

ROANOKE RIVER BASIN REGIONAL COUNCIL

Roanoke-Cashie River Center
112 W. Water Street
Windsor, NC

June 11, 1999

9:00 The Roanoke Regional Council Demonstration Project Committee will meet to discuss ideas/summaries for demonstration projects that were submitted by members and other interested parties. These project ideas will be presented to the full Council during today's meeting beginning at 11:00am.

AGENDA

11:00	Welcome and Call to Order	Jerry Holloman, Chair
11:05	Introductions	ALL
11:10	Acceptance of Minutes from 4/16/99 Meeting in Windsor	Chairman Holloman
11:15	Presentation/discussion of demonstration project summaries and proposals	ALL
1:00	Plans for Next Meeting (develop agenda items)	ALL
1:05	Adjourn	

ROANOKE RIVER BASIN REGIONAL COUNCIL

June 11, 1999

11:00 a.m.

Roanoke-Cashie River Center

Windsor, NC

The June 11, 1999 meeting of the Council was called to order at 11:00 a.m. by the chairman, Jerry Hollomann. Present for the meeting were:

Jerry Hollomann*

Kay Winn*

Jerry Coker*

Andy Allen*

Bruce Perkinson

Joan Giordano*

Guy Stefanski*

Mary Lilley

Tom Stroud.

* Indicates present for the 9:00 a.m. project committee meeting.

This constitutes a quorum of the Council.

The minutes of the April 16, 1999, meeting were approved as received by consensus following a motion by Jerry Coker and a second by Andy Allen.

The sole agenda item for the meeting was a consideration of the ideas submitted for demonstration projects to be adopted by the Council. A meeting of the project committee had been held at 9:00 a.m., as indicated above. Seven ideas were presented for consideration. The project committee examined each and derived a preliminary ranking order for them based upon the criteria given as guidelines from the Coordinating Council. Final recommendation was reserved until after the full Council could hear all proposals.

For clarity and ease of presentation of these ideas, they will be numbered in the minutes, and preceded by the name of the person(s) presenting them. All general discussion of the Council's reasoning regarding each one and general discussion of deciding upon the order of preference will be given at the end of the project summaries.

Project Summaries

Tom Stroud and Mary Lilley, representing the Partnership for the Sounds, presented the first two ideas.

- 1) River Model – This project consists of a commercially-constructed model of the Roanoke River Basin. It would be 4'x10' and would cost \$25,000 to build. It is to be housed at the Roanoke-Cashie River Center for manipulation by guests at the center.
- 2) Buffer Construction – This project would consist of hiring a contractor to landscape and develop instructional signage for the streambanks within the River Center. Estimated cost of the construction of the 50'-wide buffer strip on either side of the stream is \$13,500. There is potential for construction of a flashboard riser to demonstrate urban runoff control at additional cost.

Andy Allen presented the third idea.

- 3) Water Monitoring in a Constructed Wetland - In conjunction with the development of 2 constructed wetlands in the Town of Plymouth (a Clean Water Management Trust Fund project), this portion of the project would offer the opportunity to monitor the treatment effectiveness of the ongoing efforts of the town to improve water quality. Involvement of local schools and private industry are important components of the project. Costs of the project were undetermined.

Kay Winn presented the next three ideas.

- 4) Virtual River – This would be a computer simulation of the Roanoke River to assess different flow management strategies, creating a simulation to measure the effects of those strategies on the lower river. Parameters of interest might be impacts on certain wildlife species during the nesting season, effects of aseasonal flooding on the agricultural sector, etc. The program, once developed, could be utilized in making management decisions, as a demonstration or training tool for persons employed or interested in river management, or for educational purposes. No cost estimate.
- 5) Undoing a deed done long ago – This involves pursuing a project that has already received some attention from the Council. It arose from a discussion of the chairman and secretary following the November conference on the estuaries. The chairman has already had Corps of Engineers personnel examine the project for input. It involves the reversal of drainage created by four ditches which unnaturally alter the flow impact on about 10,000 acres, much of which lies in the Wildlife Refuge. A Coastal America representative has already approached the secretary in search of ideas. Much potential for partnering exists. No cost estimate given, most funding would come through Corps with some private match.
- 6) Cows at Caledonia – This project involves removing the cattle herd from the river at Caledonia State Prison Farm. A long stretch of streambank has been degraded by the grazing and hoof compaction of a sizable cattle herd. The animals are also wading

the river, and their wastes are being discharged directly into the river. This violates Best Management Practices. Cost-share money might be available, and it is the responsibility of the State to engage in BMP's . Cost estimate not given.

Jerry Hollomann presented the seventh idea.

- 7) Cows in the river at a privately-owned site – This project identifies a stretch of riverbank below Scotland Neck where similar damage is being done by cattle. Immediately off the site is a major bluegill breeding ground. The proposal entails getting the cooperation of the landowner and partnering with agencies which might offer cost-share assistance and planning expertise to develop an alternative water supply for the herd and fencing to keep the cows out of the river. It remediates damage and offers demonstration potential.

During the presentation of each project idea, discussion and questions by the Council were entertained. Ideas for implementation of each idea and opportunities for developing other sources of funding and partnering relationships also arose. Different assessments and suggestions for further fleshing out of proposals were made.

The chairman suggested a short form for checking each proposal against the criteria from the Coordinating Committee. The following questions were assessed for each proposal:

- Priority problem?
- Demonstrability?
- Identified in the CCMP?
- Environmental benefit?
- Can it be monitored?
- Education/outreach?
- Partnerships?
- Transferability?
- Can it be done?

Examining each of the ideas which had risen to the top of the preliminary rankings during the committee meeting, Bruce Perkinson stated that he concurred with the committee's ranking of the projects at this point. In their order of ranking following discussion were:

- 1) Urban water monitoring at constructed wetlands at the Town of Plymouth – Suggestions for fine-tuning this project included partnering with Weyerhaeuser for sample collection and analysis. This was suggested by Jerry Coker as a possibility, since the company's staff already conducts much monitoring on a routine basis. That would drastically lower the costs, and would give certification credence to the data. Jerry Hollomann suggested involvement of the local schools in a relationship with the partners to broaden the educational component of the project.

- 2) Altering the drainage of the 10,000-acre tract by the manmade canals – this promises to be a very expensive and long-term project. Monitoring and observation of its impacts would be a major component. Partnering with the Corps has already been explored, and Coastal America has already indicated interest in a project for the basin. The secretary will proceed with writing a letter to Coastal America to see if their interest can be engaged.
- 3) Removing the privately-owned cattle from the river – It was determined that the cooperation of the landowner is crucial to the pursuit of this project. Towards that end, Jerry Hollomann and Bruce Perkinson are planning to approach the NRCS agent in Halifax and assessing the landowner's willingness to cooperate. Sources of funding from government programs will be investigated, cost estimates developed, and Best Management Practices for the site identified.
- 4) Cows at Caledonia – Council determined that the secretary and chairman should write to the governor and Secretary McDevitt requesting their assistance in rectifying the problems there, since it is state property. No cost to Council should ensue.
- 5) Virtual River – Staff will assist the secretary in identifying persons and agencies to contact regarding this idea. Involvement at the university level is a potential starting point. Costs for this project are beyond our ability for funding, but it is considered to be an innovative idea worthy of pursuit.

The proposals presented by the Partnership for the Sounds had been dealt with while Mary Lilley and Tom Stroud were still present at the meeting. The secretary asked whether the group would accept partial funding of either proposal. Tom Stroud answered that they would consider it for the buffer strip project, but not the model.

- 6) Buffer strips at the River Center – Council discussed the potential for involving other funding sources, and several ways that the project might be enhanced. It was agreed that the project should be broken out three different ways: buffer strips only, flashboard riser only, and both as a joint project. Staff will notify the Partnership of its submission deadline for further information and next meeting date.
- 7) River model – The cost of this project precludes the pursuit of any other, which is a limiting factor. Council also found that, although it was a good idea for the Center, it did not meet enough of the criteria provided for assessment.

In order to meet all applicable deadlines, Council decided upon the following dates for submission and meeting:

June 28 – Revised proposals from outside sources to staff

July 6 – Revised proposals submitted by Council members to staff

July 9- Whole council meets to finalize recommendations to the Coordinating Council for demonstration projects

August 23-25 – Proposals to CC to comply with 30-day requirement.



Under further business, the chairman and secretary signed the resolution on flow rate for distribution.

The chairman also indicated that letters had been received from both Senator Helms and Congresswoman Eva Clayton, each indicating that they had asked for appropriations to support the 216 Study.

The chairman also indicated that he wishes to address some inaccuracies in monitoring below Williamston in a future meeting. He desires to consider a resolution on the subject.

With no further business to consider, Council adjourned.

Respectfully submitted,
Kay Winn, Secretary

**Roanoke-Cashie River Center
Storm Water Pollution Control
Demonstration Project**

Phase I

BMP Demonstration

Installation of vegetated buffer strip using varied Best Management Practices for agriculture, silva-culture (if possible), and urban development along the creek at the Roanoke Cashie River Center in Windsor

	<i>Constructed Wetland</i>	<i>\$10,000</i>
Research and Site Prep		\$ 3,000
Plant Materials and Labor		\$ 9,000
Interpretive Signage		\$ <u>1,500</u>

Total:

~~\$23,500~~
\$13,500

35K

Project should be completed within four months.

Phase II

Flashboard Riser System

Installation of a flashboard riser system within the creek's mouth to control the flow of stormwater into the Cashie River

Development of Flashboard Riser System	\$ 6,000
Installation of System	\$ <u>6,000</u>

Total:

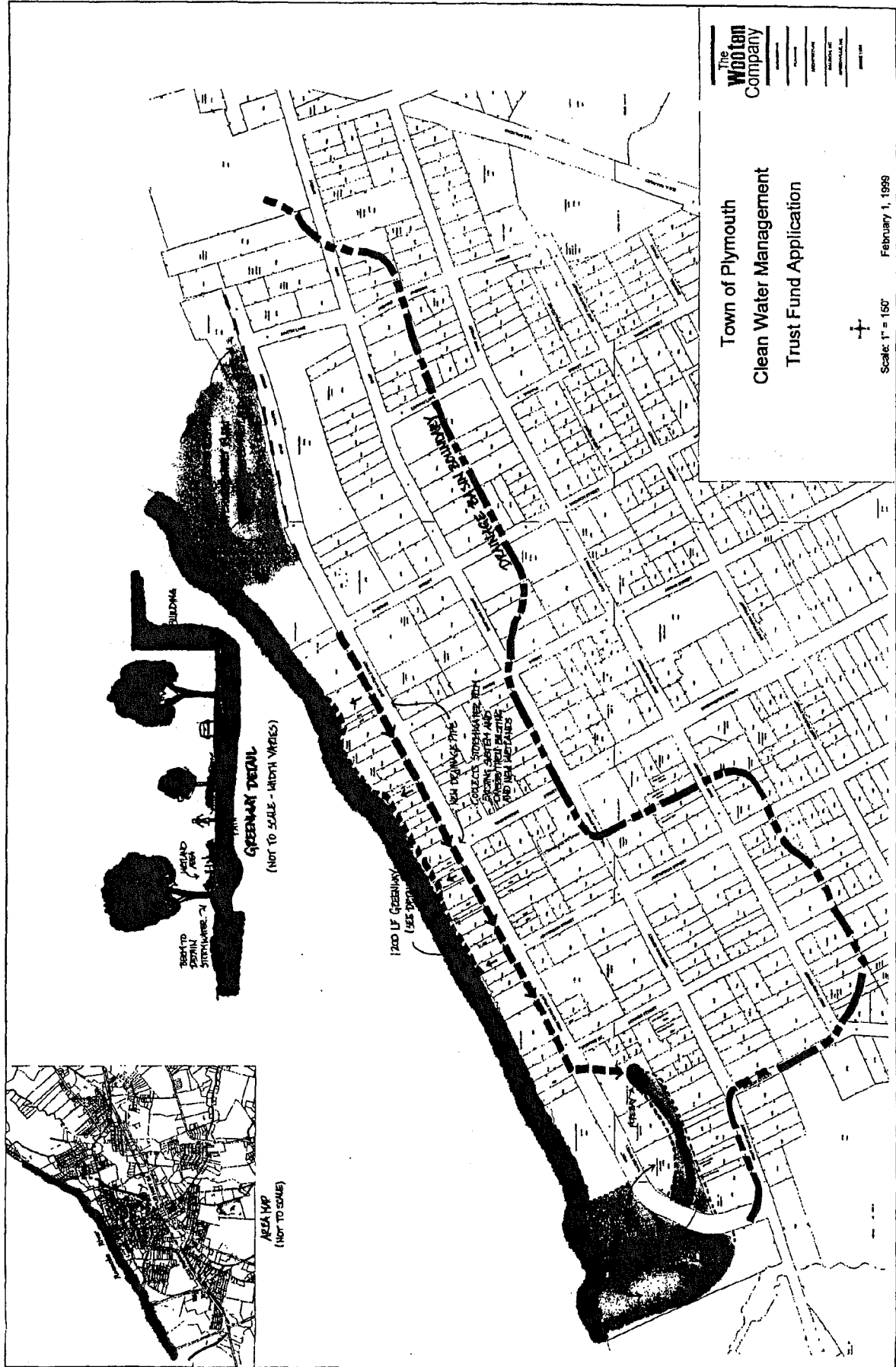
\$12,000

Culvert & Weir

Project should be completed within nine months.

Combined Projects: \$25,500





**Town of Plymouth
Clean Water Management
Trust Fund Application**



Scale: 1" = 150'
February 1, 1999

Ray Wain
Roanoke Regional Council
6/8/99

Ideas for demonstration project for the Roanoke River Council

1. Virtual River - Since flow rates have been our primary concern, it seems only fitting to address them with our project. We will not see the 216 Study for a while if at all, but perhaps some of the same information could be produced in a computer simulation format by compiling information from GIS, the Corps of Engineers, USGS, The US Fish and Wildlife Service, and others, such as The Nature Conservancy, Virginia Power, etc. (This employs the public/private partnership.) I think of this as a "Virtual River," which would allow the users (perhaps the partners and visitors to the River Center, as one example of a possible homesite - once developed, the software could be installed anywhere) to engage in various manipulations of the flow rate, and to view the effects of those decisions. Which species will lose nesting grounds if we run at this aseasonal flow through the month of April? Which crops will farmers downstream be able to plant if we get the flooding over with by the first of May instead of the first of June? This could also make for a fantastic website for visitors. The Roanoke is not yet in the trouble that many others rivers are in, but the decisions made in the management of its flow create serious impacts on the wildlife, businesses and people within its watershed. This tool could be one way to make people aware of the impact of decisions such as the Gaston Pipeline draw. I can envision partnerships with virtually everyone who has spoken to us as a council, and a real chance to make people aware of the ways in which the river can be manipulated and the effects of that manipulation. The uses of the simulations for land use planning could be enormous. It might be possible to include Water Quality concerns in these simulations (our second-ranked concern).

2. Undoing a deed done long ago - I have mentioned the idea that Jerry Hollomann and I discussed about reversing the drainage patterns created by the ditches in the large timber tract on the Roanoke River Wildlife Reserve and other acreage adjoining it. This is the idea we conceived after I was approached for project ideas by the young lady from Coastal America, and is what Al Weller suggested some particular structures for at the Windsor meeting. Partnerships are a real possibility here, too, as Jerry has already done some work with the Corps on this idea. Jean told us that some non-governmental money is needed, and CA should fit that bill. This could be a project that would rival the removal of the Quaker's Neck Dam on the Neuse. This would possibly return thousands of acres of the cypress forest to a more natural drainage pattern, perhaps restoring some habitat for the animals that would choose to live there. Again, this project addresses, at least indirectly, the issue of flow management.

Letters

~~Letters~~
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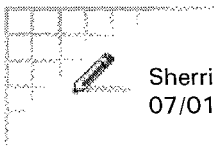
Kay Winn
6/11/99

Ideas for Demonstration Projects for the Roanoke River Council

Remediation of the riverbank at Caledonia State Prison Farm – While taking Jerry Hollomann's tour of the river last October for National Wildlife Week, we noticed that a very long stretch of the riverbank, apparently at Caledonia State Prison Farm, is in severe distress. While we did not make a complete count of the cattle we observed as we traveled, there were at least several dozen visible on that occasion. From a waste management perspective, each one of these cows is equivalent to four full-grown hogs. Their wastes are only one aspect of the problem, though. Grazing has left a long portion of the riverbank essentially without vegetative cover, and erosion is obvious. Hoof compaction has even damaged the natural levee of the river in many spots.

This project is one which should cost the council nothing but some time and energy. Partnering with agencies such as NRCS (cost-share and expertise potential), DENR/DWQ and Extension, along with the Department of Corrections, the animals should be managed with Best Management Practices, and the remediation of the riverbank pursued (Forestry Dept., maybe NCDOT for wildflower assistance.





Sherrie Jager
07/01/99 04:16 PM

To: joan_giordano@waro.enr.state.nc.us, guy_stefanski@h2o.enr.state.nc.us
cc:

Subject: Roanoke River Basin Demonstration Project

Please see attached two WP7 files. A hard copy will be mailed today.

//s//Jerry L. Holloman



RRBDPP.wpd



RRBDPP.Sum.wpd

ROANOKE RIVER BASIN DEMONSTRATION PROJECT SUMMARY

Proposed June 8, 1999

This project is submitted as a method to improve management of living resources. It could also contribute to improving communications between regulators and the farming community.

Nonpoint sources are the greatest cause of impairment for both salt and fresh water. Agriculture is often cited as one of the nonpoint sources. Of 1,200 miles of impaired Roanoke River Basin streams, 1,000 are impaired due to nonpoint sources. The Roanoke River has several examples of detrimental agricultural practices related to cattle farming. Cattle are allowed to enter the river. Erosion, sedimentation and nutrient load contribute to water quality problems. However, agriculture is exempt from the Sedimentation/Pollution Control Act of the 1970's.

A cost-shared, cooperative Roanoke River Riparian Zone Rehabilitation Project could enhance water quality, create an Esprit de Corps among all cooperating parties and suffice as an excellent outreach tool for the RRBRC. The project could enhance communication between agricultural and water quality interests.

Commitment to the project by the Coordinating Council must be very strong. Farming interests must be courted in such a way as to make them want to be a part of the water quality enhancement process.

Considerable effort, time, sweat, blood and probably a few tears will be required by the RRBRC committee charged to "make it happen" if the project is approved. Let's not kid ourselves. However, we all know that the most valuable objective usually requires the hardest choices and most work.

Several deliverables will be realized by a successful project. The most obvious will be the before and after contrast. The amount of damage evident on the potential project site is considerable. The proposed project has been discussed with the local cattle farmer. He is willing to cooperate, change his way of doing business, if 100 % of his costs are met. The farmer is willing to do most of the work which will minimize costs.

Several cooperators, Fishing Creek Soil and Water Conservation District, Natural Resources Conservation Service, N.C. Division of Water Quality, Cooperative Extension Service, Fish & Wildlife Service, Coordinating Council (N.C. Division of Environment and Natural Resources), volunteers and others will be involved. The project, when implemented, will make everyone proud to have participated. We, by design, will take a soft-handed approach related to the outreach or media coverage in the early stages. We must not, early in the process, overload the participating farmer with too many details with which he does not normally deal. We are confident that, in due time, the farmer will be proud of the project and share the success with others. All will be a part of helping decrease the degree of the low DO problem in the lower reaches of the Roanoke River while addressing issues important to the RRBRC--nonpoint sources of pollution, partnership development and educational outreach.

ROANOKE RIVER BASIN DEMONSTRATION PROJECT
PROPOSED- JUNE 8, 1999

I. Discussion of Priority Problem(s)

Nonpoint sources are the greatest cause of impairment for both salt and fresh water. Forestry, construction, urban and agricultural runoff of waste make significant nonpoint sources contribution to water quality impairment. The Roanoke River has approximately 1,200 miles of impaired streams. Of that 1,200, 1,000 are impaired due to nonpoint sources. For fresh water, the source of impairment was determined to be nonpoint sources for 85% of the impaired miles in the APES region (CCMP, Tech. Doc. APES-Nov. 1994).

Analysis of benthic macroinvertebrate samples from the Roanoke River "suggests" water quality rating of Good from 33% of samples and Good-Fair in 27% of samples. Of the 27% group 18% were Fair. The Fair bioclassifications, scattered throughout the basin, were due to "nonpoint and point source pollution impacts." Ten percent (10%) of the bioclassifications classifications, all from the Dan and Mayo Rivers and Hanging Rock Stater Park tributaries (all Roanoke River tributaries), received Excellent ratings (Roanoke River Basinwide Water Quality Management Plan, Sept. 1996.) It is interesting that 30% of the samples were evidently rated less than fair, or poor, based on macroinvertebrate numbers, types and diversity! The implications are that the poor classifications were obtained from slow-flowing, swamp-like systems and therefore the bioclassifications "may not accurately reflect the natural conditions of water quality."

Many of the water quality problems in several sub-basins of the Roanoke River are linked to non-point sources.

The Roanoke River has several examples of detrimental practices related to cattle farming. There are several examples where cattle are allowed to enter the riparian zone for water, grazing and shade. The result is cattle excrement being deposited either directly into the river or on immediately adjacent upgradient river bank slopes. Ground cover is also trampled and soils are exposed to erosion and deposition downgradient into the river. The Roanoke River riparian zone can be protected from these and similar sources of impairment.


II. Options Considered

The problem could be brought to the attention of regulatory agencies such as State Divisions of Waste Management and Water Quality. They could probably have an impact. However, agriculture is exempt from the Sedimentation/Pollution Control Act of 1973. Cattle related impairments could be relayed to the media with hope of wide spread public exposure enhancing remedies (negative approach). The N.C. Agriculture Cost Share Program, the U.S. Department of Agriculture (USDA) Conservation Reserve Program, the Fish & Wildlife Service's (FWS) "Partners for Fish and Wildlife" program or a combination of two or more programs could be used to implement better practices.

However, they all require 25-50% of cost sharing that the farmer cannot afford due to low cattle and farm prices.

A more successful approach will be farmer contact by the local Natural Resources Conservation Service (NRCS) conservationist. He can discuss installation of forested buffer zones along the river and major drainage way (tributary). This buffer will require livestock exclusion, cattle crossings and an alternative water system. Cost sharing funds will have to come from other than the cooperator.

III. Discussion of Selected Option/Project Abstract

- A. Project Title: Roanoke River Riparian Zone Rehabilitation Demonstration.
- B. Lead Agency/Organization: NRCS and Fishing Creek Soil and Water Conservation District (FCSWCD).
- C. Objectives: Develop and implement cooperatively, a successful example of a permanent riparian zone protection demonstration project that will demonstrably decrease erosion, sedimentation, BOD and nutrient load entering the Roanoke River. 
- D. Likelihood of Success: Success will depend on approach of lead agency personnel and total costs. RRBRC, N.C. Division of Water Quality (DWQ), Cooperative Extension Service (CES) and others have to walk softly with the cooperator and help reinforce his decision that there is a better way of doing business. The Halifax County NRCS conservationist has done a yeoman's job already. He has sold the farmer on the need, helped him see the benefits to his farming operation and received a verbal commitment to cooperate. Likelihood of success is good.
- E. Public Support: APES Coordinating Council and staff must accept the RRBRC's need to gradually get into the outreach aspects. The CES stands ready to help publicize the effort--emphasizing the positive aspects of the cooperative nature of the venture--when the lead agency feels the time is right. The primary public, the farmer, is willing to cooperate, but we cannot risk overload.
- F. Time and Resources Required:
 - Planning-Coordination - six (6) months; two actual person months of work (\$7,500) contributed by various involved agencies.
 - Implementation - Twelve (12) months; cooperator and contractor(s) will install enhancements and any needed structures/facilities (\$45,000 - \$25,000 from RRBRC, \$2,300 from USDA and \$18,000 from FWS). Cooperator will provide subsequent maintenance of necessary facilities.
 - Monitoring - DWQ and/or cooperator (FWS and volunteers) take necessary water samples and photographs to determine site water quality base parameters

and monitor changes: base work (\$4,000); two (2) years of subsequent annual sampling by DWQ and/or FWS and volunteers (\$2,000 annually). FWS and/or volunteers will provide logistical support and collection sample following training.

- Monitoring - Four (4) years; periodic inspections (twice annually) by NRCS with cooperator to monitor ground cover and make needed corrections/repairs.
- | | |
|---|----------------------------|
| (a) Fencing | \$18,500 |
| (b) Riparian Zone Rehab (tree planting) | 4,600 |
| (c) Alternate Water System | 17,300 |
| (d) Cattle Trail Crossing | 4,600 |
| (e) Water Quality Monitoring (Prior) | 4,000 (contributed) |
| Subsequent Two (2)Years | 4,000 (contributed) |
| (\$2,000 Annually) | |
| (f) Bi-annual Inspections (8) | <u>2,000 (contributed)</u> |
| Total (excluding contributed) | \$45,000 |

- G. Cost Effectiveness: Assuming the referenced agencies will participate by contributing time, equipment and lab resources no new agency staff or equipment will be required.

Cooperator (farmer) will certainly see the cost effectiveness; cattle will not lose weight hoofing-it-to-water, farmer will have pasture rotational grazing, water will be cleaner and he will receive annual per acre payments from USDA for each acre of riparian buffer installed. The public resource, water quality and aquatic habitat down river, will be considerably improved reducing potential of more costly future remedies.

H. Deliverables:

1. Base physical water quality parameters of river at chosen site.
2. Two miles of restored riparian zone of the Roanoke River.
3. Five years of site specific physical water quality parameters.
4. Improved downstream water quality; reduced erosion, improved fish habitat, increased nutrient uptake--reduced nutrient load and decreased BOD.
5. Demonstration project to other riparian land users throughout the Roanoke River Basin and other state water sheds.
6. Encouragement to other Roanoke River riparian zone land users to implement improved protection of riparian zone.
7. Enhanced spirit of cooperativeness between stakeholders.
8. Potentially reduce need for more costly future remedies.

IV. Detailed Project Description/Scope of Work

- A. What: Ground cover, predominately hardwood seedlings on 21 riparian acres, cattle exclusion from two (2) miles of denuded areas of river bank and tributary, pump and fresh well watering system, environmentally sensitive cattle pathways and stream crossing and improved water quality from better vegetated cover due to rotational grazing.
- B. Who: Cooperating farmer, contractor, NRCS, FCSWCD, DWQ, CES, FWS, volunteers, media, APES staff, Coordinating Council and N.C. Division of Environment and Natural Resources.
- C. How: Impetus from Governor's Coordinating Council, coordinated-cooperative planning, implementation by NRCS, FCSWCD, cooperating farmer, contractor and DWQ.
- D. Where: Halifax County/Lloyd Winslow Farm.
- E. When: NOW! Begin coordinated discussions with DWQ immediately after approval by Coordinating Council--summer of 1999. NRCS, FCSWCD, CES and Cooperating Farmer were engaged in lengthy discussions during the June 14-25, 1999, period.
- F. Budget: See III-F

V. Activities to Monitor Success

- A. Monitoring requirements: Four (4) years of bi-annual inspections by NRCS will be completed to assess the degree of effectiveness and need for corrections. Photographic transect points will be photographed, developed and maintained in appropriate NRCS, FCSWCD and/or FWS files.

Base year and four (4) subsequent annual physical water quality series samples will be collected (collections supervised by and analyzed by DWQ). Samples should probably be collected during late July to early September. Protocol will be as directed by DWQ.

- B. QA/QC Plan: Plan will be developed by DWQ.

VI. Reports on Progress, Costs and Results

RRBRC/Coordinating Council staff, with draft input from RRBRC will finalize annual reports of progress, costs and results. A RRBRC committee, appointed by Chair, will receive data from NRCS, FCSWCD, DWQ and CES and draft annual report.

VII. Review, Evaluation and Redirection

RRBRC committee, appointed by Chair, in consultation with NRCS and FCSWCD will review, evaluate and draft any needed redirection report for final preparation by Coordinating Council staff and consideration by Coordination Council prior to redirection by RRBRC committee.

VIII. Basinwide or Regional Application

- A. General Discussion: This demonstration project, minimally, has regional applications. During Roanoke River high flows in warm months recent history has demonstrated that physical water quality parameters do not support aquatic life. Resultant fish kills demonstrate that Roanoke River water quality is sometimes below state water quality standards. The low DO problems annually experienced in the lower reaches of the Roanoke River have been accompanied by assertions that the problem is largely due to background, natural or backswamp biochemical oxygen demands (BOD) which by implication are beyond our control. Such being the case, North Carolina should modify or reduce practices that contribute to reduced downstream water quality. Many of the water quality problems of several sub-basins of the Roanoke River are linked to nonpoint sources. Western North Carolina not only has streams polluted by cattle farming, it has drinking wells contaminated by fecal coliform from cattle excrement. Madison County, which has 15,000 cows, applied for and received a \$400,000 Clean Water Management Trust Fund grant to help farmers along the Ivy River and its tributaries fence cattle out of springs and creeks. They plan to build watering systems to replace the cattle watering sources and hence eliminate a major source of human health hazard (Asheville Citizen-Times, Voice of the Mountains, May 31, 1999.)

Maintenance of riparian borders to exclude cattle could also have dairy farming applications. It is not much of a stretch to see future development of regulations that address agricultural related water quality problems.

The RRBRC's Two-Year Program of Work identified an Agriculture/Forestry BMP Demonstration Project related to optimum levels of nutrient application. However, Council project planners resigned. This project will address several major concerns of the Council; i.e., nonpoint source pollution, partnership development and educational/outreach on a Roanoke River site.

- B. Cost estimate: Working cooperatively the USDA, SWCDs and DWQ, with increased funds could, within ten years, make a huge dent in restoring the state's riparian zones (eliminating domestic livestock from riparian zones). An estimated \$400,000 annually would provide matching grants and operations money to address non-point agricultural sources of pollution on the Roanoke River.



IX. Public Education and Outreach

The NRCS, FCSWCD, CES, Coordinating Council staff, DWQ staff and RRBRC committee would cooperatively design and implement an education and outreach strategy.

X. Endorsement by Regional Council(s) and Other Partners

The RRBRC Chair will present proposal to the Council and, following approval, the Coordinating Council. Following approval necessary contacts with all remaining cooperators will be initiated by the appointed RRBRC committee.

~~14~~ 9

PARTNERSHIP
for the *Sounds*

May 20, 1999

Mr. Guy Stefanski
Albemarle-Pamlico National Estuary Program
Division of Water Quality
Post Office Box 29535
Raleigh, NC 27626-0535

RE: Roanoke River Basinwide Council
Demonstration Project

Dear Guy:

The Partnership for the Sounds is interested in participating in your upcoming demonstration project funding cycle. We have developed a project for the Roanoke River Basinwide Council that involves construction of a working watershed model for the Roanoke and Cashie River basins. This model will be a full-color model that demonstrates the river channel and tributaries of the lower Roanoke River basin, the basin topography, and the water flow issues that plague this area. Since the model will be very large, it will be designed as a permanent outside exhibit to be housed at the Ronaoke/Cashie River Center in Windsor.

Such a model will be extremely valuable in teaching individuals unfamiliar with the river basin how the watershed works, and how different variables (such as dams, rainfall, etc.) impact the entire system. The relief model will depict at least the Roanoke Rapids dam, the floodplain, and the high bluffs. We are hopeful that the bottomland hardwood lands, as well as communities, will also be shown.

The Center is a shared location with the Roanoke River National Wildlife Refuge offices, and it is located on the banks of the Cashie River. With the Center being open to the public on a permanent basis (including weekends and throughout the summer), the model will be easily accessible to school children and others visiting the Center and ecotourists accessing the Refuge at this location.

PARTNERSHIP
for the *Sounds*

G. Stefanski
Page 2

Enclosed is a bid from Design Dimension, Inc. indicating that the cost of this project will be approximately \$25,000. We will be happy to present a full presentation to the Council at the appropriate time.

Please let me know if you have any questions. Thank you for your consideration.

Sincerely,

Mary P. Lilley
Mary P. Lilley

/ml

Enclosure

cc: Jerry Holloman
Jerry Cocker



Tom Stroud
Director of Environmental Programs
The Partnership For the Sounds
PO Box 55
Columbia, NC 27925

May 19, 1999

Re: Roanoke River Watershed Model

Hello Tom:

Thank you for considering Design Dimension Inc. to design/fabricate the Roanoke River Watershed Model for the Roanoke/Cashie River Center. As I understand your note, the **scope** of the project is:

- 4' x 10' surface area with exaggerated height.
- Outdoor application.
- Full color.
- Will have a recyclable water source (upstream) and drainage (downstream).
- Include an interactive dam with will constrict the flow of the 'River' and flood appropriate portions of the model.

The **schedule** for this project would be six months fabrication, one month installation from the time the content is finalized and approved by the Partnership.

The **budget** for this model, including installation, would be \$ 25,000.00.

Again, thank you for considering Design Dimension Inc. for this project.

Sincerely,

A handwritten signature in black ink that reads "Mike Cindric".

Mike Cindric

