each PWS system develops its own local SWP plan based on local conditions and priorities. The SWPP affords PWS systems a broad range of options for protecting their water supplies. The SWPP also provides information about funding and other resources available to support such local protection efforts. The SWPP encompasses both surface water and ground water sources of drinking water. Communities are encouraged to establish source water protection plans which include the following:

Step 1. Obtaining a copy of the Source Water Assessment Program (SWAP) Report: The 1996 amendments to the Safe Drinking Water Act provided federal support and required states to conduct assessments of all public water systems. A source water assessment is a qualitative evaluation of the potential of a drinking water source to become contaminated by the identified potential contaminant sources (PCS) within the delineated area. The PWS Section completed assessments for approximately 10,000 public water supply sources in the state of North Carolina. A copy of the Lincoln County Water System (LCWS) SWAP may be found on the PWS website <http://www.deh.enr.state.nc.us/pws/>.

Step 2. Forming a local Source Water Protection Committee: The SWP Committee will develop the local SWP plan.

Step 3. Conducting a Potential Contaminant Source Inventory: Identification of potential contamination sources within the source water protection area.

Step 4. Developing Management Strategies: The goal of management is to minimize the potential for contaminants to enter the drinking water supply. Management strategies may take the form of regulatory strategies (such as zoning or use permits) and/or non-regulatory strategies (such as education or household hazardous waste collection). The local SWP Team must decide what methods are appropriate for their PWS system.

Step 5. Developing a Contingency Plan: Develop an emergency contingency plan for alternative water supply sources in the event supply becomes contaminated and emergency response planning for incidents that may impact water quality.

Step 6. Developing a Schedule for Implementing and Updating the Local SWP Plan: Develop an implementation and maintenance schedule for the local SWP plan.

Step 7. Submitting the Local SWP Plan to the NC PWS Section: Submit the completed local SWP plan to the NC PWS Section for review and approval.

A copy of this plan should be forwarded to the Public Water Supply Section (PWSS) for their review and recommendations. The PWSS will provide the final approval for SWP Plans. Plans should be submitted to:

Source Water Protection Program Coordinator  
Public Water Supply Section  
1634 Mail Service Center  
Raleigh, North Carolina 27699-1634  
Phone 919-715-0827  
Fax 919-715-4374

## Step 1: The Source Water Assessment Program Report

A Source Water Assessment Program (SWAP) Report has been developed for the Lincoln County Water System (LCWS) by the NC Public Water Supply Section. Surface water sources can be threatened by many potential contaminant sources, including permitted wastewater discharges, urban stormwater runoff, or other types of non-point source contamination such as runoff produced by agricultural activities and land clearing for development. A source water assessment is a qualitative evaluation of the potential of a drinking water source to become contaminated by the identified potential contaminant sources (PCS) within the delineated area. A SWAP Report consists of an assessment area delineation, a potential contaminant source inventory and map, a susceptibility rating, maps, tables, and figures for the surface water source, and a detailed description of North Carolina's SWAP approach. LCWS' surface water source is Lake Norman and in the SWAP Report it was assigned a qualitative susceptibility rating of "higher," based on a contaminant rating of "moderate" and an inherent vulnerability rating of "higher." This rating process is described in detail in Sections 3 and 6 of the SWAP Report.

LCWS (PWS ID # 01-55-035) removes and treats water from Little Creek Cove on Lake Norman. The lake was built between 1959 and 1964 by Duke Power and is a 32,510 acre lake located in the Catawba River Watershed. Lake Norman also provides a dependable supply of water to Davidson, Mooresville, Charlotte-Mecklenburg and Huntersville.

The Lincoln County Water Treatment Plant is located on Lake Norman in the northeast corner of the county near Denver, North Carolina. The plant supplies about four million gallons of water a day to an estimated 23,500 people via 9,385 connections. Treatment of the water includes multimedia filters and mixed oxidant. The County owns five water storage tanks that have the capacity to store a total of 4.5 million gallons of water.



On May 1, 2007 Lincoln County began the enforcement of the Soil Erosion and Sedimentation Control Ordinance that was adopted earlier in the year. The Ordinance regulates certain land-disturbing activity to control accelerated erosion and sedimentation in order to prevent the pollution of water and other damage to lakes, watercourses, and other public and private property. The Ordinance is currently effective only within the unincorporated areas of Lincoln County. The County enacted a Streamside Buffer Regulation also effective May 1, 2007. This Regulation requires that new development maintain undisturbed vegetative buffers covering the width of the 100 year floodplain or a minimum of 50 feet where no flood plain exists or it is less than the

minimum. There is also a Lincoln County Watershed Protection Ordinance which regulates development within the Public Water Supply Watershed area. A copy of all three of these existing ordinances can be found on the Lincoln County website.

<http://www.lincolncounty.org/County/toc.htm>

For this Source Water Protection Plan, it was determined that the focus area would be kept small by concentrating on the 1,497 acre Little Creek Watershed Area. The Committee wants to directly protect the water intake area which is located in the cove fed by Little Creek. At the present rate of withdrawal at the water treatment plant it is believed that the water flow direction is not being influenced. The area directly around the intake and upstream is of the most concern. At the same time, several of the elements included as part of this plan directly affect the entire county and the entire portion of Lake Norman included in Lincoln County. See the Little Creek Cove Watershed Area Map located in the Appendix.

## Step 2: Lincoln County Source Water Protection Plan Committee

An initial meeting to discuss the Source Water Protection Planning process was held with then Lincoln County Manager Stan Kiser, Lincoln Natural Resources Committee member Ron Bost and Catawba Lands Conservancy Executive Director, Dave Cable on May 7, 2007. Lincoln County is interested in purchasing 116 acres of land upstream from its surface water intake for protection purposes. The County will seek funding from the low interest monies that may be available through the NC PWS State Revolving Fund for those systems having an approved Source Water Protection Plan. When it was agreed that the County would proceed with the development of a Source Water Protection Plan, an article about the Plan was published in the Lincoln Times-News on May 30, 2007 (a copy of which is included in the Appendix). From this meeting and the press release publicizing the initialization of the plan, the following people came together as the Source Water Protection Committee. Technical assistance was provided by the NC Public Water Supply Section and the North Carolina Rural Water Association.

<b>Name</b>	<b>Representing/ Title</b>	<b>Address</b>	<b>Phone</b>	<b>E-Mail</b>
Ron Bost	Lincoln Natural Resources Committee	8137 Luckey Point Rd. Denver, NC 28037	704-483-3767	rmbost@charter.net
Dave Cable	Executive Director Catawba Lands Conservancy	105 W. Morehead Charlotte, NC 28202	704-342-3330	dave@catawbalands.org
Scott Bodien	Technology Coordinator Catawba Lands Conservancy	105 W. Morehead Charlotte, NC 28202	704-342-3330	scott@catawbaland.org
Rich Holmes	Catawba Lands Conservancy	105 W. Morehead Charlotte, NC 28202	704-342-3330	rich@catawbaland.org
Sylvia Holmes	Lincoln County Recreation Commission	2920 Lakeshore Rd. Denver, NC 28037	704-483-2598	sl.rhsholmes@charter.net
Cynthia Jones	Catawba Riverkeeper Foundation	3244 Lakeshore Rd. Denver, NC 28037	704-483-0653	mjones3244@aol.com
Rebecca Kalb	Lincoln County Natural Resources Department	115 West Main St. Lincolnton, NC 28092	704-736-8501	rkalb@lincolncounty.org

Rick McSwain	Director, Soil & Water Conservation District	115 West Main St. Lincolnton, NC 28092	704-736-8501	rmeswain@lincolncounty.org
Larry Warren	Lincoln County Water Treatment Plant	7674 Tree Farm Rd. Denver, NC 28037	704-483-7070	lwarren@lincolncounty.org

### Step 3: Potential Contaminant Source Inventory

In order to address the likelihood of contaminants entering the water supply cove, an inventory of potential contaminant sources was conducted by a representative of the NCRWA with assistance from committee members. The following list represents an inventory only and is not to be considered an action list.

**State or Federal Regulated Sites** - Using a United States Geological Survey (USGS) Topographic Map with the Source Water Protection Area (SWPA) delineated and a list of potential contamination sources taken from the Source Water Assessment, a windshield survey was conducted of the Drinking Water Protection Area. The potential contaminant source (PCS) inventory map (Lincoln County Drinking Water Assessment Area Map located in the Appendix) shows the delineated area for the surface water source and the PCSs that, if released to the environment, could reasonably be expected to be a risk or a potential for contamination to the drinking water supply. PCS identification includes those facilities or sites regulated under a state or federal regulatory program and are identified in electronic databases in the source water assessment and facilities or sites that fall into the following list of example categories supplied by the US EPA.

Abandoned Wells	Laboratories
Aboveground Storage Tank	Laundromat/Dry Cleaners
Airport	Lift Stations
Agricultural Facilities	Machine Shops
Animal Feedlot/Waste Storage	Major Highways
Asphalt Plant	Major Railroads
Auto Repair	Military Bases
Body Shop/Salvage	Mining
Car Washes	Nurseries
Cemetery	Oil/Gas Pipeline
Chemical Production	Oil Wells
Chemical Mixing/Storage	Photo Processor
Drainage Canal	Printer
Dumps	Power Lines
Electroplaters/Metal Finishers	Other Wells
Fertilizer/Pesticide Storage	Refineries
Fertilizer/Pesticide Production	Refinishing
Fertilizer/Pesticide Mixing	Road Salt
Funeral Homes	Septic Systems
Gas Stations	Substations
Golf Courses	Surface Water
Grain Storage Bin	Sewage Plant
Groundwater Remediation	Underground Storage Tanks
Holding Pond/Lagoon	Waste Piles
Inactive/Abandoned Hazardous Waste Sites	Wood Preserving
Injection Wells	

**Septic Tanks** -Catawba Lands Conservancy research determined that of the 1,497 acre watershed area, 122 parcels (120 acres) are served by the County sewer system, 518 parcels (922 acres) are using septic tank systems and 408 parcels (664 acres) are vacant but 197 of these parcels have sewer connections. One hundred and sixty-five of the parcels within the area have sewer service

and septic tanks. There is a mobile home park adjacent to Little Creek that is using septic tanks systems to dispose of waste. (See Little Creek Cove Watershed Parcels Map in the Appendix.)

**Growth and Development** – As stated above, currently there are 408 vacant parcels which equal 664 acres within the 1,497 acre drinking water protection area. It is obvious that this number is changing rapidly, and the area around Lake Norman is becoming an increasingly popular location to build a new home. The Lincoln County total population in 2006 was 72,491 and the projected population for 2011 is 79,554.

According to the 2004 Catawba River Basinwide Water Quality Plan “the area around Lake Norman is experiencing the inevitable water quality impacts associated with rapid development and increased recreational use. Elevated dissolved oxygen levels, elevated nutrient and metal levels, and boating congestion have all been noted on the lake (NCDENR-DWQ, June 2003). Lake Norman’s massive volume has allowed the lake to absorb these human induced impacts and maintain reasonable water quality. But ultimately, the increased demands on the lake’s aquatic resources could overwhelm its ability to accommodate them, resulting in declining water quality. Now is the time to implement management strategies that will offset the impacts of development and possibly avoid critical water quality situations as seen on other lakes in the Catawba River Chain Lakes and in other river basins.”

The table below shows the potential contaminant sources (PCSs) listed in the order of the risk they might pose to the surface water intake. In determining this order, the PCSs’ proximity to or likelihood of a direct pathway to the intake, quantity of contaminants on site, potential of health risk and history of compliance were taken into consideration. Risk was estimated and PCSs are grouped into categories of higher, moderate and lower risk.

PCS Site	Owner Contact	Potential Contaminant	Quantity
<b>Higher Risk Sources</b>			
Lift Station # 25 4011 Wind Flower Cove	115 West Main Street Lincolnton, NC 28092 704-736-8495	Spills	
Lift Station # 29 4180 Little Fork Cove Road	115 West Main Street Lincolnton, NC 28092 704-736-8495	Spills	
Lift Station # 2 6884 Campground Road	115 West Main Street Lincolnton, NC 28092 704-736-8495	Spills	
R Anell Housing, LLC 3549 North Highway 16	Phone 704-483-5511 FAX: 704-483-5674 Toll Free Phone: 800-951- 5511 Website: www.r-anell.com	NPDES NCG210259 Timber Products Stormwater Discharge Manufactures Mobile Homes	
New Denver FD Webbs Road	Webbs Road	Fuel Storage?	
Lincoln County Convenience Center	Webbs Road	Household Waste and Recycling	

<b>Moderate Risk Sources</b>			
Seaboard Coast Line Railroad		Hauls coal to power plant	
Denver Shores Mobile Home Park	Gerald Johnson PO Box 98 Denver, NC 28037 704-483-1978	Septic Systems	
Lift Station # 28 4477 Burton Lane	115 West Main Street Lincolnton, NC 28092 704-736-8495	Spills	
Bell South 22908 3459 St. James Church Road		Tier II BB4B6CD4A7CC4E11 852569F9006E9F8E Batteries	
Dellinger Septic Tank Co. Inc 8251 Webbs Road	Phone: 704-483-2868 FAX: 704-483-8481	NPDES NCG070147 Concrete Products Stormwater Discharge	
Duke Energy - Webbs Chapel Retail East Denver Substation Webbs Chapel Road	7795 Webbs Road	Tier II 8D9B0EA0D7DC222B 85256D18007063AF Power Station and Right of Way	
Denver Mini Mart BP	3650 Hwy. 16 N. B.L.A.M. PO Box 1526 Denver, NC 28037 704-483-5158	Gas Station Permit 0-036006 Gasoline  Diesel Kerosene	USTs 15,000 gal. 10,000 gal. 10,000 gal. 2,000 gal.
Pit Stop Plus 3588 Hwy. 16 N		Auto Repair	
Advanced Power Products	3042 Hwy. 16N 704-483-6487	Small Engine Repair	
<b>Lower Risk Sources</b>			
Auto King Car Wash 3287 Hwy. 16N.		Car Wash	
Webbs Chapel United Methodist Church	Webbs Chapel Church Road	Cemetery	
Highway 16		Spills	
Rock Springs Elementary Lincoln County Schools 3633 Highway 16 South 704 483-2281		UIC Permit NCS000000139 Heat Pump Return	
Lincoln County WTP 7674 Tree Farm Road 704-483-7070	115 West Main Street Lincolnton, NC 28092 704-736-8495	NPDES NC0084573 WTP	

## **Step 4: Management of the Drinking Water Assessment Area**

During a succession of meetings held during the summer and fall of 2007, the Lincoln County Source Water Protection Plan Committee completed brainstorming activities to help them identify the major areas of concern within their drinking water assessment area and how they could best protect the water quality in the area surrounding the drinking water intake.

**The following questions were asked of committee members individually in a roundtable fashion. All the answers received were discussed and recorded and later a list of the compiled answers was sent to each committee member for them to prioritize.**

1. What activities could improve or protect the quality of drinking water derived from Lake Norman?
2. Are there any land-use strategies that could enhance or protect water quality in Little Creek and Little Creek Cove?
3. What do you see as major impediments to accomplishing source water protection objectives?
4. What strategies could make a protection plan dynamic? How can this effort be made “alive” and ongoing such that it has legs and gains momentum?
5. Positive promotion may attract others toward your objectives. How can your efforts best be promoted?

**The prioritized solutions to perceived problems within the drinking water assessment area were combined into six major elements to become the management section of the Source Water Protection Plan. Once the Major Elements that the Committee wanted to address were identified, assignments were made to further refine the Committee’s ideas. Subgroups were asked to write up each element providing very specific answers to what, who, how and when each of the elements would be accomplished. The elements are listed on the following page along with the specific procedure to accomplish each element.**

## Major Elements:

Element	Who	When
<b>Short Term</b>		
<b>1. Purchase of Property on Little Creek</b> The SWP Committee recommends that the County purchase the 116 acres currently under an option to purchase with the owner, Crescent Resources, Inc.	Lincoln Natural Resources Committee, Lincoln County Board of Commissioners, Catawba Lands Conservancy	2008-2009
<b>2. Conservation Measures</b> In addition to purchasing the 116 acres, conserve additional lands in the watershed to protect water quality using voluntary conservation easements, where possible. Enhance land management and conservation to reduce runoff and erosion.	Lincoln Natural Resources Committee, Catawba Lands Conservancy	2008-2010
<b>3. Stormwater Control</b> Enact Stormwater Ordinance. Apply more stringent stormwater rules for the Drinking Water Assessment Area.	Soil and Water Conservation District/Natural Resources sub-department	2008
<b>4. Protection of the Little Creek Watershed</b> Assign to the Lincoln Natural Resources Committee the role of developing strategies for the protection of the 1,497-acre Little Creek Watershed. (Source Water Protection Overlay District Ordinance.)	Lincoln Natural Resources Committee, Lincoln County Board of Commissioners	2008
<b>Long Term</b>		
<b>5. Buffer Protection</b> Transfer Catawba River Basin Riparian Buffer Rule enforcement from the State to Lincoln County.	Building and Land Department, Environmental Associate Planner	2011
<b>6. Control Lift Station Spills</b> The SWP Committee discussed more extensive lift station spill control with Public Utility staff and determined that everything practical is being done by the County at this time however, the subject was placed under the Lincoln Natural Resources Committee's list of goals for additional research.	Lincoln Natural Resources Committee, Lincoln County Public Utilities Department	2008

### **Major Element One: Purchase of Property on Little Creek**

The SWP Committee recommends that the County Commissioners purchase the 116 acre property at the end of Little Creek cove that is currently under a purchase option with the owner, Crescent Resources. This forest land is important for conservation purposes because of its location at the head of the cove and because it is serving as a large sponge to catch and hold rainwater, slowly releasing the water and filtering out contaminants. The acreage supports a mature stand of upland hardwood trees with four drainages which converge to form Little Creek.

The Committee recommends working with the Catawba Lands Conservancy to establish a permanent conservation easement on the property which would guarantee the protection of the streams flowing into Little Creek Cove where the County's water intake site is located.

An additional benefit this property would provide the County would be the location of a passive park that would fulfill the recommendations of the Barge/Waggoner Comprehensive Parks and Recreation Master Plan (02/28/06). Following the recommendations in the Barge/Waggoner Plan, the park would be developed as a passive park and used by the general public for outdoor recreation. Just as important, the woodland would provide protection for Lincoln County's primary drinking water source. A pristine environment should be maintained for enjoyment of nature and protection of the undeveloped land as well as educating the public about the connection between land use and water quality.

The site also could be established as a destination location to connect with the future regional multi-county Thread Trail and the future Lake Norman Bike Route.

The Committee recommends that future amenities and infrastructure for the park site could at the minimum include:

- a) a system of walking trails with bridges over the creeks designed and built using best management practices for water quality protection
- b) interpretive signs for the education of visitors
- c) signs identifying trees, plants, wetlands etc.
- d) a simple outdoor amphitheater for classroom purposes
- e) a system of programs demonstrating conservation measures such as stream bank stabilization and erosion repair, permeable paving, wetland protection, elimination of invasive species, addition of native species, and restoration of wildlife habitat.

Future site activities could include:

- a) educational programs conducted by the Lincoln County Soil and Water Conservation District
- b) field trips for local elementary school children
- c) environmental science projects conducted by local high school biology/earth sciences students.
- d) cooperation with local historical groups to show linkage to the water source at Rock Springs campground and investigation of possible old home sites on the property
- e) provision of an area for contemplation

As is the case of most parks in the County, the property would be managed and funded by the County Parks and Recreation Department. Establishment of a department sub-committee (Friends of the Park) would facilitate participation in the future planning and development of the property.

The SWP Committee developed a suggested budget for both capital and operational needs to estimate the funding that would probably be needed to create a park as described herein. Funding sources for capital needs could include grants and corporate gifts. Naming opportunity(s) could offer the possibility of significant gifts. Certain programs could be supported by dedicated fund-raising projects. Volunteer labor could be used for trail establishment.

#### **Proposed Operating Budget**

<b>Item</b>	<b>Yr. 1</b>	<b>Yr. 2</b>	<b>Yr. 3</b>	<b>Yr. 4</b>	<b>Yr. 5</b>
Master Site Plan design	\$10,000				
Site preparation, remove hazards	\$25,000				
Boundary line (fencing/planting)		\$25,000	\$15,000		
Pathway system establishment		\$25,000			
Directional signage		\$ 2,000			
Interpretive signage		\$ 2,000	\$ 3,000		
Part time staff (10 hrs/wk) salary + min. benefits	\$ 7,800	\$ 8,000	\$ 8,250	\$ 8,500	
Maintenance			\$ 2,000	\$ 2,000	\$ 3,000
Printing-site maps & educational brochures		\$ 500	\$ 250	\$ 250	\$ 250
<b>Yearly Total</b>	<b>\$35,000</b>	<b>\$62,300</b>	<b>\$28,250</b>	<b>\$10,500</b>	<b>\$11,750</b>

#### **Proposed Capital Budget**

<b>Item</b>	<b>Yr. 1</b>	<b>Yr. 2</b>	<b>Yr. 3</b>	<b>Yr. 4</b>	<b>Yr. 5</b>
Parking area		\$65,000			
Rest rooms		\$100,000			
Bridges-three initially plus two later		\$50,000	\$25,000		
Benches for trails		\$ 2,000	\$ 2,000	\$ 2,000	
Picnic tables		\$ 5,000			
Outdoor seating for classroom activity			\$ 7,500		
<b>Yearly Total</b>	<b>0</b>	<b>\$222,000</b>	<b>\$34,500</b>	<b>\$2,000</b>	<b>?</b>

Year 1 of the budget could refer to the year in which the property is purchased or could refer to later fiscal years (depending on funding availability) but “no later than five years after purchase” would be a practical recommendation.

#### **Prospective Local Donors for Grants and Corporate Gifts**

Timken Foundation  
 BFI grant  
 East Lincoln Goodfellows Foundation  
 Martin Marietta- local plant  
 Boyd Glenn Foundation (Lincoln County)  
 Lincoln County Community Foundation

Denver/ Lake Norman Rotary Club  
 Blum (plant on Hwy.16 in Lowesville)  
 Peoples Bank (local)  
 First Federal Bank (local)  
 Carolina Trust bank (local)  
 Duke Energy's Habitat Enhancement Fund

This would be the core list for local fundraising for the capital expenses.

### **Work Groups for Volunteer Labor**

Duke Power Retirees group  
 East Lincoln Betterment Association  
 Friends of Rock Springs Park  
 Master Gardeners of East Lincoln County  
 McGuire Nuclear Plant- lab staff (educators)  
 Individual Boy Scouts –Eagle Scout projects  
 Individual Girl Scouts- Gold Award projects

### **Resources for Education**

Lincoln County Soil and Water Conservation District employees  
 Gaston Community College (Lincoln campus) staff  
 North Lincoln High School science department staff  
 East Lincoln High School science department staff  
 Lincoln County Water Plant manager  
 Extension service/4H advisors  
 Catawba Riverkeeper Foundation  
 Catawba Lands Conservancy

### **Rock Springs Park - Potential Visitors**

Lincoln County residents who want to experience and enjoy a natural area  
 Rock Springs Elementary School students  
 Catawba Springs Elementary School students  
 St. James Elementary School students  
 Pumpkin Center Elementary School students  
 East Lincoln Middle School students  
 Pumpkin Center Middle School students  
 North Lincoln High School science students  
 East Lincoln High School science students  
 Denver branch of the Lincoln County Charter School  
 Local Home Schoolers Association (very active in this area)  
 Girl Scout troops of the Pioneer Council (Brownies, Juniors, Cadettes, and Seniors)  
 Boy Scout troops of the Piedmont Council (Cubs, Webelos, and Scouts)  
 Local 4H groups  
 Travelers on the future "Thread Trail" greenway  
 Travelers on the future "Lake Norman Bike Route"  
 Rock Springs Campground summer visitors  
 County Recreation Department's summer playground groups

## **Timeline**

See budget for 5 year plan.

Best case scenario: land purchase completed by the end of the purchase option period (July 31, 2008), five year development plan completed in fiscal 2013-2014 (depending on successful fundraising campaign results).

Worst case scenario: land purchase completed by June 2010, five year plan extended to six years to allow for grant funding spread over multiple years and project started by fiscal 2013-2014.

However, in either case, the biggest success will be the prevention of development on the 116 acres and thus the protection of the Lincoln County Water supply.

## **Major Element Two: Conservation Measures**

In addition to the proposed acquisition and protection of the 116 acres, the Committee recommends pursuing conservation of lands in the watershed to enhance water quality and limit runoff and erosion. Catawba Lands Conservancy, the region's land trust, offers expertise and resources to assist the County and the Lincoln Natural Resources Committee with this recommendation. Voluntary land conservation easements are commonly used in the area to protect water quality and limit development on sensitive natural lands.

The Committee concludes that water quality in the watershed may receive an immediate lift from selective enhanced management and conservation practices of key properties in the watershed. One such property is the Duke Energy right-of-way traversing the watershed. Therefore, in addition to the stormwater measures presented in this plan, the Committee also recommends that Duke Energy be contacted and consulted regarding optimal management of this right-of-way property. Potential conservation measures include improved erosion control.

## **Major Element Three: Stormwater Control**

The overall goal for Lincoln County is to protect the streams within its boundaries from sedimentation and pollution due to growth. This will be done in two phases.

Phase I: Protect streams during land disturbing activities by enforcing a Soil Erosion and Sedimentation Control Ordinance.

Lincoln County adopted a Soil Erosion and Sedimentation Control Ordinance and assumed responsibility for enforcement on May 1, 2007. This ordinance was adopted for the purposes of regulating certain land-disturbing activity to control accelerated erosion and sedimentation in order to prevent the pollution of water and other damage to lakes, watercourses, and other public and private property by sedimentation; and establishing procedures through which these purposes can be fulfilled. The Ordinance is enforced through the Lincoln County Soil and Water Conservation District/Natural Resources sub-department. This Ordinance pertains to activity within the unincorporated areas of Lincoln County.

Enforcement of the Soil Erosion and Sedimentation Control Ordinance will help protect the streams from sedimentation during land-disturbing activities. To protect streams from contamination and erosion of stream channels after land-disturbing activity has been completed and the area has been stabilized, a stormwater ordinance will have to be enacted and enforced. This is covered in Phase II below.

Phase II: The Source Water Protection Committee recommends that a stormwater ordinance be enacted.

Lincoln County Government is currently working on establishing a Stormwater Ordinance to protect streams, public and private property. The draft Universal Stormwater Model Ordinance for North Carolina is being examined to create a County Ordinance.

The number one cause of water pollution in North Carolina is from polluted stormwater runoff. Runoff that is either not treated or inadequately treated before it reaches our streams causes polluted water. This polluted water causes numerous costs to wildlife and to the general public. Pollution to the South Fork of the Catawba River and to Lake Norman in Lincoln County costs the County and City Government more money to make the drinking water safe to drink. Polluted water harms wildlife in the creeks, streams, rivers and lakes of Lincoln County. Sediment from erosion carries contaminants that cause algal blooms that use up the oxygen that fish need to live. The sediment itself covers up fish habitats. Chemicals carried by sediment and the runoff itself harm plants and animals that use the water. Sediment entering our reservoirs limits the holding capacity which limits the amount of water available for public use.

The quantity of stormwater from hard surfaces such as roads, roofs, driveways and parking lots, due to the inability for the water to infiltrate into the ground, causes local flooding. The high volume of water damages stream banks and forces wildlife downstream.

The purpose of this proposed Ordinance is to protect, maintain and enhance the environment, public health, safety, and general welfare by establishing minimum requirements and procedures to control the adverse effects of increased post-development stormwater runoff and point and non-point source pollution associated with new development and redevelopment. It has been determined that proper management of construction-related and post-development stormwater runoff will minimize damage to public and private property and infrastructure, safeguard the public health, safety and general welfare and protect water and aquatic resources.

The Universal Stormwater Ordinance seeks to meet its general purpose through the following specific objectives and means:

- A. Establishing a decision making process for development that protects the integrity of watersheds and preserves the health of water resources.
- B. Requiring that the new development and redevelopment will maintain the pre-development hydrologic response in their post-

development state as nearly as practicable for the applicable design storm to reduce flooding, stream bank erosion, point and non-point source pollution and increases in stream channels and aquatic habitats.

- C. Establishing minimum post-development stormwater management standards and design criteria for the regulation and control of stormwater runoff quantity and quality;
- D. Establishing design and review criteria for the construction, function, and use of structural stormwater BMP's that may be used to meet the minimum post-development stormwater management standards.
- E. Encouraging the use of better management and site design practices, such as the use of vegetated conveyances for stormwater and the preservation of green space, riparian buffers and other conservation areas to the maximum extent practicable.
- F. Establishing provisions for the long-term responsibility for and maintenance of structural and nonstructural stormwater BMP's to ensure that they continue to function as designed, are maintained appropriately and pose no threat to public safety.
- G. Establishing administrative procedures for the submission, review, approval and disapproval of stormwater management plans for the inspection of approved projects, and to assure appropriate long term maintenance.

The Universal Stormwater Ordinance is one of many such models available to examine. The Source Water Protection Committee suggests that commissioners work with county staff on a proposed stormwater ordinance that is best suited for Lincoln County.

According to county staff, the time frame for the implementation of a County Stormwater Ordinance is moving along, but the exact timeline is yet to be determined, but the steps would be as follows:

County staff to review a proposed Stormwater Ordinance	TBD
Propose Stormwater Ordinance to Lincoln County Board of Commissioners	TBD
Effective date of Stormwater Ordinance	TBD

#### **Major Element Four: Protection of the Little Creek Watershed**

##### **Proposal**

The SWP Committee will propose to the Board of Commissioners that the Lincoln Natural Resources Committee (LNRC) be given the assignment of developing strategies for the protection of the 1,494-acre Little Creek Watershed from point and non-point sources of pollution.

The Committee proposes that LNRC's specific assignments would be two-fold: 1) to promote the protection of the Watershed through advocating that higher regulatory standards be met to control

point and non-point source pollution in the Watershed; and 2) to educate the general public and especially the Watershed's property owners about the importance of protecting this Watershed and to solicit support of any new regulations that result from LNRC's proposals.

**Authority** – Advisory only with no budgetary requirement.

**Jurisdiction** – The 1,497 acre Little Creek Watershed.

### **Goals**

1. To recommend that the Board of Commissioners approve the creation of an Overlay District for the 1,497-acre Watershed that would be patterned after the Model Surface Water Ordinance found in the appendix. The Overlay District should require such measures as wider buffers, stricter erosion and sedimentation ordinance language, higher standards for future stormwater control, and stricter septic tank and subdivision standards in coordination with the State water supply-watershed regulations. Landfills should be prohibited and fuel storage strictly controlled. An excellent resource document for information on measures that others have taken for watershed protection is the Memorandum of Understanding (MOU) drafted by a committee made up of members drawn from the counties surrounding the Mountain Island Reservoir which includes Lincoln County. The section of the MOU to study in particular is "Mountain Island Watershed Protection Guidelines". The most important sections of the Guidelines for protection of the environmental integrity of the Little Creek Watershed are section 5, dealing with erosion control and section 6, dealing with Best Management Practices. The web page for the MOU is: [www.milmou.org](http://www.milmou.org).

2. To hold meetings of the residents in the watershed to promote the proposed overlay district regulations; to explain the responsibilities they would have as residents to keep the watershed clean; and to solicit volunteers to speak in favor of the overlay district at the public hearing.

3. To encourage the Board of Commissioners to purchase the 116 acres under contract with Crescent Resources, and to use this property for a passive park and a buffer to keep pollution from entering the cove.

4. To work with the media to educate the citizens about the creation of the overlay district and to advocate its enactment.

5. To work in cooperation with Lincoln County officials to monitor the enforcement of any regulatory safeguards approved for the overlay district and to encourage compliance.

6. To recommend for approval by the Board of Commissioners appointees to LNRC who have ties to the Watershed and who have valuable expertise in environmental technology such as:

- SWP Committee Representative
- A property owner(s) in the Watershed
- Parks & Recreation Commission Board representative
- Catawba Riverkeeper Foundation representative
- Lake Norman Marine Commission Representative
- A civil or environmental engineer

7. A long-term goal would be to address the protection of other county watersheds from which drinking water is drawn.

## **Action Plan**

After the Board of Commissioners approves this SWP Plan, the LNRC would begin work with the Building and Land Development and the Soil & Water Conservation District and other appropriate county agencies to draft the proposed language for the overlay district.

Once the map and the proposed regulations are ready, the LNRC, as applicant, would prepare and submit an application for the zoning amendment. A public hearing would follow which would be scheduled no sooner than 45 days from the application. The office of Building and Land Development would schedule and advertise the hearing.

Public hearings are held on the first Monday of the month. The Planning Board and the Board of Commissioners hold the hearing jointly. The Planning Board typically meets separately the same night after the hearing and votes on a recommendation. The recommendation from the Planning Board is presented to the Board of Commissioners at their next meeting (the third Monday) for a final decision.

If approved, the zoning amendment would take at least three months from the approval date until the overlay district and the regulations are approved.

## **Major Element Five: Buffer Protection**

The Source Water Protection Committee recommends that the Lincoln County Board of Commissioners proceed with their plan to take over the enforcement of the Catawba River Basin Riparian Buffer Rules.

The Catawba River Basin Riparian Buffer Rules are currently enforced by the State and apply within 50' of all riparian shorelines along the Catawba River main stem which includes all of Lake Norman.

Enforcement of the Catawba River Basin Riparian Buffer Rules by Lincoln County government will have a greater impact as to how problems that arise will be corrected. Lincoln County government has the ability to use more controls such as no issuance of a building permit, or disapproval of subdividing of land for building, until the buffer issue is corrected.

For Lincoln County to take over the enforcement of the Catawba River Basin Riparian Buffer Rules, an agreement between the Division of Water Quality and Lincoln County government must be approved to give Lincoln County authority to enforce the Catawba River Basin Riparian Buffer Rules within its county boundaries.

According to the North Carolina Division of Water Quality, the agreement would require:

- a map of the area of Lincoln County with the Catawba River and Lake Norman Area shown at a scale of 1:24000
- number of staff needed to fulfill enforcement
- budget
- letter from the County Attorney stating that Lincoln County has the authority to enforce such an ordinance
- amend the County Buffer Ordinance to include the Catawba River. (must include same requirements as the current Catawba Buffer Rules)

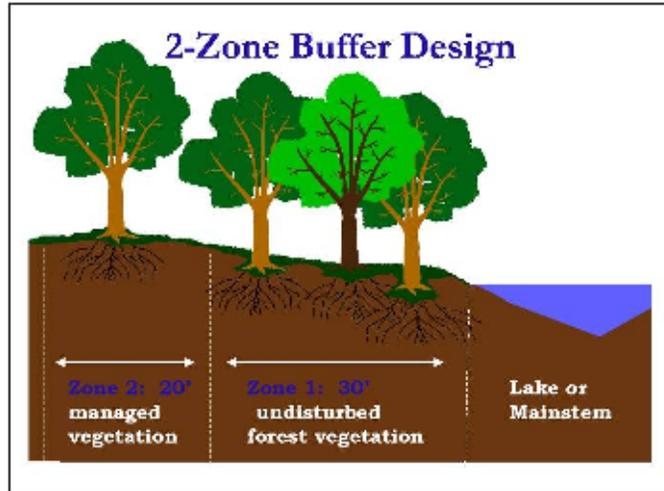
- a statement as to how Lincoln County will address violations- fines, reestablishment of the buffer destroyed etc.
- show adoption of new Buffer Ordinance by County Commissioners with effective date

The State will review these requirements from the County and the State will have 90 days to respond.

To protect streams Lincoln County Government adopted a Streamside Buffer Regulation (effective May 1<sup>st</sup> 2007). The enforcement of the Streamside Buffer Regulation is through the Building and Land Development Department. The Goal of the Streamside Buffer Regulations is to protect the intermittent and perennial streams in Lincoln County. The availability of Lincoln County staff to respond to complaints from citizens and to work with other departments such as the Lincoln County Natural Resources Department related to Streamside Buffer Protection will have a major impact on prompt responses. Currently the Division of Water Quality's Regional Office in Mooresville, North Carolina has to cover several counties with a small number of staff. Response time to a complaint is crucial to prevent vegetative cover from being destroyed next to a water course.

For new development, buffers consisting of an undisturbed vegetative cover the width of the 100 year flood plain as identified on the current Flood Insurance Rate Map (FIRM) published by FEMA must be maintained. Where the flood plain width is less than 50 feet measured from the top of the stream bank or no flood plain exists, a minimum 50-foot vegetative buffer is required along all indicated or identified perennial and intermittent waters. For the 50-foot vegetative buffer the following shall be required and in no case shall disturbance exceed the following:

- (1) Zone 1 shall be a minimum of 30 feet from the top of the bank and shall remain undisturbed. No new development is permitted within the Zone 1 buffer except for artificial stream bank or shoreline stabilization, water dependent structures and public or private projects such as road or utility crossings or installations of greenways where no practical alternatives exist. Activities within buffer areas shall minimize impervious coverage, direct runoff away from surface waters and maximize the utilization of stormwater best management practices.
- (2) Zone 2 shall be a minimum of 20 feet extending landward from Zone 1. This buffer is an area of managed vegetation and shall be vegetated by grass, other ground cover or natural vegetation. Disturbance of existing vegetation shall be minimized to the greatest extent possible except for the installation of artificial stream bank or shoreline stabilization, water dependent structures and public or private projects such as utility service lines, road crossings or greenways where no practical alternatives exists. (See figure below.)



Required buffers shall be shown with metes and bounds on all subdivision plats created after May 1<sup>st</sup> 2007.

On October 1, 2007 the Lincoln County Board of Commissioners was presented with a proposal for the County to take over the Catawba River Basin Riparian Buffer Rules. The Board felt that with the County having to manage the new erosion control ordinance, and the stormwater ordinance required by the North Carolina Wildlife and the US Fish and Wildlife it would be better not to take on any new project that was not required at this time. In accordance with the Board's decision, the expected time frame to implement the enforcement of the Catawba River Basin Riparian Buffer Rules has been changed as follows:

Adoption of Ordinance	May 1, 2010
Effective date for Ordinance	July 1, 2010
Timeline for success	July 1, 2011

With the adoption of this buffer ordinance coupled with the Streamside Buffer Regulations, Lincoln County would have total protection enforcement of the buffers along all waters in the County, both streamside and shoreline.

### **Major Element Six: Control Lift Station Spills**

The SWP Committee discussed more extensive lift station spill control with Public Utility staff and determined that everything practical is being done by the County at this time, however, the subject was placed under the Lincoln Natural Resources Committee's list of goals for additional research and will be addressed in 2008.

## Step 5. Contingency Plan

The primary person responsible for implementing the emergency contingency plan is the Operator in Responsible Charge. The back-up person responsible for implementation is the Senior Water Plant Operator.

Should a major oil or chemical spill occur within the Source Water Protection Area, appropriate emergency agencies would be notified. The first of these would include the Denver Fire Department and the Lincoln County Emergency Coordinator.

### **Denver Fire Department**

**911**

### **Lincoln County Emergency Coordinator**

**<http://www.lincalert.org/>**

**Phone 704-736-8660**

**After hours 704-735-8202**

If power is lost there is a 1,750 KW emergency generator at the water treatment plant and 25 KW emergency generator at the Denver Booster Station.

If evidence exists that indicates that there is contamination in the system, it will immediately be taken off line and not returned to service until it is determined that water quality from the intake is in compliance with standards governing public water supplies. If it were determined that contaminants had entered the distribution system, residents would be notified by radio, television and newspaper not to drink the water until further notice. The regional office of the Public Water Supply Section would be notified immediately of the situation and asked for assistance. Sampling (i.e. bacteriological, VOCs, SOC, etc.) would begin to determine the contaminant involved and the extent of contamination. A systematic flushing of the distribution system would begin with follow-up sampling conducted as needed until the system was determined to be free of contamination and in compliance with standards governing public water supplies. After consultation with the Public Water Supply Section, residents would be notified that Lincoln County Water System's water was once again safe for consumption.

**Short and Long term contingency plan** – Lincoln County has the capacity to store 2 million gallons of water at the water treatment plant, 500,000 gallons in the Denver Tank, 500,000 gallons at the Pumpkin Center Tank, 750,000 gallons at the Carr Farm Tank and 250,000 gallons at the Northbrook Tank, for a total storage capacity of 4.5 million gallons they could have on hand for immediate use in an emergency. In the event of a long term disruption of water supply the County is interconnected with the City of Lincoln, so they could receive water from or supply water to the city. There is also the possibility of an interconnection with the City of Hickory in the future.

**Emergency Contact Numbers and Additional Resources:**

<b>Name</b>	<b>Resource</b>
Primary person responsible for implementing emergency contingency plan Superintendent Water Treatment Plant Larry Warren Cell – 980-429-7213	Emergency Response
Secondary person Senior Water Treatment Plant Operator Mike Fulbright Cell – 980-429-7211	Emergency Response
Public Water Supply Section 1634 Mail Service Center Raleigh, NC 27699-1634 919-715-2853	Technical Assistance Regulatory guidance
NC Department of Environment & Natural Resources Mooresville Regional Office 610 East Center Ave. Mooresville, NC 28115 704-663-1699 FAX 704/663-6040	Regional Water Quality Section, Public Water Supply Section, UST Section, Groundwater Section, Hazardous Waste Section, Spills, Regulatory information and technical assistance
Department of Transportation State Traffic Engineer Mr. Ken Ivey 1561 Mail Service Center Raleigh, North Carolina 27699-1561 252-733-3915	Emergency spill notification
NC Army National Guard Maiden Hwy Lincolnton, NC 704-735-5041 N Broad St. Mooresville, NC 704-664-5991 704-662-3033	Emergencies, as available: Generators, 400-gallon water trailers, bottled water, transportation
NC Rural Water Association Post Office Box 590 Welcome, NC 27374 336-731-6963 www.ncrwa.com	Technical assistance Education
North Carolina Cooperative Extension Service Campus Box 7602 North Carolina State University Raleigh, NC 27695-7602 919-515-2811 <a href="http://www.ces.ncsu.edu/">http://www.ces.ncsu.edu/</a> <a href="http://www.soil.ncsu.edu/assist/homeindx.html">http://www.soil.ncsu.edu/assist/homeindx.html</a>	Educational brochures, publications  HomeASyst Fact Sheets

<p>US EPA Regional Office  GW &amp; UIC Section  Region IV  Atlanta Federal Center  61 Forsythe St.  Atlanta, GA 30303-8960  www.epa.gov  <a href="http://www.epa.gov/owm/septic/pubs/septic_sticker.pdf">http://www.epa.gov/owm/septic/pubs/septic_sticker.pdf</a>  <a href="http://www.epa.gov/epaoswer/osw/">http://www.epa.gov/epaoswer/osw/</a>  <a href="http://www.epa.gov/nscep/ordering.htm">http://www.epa.gov/nscep/ordering.htm</a>  <a href="http://www.epa.gov/watertrain/pdf/swpbmp.pdf">http://www.epa.gov/watertrain/pdf/swpbmp.pdf</a></p>	<p>Educational brochures, publications</p>
<p>Division of Pollution Prevention and Environmental Assistance  Ron Pridgeon  1639 Mail Service Center  Raleigh, NC 27699-1639  919-715-6517  www.p2pays.org</p>	<p>Technical and non-regulatory assistance to reduce waste</p>
<p>National Small Flows Clearinghouse  West Virginia University  Post Office Box 6064  Morgantown, WV 26506-6064  800-624-8301  www.nesc.wvu.edu/nsfc/nsfc_index.htm</p>	<p>Pamphlets, brochures, training aids</p>
<p>North Carolina Division of Water Quality  512 N. Salisbury St.  Raleigh, NC 27604  919-733-7015  <a href="http://h2o.enr.state.nc.us/nps/">http://h2o.enr.state.nc.us/nps/</a>  <a href="http://h2o.enr.state.nc.us/basinwide/">http://h2o.enr.state.nc.us/basinwide/</a>  <a href="http://h2o.enr.state.nc.us/">http://h2o.enr.state.nc.us/</a></p>	<p>Regulatory Guidance, pamphlets, brochures</p>
<p>eCivis Grants Network  <a href="http://www.ecivis.com/indexFlash.cfm">http://www.ecivis.com/indexFlash.cfm</a></p>	<p>Fee based service that helps communities to apply for grants.</p>

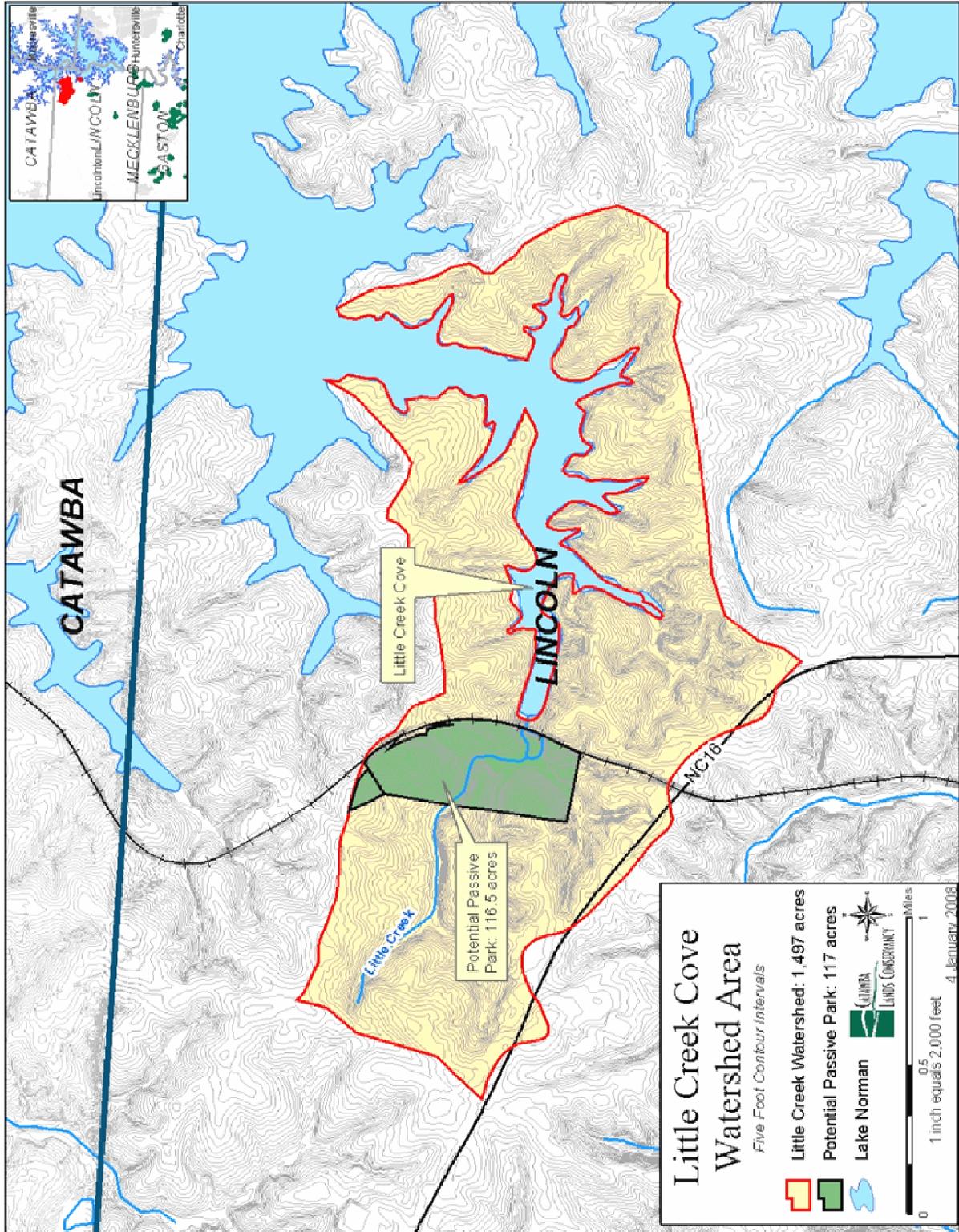
**Step 6. Implementation and Maintenance Schedule**

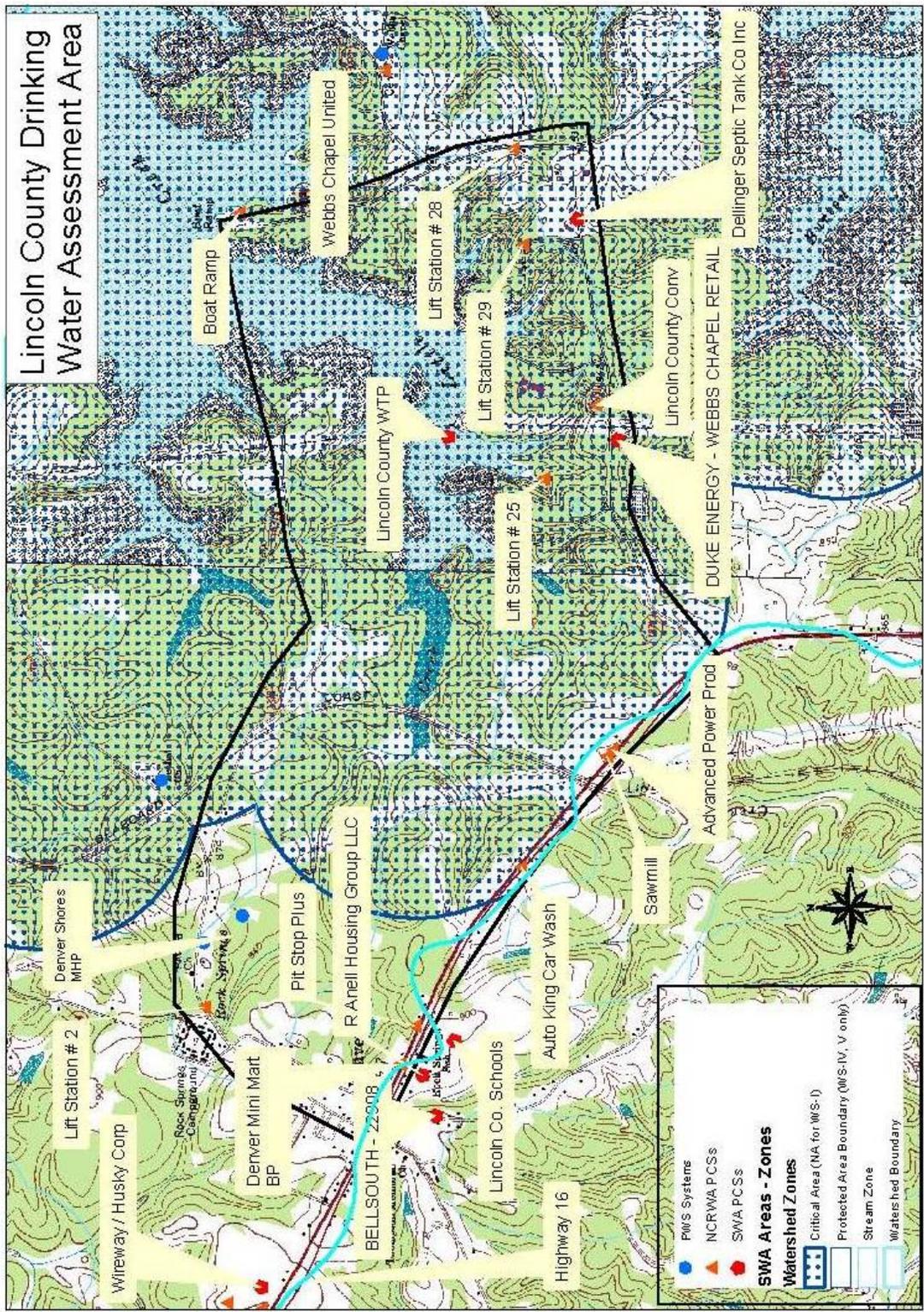
**Review SWPP annually and update every three years:**

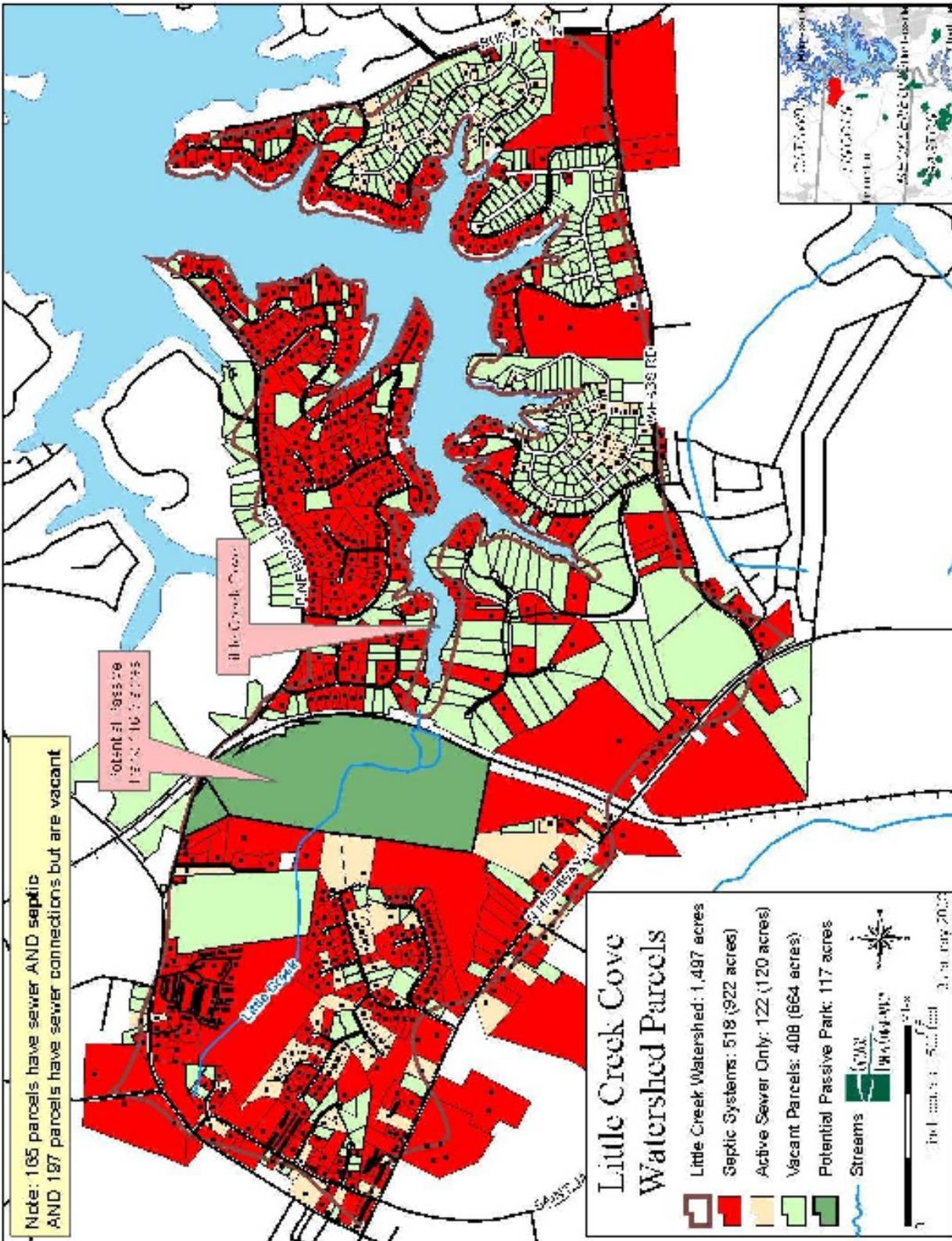
Date Reviewed	Reviewed by	Changes or Comments

Lincoln County is aware that an effective Source Water Protection Plan is an ongoing process. Public water system officials or planning team members will review public records available at hazardous waste and waste disposal facilities and potential contamination source sites located within the drinking water protection area annually in order to ensure program compliance. Every three years, the contaminant source inventory will be updated using the same procedures used to develop the original contaminant source inventory.

## **Appendix**







**2-B—LINCOLN TIMES-NEWS, Lincolnton, N.C. Wednesday, May 30, 2007**

**Officials call for voluntary water protection plan**

**Maribeth Kiser**  
**Staff Writer**

Lincoln County officials hope to protect the county's drinking water through a voluntary water protection plan at the water intake area on Lake Norman.

"This is a fairly new program," said Ron Bost who is co-leader of the Source Water Protection plan along with County Manager Stan Kiser. "One of the benefits of doing this plan is that it qualifies you to apply for a loan to purchase property."

The loan would allow Lincoln County to purchase land behind the Little Creek cove where the water intake plant is.

"The county is interested in purchasing a 116 acre tract right at the head of the cove," said Bost who is chairman of the Lincoln Natural Resources Committee. "The purpose is to protect the water to provide recreation and preserve open space."

Bost said the county has contracted to purchase this property and has applied for a grant from the Clean Water Act Trustfund. The final balance would be covered through a loan.

In order to complete the Source Water Protection Plan, residents are urged to take part in the process.

"The citizen's group will be individuals in the county who has interest and input in the conservation," Bost said.

Representatives from several organizations including East Lincoln Betterment Association, Catawba Land Conservancy and the Lake Norman Marine Commission will also take part in the plan.

After the team is assembled, members will examine the source water assessment, potential contamination sources, develop a management strategy, a contingency plan and submit a plan for approval.

"I don't know how long it will take to get it done," Bost said. We will push it along as quickly as we can."

Bost is fairly certain the watershed will require too many changes.

"That watershed is fairly clean," he said, "It's going to be an interesting process."

The plan originated with LNRC where members brought it to the county's attention in order to move forward with it.

Bost said the LNRC is interested in protecting the streams in the county and keeping them clean.

Nearly 3 million gallons of water are removed from Lake Norman each day, supplying drinking water to 9,000 customers. The Little Creek access is located near the Rock Spring Camp Ground in Denver.

Citizens are encouraged to participate and can contact the county manager's office for more information (704) 736-8471.

**Corrections to published article –**

Paragraph four – Ron Bost is a committee member and not Chairman of LNRC.

The article says that "Bost is fairly certain the watershed will require too many changes." It should say "the watershed will not require too may changes."

## **“Covekeepers Invite You to Learn About Lake Water Quality”**

The Lake Norman Covekeepers will offer an inside look at water quality issues on Lake Norman on Aug. 2. The event begins at 9 a.m. with boats departing from the Little Creek access area located at the north end of Burton Lane off Webbs Road. The Covekeepers are sponsoring a boat trip to look at water quality issues in the area around the Lincoln County water intake located a short boat ride away from the access.

The public is invited to take this tour. The Covekeepers are asking the public to register for the event, so they will know the number of boats needed.

To reach the Little Creek Access area, turn east off Highway 16 onto Webbs Road. Drive to the entrance of Sailview at Burton Lane and turn left at the stop sign onto Burton Lane. Drive to the end of the road and park in the access parking lot. The Covekeepers will meet participants at the docks.

Afterwards, the group will visit the water treatment plant and then meet for lunch. They plan to discuss how the county’s new sedimentation control program will affect Lake Norman.

During the boat trip, the participants will look at the critical cove where Lincoln County takes water for residential drinking water. They will learn what to look for, discuss what is happening that will harm the lake, and learn what measures could be taken to prevent or lessen its effect.

Covekeepers are asked to patrol a specific area on the lake usually once a month. They look for buffer destruction, spills, illegal dumping, algae blooms, fish kills, and other problems that effect Lake Norman’s water quality. They also respond to calls from their neighbors. They report to the Regional Lakekeeper, who contacts the proper officials.

Training is provided, and continuing education is given at meetings during the year. Lake Norman Covekeepers also provide speakers to give programs about water quality issues on the lake.

Similar events will be sponsored by the LKN Covekeepers in the other three counties bordering Lake Norman in the near future. In January, the Covekeepers will offer training for new Covekeepers.

On the Catawba River, there are active Covekeeper programs on Lake Norman, Lake Hickory, Mountain Island Lake, Lake Wylie, and Lake Wateree. They are supervised by the Catawba Riverkeeper Foundation and Catawba Riverkeeper Donna Lisenby.

To register for the August 2 event or for more information about the Covekeepers, contact Cynthia Jones, [mjones3244@aol.com](mailto:mjones3244@aol.com) or call her at 704-483-0653.

**Published in the News at Norman, 25 July 07**

## Tour Gives Residents Insight into Lake Water Quality



Citizens tour Lake Norman to better understand water issues

### By Anna J. Fortenberry

Most of us take our drinking water for granted. You turn on the faucet and it flows out. You trust the quality because it has been treated at the local water plant. You never give it a second thought...that is unless you are one of the Lake Norman Covekeepers.

Take a ride on Lake Norman these days. Mini-mansions dot the shoreline that once was full of trees and natural growth. Nowadays, lots that once were deemed unbuildable have been filled in with dirt hauled in from somewhere else and now are homesites. Lush, green well-manicured waterfront lawns with big houses on them are slowly replacing the trailers or cabins of weekenders who maintained the natural setting alongside the lake and opted for less yard work and more relaxation at their get-a-way cabin. Their philosophy was there was no need to spend time behind the lawnmower or doing yard work. Weekenders spent their time with a fishing pole out on the dock.

Now the lakeside scene is big homes and green, green grass.

And all this growth and all these fertilized lawns are affecting your water. As gullies are filled in with dirt to make a lot buildable, shallow coves are dredged to make those lots accessible by water. Runoff from fertilized yards with grass that grows all the way to the water's edge is entering the lake.

Lake Norman is changing, and the water quality is suffering.

This small group of people called Covekeepers works tirelessly to keep the drinking water safe that comes from Lake Norman. They are a part of a larger group, the Catawba Riverkeepers. Last week, they took several boatloads of people around the Lincoln County water intake to take a look at what is happening to the drinking water source for Lincoln County.

News media, county officials, concerned citizens, and a Realtor joined a handful of the Covekeepers to spend the morning cruising the area around Little Creek. The Covekeepers wanted to point out the "critical cove where Lincoln County takes water for residential drinking water." They pointed out the good, the bad, and the ugly on the lake enjoyed by so many as a recreational body of water.

"We wanted to give this opportunity for people to come out learn what measures could be taken to prevent and lessen the effects on the water. A lot of people just don't know," said Cynthia Jones, a Covekeeper who helped organize this outing.

The good – LakeWood Development – has done some good things in keeping buffers along the lake. It is just a short boatripe from the water intake that supplies all of Lincoln County, with the exception of the City of Lincolnton, with its public water supply.

“This is a good example of how a good buffer should be done,” Jones said as she pointed out some of the land left in its natural state close to the water’s edge.

By law, any construction begun since 2003 on lake lots must have a 50 foot setback – a 30 foot vertical line from the high water where natural growth is maintained, then a 20 foot line that can be cleared but needs some kind of vegetation. Cutting trees with a diameter of three inches or more in the 30-foot buffer area is a no-no.

As the boats pull into the cove where the peaceful silence of days gone by are replaced with the sound of hammering and the buzzing of saws, Peggy Wesp points out how it used to be.

“We used to come down here (in this cove) and see all kinds of wildlife. We’d bring a lunch and watch the turtles and birds. Everything has changed,” she said.

Then the group traveled over to the shores of Norman Point – the bad.

“There are a lot of serious problems. There is a sedimentation problem, much of the interior lots have been cleared out with lots of ravines. They put in sediment ponds but didn’t maintain them. So when it rains, it fails and mud comes rolling down,” said Jones.

Sedimentation problems have an effect on everything in the lake’s feeding chain and the water quality. Bass spawning used to take place in this cove off of this new development.

Not this year.

Jane Bergert has lived on the shores of Lake Norman since 1993. She can sit on her dock and look directly across to the water plant.

“My brother and I use to canoe back in these coves. It was like a wetland in this area,” she points out at another stop along the tour that is dotted now with docks jutting out into the stagnated water – the ugly.

Do you know the buffer requirements along the lake? Did you know that if a tree falls into the lake you’re supposed to leave it for the fish and turtles unless it is a hazard for boating? Do you know what you can clear and what you can’t? Ever seen runoff you think should be reported but you just don’t know who to call? Do you know what environmental measures to take on your land?

“The role of the Covekeepers is to patrol a specific area on the lake. They look for buffer destruction, spills, illegal dumping, algae blooms, fish kills, and other problems that affect lake Norman’s water quality. They also respond to calls from their neighbors. They report to the regional Lakekeeper who contacts the proper officials,” according to the group’s information.

The Covekeepers are the citizens’ patrol. They take their part in preserving the quality of the Catawba River. They are under the Catawba Riverkeeper Foundation.

Lincoln County recently took over what the State calls “land quality” issues along Lake Norman. Although not responsible for what happens in the lake itself, the county is responsible for what happens from the shoreline up. When Lincoln County took over the responsibility, the State dumped 208 files that needed to be checked out. Slowly they are getting through those as new ones are being added to the pile.

“The state educated the builders that nothing would be done. The county takes these issues seriously. It is no longer ‘business as usual,’” said Mike Jones. “You must comply with the plan (when you build). It is no longer ‘I didn’t know.’”

The ordinance is about 18 pages long, full of the regulation requirements.

“But someone has to enforce it,” said Ron Bost. “To make the local ordinance work, if you see a violation you have to report it. This is a limited staff in the county to enforce the rules.”

And that is where not only the Covekeepers but also regular citizens come in. If you see what you think is a violation you need to remember it is your drinking water that is affected.

“You are our eyes and ears,” said Lincoln County Health Department Director Maggie Dollar,

who lives in a Lake Norman cove. “There are not enough people to go around. We’re all concerned about the growth and the environmental health of the lake.”

**Important Phone Numbers:**

Report sedimentation and land clearing violations to Lincoln County Soil and Water - 704-735-8501

Report sewage spills to Lincoln County Health Department – 704-736-8634

Information on Lake Norman Covekeepers or Catawba Riverkeepers - [www.catawbariverkeeper.org](http://www.catawbariverkeeper.org)

**Published in the News at Norman, 08 August 07**

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North Carolina Department of Environment and Natural Resources, Division of Environmental Health, Public Water Supply Section, North Carolina's Source Water Assessment Program Plan, October 21, 1999

Basinwide Planning Program: September 2004 Catawba River Basinwide Water Quality Plan, NC Division of Water Quality

NC Department of Commerce and North Carolina Employment and Securities Commission, 2006

**Glossary of acronyms and abbreviations**

AST-Above ground Storage Tank

BMP-Best Management Practice

CAP-Corrective Action Plan

DPPEA-Division of Pollution Prevention and Environmental Assistance

DWA-Drinking Water Assessment Area

DWM-Division of Waste Management

DWQ-Division of Water Quality

EPA-Environmental Protection Agency

GPD-gallons per day

Gpm-gallons per minute

NCDEH-North Carolina Department of Environmental Health

NCDENR-North Carolina Department of Environment and Natural Resources

NOV-Notice of Violation

NPDES-National Pollutant Discharge Elimination System

PCS-Potential Contamination Source

Ppb-parts per billion

Ppm-parts per million

PWS-Public Water Supply

PWSS-Public Water Supply Section

SOC-Semi-volatile Organic Compound

SPCC-Spill Prevention Control and Countermeasures

SWAP-Source Water Assessment Program

SWP-Source Water Protection Plan

UIC-Underground Injection Control

UST-Underground Storage Tank

VOC-Volatile Organic Compound

## Individual Stormwater Discharge Permits in the Watershed Area

Permit Number	Owner Name - Facility Name	Owner Type	Permit Type	Permit Status	Expired Date	Renewal Due	Days to Expire	Primary Reviewer	Region
NCG050222	Packaging Corp Of America - Packaging Corporation Of America	Non-Government	Apparel/Printing/Leather/Rubber Stormwater Discharge CCC	Active	04/30/08		232	athalaou	Mooreville
NCG050222	Packaging Corp Of America - Packaging Corporation Of America	Non-Government	Apparel/Printing/Leather/Rubber Stormwater Discharge CCC	Active	04/30/08		232	athalaou	Mooreville
NCG050343	Paragon Films Inc - Paragon Films, Inc.	Non-Government	Apparel/Printing/Leather/Rubber Stormwater Discharge CCC	Active	04/30/08		232	Bethany-Georgoulas	Mooreville
NCG050057	Perma Flex Roller Technology - Perma Flex Roller Technology	Non-Government	Apparel/Printing/Leather/Rubber Stormwater Discharge CCC	Active	04/30/08		232	athalaou	Mooreville
NCG050057	Perma Flex Roller Technology - Perma Flex Roller Technology	Non-Government	Apparel/Printing/Leather/Rubber Stormwater Discharge CCC	Active	04/30/08		232	athalaou	Mooreville
NCG050327	Polytrask Corporation - Polytrask Corporation	Non-Government	Apparel/Printing/Leather/Rubber Stormwater Discharge CCC	Active	04/30/08		232	ken.picke	Mooreville
NCG050327	Polytrask Corporation - Polytrask Corporation	Non-Government	Apparel/Printing/Leather/Rubber Stormwater Discharge CCC	Active	04/30/08		232	ken.picke	Mooreville
NCG070015	PPG Industries Fiber Glass Products Inc - PPG - Shelby Facility	Non-Government	Stone Clay, Glass, and Concrete Products Stormwater Discharge CCC	Active	04/30/08		232	meck.wygans	Mooreville
NCG070156	Pieces Construction Products - Pieces Construction Products	Non-Government	Stone Clay, Glass, and Concrete Products Stormwater Discharge CCC	Active	04/30/08		232	darron.england	Mooreville
NCG050025	Premtec Inc - Premtec Incorporated-Rowan	Non-Government	Apparel/Printing/Leather/Rubber Stormwater Discharge CCC	Active	04/30/08		232	athalaou	Mooreville
NCG050358	Prio March Inc - Robert's PolyPro, Inc.	Non-Government	Apparel/Printing/Leather/Rubber Stormwater Discharge CCC	Active	04/30/08		232	Bethany-Georgoulas	Mooreville
NCG050358	Prio March Inc - Robert's PolyPro, Inc.	Non-Government	Apparel/Printing/Leather/Rubber Stormwater Discharge CCC	Active	04/30/08		232	Bethany-Georgoulas	Mooreville
NCG050046	Proclain Corp - Proclain Corp-Catawba	Non-Government	Apparel/Printing/Leather/Rubber Stormwater Discharge CCC	Active	04/30/08		232	athalaou	Mooreville
NCG050046	Proclain Corp - Proclain Corp-Catawba	Non-Government	Apparel/Printing/Leather/Rubber Stormwater Discharge CCC	Active	04/30/08		232	athalaou	Mooreville
NCG210256	R Anell Housing Group LLC - R Anell Housing Group LLC	Non-Government	Timber Products Stormwater Discharge CCC	Active	04/30/08		232	bill.mills	Mooreville
NCG130044	Republic Services Of NC LLC - Republic Services of NC, LLC-GDS-Canover-WRF	Non-Government	Wholesale Trade of Non-metal Waste and Scrap Stormwater Discharge CCC	Active	04/30/08		232	bill.dinguid	Mooreville
NCG130044	Republic Services Of NC LLC - Republic Services of NC, LLC-GDS-Canover-WRF	Non-Government	Wholesale Trade of Non-metal Waste and Scrap Stormwater Discharge CCC	Active	04/30/08		232	bill.dinguid	Mooreville

Permit Number	Owner Name - Facility Name	Owner Type	Permit Type	Permit Status	Expired Date	Renewal Due	Days to Expire	Primary Reviewer	Region
NDG210280	CMF Manufacturing, Inc. db/a Schell Homes - 488	Non-Government	Timber Products Stormwater Discharge CCC	Active	04/30/08		232	alshala	Mooreville
NDG060194	Constar International - Constar International	Non-Government	Apparel/Printing/Paper/Lesher/Rubber Stormwater Discharge CCC	Active	04/30/08		232	alshala	Mooreville
NDG060194	Constar International - Constar International	Non-Government	Apparel/Printing/Paper/Lesher/Rubber Stormwater Discharge CCC	Active	04/30/08		232	alshala	Mooreville
NDG060034	Covance Specialty Materials - Covance Plastics	Non-Government	Apparel/Printing/Paper/Lesher/Rubber Stormwater Discharge CCC	Active	04/30/08		232	alshala	Mooreville
NDG060034	Covance Specialty Materials - Covance Plastics	Non-Government	Apparel/Printing/Paper/Lesher/Rubber Stormwater Discharge CCC	Active	04/30/08		232	alshala	Mooreville
NDG060285	CPI Packaging Inc - CPI Packaging Inc	Non-Government	Apparel/Printing/Paper/Lesher/Rubber Stormwater Discharge CCC	Active	04/30/08		232	darren.England	Mooreville
NDG060285	CPI Packaging Inc - CPI Packaging Inc	Non-Government	Apparel/Printing/Paper/Lesher/Rubber Stormwater Discharge CCC	Active	04/30/08		232	darren.England	Mooreville
NDG210307	Cramer Lumber Co Inc - Cramer Lumber Co Inc	Non-Government	Timber Products Stormwater Discharge CCC	Active	04/30/08		232	bill.mills	Mooreville
NDG210307	Cramer Lumber Co Inc - Cramer Lumber Co Inc	Non-Government	Timber Products Stormwater Discharge CCC	Active	04/30/08		232	bill.mills	Mooreville
NDG070140	Cunningham Brick Co, Inc - Cunningham Brick Co-Kings Mountain	Non-Government	Stone, Clay, Glass, and Concrete Products Stormwater Discharge CCC	Active	04/30/08		232	bill.mills	Mooreville
NDG070140	Cunningham Brick Co, Inc - Cunningham Brick Co-Kings Mountain	Non-Government	Stone, Clay, Glass, and Concrete Products Stormwater Discharge CCC	Active	04/30/08		232	bill.mills	Mooreville
NDG050004	Decor Originals Inc - Decor Originals Incorporated	Non-Government	Apparel/Printing/Paper/Lesher/Rubber Stormwater Discharge CCC	Active	04/30/08		232	bill.mills	Mooreville
NDG050004	Decor Originals Inc - Decor Originals Incorporated	Non-Government	Apparel/Printing/Paper/Lesher/Rubber Stormwater Discharge CCC	Active	04/30/08		232	bill.mills	Mooreville
NDG070147	DeLinger Septic Tank Co Inc - DeLinger Septic Tank Co Inc	Non-Government	Stone, Clay, Glass, and Concrete Products Stormwater Discharge CCC	Active	04/30/08		232	alshala	Mooreville
NDG070147	DeLinger Septic Tank Co Inc - DeLinger Septic Tank Co Inc	Non-Government	Stone, Clay, Glass, and Concrete Products Stormwater Discharge CCC	Active	04/30/08		232	alshala	Mooreville
NDG210027	Dimension Wood Products Inc - Dimension Wood Products Incorporated	Non-Government	Timber Products Stormwater Discharge CCC	Active	04/30/08		232	bill.mills	Mooreville
NDG210027	Dimension Wood Products Inc - Dimension Wood Products Incorporated	Non-Government	Timber Products Stormwater Discharge CCC	Active	04/30/08		232	bill.mills	Mooreville
NDG070055	Duoc-Sol Inc - DUOC-Sol, Inc	Non-Government	Stone, Clay, Glass, and Concrete Products Stormwater Discharge CCC	Active	04/30/08		232	mack.wiggins	Mooreville
NDG210067	Edwards Wood Products Inc - Edwards Wood Products Inc - US Hwy 52	Non-Government	Timber Products Stormwater Discharge CCC	Active	04/30/08		232	mack.wiggins	Mooreville
NDG210067	Edwards Wood Products Inc - Edwards Wood Products Inc - US Hwy 52	Non-Government	Timber Products Stormwater Discharge CCC	Active	04/30/08		232	mack.wiggins	Mooreville
NDG210341	Edwards Wood Products Inc - Edwards Wood Products Inc/Ip	Non-Government	Timber Products Stormwater Discharge CCC	Active	04/30/08		232	darren.England	Mooreville

## 1. MODEL SURFACE WATER ORDINANCE

### (A). Statement of intent.

The Reservoir Protection Overlay Zone (RPOZ) regulations are intended to ensure the adequate protection of current or potential public water supply reservoirs. The establishment of these regulations is intended to protect public health, insure the availability of safe drinking water, and prevent the degradation of the water supply in the reservoir through the regulation of land uses and development within the reservoir drainage area.

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### (B). Applicability.

The special provisions established in this section shall apply to proposed projects identified as possible contaminating activities within areas designated as Reservoir Protection Overlay Zones. These areas may be identified through drainage, groundwater and soils analyses and are considered to be essential to protection of existing or potential reservoirs from the effects of point and non-point source pollution or sedimentation.

The boundaries of the Reservoir Protection Overlay Zone shall be delineated using the most current and best available location data and must be shown on all master zoning map(s) kept on file. The boundaries should be of sufficient size to guarantee the appropriate level of treatment for stormwater runoff from new and existing projects that can contribute to the contamination of public water supplies. These zones may be modified as necessary by the (local governmental authority) as new assessment data becomes available.

 *The boundaries of the Reservoir Protection Overlay Zone should be adequate to ensure that pollutants of concern are removed from runoff before entering the reservoir. Local officials may consider using a watershed approach to delineating the boundaries to ensure that all surface water/groundwater/recharge areas for the water supply are protected. A tiered zone approach to the overlay size, much like that done with wellhead protection zones to protect public well recharge areas has been used in some parts of the country. Please see the Greensboro, NC water supply watershed district is an example of this approach.*

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### (C). Definitions.

For the purposes of this section, the following terms shall have the following meanings:

**Development.** Any construction, external repair, land disturbing activity, grading, road building, pipe laying, or other activity resulting in a change in the physical character of any parcel or land.

**Potential Contaminating Activity.** Activities identified as having the potential to discharge contaminants to surface or groundwaters.

**Reservoir.** Any impoundment of surface waters designed to provide drinking water to the public.

**Tributary stream.** Any perennial or intermittent stream, including any lake, pond or other body of water formed therefrom, flowing either directly or indirectly into any reservoir.

**Watershed.** Any area lying within the drainage basin of any reservoir.

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**(D). Use regulations.**

Within the Reservoir Protection Overlay Zone, the permitted uses, special permit uses, accessory uses, dimensional standards and special requirements established by the underlying zoning district shall apply, unless specifically modified by the requirements of this ordinance.

The following uses shall be specifically prohibited within the RPOZ areas:

- (1) Storage or production of hazardous materials as defined in either or both of the following:
  - a. Superfund Amendment and Reauthorization Act of 1986; and
  - b. Identification and Listing of Hazardous Wastes, 40 C.F.R. §261 (1987).
- (2) Disposal of hazardous materials or solid wastes
- (3) Treatment of hazardous material, except rehabilitation programs authorized by a government agency to treat hazardous material present at a site prior to the adoption of this ordinance.
- (4) Dry-cleaning, dyeing, printing, photo processing and any other business that stores, uses, or disposes of hazardous material, unless all facilities and equipment are designed and operated to prevent the release or discharge of hazardous materials and have undergone an inspection to certify they are in compliance within hazardous material regulations.
- (5) Disposal of septage or septic sludge
- (6) Automobile service stations
- (7) Junkyards
- (8) Other uses as specified by the (local government authority) as potential contaminating activities

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**(E). Review requirements for Development in the Reservoir Protection Overlay Zone**

- (1) A copy of any new application for a building permit, zoning permit, area variance, use variance, zoning amendment, or other land development proposal, including the subdivision of land, occurring wholly or partly in a Reservoir Protection Overlay Zone area shall be submitted to the (local governmental authority) and shall be accompanied by an impact study prepared in accordance with the requirements set forth in subsection (f) below.
- (2) Applications for development within the Reservoir Protection Overlay Zone will be evaluated by the (local governmental authority) to ensure that:
  - (a). Non-point source pollution is prevented to the maximum extent possible, by taking into account site conditions such as slope, soil type and erosivity, and vegetative cover.
  - (b). Management practices are in place sufficient to remove or neutralize those pollutants that present a potential impact to the reservoir

- (c). Grading and removal of vegetation at a development site is minimized and erosion and sediment control measures are in place and properly installed.
- (d). All sewage disposal systems will be monitored, inspected and maintained on a regular basis to ensure proper functioning. If two or more dwelling units share a common sewage treatment system, a perpetual maintenance agreement shall be required by the (local governmental authority)
- (e). Businesses involved in potential contaminating activities within the Reservoir Protection Overlay Zone but which have received a special use permit must submit a spill control plan for approval. This plan shall include the following elements:
- (1). Disclosure statements describing the types, quantities, and storage locations of all contaminants that will be part of the proposed project.
  - (2). Contaminant handling and spill prevention techniques
  - (3). Spill reporting procedures, including a list of affected agencies to be contacted in the event of a spill
  - (4). Spill recovery plans, including a list of available equipment
  - (5). Spill clean-up and disposal plans
- (3). Existing land uses located within the Reservoir Protection Overlay Zone and identified as potential contaminating activities by the (local governmental authority) shall comply with the requirements of Section E, Subsection (2 (e)) listed above

**(F). Impact study.**

- (1) An impact study shall be performed or reviewed by a registered professional engineer and shall include, at a minimum, the following information:
- a. Description of the proposed project including location and extent of impervious surfaces; on-site processes or storage of materials; the anticipated use of the land and buildings; description of the site including topographic, hydrologic, and vegetative features.
  - b. Characteristics of natural runoff on the site and projected runoff with the proposed project, including its rate and chemical characteristics deemed necessary to make an adequate assessment of water quality.
  - c. Measures proposed to be employed to reduce the rate of runoff and pollutant loading of runoff from the project area, both during construction and after.
  - d. Proposed runoff control and reservoir protection measures for the site. These measures shall be designed with the goal of ensuring that the rate of surface water runoff from the site does not exceed pre-development conditions and that the quality of such runoff will not be less than pre-development conditions. Special emphasis shall be placed on the impacts of proposed encroachments into the required buffer.
  - e. Where the developer of property subject to the terms of this overlay district seeks to utilize existing or planned off-site stormwater quality management facilities, the developer shall provide a written certification that the owner of the off-site facilities will accept the runoff and be responsible for its adequate treatment to a level acceptable to the (local governmental authority).

(2) Such study shall be submitted to the (local governmental authority) for review and approval concurrent with the submission of applications for review and approval of site or subdivision plans or applications for land disturbing or erosion and sediment control permits. A copy of the impact study shall also be forwarded to those agencies identified as interested parties which are responsible for managing the reservoir watershed for review and comments.

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### **(G). Buffer Requirements**

Stream and shore buffer widths vary from twenty feet to up to 200 feet in ordinances throughout the United States. Since this ordinance is for reservoirs that supply public drinking water, the larger buffer width of 200 feet would be more appropriate. There is a much more detailed stream buffer ordinance located at this website. Local communities may wish to consult this ordinance to establish an individual stream buffer ordinance

A \_\_ foot ( ') wide buffer strip shall be maintained along the edge of all public water supply reservoirs and any tributary stream discharging into these reservoirs. The required setback distance shall be measured from the centerline of such tributary stream and from the mean high water level of such reservoir. The buffer strip shall be maintained in its natural state to the maximum extent possible, and shall be planted with an erosion resistant vegetative cover in those areas that have been disturbed. In the case of tributary streams located upstream from a stormwater management facility designed to provide water quality protection, no buffer shall be required if such facility has been designed to accommodate and manage the quality of runoff from the subject site.

A reduction in the required buffer width down to an absolute minimum of seventy-five feet (75') may be granted by the (local governmental authority) upon presentation of an impact study that provides sufficient documentation and justification that even with the reduction, the same or a greater degree of water quality protection would be afforded as would be with the full-width buffer. In granting such a reduction, the (local governmental authority) may require additional erosion control or runoff control measures as deemed necessary to protect reservoir water quality.

All development shall be located outside of the required buffer strip, except for the following:

- a. The buffer strip requirement shall not apply to development which is appurtenant to the production, supply, distribution or storage of water by a public water supplier.
- b. Encroachment into or through the required buffer by roads, main-line utilities, or stormwater management structures may be permitted provided the following performance standards are met:
  1. Road and main-line utility crossings will be limited to the shortest path possible and that which causes the least amount of land disturbance and alteration to the hydrology of the watershed.
  2. Any stormwater management facilities located within the buffer should be sited within the context of a larger watershed stormwater management program.
  3. No more land shall be disturbed than is necessary.
  4. Indigenous vegetation shall be preserved to the maximum extent possible.

5. Wherever possible, disturbed areas shall be planted with trees and shrubs.
- c. When the property where an encroachment is proposed is owned by the entity owning and operating the water supply reservoir being protected, and such entity specifically and in writing authorizes and approves the encroachment, it shall be allowed.

(3) The following uses shall not be permitted within the buffer strip or within feet ( ') of the required buffer strip:

- a. septic tanks and drainfields;
- b. feed lots or other livestock impoundments;
- c. trash containers and dumpsters which are not under roof or which are located so that leachate from the receptacle could escape unfiltered and untreated;
- d. fuel storage in excess of fifty (50) gallons [200L];
- e. sanitary landfills;
- f. activities involving the manufacture, bulk storage or any type of distribution of petroleum, chemical or asphalt products or any materials hazardous to a water supply (as defined in the Hazardous Materials Spills Emergency Handbook, American Waterworks Association, 1975, as revised) including specifically the following general classes of materials:
  6. oil and oil products;
  7. radioactive materials;
  8. any material transported in large commercial quantities that is a very soluble acid or base, highly biodegradable, or can create a severe oxygen demand;
  9. biologically accumulative poisons;
  10. the active ingredients of poisons that are or were ever registered in accordance with the provisions of the Federal Insecticide, Fungicide, and Rodenticide Act, as amended (7 USC 135 et seq.); or
  11. substances highly lethal to mammalian or aquatic life.