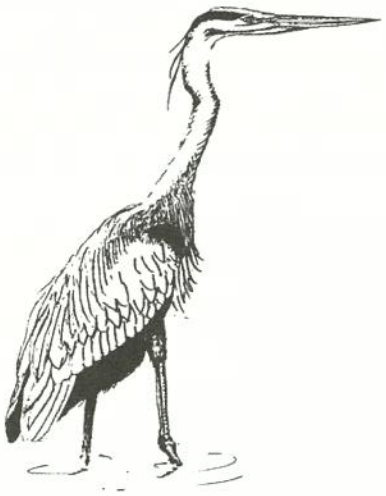
THE CATAWBA RIVER CORRIDOR PLAN

The Catawba River Corridor Plan represents the results of an intensive study of the issues impacting the river, the resources of the river, and numerous discussions among the participants concerning resource management and community needs associated with the Catawba River. This process has produced over 175 management recommendations. These recommendations form the core of the Catawba River corridor plan.

These recommendations are management guidelines that hopefully will shape decisions on activities along the Catawba River corridor for many years to come. Fourteen committees or subcommittees, ranging from water quality to recreation to economic development, wrote the recommendations contained in this section. The committees faced a challenging task to develop a plan that acknowledges and protects the critical natural resources of the river and its corridor but allows the people and communities along the river to continue to meet their collective needs.

The members of the committees and the task force took this challenge seriously and created an insightful and balanced plan. An indication of this balanced approach is seen in the fact that both the Economic Development Committee and the Resource Protection Committee recommended that scenic river



SERVING ON THE CATAWBA RIVER TASK Force as a Task Force member has been an educational experience for me. I remember the first night that I met Barry Beasley and agreed to serve on the task force after he came to talk to the Catawba Cultural Project's board meeting. I was excited about the prospect of being a part of a process that could impact the Catawba River in a positive way because the river has always played an important part in the lives of the Catawba Indians. The river yielded the clay holes that have sustained the pottery tradition of the Catawbas throughout history. It was also the source of water, food, transportation, and much more. Therefore, the work of the task force was and will be important for the Catawbas.

The entire process was very well organized from the individual committees to the decision making group. Everyone was allowed input as to what mattered to them about the river and all concerns were carefully evaluated on every level. Concerns based on economics to environmental con-

designation for the Catawba River should be explored.

There are several common threads woven through the recommendations. One common theme that came from almost all of the committees was that entities from governments to individuals should work together. Regional planning and a regional approach to decision making was also the focus of several recommendations. People, agencies, and governments must work together in regional efforts in order to implement this plan.

Many of the committees focused on the need to use education as a key management tool in the river corridor. Education is the primary component in the efforts to address nonpoint-source pollution.

Five committees have recommendations addressing the need for access to the river. Access needs range from better access for rescue and emergency needs to boating and recreational access. However, all access recommendations cited the need for any new access to be controlled and adequately managed.

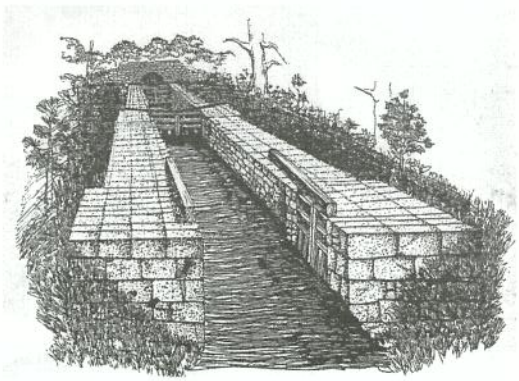
Other critical issues addressed in the recommendations are the need for buffer areas along the river and tributaries, the need for ongoing water quality monitoring and the protection of private property rights.

It is important to understand that these recommendations and the management plan

cerns were discussed and resolutions were derived without sacrificing the integrity of the river.

The canoe trips were a very important part of understanding all of the ecosystems that are at work in and along the river. When people took these trips, they were able to leave with a better understanding of the importance of the river after having experienced it. The future of this great river is the responsibility of all the people living near it, in both North and South Carolina. The river has breathed life into the commerce and recreation of these areas up to this point and it is our future community life that is at stake here if we don't heed the recommendations of the Task Force and implement them. The Catawbas are called "Ye Iswa," which means river people. All of us who live in communities that were formed as the result of the benefits of the river can also be considered to be river people. It's time that we begin to think of what we can do to protect this very valuable resource.

Wenonah G. Haire, DMD

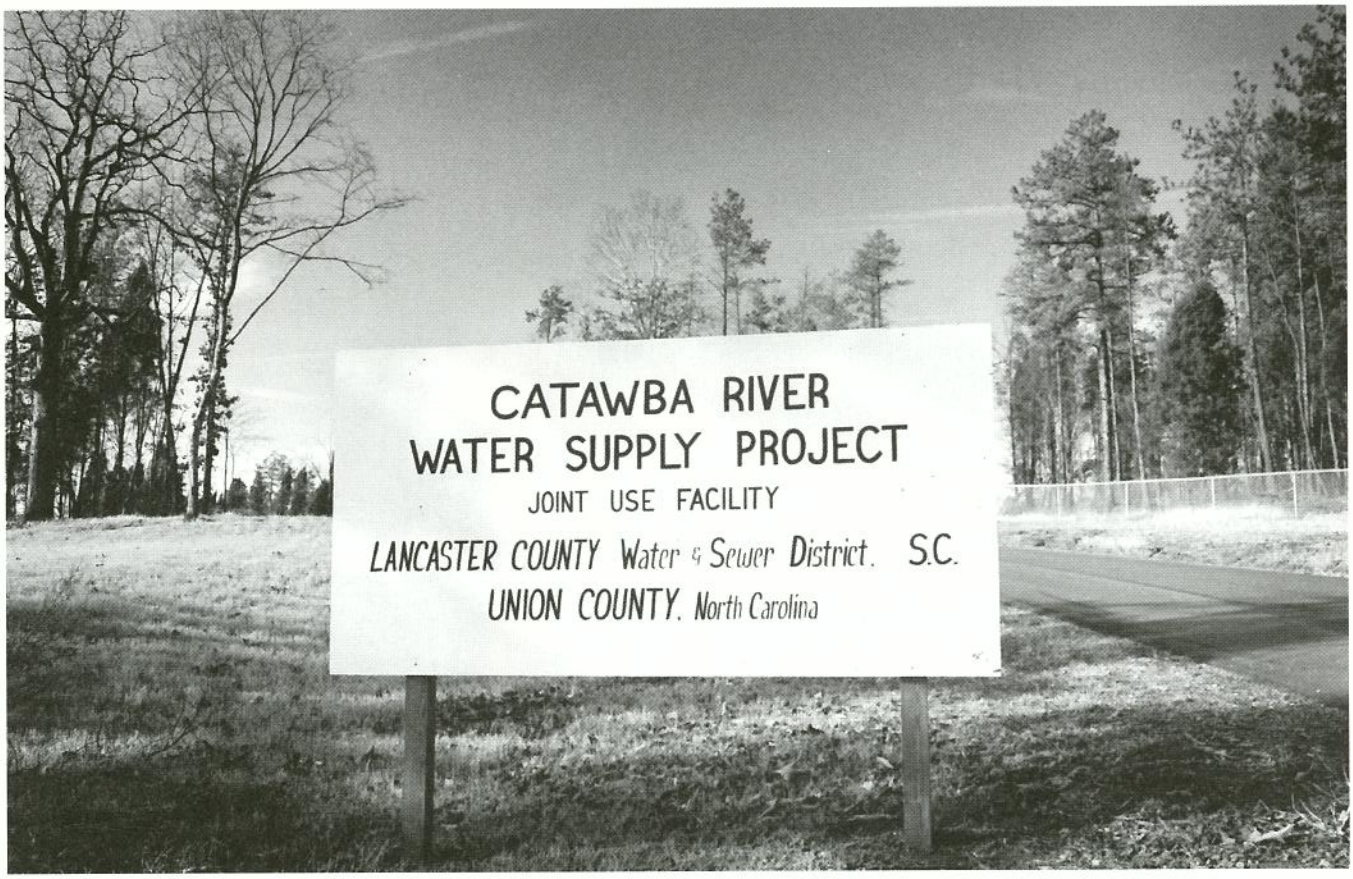


came from numerous individuals who live in the communities surrounding this river and also individuals who live on or own property on the Catawba River. These recommendations are the results of numerous meetings and in-depth discussions by the members of the Catawba River Task Force and its committees and subcommittees. Although there were differences of opinion, the decision-making meetings were always cordial and reflected a respect for the various opinions around the table. The result is a balanced plan offered in the recommendations contained in this section.

In compiling and presenting the plan represented through these recommendations, we must remind ourselves that like nature, our plan must be dynamic. We have to realize that nature is a process, thus we must view the plan as an ongoing process.

Ian McHarg, in his classic book "Design With Nature," pointed out that land, air, and water are indispensable to life and as a result they constitute social values. We must collectively make decisions on the proper use of these essential natural resources. McHarg further stated that "a recognition of these social values, inherent in natural processes, must precede prescription for the utilization of natural resources." (McHarg, 1969).

McHarg's observation is an apt description of what the Catawba plan represents. The following recommendations are an expression of the collective social values represented by the Catawba River Task Force and its committees.



ECONOMIC DEVELOPMENT ISSUES

The Economic Development Committee was composed of 25 people and was co-chaired by Bob Vail and Stephen Turner. The group represented economic development professionals, industry representatives, land developers, public officials, state agency staff, and representatives of the tourism and recreation sectors. The group had a number of speakers who discussed economic development trends in the region. It also had programs on the importance of tourism and on the plans for the Catawba Indian Nation.

The group came to see the Catawba River as a crucial economic development resource for the region. The river has always been an important factor in the development of the area. The river has helped to determine the transportation and settlement patterns, based on available crossing points. It has provided power for hydroelectric plants, which allowed the development of the textile mills. It has also attracted such modern industries as Bowater and Hoescht Celanese. The river corridor now faces an unprecedented period of change and growth, due to its proximity to the Charlotte urban area, one of the premier growth centers of the nation. As growth continues it will become more and more important to reach a balance between protecting the resource and accommodating development. The river must be kept healthy. It must also continue to enhance the lives of residents of the three counties through residential and business growth and through recreation and tourism.

The Economic Development Committee adopted the following mission statement: "to develop a strategy for the use and protection of the Catawba River as a valuable economic resource for the growth of Lancaster, York and Chester counties, with emphasis on striking a balance between economic benefits and the environmental impacts on the river."

The Committee prepared a number of recommendations, which were reviewed, amended, and adopted by the full Catawba River Task Force. These recommendations are listed below, grouped into four categories.

RECOMMENDATIONS

Economic Development

1. Business and government leaders in the three-county area must continue to support the attraction and expansion of environmentally responsible industries and businesses that will provide high-wage, high-skill, and diversified employment.

2. Appropriate public entities and private developers should cooperate in the development of business and industrial parks and designated industrial areas that are fully serviced, well-designed, and environmentally sound.

3. The Catawba River should be presented as a significant amenity and resource for economic development. The critical role that the river plays in stimulating the economy should be communicated at every opportunity to public officials, the business and community leadership, and the public.

4. Local leaders should support transportation improvements, such as I-77, S.C. 5, S.C. 9, and the Dave Lyle Boulevard Extension, with environmental safeguards. Studies should be undertaken to develop corridor plans for these projects so as to promote economic development opportunities and to manage their impact on the river corridor.

5. Responsible agencies should continue to carefully monitor water quality in the river and to protect this resource. Cooperation and communication between the appropriate state agencies in the two Carolinas are to be encouraged. On the basis of data received by the Committee, the water quality of the Catawba River is good and there are no immediate limitations on additional properly treated effluent. The availability of the river is a valuable resource for economic development purposes.

6. Local utility providers should invest in water and sewer line extensions where infrastructure is necessary to attract economic development opportunities as well as in areas where residential, commercial, and industrial growth is likely to occur. Utility providers should attempt to provide water distribution and sewage collection systems to appropriate areas that are void of such services.

7. Local economic development and government agencies should coordinate their plans with the Catawba Indian Nation, in addition to other organizations and agencies as appropriate.

Land Use

8. Local business and government leaders should be continually apprised of growth trends occurring in the Charlotte region. Policies in the three counties need to be adopted to channel growth and encourage well-planned and broad-based development which places minimal impacts on the river and its resources.

9. Cooperative, broad-based land use planning in the three counties must be encouraged, especially in relation to the river corridor. Planning efforts should include a multi-county analysis of river corridor land use restrictions.

10. Designated areas for business and industrial expansion should be set aside and protected, with adequate utilities and transportation facilities provided.

Water and Sewer

11. Area local governments and utility providers should continue to plan for increased capacity for water and sewer treatment. Cooperative multi-county planning efforts within the three-county region should be considered to develop additional water and sewer capacity to meet future growth needs, including a possible regional sewer facility. Local participation at the early stages of such a project will ensure that South Carolina concerns are heard and acted upon.

12. The region should support development of a new water quality model for the Catawba River.

13. A 208 Water Quality Planning Agency should be designated for the three-county area to adequately plan for water quality management, to include future wastewater treatment. It should be funded by local governments, public service districts, and private developers, as appropriate, located in both South and North Carolina, as well as state and federal governments.

Tourism and Recreation

14. Tourism is the second largest industry in South Carolina and must be recognized as a vital economic development resource. The Catawba River is recognized as a unique resource within a major metorpolitan area with tremendous potential for tourism and recreation related activities.

15. A working group of tourism and recreation agencies of the three counties should be formed to develop a regional Catawba River Recreation and Tourism Resources Plan. Local tourism agencies should collaborate to promote river-related tourism opportunities while respecting the natural status of the river. This effort should be coordinated with similar agencies in North Carolina.

16. Facilities should be developed to support increased recreation and utilization of the river. These could include a canoe trail, controlled public access areas, and passive parks.

17. Further development of the Landsford Canal State Park should be pursued, allowing it to become a regional destination. The addition of camping facilities should be considered.

18. The Nation Ford area should be recognized as an important resource, containing historical, archaeological, and natural qualities which could be developed in a responsible way to protect the site while encouraging appreciation of its importance.

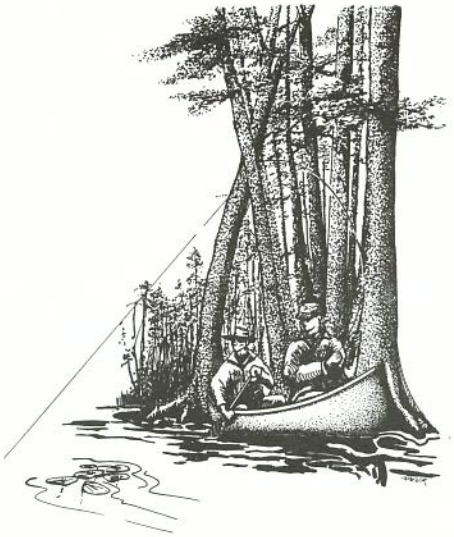
19. Local governments and agencies should cooperate with the Catawba Nation and the Catawba Cultural Preservation Project to encourage appropriate development of the tourism potential of the Reservation, including cultural and historical interpretations of the Catawba people.

20. The potential for designating portions of the river under the South Carolina Scenic Rivers system should be explored.

THE TASK FORCE STUDY HAS BEEN VERY constructive putting important issues concerning the river out for consideration and discussion. Participation from individual landowners and their families was actively sought. Our family has owned land on the river for several generations. We have a working farm raising beef cattle and growing pine trees. We try to follow best management practices in our use of the land and we are very interested in the Catawba's long-term health.

Most regions are judged in large part for their economic viability and natural beauty. Throughout our area's history, the Catawba River provided us with inexpensive hydroelectric power and plentiful drinking water that fueled our economic growth. In return, I believe we must carefully protect the water quality and natural beauty of this unique stretch of river for future generations.

Jimmy White



21. Local governments should study the transportation enhancement provisions of the Intermodal Surface Transportation Efficiency Act (ISTEA) to determine opportunities for the development of recreational and scenic improvements in conjunction with new transportation facilities.

EDUCATION

The Education Committee had eight members and was co-chaired by Dr. Dan Howard Greene and Tom Williams. The mission statement of the committee was four fold:

1. Monitor the progress of the other Catawba River Task Force committees.
2. Communicate the issues, findings, and the process to the public.
3. Devise strategies to inform the public of the Catawba River Task Force's recommendations after the process is complete.
4. Promote public awareness of the importance of the Catawba River and conserving the resources for future generations.

LANDSFORD CANAL, completed in 1823, was an integral link in the Catawba River canal system linking the upcountry to the port of Charleston.

From prehistoric times the ford at Landsford provided a natural crossing and trading site for the Catawbas and other native Americans who inhabited the region. By the 1750s, the Scotch-Irish began settling the area, and in 1754, Thomas Land, for whom the ford and canal are named, established a store here. The crossing was used by both British and American forces during the American Revolution. After the war, General William Richardson Davie chose the site to build a water-powered grist and lumber mill and his home, "Tivoli." Davie served as Governor of North Carolina and was the founder of the University of North Carolina.

The committee met several times throughout the study process and using their mission statement as their guide decided to distribute the recommendations to the general public after the study process to see that the recommendations were implemented. This was to be done by the creation of a video to be shown to civic groups, schools, and the general public to let them know about the process and the recommendations of the task force.

The committee also kept the public informed about the study process through a newsletter and by informing the news media through the issue of meeting notices of the committees, subcommittees, and the task force.

The Education Committee determined that most of its work would begin after the recommendations from the various committees were approved by the Catawba River Task Force. Therefore, no recommendations are proposed by this committee.

HISTORICAL AND ARCHAEOLOGICAL ISSUES

The Historical and Archaeological Issues Committee consisted of 26 members and was co-chaired by Rita Kenion and Wenonah George Haire.

The richness of cultural heritage in the Catawba River corridor presented many topics for the Historical and Archaeological Issues Committee. Proper and expanded identification of archaeological, historical, and prehistorical sites in the river corridor surfaced as a main concern, although it was noted that an extensive archaeological survey could consume up to eight years (see Figure 6 for selected historic sites in the corridor).

With increased and more accurate information, significant sites could be more easily protected through planning and management authorities. However, publicizing some historic site information is a highly sensitive issue, as the information has occasionally been

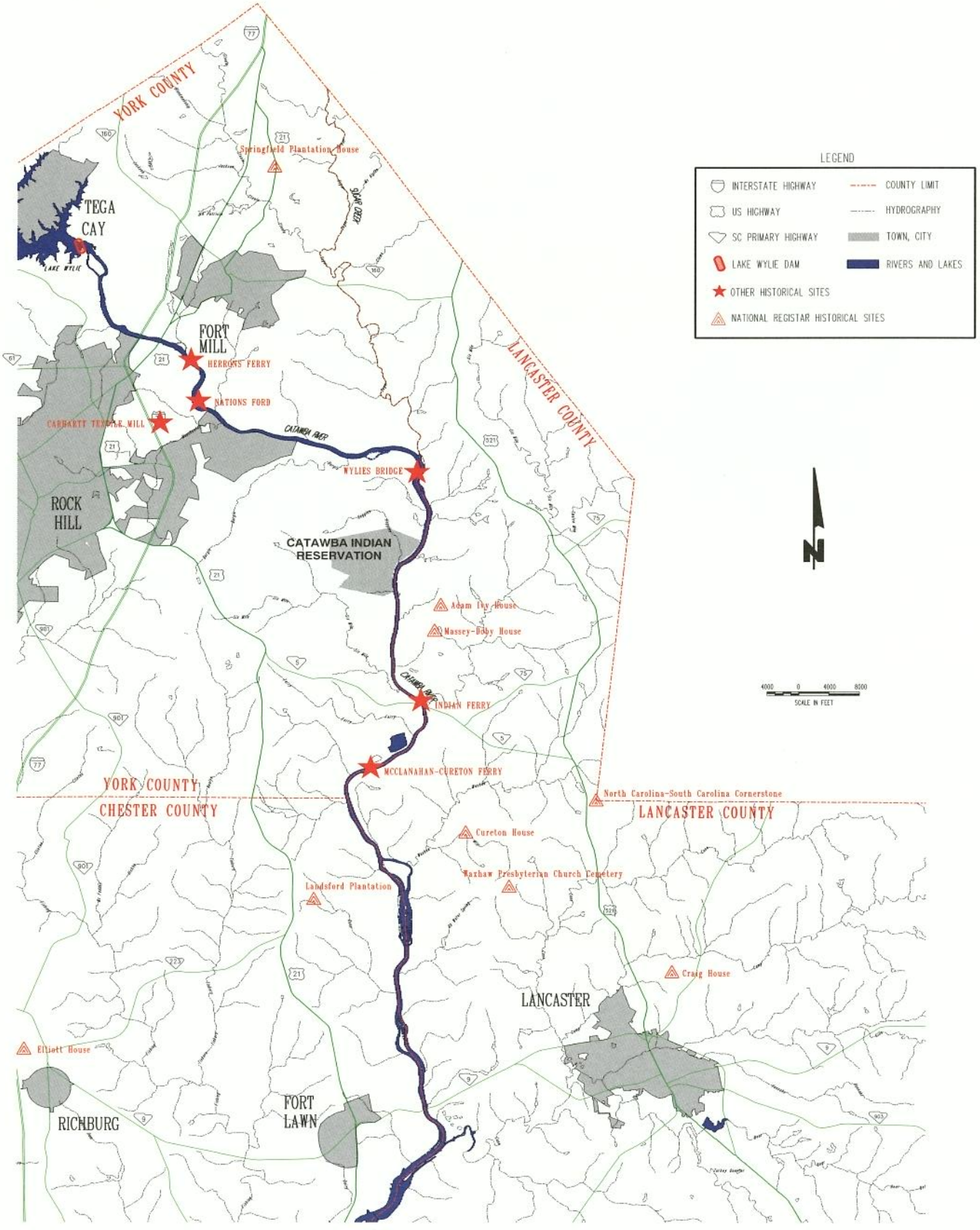
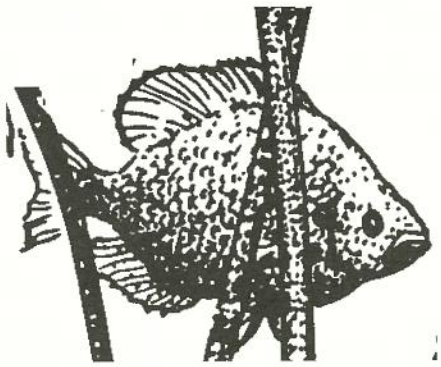


Figure 6. Selected historical sites in the Catawba River corridor.



By the late 18th century, strategies were being developed to ensure that upcountry crops, especially cotton, were transported to the port of Charleston for shipping. This interest in internal improvements led to the construction of the Santee Canal, which opened in 1800. Plans soon followed to build a series of canals on the Catawba River, circumventing the shoals which made the river impassable for much of the year.

Construction on Landsford Canal began in 1820. Engineer Robert Leckie and his labor force of mostly Irish-Americans were beset with heat, humidity and disease. The canal was completed in August 1823, but its use was curtailed until the completion of the canal at Rocky Mount in 1830. Figure 7 provides an illustration of barge traffic through the canal.

used to disturb or vandalize sites. Wider applicability of these types of information is necessary if we are to improve site protection, yet disseminating the information without proper controls could imperil the resource. It is essential to protect availability, distribution, and use of such information. Controlling distribution of site maps for planning purposes continues as an issue for implementation.

Recognizing that with proper information on site location the committee would be able to illustrate the importance of the resource, known historic and archaeological sites were mapped within masked margins of 2,000 feet. This effort did demonstrate the prevalence of these sites and the significance of historical and archaeological sites distribution within the river corridor. The committee approved these data for controlled distribution to local planning departments to assist in permit reviews of development or in pre-identifying potential site disturbances, although the means of control has yet to be decided.

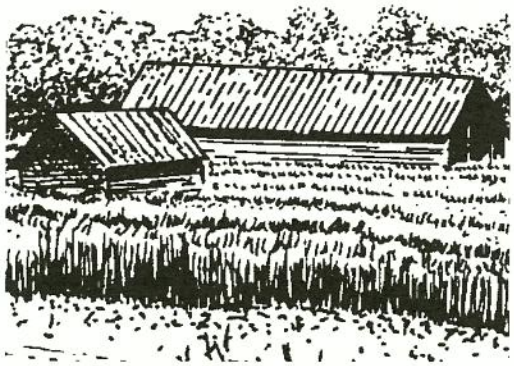
Historical and archaeological resources continue to be lost due to limiting or conflicting laws that protect only known sites or cemeteries. Public education was proposed by the committee to increase awareness about how we may be losing irreplaceable artifacts, historical knowledge, and a unique heritage in the Catawba River corridor. Committee members developed a list of historic sites they estimate as most valuable to reestablish for tourism, education, and historical interpretation.

To uncover previously unresearched histories, the committee drafted and distributed a landowner survey. The appeal requested river residents to supply the information they have that is not general or public record, such as old photographs or plats, experiences or lore, family histories or genealogies, written records, and artifacts. The committee continues to map responses to the survey and suggests a periodic call for additional information through local news outlets or other means. It was also proposed that a standardized questionnaire be developed for use by a designated surveyor or team who could make appointments with respondents to record information. Videotapes from the Catawba Indian Nation were offered for review.

Canal construction was initially pursued with great vigor, but by the late 1840s portage through canals had notably diminished. The system's lack of success was due partly to inferior roadways leading to canals and competition from other ports, but primarily to the development of a rail system in the state, beginning in the mid-1830s.

Landsford Canal, along the scenic Catawba, has been preserved as a major engineering feat of the state's internal improvements era and is listed on the National Register of Historic Places.

The shoals at the park are also home to one of the world's largest populations of rocky shoals spider lilies.



The committee drafted two educational brochures to inform newcomers and visitors of the significance of historical and archaeological resources in the river corridor. One of the brochures was tailored for developers, describing the process of obtaining permits for land disturbance and offering alternatives to site disturbance and relocation, such as site preservation through cultural easements.

Final discussions included suggestions to adopt a model historic preservation ordinance and to provide for special public-interest districts in county land use plans, as in Lancaster County's plan. The committee chose to continue meeting upon corridor plan publication to further this needed work.

The Historical and Archaeological Issues Committee met nine times to develop its recommendations to the task force. All recommendations are designed to meet the mission of the committee, which was: To enhance the public's awareness of, and appreciation for, the valuable cultural resources of the Catawba River corridor. This will include, but not be limited to, the encouragement of site identification, site protection, and public education concerning this invaluable community resource.

RECOMMENDATIONS

1. Assist in education of the community on the cultural, historical and economic importance of historical and archaeological information.

    a. Publish two brochures: a public interest brochure with thumbnail history for newcomers and a brochure for planners and developers on legal and voluntary site preservation.

    b. Expand local training of laymen through historical and archaeological society volunteer programs; provide workshops for developers and planners.

c. Encourage industries to develop their own interpretive histories for the corridor.

d. Encourage membership in local historical societies, local archaeology chapter or chapters of the Archaeological Society of South Carolina, museums, and land trusts.

e. Encourage the Catawba Nation to develop and build a museum/resource of excellent content in an appropriate structure on the Reservation depicting their past in the corridor.

f. Produce a series of corridor maps; interpretive exhibits or displays, with general historical and archaeological points (nonspecific) to be placed at the top of the corridor; at historic sites; and at recreational areas.

g. Refer to the Committee for expertise. Committee will continue to meet twice a year.

h. Work with the Historical and Archaeological Committee, area historians and archaeologists to develop educational courses on the history of the Catawba River and surrounding areas.

2. Define the river corridor, for the committee's purposes, as that area supporting historical river-related human activity; determine types of sites that could be expected in the defined corridor.

a. Make the Known Sites Map available to local planning departments, planners, and developers. Maps must be nonspecific or disguised.

b. Hire a hydrologist to define the predictive historical and archaeological corridor (now only generally correlated to the flood plain).

c. Develop a predictive corridor map to display the importance of history and archaeology in the corridor; include current surveys and landowner survey data. Maps must be nonspecific or disguised.

3. Gather new information on historical and archaeological sites in the corridor.

a. Continue to contact landowners and other area residents for lesser known historical and archaeological information; collect reports from the public through news releases. All archaeological sites, both historical and prehistorical, should be reported to the office of the State Archaeologist at the South Carolina Institute of Archaeology and Anthropology, University of South Carolina, 1321 Pendleton St., Columbia, SC, 29208.

b. Develop a repository and means of analysis for the information collected, including a site verification system.

4. Compare current surveys within a predetermined spatial boundary.

5. Identify opportunities for reestablishing historical sites.

a. "Classes" of sites (temporal periods beginning with the Paleo-indian Period before 8,000 B.C. through the Archaic, Woodland, and Mississippian, and historic [post-European contact] periods) should be represented through an interpretive program in the corridor.

b. Establish a foundation or work with land trusts to purchase culturally sensitive properties or obtain cultural easements.

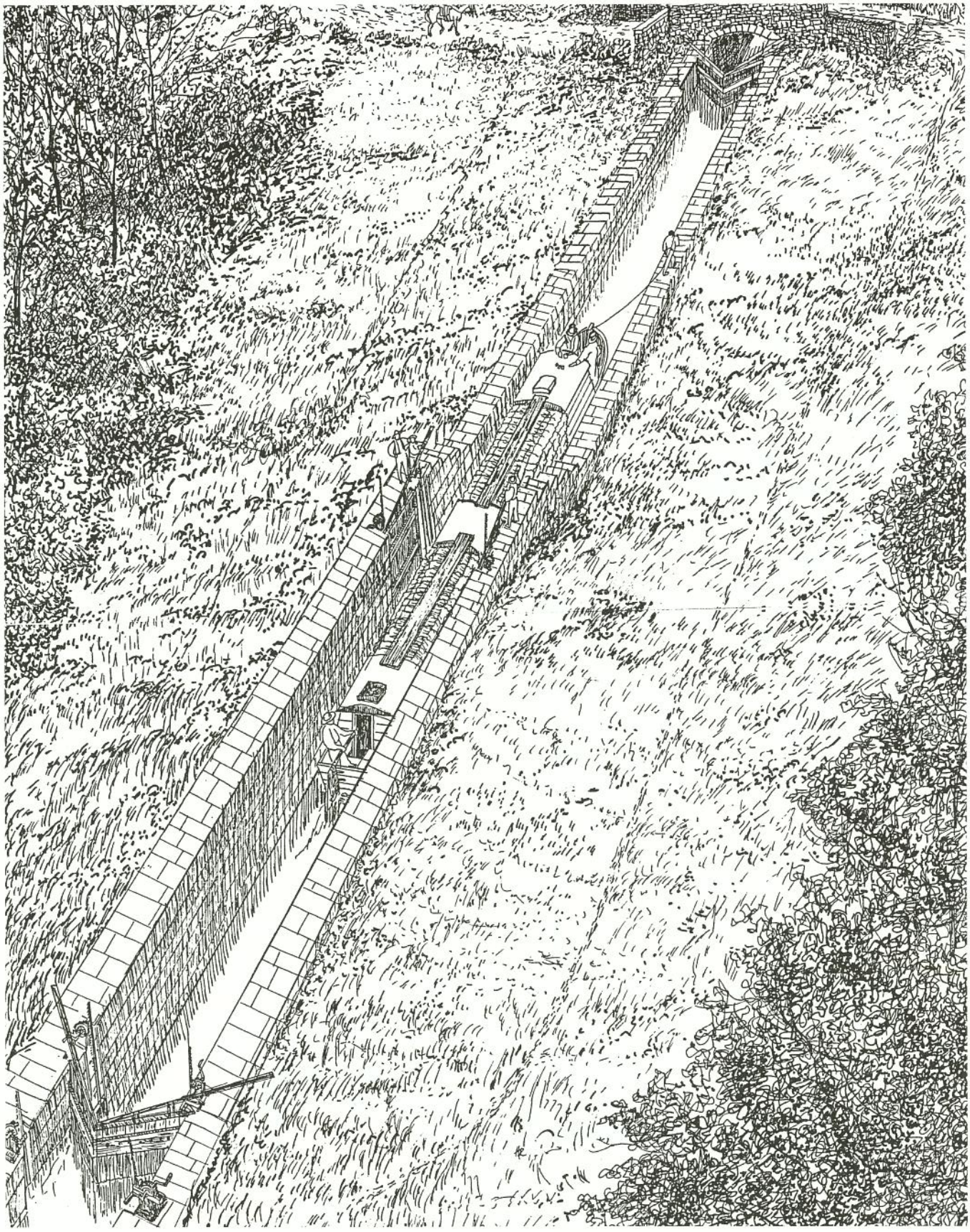


Figure 7. Barge traffic through Landsford Canal, circa 1830.

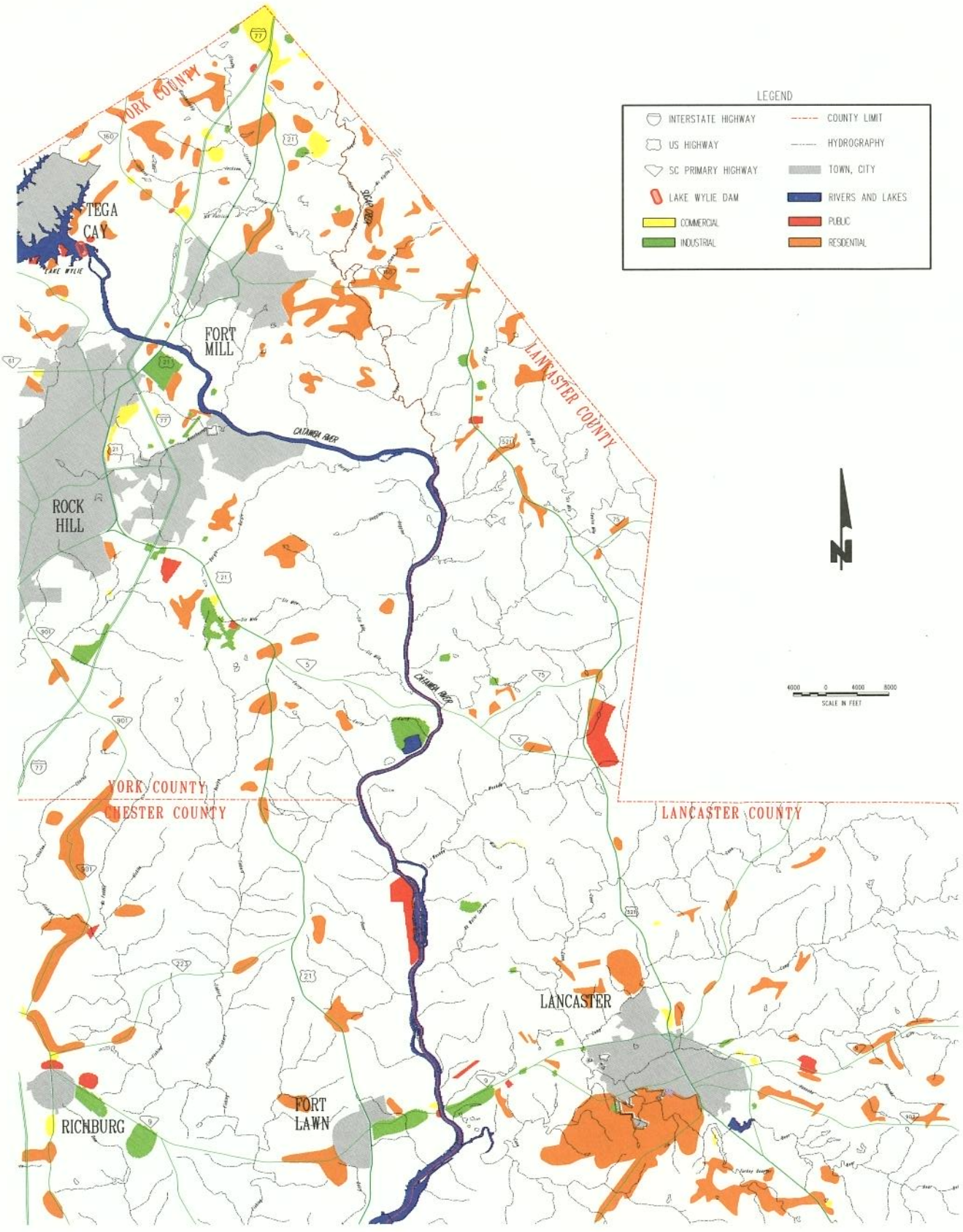


Figure 8. Present land use patterns in the Catawba River corridor.

6. Adopt a tricounty or regionwide model ordinance to protect historical and archaeological sites.

   a. *Include authority to recognize and create special public interest districts in county land use plans.*

   b. *Encourage the tricounty councils to use existing powers to preserve historical and archaeological sites.*

   c. *Encourage and assist the three counties to become certified under the National Park Service certified local governments program. Several towns in the area are already in this category, i.e., Chester and Rock Hill.*

LAND USE

The Land Use Committee was composed of 16 people who met on a number of occasions to discuss the existing land use patterns of the river corridor and to develop recommendations for the future (see Figure 8 for an illustration of present land use patterns). The committee was co-chaired by Jimmy White and Ralph Garris. A number of the committee members represented private and corporate landowners. The planning directors for York and Lancaster counties and the city of Rock Hill were also included. Other members represented the Catawba Nation, state agencies, the general public, and the Catawba Regional Planning Council.

Within the river corridor, land use regulations are in place in York and Lancaster counties and in the cities of Rock Hill and Fort Mill. At present, there are no regulations in Chester County. Because of the rapid growth in eastern York and northern Lancaster counties, lands near the river will undergo land use changes of unprecedented proportions over the next few years. The Land Use Committee attempted to look at ways in which the local governments could work together to meet these challenges. The Committee adopted the following mission statement: "To promote quality growth which protects, enhances, and preserves the interests of the environment, property owners, and public in the Catawba River corridor."

RECOMMENDATIONS

Preservation of Open Space

1. Protect, enhance, and expand Landsford Canal State Park. Consideration should be given to protecting areas on both sides of the river through public or private acquisition of land or conservation easements from willing participants.

2. Encourage the protection of open space along the river corridor. Connecting flood plain areas in preservation corridors will provide areas for the movement of wildlife.

3. Support the addition of new protected open spaces along the river, including the proposed Catawba River Park in Rock Hill.

Preservation of Environmentally and Culturally Sensitive Areas

4. Support the preservation and restoration of known habitats of endangered animal and plant species.

5. Support the preservation of significant archaeological resources.

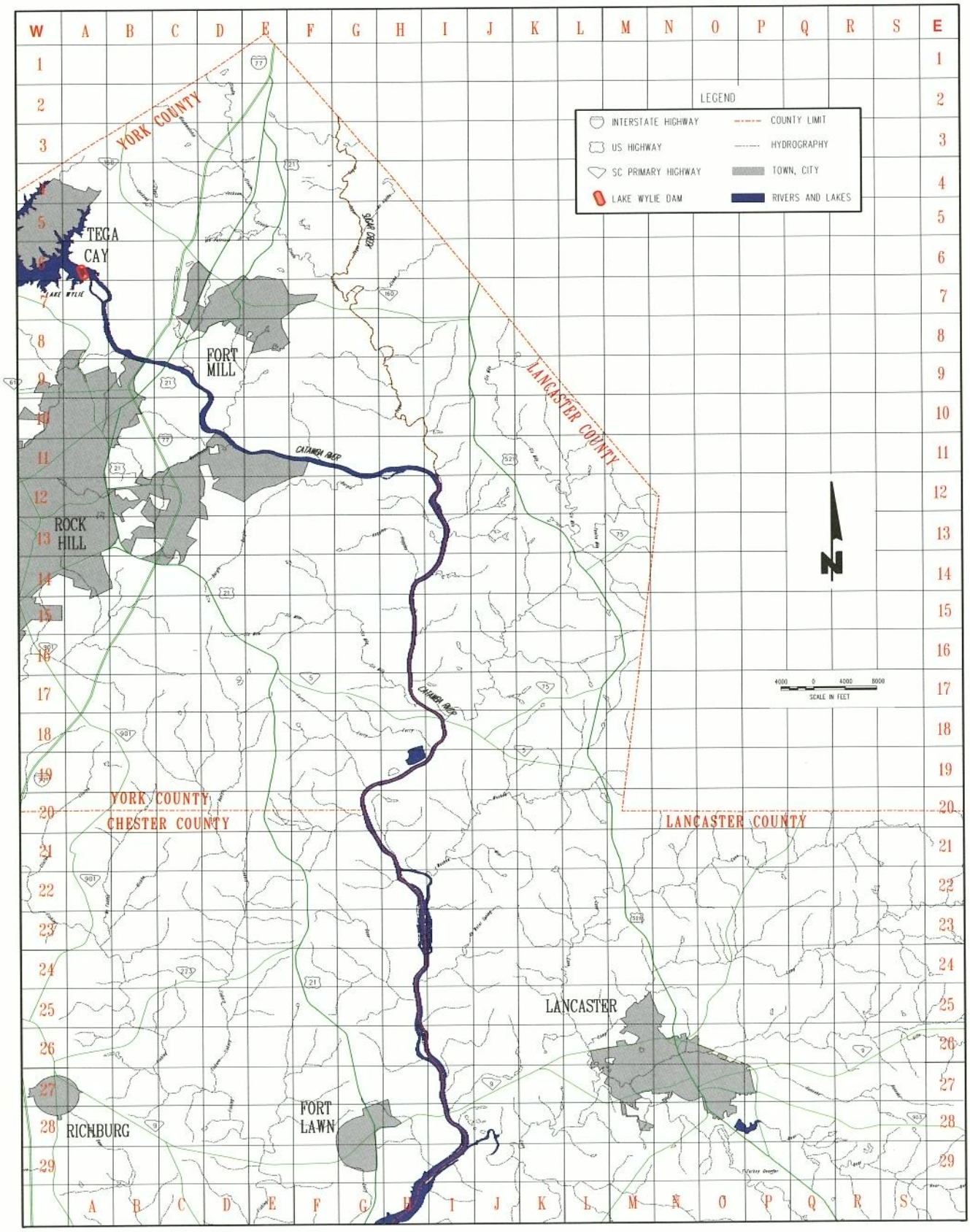


Figure 9. Law enforcement/safety grid map.

6. Support the preservation and protection of bluff areas along the river, providing habitats for unusual species and excellent river views.

Preservation Of Private Property Rights

7. Provide adequate controlled access points to the river, discouraging trespassing on private property.

8. Provide adequate law enforcement services to protect private property rights along the river.

9. Undertake a public education program on river access points and the importance of respecting property rights. Erect permanent signs to direct river users to designated access points.

Provisions For Controlled Growth

10. Local governments should work together to provide consistent land use control policies along the river corridor to channel development and protect the resources.

11. Local governments are encouraged to develop the use of overlay zones to require minimum development standards, preserve open space, and protect flood plains, environmentally sensitive areas, and historical and cultural resources.

12. Local governments are encouraged to undertake small-area plans or focal-point plans, possibly across jurisdictional boundaries, to anticipate projects with major development impacts.

13. Special efforts should be made to prepare for the impact of the Dave Lyle Boulevard Extension Project and the land use changes that are likely to result. The roadway should be developed as a limited-access road, and special land use restrictions may be advisable along its length to prevent urban sprawl, especially near the river itself.

14. If a regional sewer plant is developed, local governments and the Implementation Committee should ensure that its impacts on the river corridor are studied and that the recommendations of the Catawba River Corridor Plan are carefully considered.

Control Over Stormwater Management, Erosion And Sedimentation

15. There should be strong stormwater management and erosion and sediment control programs established in the study area, with adequate staff levels to implement the programs.

16. Agriculture, mining, and forestry uses should be encouraged to observe best management practices to minimize sedimentation.

LAW ENFORCEMENT/SAFETY

Given the recreational attraction of a river, law enforcement and safety issues are an essential component of a river corridor management plan. Because it borders three counties, the Catawba River corridor combines and overlaps the resources and expertise of several different law enforcement and safety authorities. The Law Enforcement/Safety

Committee consisted of representatives of these authorities, landowners and others. W. R. "Bill" Simpson and Mark Grier served as co-chairs of the committee. Cooperative work among these officials in developing recommendations for the Catawba River Corridor Plan established a command post as one of the most pressing needs to enhance law enforcement and safety services in the river corridor.

The committee elected to draft a 22" x 17" grid map of the corridor for law enforcement and safety personnel to standardize place names and simplify communications (see Figure 9). The large format would accommodate room for notes, and could be printed with educational text on the reverse. Full production of the map should include river miles and estimated float times at different water levels. It was suggested that navigation aids, such as channel depth markers or take-out point markers, be added as well.

A "critical access points" map, to be used by law enforcement and safety personnel, should be drafted separately. This map would exhibit law enforcement or emergency access points. Accompanying the map should be a list of identified landowners whose permission for granting access to law enforcement and safety personnel has been or should be sought.

The mission of the Law Enforcement/Safety Committee was "to develop a structured, singular operations plan for providing law enforcement and emergency services on the river."

To accomplish this mission, the committee drafted the Catawba River Corridor Emergency Operations Plan. This operations plan should be adopted by York, Chester, and Lancaster counties as an updated memorandum of understanding regarding law enforcement and emergency response in the shared Catawba River corridor. The operations plan is contained in the appendices. Establishing a command post is considered the recommendation of highest priority.

RECOMMENDATIONS

1. Counties should seek further opportunities to work cooperatively in law enforcement and emergency response training and operations. Adopt the tri-county on-site communications plan to coordinate public assistance and media relations among agencies.

    a. *Establish a command post staffed by representatives of each county to streamline response and on-site direction; use common radio frequencies among officers; use media pools to alleviate reporting pressures on response personnel as a job is ongoing.*

    b. *Establish a program of cross-training for river rescue personnel through a cooperative program provided jointly by Midlands EMS and York Tech or other resources, not limited to but including swiftwater search, rescue, and recovery; list and involve all known emergency response agencies.*

    c. *Develop a local river rescue instructor certification program.*

    d. *Develop and disseminate a common 22" x17" grid locator map among agencies to shorten response times (see Figure 9). The map should include standardized place names, river miles, and estimated float times; update the map to include hypsographic information (topography) when this information becomes available in digital form for the area from the U.S. Geological Survey. The map should be rectified to the standard coordinate system.*

2. Law enforcement and emergency personnel access should be identified and developed, including "critical access point" sites and sites available from willing landowners.

    a. *Publish copies of a critical-access-points map for law enforcement and emer-*

gency services personnel. This map would not be available to the general public.

b. Request permission from willing landowners to grant river access to law-enforcement and emergency-service personnel during emergencies, and for management and training.

c. Field mark critical access points for ready identification by emergency personnel.

3. Educate county, city, and state government officials and the public regarding law enforcement and safety concerns in the river corridor; promote education so that training and other programs are adequately funded.

a. Promote prevention programs/public education through the implementation phase of the corridor plan, to include educating local city and county councils on problems in the corridor and seeking adequate funding.

b. Encourage magistrates to impose maximum fines and community service for law enforcement violations in the river corridor.

c. Educate the public on the hazards and laws associated with illegal discharge of firearms in the river corridor.

d. Caution the public on the hazards of swimming, boating, or other recreational uses in a "tailrace" river with unpredictable changes in flow.

e. Forward firearms, littering, and swimming recommendations to the Recreation Committee for development of a river corridor map for public distribution. Such a map would be similar to that in 1(d) above.

4. Plan for long-term increases in river use, addressing the potential for consolidating river patrols, a need for specialized equipment and repositories, and possible flyovers and/or horse patrols of the river.

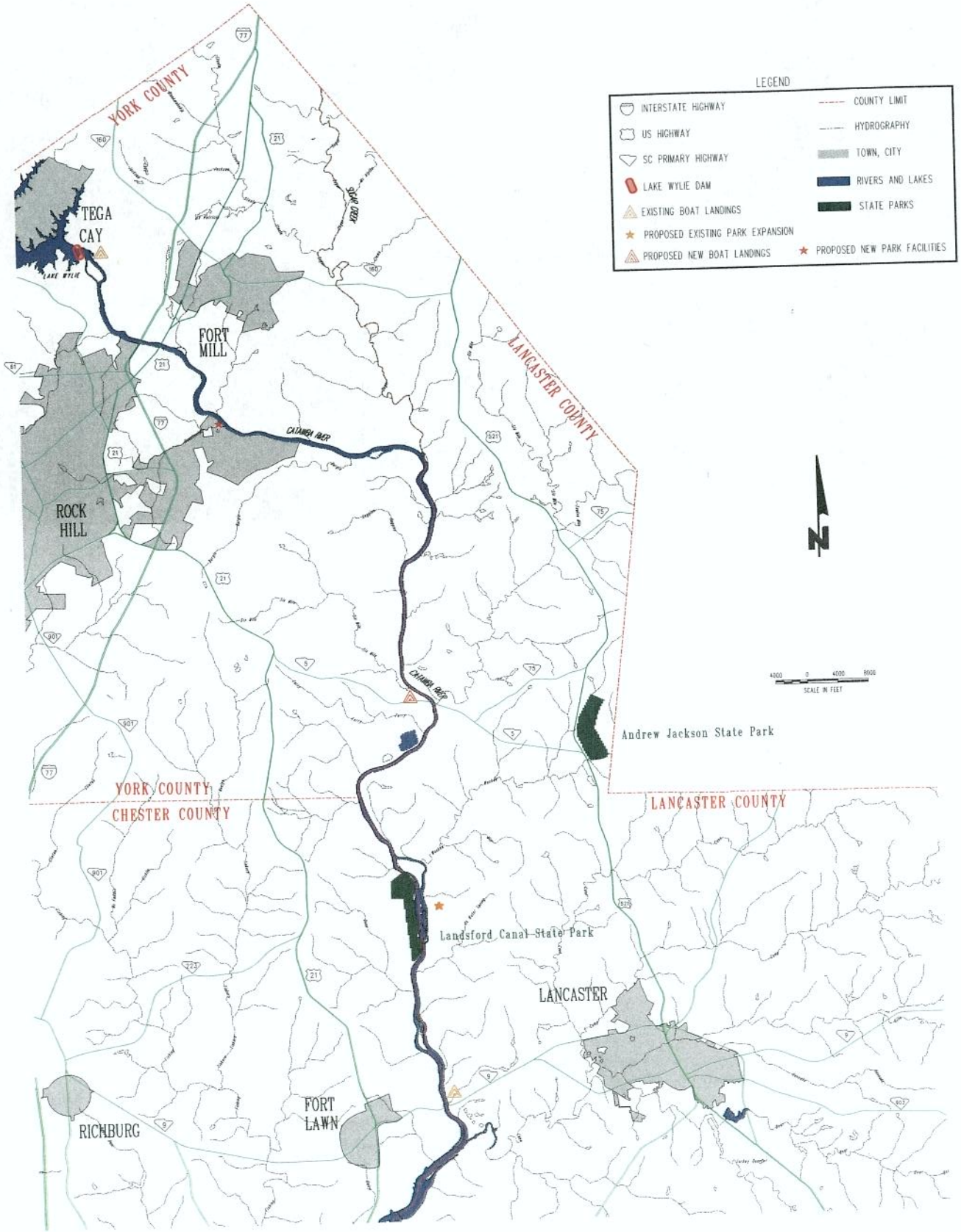


Figure 10. Existing and proposed recreational facilities in the Catawba River corridor.

a. *Study growth trends in the river corridor, emphasizing opportunities to consolidate law-enforcement and emergency-personnel schedules and equipment.*

b. *Use navigation aids, such as channel depth markers or take-out point markers, where appropriate.*

c. *Before public access sites are added, determine their law enforcement needs and provide adequate enforcement, personnel, and facilities.*

RECREATIONAL USES

The Catawba River has tremendous potential for many recreational purposes. Activities such as fishing, canoeing, and bird watching are currently very popular along the river. The Recreational Uses Committee brought together a broad array of individuals, including private landowners, industry representatives, recreational professionals, and environmentalists. The committee discussed the many current uses of the river, future uses, and how to protect this most valuable resource. Charles A. Bundy chaired the 22-member committee. Figure 10 illustrates existing and proposed recreational facilities in the corridor.

Two courses of action were open to the committee in framing recommendations. One option is to continue present use patterns, including problems of trespassing, littering, and inappropriate uses. The other is to increase the availability of the river through safe access and greater use. The committee agreed that the latter course of action was the preferred course and developed the recommendations in that context.

The committee met five times and drafted eight recommendations. These recommendations were presented to the Catawba River Task Force on August 25, 1993, at the Lewisville Middle School near Richburg in Chester County and are listed below.

RECOMMENDATIONS

1. There is a great need for camping facilities along the Catawba River. The committee recommends that the South Carolina Department of Parks, Recreation and Tourism create and operate a campground area at Landsford Canal State Park. This would allow more people to access and enjoy the river and to learn about the historical significance of the locks at the park (see Figures 11, 12, and 13). The committee believes there is potential for the development of privately owned campgrounds in the corridor area, and we recommend this be explored.

2. We suggest consideration be given to the acquisition of property across the river from Landsford Canal State Park for the preservation of the natural view from the park.

3. We encourage an access point for boaters and canoeists to the river by land in the vicinity of the S.C. Highway 5 bridge. We feel a properly developed access ramp would be used and would be appreciated by the general public. We encourage efforts to provide this access.

   The committee has been made aware that the city of Rock Hill will provide a passive park with a controlled access point to the river near the Rock Hill Economic Development Board's Waterford Business Park, currently in the process of development at Manchester Creek. The Recreational Uses Committee encourages others, both private and public, to provide more access points along the corridor.

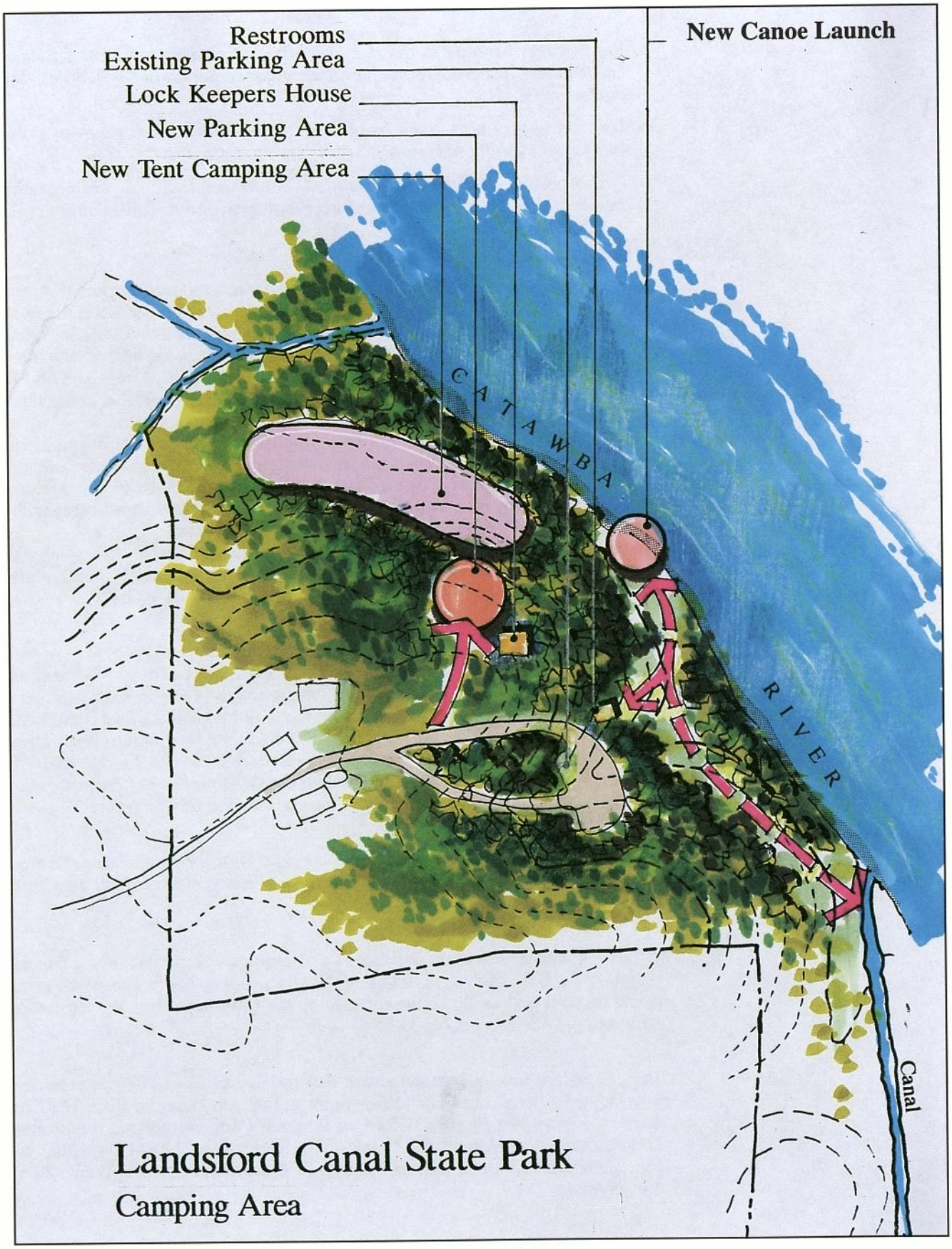


Figure 11. Proposed additions to Landsford Canal State Park.

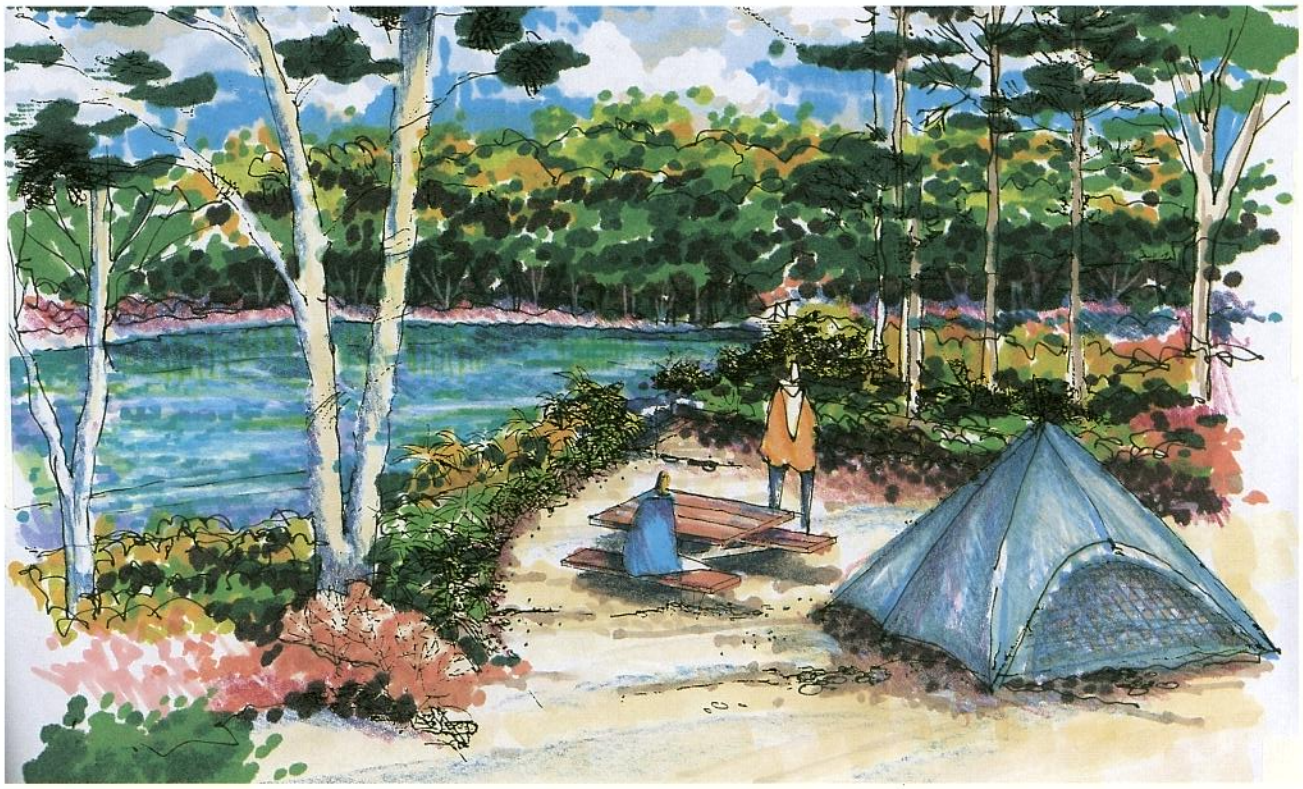


Figure 12. Proposed campsite design – Landsford Canal State Park.

Figure 13. Proposed canoe launch – Landsford Canal State Park.

NATION FORD WITNESS TO HISTORY

Because they provided the only reliable crossing points on the Catawba River, fords became important places where people and cultures came together. Landsford is well known because it was the site of a canal and is now a state park. Nation Ford is known to most today only from the roads of the same name on either side of the river. Yet Nation Ford has been a witness to history throughout human habitation of the area. It served as a major crossing point of the river for the Catawba Indians from their earliest location in the area.

Catawba legends tell of the Battle of Liberty Hill, a great battle with the Cherokees that occurred on the south side of the river just above Nation Ford. The Indian trails that led among the tribes included one which crossed at Nation Ford. Early European explorers and traders crossed at this site, and the "Catawba Path" from Pennsylvania brought thousands of settlers across the river here, mostly the sturdy Scotch-Irish who settled

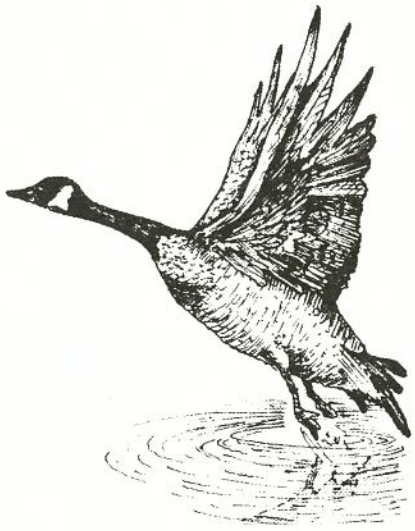
4. The committee believes there is potential for the development of public golf courses along the corridor. Golf courses should be constructed in a manner that will protect the riparian zone and preserve the scenic character of the river and the natural integrity of the river corridor.

5. York County and the Recreation Division of the South Carolina Department of Parks, Recreation and Tourism have completed a study of the recreational possibilities and needs of the citizens of that county. The results of the study have helped not only York County, but also the cities of Rock Hill and York to plan for the recreational needs of these areas. The Recreational Uses Committee recommends the Recreation Division of the South Carolina Department of Parks, Recreation and Tourism work with all appropriate governmental units in Chester and Lancaster counties in doing similar survey and study work to determine the recreation needs and the potential for their respective areas.

6. We believe a linear park should be considered along the Catawba River corridor to provide public access and to protect the corridor from development that is not

the Piedmont. During the American Revolution, forces crossed the river numerous times at Nation Ford. General Thomas Sumter, the "Gamecock," camped here with his troops in July 1780, and Lord Cornwallis attempted to cross in October 1780 after the Battle of Kings Mountain.

In 1840, the leaders of the Catawba Nation met with the state's Indian Commissioners and signed a treaty which ceded the Nation's reservation to the state. This treaty has remained a controversial one, and the final disposition was not reached until the recent settlement of 1993. When the first rail line was constructed through the area in 1852, it followed the old Catawba Path and spanned the river at the ford. This location helped to determine the sites of Rock Hill and Fort Mill, which grew up along the line as depots to serve the surrounding countryside. During the Civil War, the railroad bridge became a strategic point and Confederate breastworks were built on the hill on the south side of the river to defend the bridge. In April 1865, after Lee's surrender, one



compatible with the preservation of this natural resource. Linear parks should be constructed in a manner that will protect the riparian zone and preserve the scenic character of the river and the natural integrity of the river corridor. Appropriate uses would be nature trails, horseback riding, and similar passive recreation activities. This might be accomplished by the purchase of property by a governmental unit or through land trusts or by obtaining conservation easements from property owners.

7. Historical/archaeological sites should be included as part of a linear park site. This should provide public access and provide for long-term preservation of these sites through direct supervision and maintenance.

The Recreational Uses Committee encourages the historical/archaeological commissions in the three counties to take a leadership role to identify and protect these sites. It has been brought to the attention of the committee that York County has just undertaken this task. We recommend that Chester and Lancaster counties undertake similar worthwhile projects.

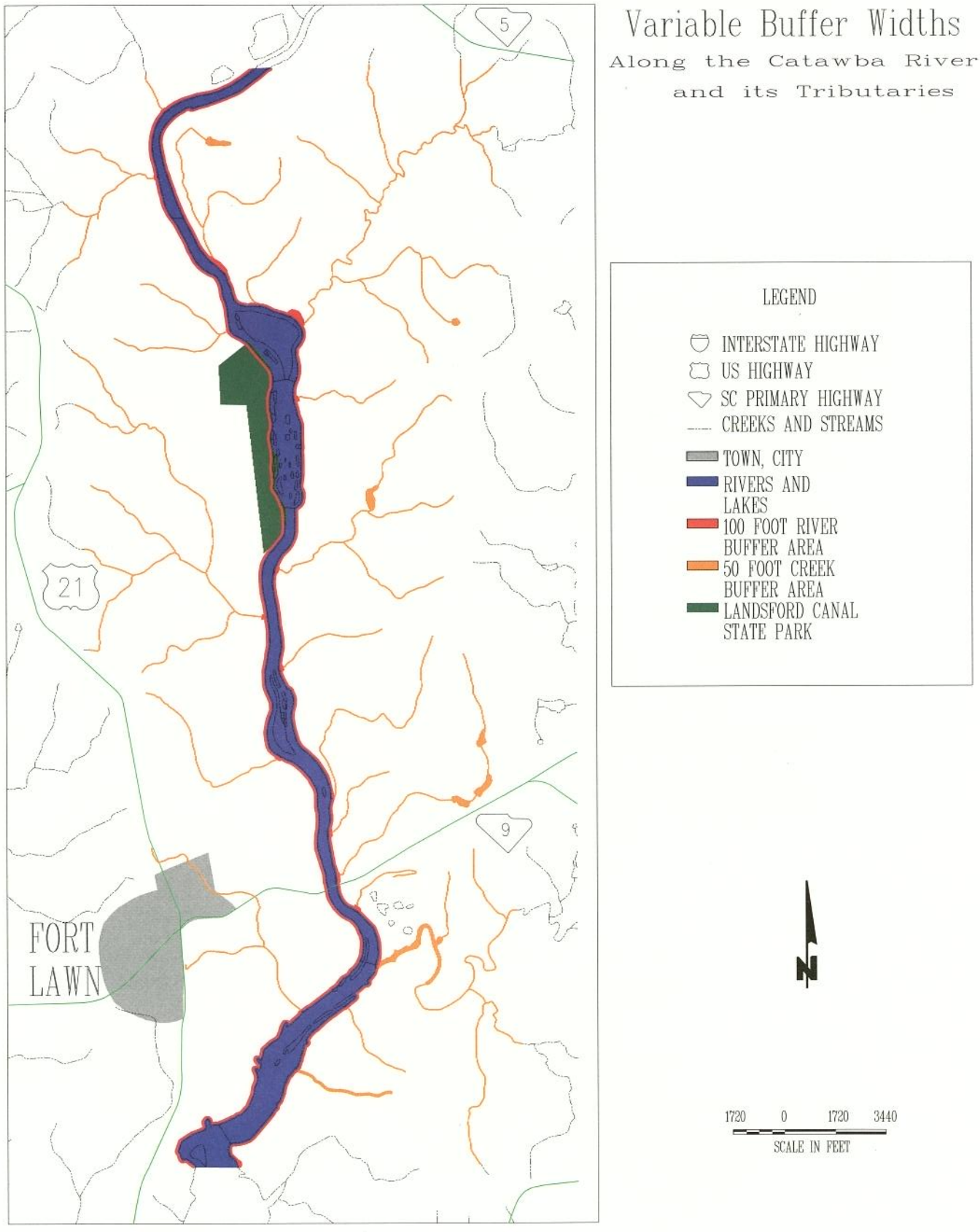


Figure 14 Illustration of a buffer 100 feet in width.

of the last skirmishes of the Civil War took place at Nation Ford. The bridge was burned by Northern troops, who overwhelmed a small garrison defending it. The Federals were then attacked by Confederate troops who arrived too late to save the bridge, and a skirmish raged for two hours. On April 27, 1865, President Jefferson Davis fled across the ford under the charred remains of the bridge with the remnants of the Confederate government. The railroad bridge was rebuilt, but was swept away in the great flood of 1916. A third rail span was placed on the site shortly thereafter. In the 1920s, the U.S. 21 bridge was built within sight of the ford, and the I-77 bridge followed in the 1970s.

Nation Ford has been the mute witness to the passage of centuries of history. Across this shallow ford have crossed a range of people making their mark on history. Today it lies forgotten by those whose world it helped to shape.

8. If linear parks are developed in the study area, the Recreational Uses Committee recommends park rangers to manage and supervise them in cooperation with appropriate law enforcement agencies. All rangers should be appointed as county constables. This will provide direct law enforcement supervision.

RESOURCE PROTECTION

The Catawba River corridor supports a large diversity of plants and animals. This diversity is a result of the varied aquatic and terrestrial habitat present in the corridor. The corridor is well recognized as an area with high potential for growth and economic development. Planning is needed to allow for future economic development or other uses while protecting our natural resources.

The Resource Protection Committee was chaired by Kathryn P. Updike. Its mission was to protect, conserve, and enhance the natural resources in the Catawba River corridor. The committee's work was divided into two subcommittees: the Riparian Zone Management Subcommittee, chaired by Bob Buckner, and the Flora and Fauna Habitat Committee, chaired by Dick Christie. Major issues considered were forestry, agricultural and development practices, streamside buffer areas, scenic vistas, endangered species, habitat preservation and management, and characteristics of the water.

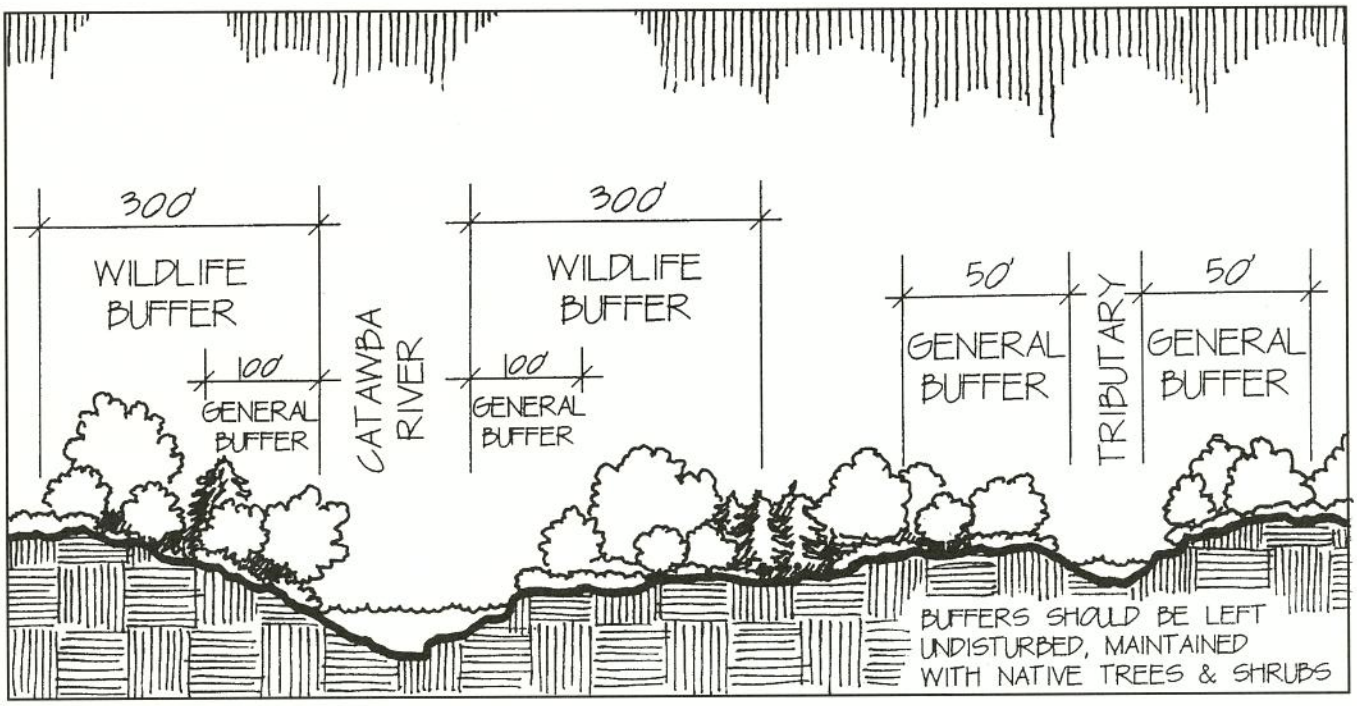


Figure 15. Cross section of an undisturbed riparian buffer. Illustration provided by SCPRT

The Riparian Zone Management Subcommittee included 14 individuals representing timber companies, landowners, state and federal agencies, a power company, and a brick company. The group obtained a literature search of riparian zone management through the University of Georgia and held a field trip to industrial, farming, mining, and forestry lands. The subcommittee reviewed infrared photographs of the river and discovered that most (74%) of the land along the river is forest (53% hardwood and 19% pine), 19% is agricultural, and 7% is urban. Nearly all the river has an existing vegetative buffer of 50 to 150 feet. Riparian buffer zones maintain hydrologic integrity; protect aquatic life by trapping harmful runoff; and protect fish and wildlife by providing food, cover, and habitat.

The Flora and Fauna Habitat Subcommittee was a diverse group of 18 members including educators, biologists, landowners, natural resource managers and consultants, and outdoor enthusiasts. The subcommittee developed a checklist of plants and animals in the Catawba River corridor and it will be made available through the Implementation Committee. The group emphasized the importance of protecting river bluffs, the Landsford shoals and spider lilies, and bald eagles; conserving game animals and forest products; and enhancement for more productivity by setting aside nesting areas and increasing wildlife management practices (such as controlled burns).

In combining the two subcommittee's recommendations, it was stressed that the Resource Protection Committee has provided recommendations, not regulations, which are voluntary and choices are left up to individual landowners.

RECOMMENDATIONS

Buffer Strips

1. Buffer strips consisting of native trees and shrubs should be established and/or maintained along both banks of the river. Buffer strips should be undisturbed except as needed to provide access to the river, for highway or utility right-of-ways, for hiking trails, or for other appropriate natural resources management activities. All activities within the buffer strip should be conducted in a manner to minimize the impact on native vegetation (see Figure 15).

A. Buffer strips at least 300 feet in width should be maintained for the protection of wildlife resources.

B. For other management objectives, buffer strips should not be less than 100 feet in width (see Figure 14).

2. Establish and/or maintain buffer strips at least 50 feet in width composed of native trees and shrubs along the banks of all tributaries to the Catawba River (see Figure 15)

Survey and Inventory

3. Conduct a scientific survey and inventory of plants and animals in the Catawba River corridor. Repeat a similar survey periodically to detect changes in species and/or habitat.

4. Conduct a survey of consumptive (hunting, fishing) and nonconsumptive (bird watching, photography) users in the corridor. This survey should be repeated periodically to detect changes in consumptive and nonconsumptive uses.

Education

5. Initiate cooperative efforts to help educate landowners and the general public concerning the values of good natural resource management practices.

6. Establish or use existing education centers in York, Chester and Lancaster counties dedicated to teaching the natural history of the Catawba River.

7. Develop educational materials such as slide presentations, checklists, videos, and brochures to explain the natural history of the river.

8. Develop and construct self-guided walking and canoe trails where appropriate.

9. Erect informational signs concerning species and/or habitats of concern at all public river access areas.

Water Quality

10. Encourage the South Carolina Department of Health and Environmental Control (DHEC) to pursue aggressive enforcement of the State Water Pollution Control Act in the river and tributaries.

11. Continue or expand monitoring of water quality as presently conducted by DHEC and Duke Power Company.

12. Support the South Carolina Land Resources Conservation Commission (SCLRCC) in implementing and enforcing the Erosion and Sediment Reduction Act of 1983 and the Stormwater and Sediment Control Act of 1991.

13. Efforts to educate the public in the importance of using proper soil and water conservation techniques should be increased.

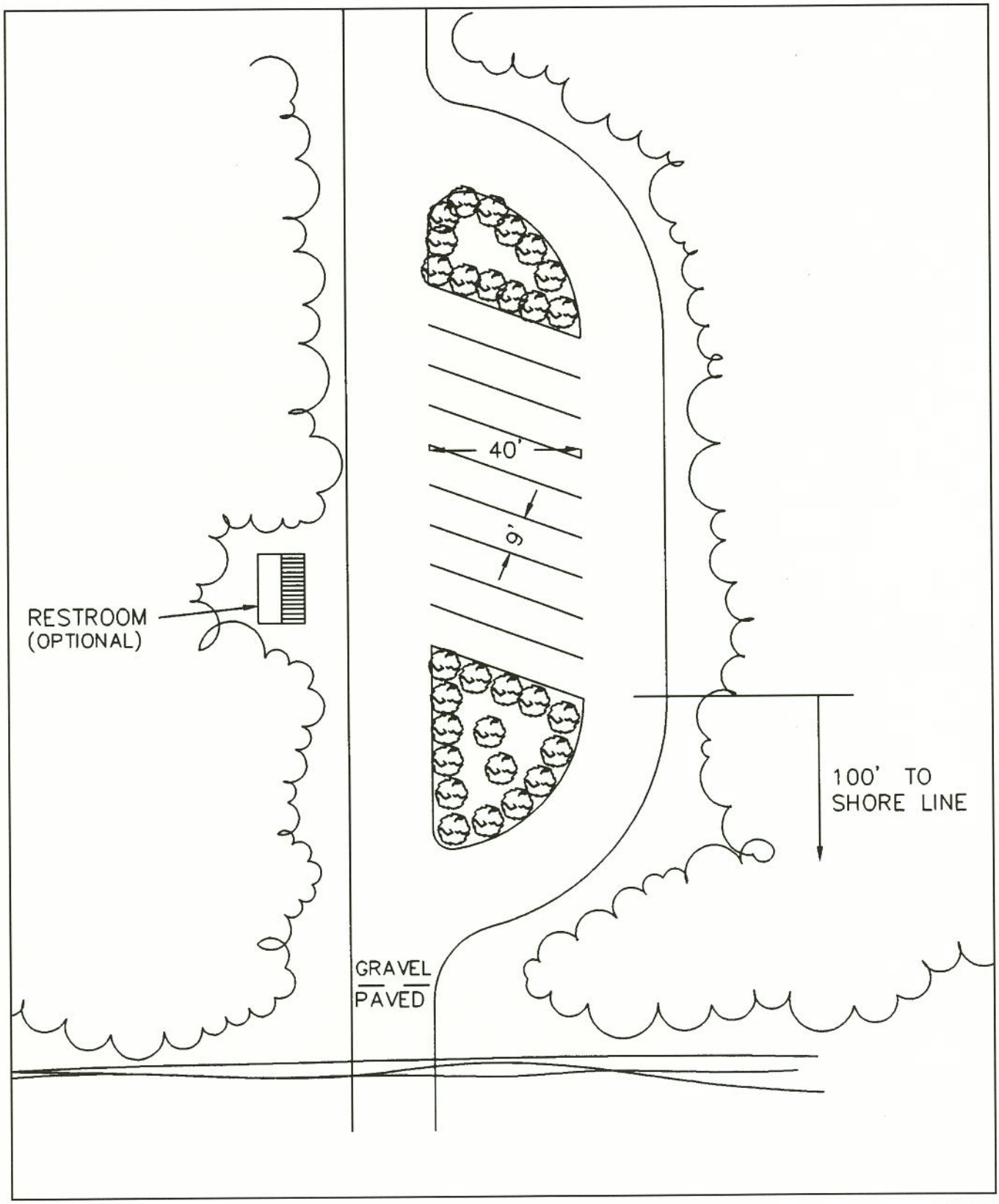


Figure 16. Illustration of boat ramp with vegetative screening.

Illustration provided by SCPRT

14. The South Carolina Water Resources Commission (SCWRC), South Carolina Wildlife and Marine Resources Department (SCWMRD), and Duke Power Company should review the current SCWRC instream flow recommendations for the Catawba River (SCWRC Report 163, 1988) and develop and implement a plan to protect and/or enhance the aquatic resources.

15. The SCWRC should identify large water users (greater than 100,000 gallons per day) on the Catawba River and increase efforts to educate these users about the importance of water conservation.

Wildlife

16. Sound wildlife management practices should be used within the corridor.

17. Develop guidelines to control development in the corridor and to minimize negative environmental impacts on the natural resources.

18. Develop a funding source and procedure for purchasing lands for public use within the 100-year flood plain.

19. Use conservation easements to obtain public recreational usage and wildlife conservation for lands not purchased in the 100-year flood plain.

20. Use land purchase or conservation easements to protect significant habitats where rare or endangered species are found.

21. Encourage property owners to protect large, flat top pine trees and canopy topping hardwoods as potential nesting sites for bald eagles. Standing timber within 150 feet of these trees should also be protected. Conservation easements may apply.

22. Encourage landowners to protect active eagle nest sites by establishing a vegetated buffer 600 feet in width around the nest tree. Conservation easements may apply.

23. Encourage property owners to plant native hardwood trees where appropriate. The South Carolina Forestry Commission's Forest Stewardship program may apply.

24. Appoint a committee to consider designating portions of the Catawba River for inclusion in the SCWRC Scenic Rivers program.

Agriculture

25. Riparian landowners should utilize best management practices to control erosion and sedimentation and other nonpoint source water quality problems.

Timber

26. Timber harvest within 50 feet of the river should be discouraged. The use of heavy equipment is not recommended within 100 feet of the river. Trees harvested within 100 feet should be removed with equipment that would minimize disturbance.

THE STRETCH OF THE CATAWBA RIVER from Lake Wylie Dam to S.C. Highway 9 for the most part remains undeveloped. It retains its beauty for which it has been noted for hundreds of years.

The rapid growth that our area is experiencing and will continue to experience will create tremendous development pressure on this part of the Catawba River basin. The Nation Ford Land Trust recognized this and was the catalyst to bring Chester, Lancaster, and York County governments together in an unprecendented effort to develop a plan to guide the future of the Catawba River. It has been the Nation Ford Land Trust's belief that if done properly, controlled development can occur with little adverse effect to the river's environment.

Cattle Grazing and Pastures

27. A fence should be established at least 100 feet from the ordinary highwater mark on land that is being used as pasture, where cows are accessing the river.

Utility Lines

28. Utility line construction in the river corridor should be carefully planned so as to minimize impact to the river and to minimize the number of river crossings. Any utility lines paralleling the river should not be placed within 100 feet of the river. Vegetated buffer strips should be reestablished in all utility line right-of-ways crossing the river.

Mining

29. Mining activities in riparian areas should not be conducted within 100 feet of the Catawba River or its tributaries.

Access Areas

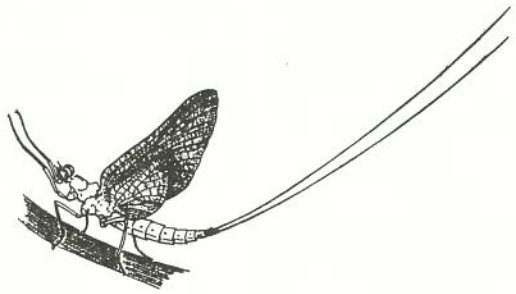
30. Appropriate public access should be provided for consumptive and nonconsumptive uses.

31. The construction of boat ramps or parking lots utilizing impervious materials should be minimized. Parking lots should not be constructed within 100 feet of the river and should be surrounded by suitable vegetation (see Figure 16).

The Catawba River should be looked upon as an asset that has been given to us with a sacred trust to be passed on to future generations without diminishing its quality. This plan should enable us to accomplish this. However, it is important that this plan be a living, dynamic document that is capable of meeting present needs and future needs as well.

The Nation Ford Land Trust is pleased to have played a key role in the development of this plan. We are excited that Chester, Lancaster, and York counties have come together to work for the long term good of our region. Our members are confident that we will pass on to future generations a river with timeless beauty and quality.

Murray B. White, Jr.
Chairman
Nation Ford Land Trust



32. Access trails in the buffer strip should be designed and constructed to have minimal impact on existing vegetation. Boardwalks should be used in environmentally sensitive areas. Trails and boardwalks should not be constructed within 50 feet of the river except where needed to provide river access or scenic views.

Law Enforcement

33. The task force should appoint a committee to review and evaluate existing laws which regulate consumptive and nonconsumptive uses in the corridor and recommend legislation as needed to reduce user conflicts.

WATER QUALITY AND MANAGEMENT

The flowing ribbon of water that we know as the Catawba River drains a region of some 4,700 square miles and 11 reservoirs before it becomes the Wateree River at Lake Wateree. The river provides multiple uses as it flows from its origin on the eastern slope of the Blue Ridge Mountains. Among these many uses are providing water for drinking, recreation, and carrying the waste loads away from major urban areas and industries.

These types of uses in the river corridor are illustrated in figures 17 and 18. Figure 17 illustrates sewer discharges in the river. Figure 18 illustrates water service areas and water treatment plants. Multiple uses can also mean multiple stresses on a river ecosystem. The river's ability to handle these stresses in a controlled, balanced, and nondetrimental manner is critical to the long-term health and well being of our region.

Because of the importance of the river's water quality and the number of water quality and management issues identified by the task force, four subcommittees were established

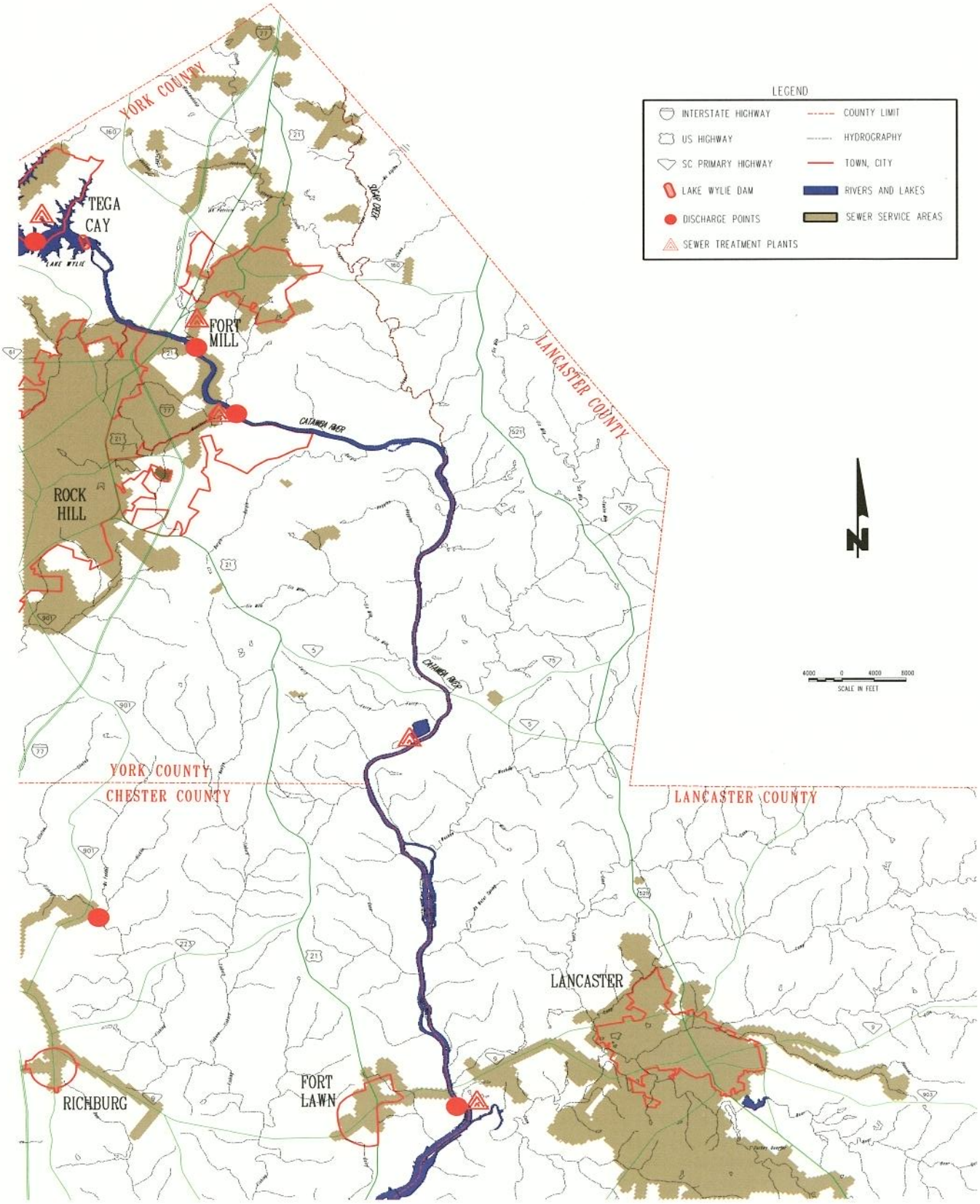


Figure 17. Sewer service areas, sewerage plants, and discharge points in the Catawba River corridor.

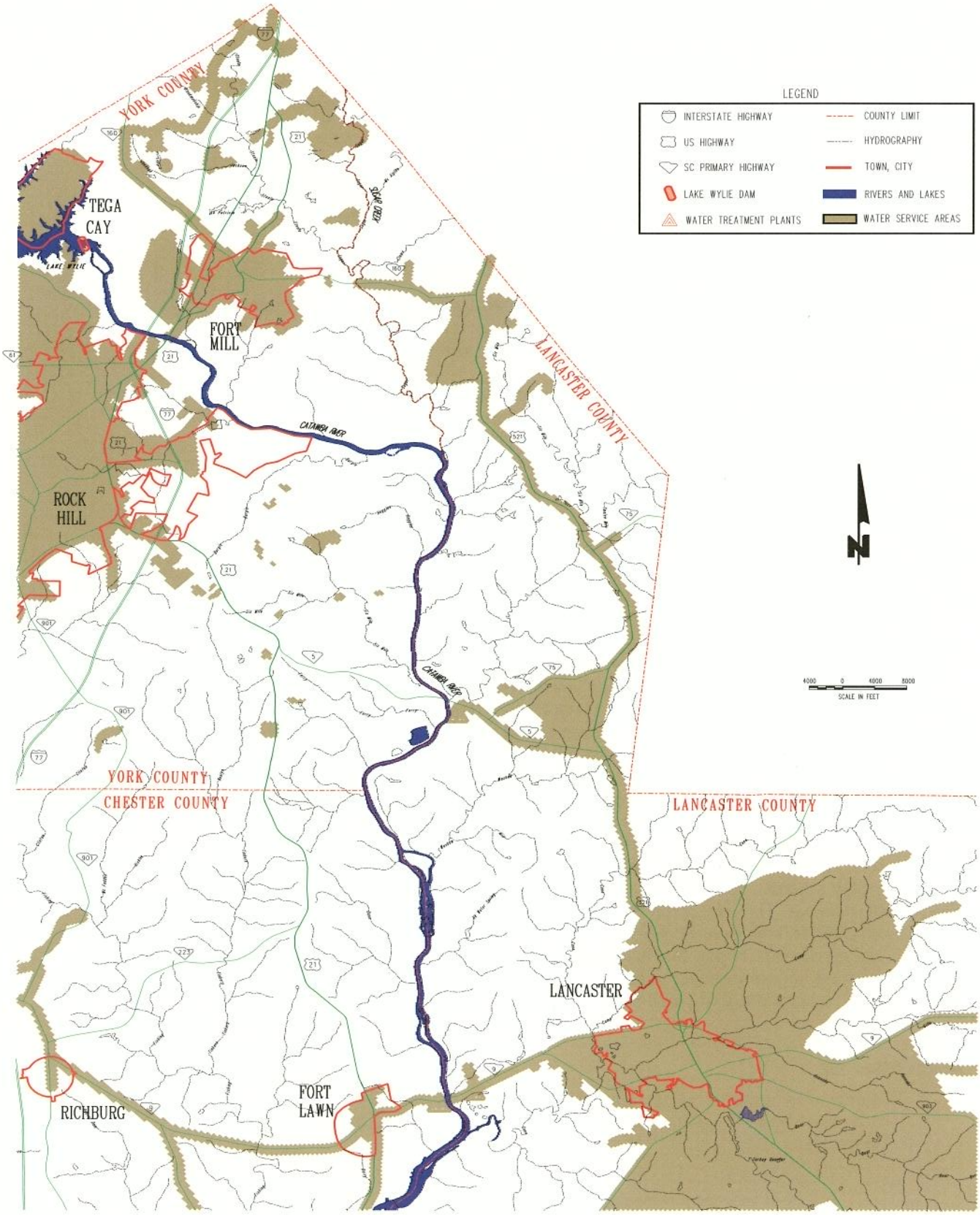


Figure 18. Water service areas in the Catawba River corridor.

under the Water Quality and Management Committee. These include the Nonpoint Source, Point Source, Water Management, and Existing Data and Research Subcommittees. Harry Dalton and Russ Sherer served as co-chairs of the Water Quality and Management Committee, coordinating efforts and meeting regularly with chairmen of the four subcommittees. The four committees submitted recommendations separately to the task force due to the nature and complexity of the issues.

NONPOINT SOURCE

For the past 20 years, efforts to clean the nation's receiving waters have focused on the end-of-pipe discharges known as point sources. Major improvements have been made in this area. Recently, attention has been focused on nonpoint-source discharges, which are not as easily controlled.

Nonpoint-source pollution has widespread and often multiple sources. The amount (load) of nonpoint-source pollutants that impacts our river is dependent on rainfall and storm runoff, particularly the duration, intensity, frequency, and the specific area in which it occurs.

Certain types of nonpoint-source pollutants, such as used motor oil, asbestos dust from brake linings, paints, solvents, and heavy metals, can be more concentrated in urban areas. Pollutants from urban areas accumulate on hardened (impervious) surfaces and there is little opportunity for them to be removed from the water or to filter into the ground (infiltrate). Their rapid entry into the receiving waters during and after a rain event constitutes a shock load to a river ecosystem.

Lands receiving fertilizers and pesticides can be big contributors to nonpoint-source pollution loads as well. Lawns, gardens, golf courses, road and utility rights-of-way, agricultural fields, and managed forests are some examples. To put it simply, nonpoint-source pollution arises from human activity and is associated with land use (or misuse).

The Catawba River drainage basin has experienced significant development in the last several decades. It is anticipated that this growth will continue, possibly at a faster rate. With this new development will come additional sources of nonpoint-source pollution.

The Nonpoint Source Subcommittee determined that the current status of the Catawba River's water quality is relatively good. However, it is difficult to determine the extent of nonpoint source pollutant impacts on the river's water quality. Little information exists on how the various nonpoint-source pollutants affect the health of the Catawba River. But this much is certain, each rain event brings an added stress to our river and at times this stress can exceed the river's capacity to handle it. Unless steps are taken soon to control this chronic form of pollution, the long-term picture is not a good one.

The Nonpoint Source Subcommittee was chaired by Ann H. Christie and consisted of 22 landowners, foresters, local government planning officials, and private, state, and federal water quality experts. The group met 12 times, including a field trip to review forest management practices. The subcommittee presented its extensive list of recommendations to the Catawba River Task Force on November 30, 1993. Emphasis was placed on the need for water quality monitoring that is tied to rain events and the need for public education about reducing nonpoint-source pollution. Also, the subcommittee focused on positive incentives and voluntary programs rather than negative or regulatory solutions.

Recommendations

1. Continue existing water quality monitoring programs operated by the South Carolina Department of Health and Environmental Control (SCDHEC) and Duke Power Company.

   Both the Department of Health and Environmental Control and Duke Power Company conduct sampling programs in the Catawba River watershed. DHEC has four sampling stations on the main stem of the river, 28 stations on the tributaries upstream of the Fishing Creek Reservoir dam, five

stations on Lake Wylie, and two stations on Fishing Creek Reservoir. All of the stations are sampled monthly, either year-round for the primary stations or during the summer for the secondary stations, for characteristics such as dissolved oxygen, pH, and metals. The lake stations are also sampled for chlorophyll and light penetration. Routine sampling is conducted on a regular schedule that would at times include sampling after rain events.

Since 1974, Duke Power Company has maintained an extended water quality monitoring program on the Catawba River. Fourteen locations are sampled routinely on the lower stem (Lake Wylie Dam to Lake Wateree Dam) twice per year. This corresponds with periods of water temperature extremes: January–February and July–August. On-site profile data (temperature, dissolved-oxygen concentration, pH, and specific conductivity) and water samples are collected at all sites. In general, Duke's sampling program looks at the water chemistry above and below the dams, which is useful to Duke's operations.

2. Begin a nonpoint-source monitoring program.

   a. *Water sampling to be conducted during rain events to determine nonpoint source impacts.*

   b. *Evaluate nonpoint source impacts by correlating existing rainfall and water quality sampling data from the National Weather Service, airports, USDA-Agricultural Stabilization and Conservation Service, DHEC, Duke Power Co., U.S. Geological Survey, and others.*

   c. *Institute a volunteer network for stream sampling (low-tech, basic sampling for total suspended solids). Use groups such as homeowners groups, fishing clubs, environmental groups, community service organizations, and academic groups. DHEC should head a cooperative group effort.*

   d. *Institute a biomonitoring study, which may include fish monitoring in the main stem of the Catawba River and macroinvertebrates in the tributaries. This should be a cooperative effort including at least the South Carolina Wildlife and Marine Resources Department, DHEC, and Duke Power Company.*

   e. *Where problems become apparent, DHEC should initiate a more intensive monitoring program.*

   f. *Explore grant opportunities from such sources as the Environmental Protection Agency (EPA); the South Carolina Department of Health and Environmental Control (SCDHEC), 319 Nonpoint Source Program; the Department of the Interior, Rural Clean Water Program; the Soil Conservation Service (SCS), Land Treatment Watersheds Program; and the Agricultural Stabilization and Conservation Service (ASCS), Water Quality Incentive Project. Involve the Catawba Regional Planning Council in the process to the extent possible. Consider funding universities and/or graduate students to do necessary studies.*

   g. *Encourage private industry, foundations, civic organizations, and individuals to establish a fund for the new monitoring program.*

3. SCDHEC, in cooperation with other state and federal agencies, should enforce the State Pollution Control Act to correct nonpoint-source problems.

CANOE TRIP — THE ONLY WAY TO SEE THE RIVER

AS I DROVE TO FAST BUCK'S, A CONVENIENCE store and gun shop just south of Rock Hill on Highway 5 to meet the others I was slightly apprehensive about the nine mile journey down the river sponsored by the task force. I had been in a canoe only once in the past eight years, but was confident the slow moving Catawba would not present any problems for a relative novice.

The 70 degree temperature and light winds made for a magnificent day. After three delighful hours on the river, one thing became very clear to me: there is no better way to understand a river and enjoy its wonders than by going to its banks and hopping in a boat.

In my job in the communications department at Duke Power, I have pored over countless pages detailing the river's water quality and have written papers and given presentations about the

4. Provide adequate funding, continuation, and enforcement of the existing Stormwater Management and Sediment Reduction Act of 1991 and the Erosion and Sediment Reduction Act of 1983.

   a. *Delegate inspectors who are required to do construction inspections on projects on state owned lands.*

   b. *Delegate inspectors who are required to do construction inspections on South Carolina Department of Transportation projects.*

   c. *The Land Resources Conservation Commission should prepare education packets and conduct certification/ training sessions for contractors involved in construction under both acts. Contractors should be encouraged to seek certification and the Land Resources Conservation Commission should recommend that permittees and delegated agencies hire only certified contractors. All "stop work" orders and citations should remain a part of the record for each job. A system should be established to revoke certification of contractors repeatedly cited or demonstrating negligence.*

river to school and civic groups. I also have worked closely with the company's environmental professionals in their efforts to provide information to those studying the river. Other than taking an occasional trip to a friend's house to ski on Lake Norman, I had never seen the river by boat.

Like others involved in the task force, I am concerned about conserving the river for future generations. My company's first hydro plant was built in 1904 and formed Lake Wylie. Today, approximately 50 percent of our electricity is produced on the river and its 11 lakes. When I talk to school groups, I try to drive home to students just how important the river is to our communities by making them aware that every time they turn on their faucet, the water comes from the Catawba River; and conversely, every time they flush their toilet, it is treated and goes back into the river. The river truly is one of the most valuable natural resources we have, yet many of the more than one million people who

d. Public agencies should be required to hire certified contractors.

e. Contractors should be required to submit proof of qualifications and/or experience in nonpoint-source best management practices (BMPs) in order to be considered for bids/requests for proposals.

f. All encroachment permits should require plans meeting minimum standards.

Conversion of fields and forests to impervious surfaces (such as roads, roofs, and parking lots) increases stormwater runoff volumes and velocities. This results in increased erosion, sedimentation of receiving water bodies, the potential for flooding, and pollution of the receiving water bodies from substances such as oils and fertilizers.

State laws exist which require a stormwater management and sediment control plan for construction activities. The plan provides for the installation of structural and nonstructural measures prior to land development activities, thus managing stormwater runoff from the site.

depend on it take it for granted.

The section of the river being studied by the task force is almost completely forested and, I understand, looks virtually the same as it appeared to the first European settlers three hundred years ago. Our team of canoeists saw deer, Canadian geese, egrets, and hawks, as well as numerous birds we couldn't identify.

As the trip came to a close, I was amazed that such a beautiful and unspoiled section of a river as massive as the Catawba is so close to Charlotte, one of the largest metropolitan areas in the Southeast. Through the work of the South Carolina Catawba River Task Force and other regional groups organized to study and conserve the river, we can maintain and protect this resource for others to use and enjoy for generations to come.

Tom Williams

5. Implement the stormwater provisions of the NPDES permitting program. For example, all public agency contracts should include a signed copy of the NPDES contractors/subcontractors certification requiring adherence to the Storm Water Pollution Prevention Plan.

The South Carolina Department of Health and Environmental Control (DHEC) has been delegated the authority by the U.S. Environmental Protection Agency (EPA) to administer the National Pollution Discharge Elimination System (NPDES) permit program. Therefore, stormwater NPDES permits must be issued by DHEC in accordance with the final EPA regulations and the Clean Water Act.

SCDHEC will implement the stormwater NPDES permit program in a phased approach. The first phase will be the issuance of general permits to provide NPDES permit coverage for as many stormwater discharges as possible. A general permit will cover a similar class or category of discharges and will apply the same or similar effluent limitation and control measures to all dischargers covered under the general permit. A general permit will allow the applicant to comply with general permit standards rather than having DHEC issue a specific permit for each activity. General permits will require the development of a Pollution Prevention Plan for each facility or site to be covered under the permit. The plan will contain the best management practices (BMPs) to be used to control the discharge of pollutants in stormwater discharges to surface waters.

The second phase of the program will identify where water quality problems exist because of stormwater discharges. SCDHEC will identify those sites or facilities with general permit coverage that have stormwater discharges contributing to the water quality problems. These facilities will be required to obtain individual permits. The individual permits will be designed to resolve the water quality problems.

The third phase of the program will identify the categories of facilities that, due to the nature of their activity or operation, have significant potential for their stormwater discharges to contribute to water quality problems. The facilities will be issued individual permits designed to reduce the potential of stormwater discharges contributing to water quality problems.

The fourth phase will be the same as the third phase except it will target individual facilities or sites with significant potential for adverse impact on water quality from stormwater discharges.

6. Encourage reduction of existing nonpoint source loads by implementation of best management practices (BMPs) on agricultural, forest, urban, mining, and residential lands. The Soil Conservation Service and local conservation districts, South Carolina Forestry Commission, South Carolina Land Resources Conservation Commission, and South Carolina Department of Health and Environmental Control should take the lead in landowner education in their respective areas. For instance, DHEC should produce and distribute a public information packet similar to the one produced for the East Cooper Nonpoint Source Management Project.

7. Reduce agricultural nonpoint-source pollution:

   a. *Continue implementation of the 1985 and 1990 Farm Bills, including the cost-sharing incentives (USDA Agricultural Stabilization and Conservation Service and Soil Conservation Service).*

   b. *Increase participation in USDA programs by:*

      1. *Reducing paperwork.*
      2. *Utilizing small farm outreach programs.*
      3. *Increasing public education.*
      4. *Making local offices user-friendly.*

   c. *Create a cost-sharing water quality program to provide an incentive for the use of best management practices.*

      1. *The program should be state-funded.*
      2. *The program should be headed by a state agency.*
      3. *The program should be overseen by a cooperative council to establish best management practices (BMPs), which may include local conservation districts, the South Carolina Forestry Commission, the South Carolina Land Resources Conservation Commission, the South Carolina Department of Health and Environmental Control, and private industry.*

Water pollution and erosion are closely linked, as many pollutants travel attached to soil particles. Also, sediment is the number one pollutant in the U.S. by volume. If soil erosion is stopped, water pollution is reduced significantly.

The 1985 and 1990 federal Farm Bills require that land users receiving U.S. Department of Agriculture farm benefits write a conservation plan on all highly erodible cropland. The conservation plans detail various conservation practices to control erosion and filter runoff. Not installing a practice correctly or in the time specified can result in the loss of all USDA farm benefits.

The 1985 and 1990 Farm Bills also provide for wetlands protection and give incentives to preserve permanent cover on highly erodible land. The USDA-Soil Conservation Service writes plans and recommends BMPs free of charge for all land users. The Agriculture Conservation Program (ACP) of the USDA-Agriculture Stabilization and Conservation Service provides cost-sharing grants (50 to 75 percent) to install conservation practices which improve water quality and stop soil erosion.

BMPs for agriculture center around keeping bare soil covered: converting cropland (especially marginal land) to pasture, planting grass filter strips, and using conservation tillage, which plants crops into previous crops' residue left on the surface. Structural practices like terraces and grassed waterways for gully stabilization are also included.

8. Recreation: Certain recreational activities cause nonpoint-source pollution and can be reduced by public education and best management practices:

   a. *Boating and access:*

      1. *Educate the public to responsibly handle and dispose of wastes, such as oil and oil containers, food and drink containers, fishing supplies, and garbage.*

      2. *Replace or upgrade poorly maintained or designed accesses with those using proper best management practices and responsible maintenance.*

   b. *Offroad access, such as trails for offroad vehicles, pedestrians, equestrians, and bicycles:*

      1. *Educate the public to not use roads/trails when wet.*

      2. *Discourage road/trail usage within the immediate area of the river, tributary streams, and other sensitive areas (such as erodible slopes).*

      3. *Incorporate best management practices in new and existing trails.*

   c. *Golf courses, parks, lawns, and other intensively fertilized areas:*

      1. *Encourage use of best management practices for controlled and filtered runoff.*

      2. *Educate the public on the nonpoint source impact of fertilizers, pesticides, household wastes, and improperly functioning septic tanks.*

   d. *Camping:*

      1. *Educate the public to responsibly handle waste and campfires. For example: "pack it in, pack it out"; campfires in designated fire rings only; and no burning of tires or refuse.*

2. *Developed and designated primitive campsites should be provided with adequate facilities for human waste and garbage.*
3. *Primitive campsites should be set back from the water's edge.*
4. *Developed campsites should be set back from the immediate streamside zone.*

Many recreational activities are already popular in the Catawba River corridor. As knowledge about and access to the river increases, more usage will occur. Current or potential activities include fishing (from boats and streamside), boating, swimming, picnicking, visiting historic sites, hiking, nature observation and photography, offroad vehicle use, camping, and golf. All of these have the potential to increase the impacts of nonpoint-source pollution. The impacts may be reduced by public education and best management practices.

9. Forestry:

a. *Continue the Agricultural Stabilization and Conservation Service's Forestry Incentive Program and the South Carolina Forestry Commission's Forest Stewardship Program and Forest Renewal Program and increase participation in these programs by:*

1. *Reducing paperwork.*
2. *Utilizing small-farm outreach programs.*
3. *Increasing public education.*
4. *Making local offices user friendly.*

b. *The South Carolina Forestry Commission should educate landowners and loggers about the benefits of best management practices (BMPs) implementation.*

c. *Support the South Carolina Forestry Commission's joint effort to revise the forestry best management practices to give more specific guidelines in several areas, especially streamside management zones.*

d. *Support the South Carolina Forestry Commission's BMP compliance monitoring program. The program should be conducted every two years. The monitoring system needs additional quantitative techniques.*

e. *The South Carolina Forestry Commission should assume BMP monitoring responsibility and promote better nonindustrial private landowner compliance.*

f. *Landowners should be made aware of Section 404 of the Clean Water Act and should be encouraged to adopt BMPs voluntarily.*

g. *Encourage the diversified reforestation of marginal lands.*

Forestry practices such as logging, land preparation for tree planting, and road building impact streams and lakes. Impacts can include soil erosion caused by accelerated rainwater flow over compacted forest roads and skid trails, logging debris left in streams, lack of adequate shade left on streams, rutted ground caused by heavy equipment in wet weather conditions, and poorly placed and/or maintained stream crossings. These impacts not only adversely affect water quality on any given site, but can (and will) reduce the productivity of the soil for the next generation of trees to be grown.

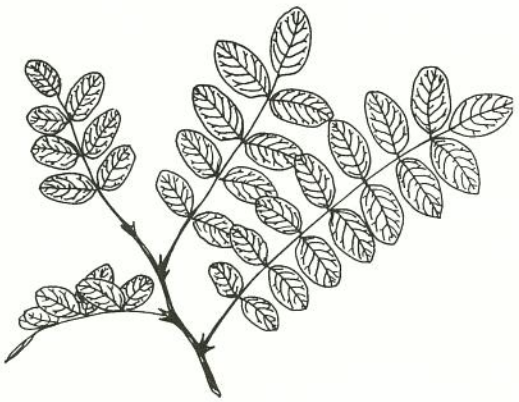
Tips To Help Prevent Nonpoint Source Pollution

- Dispose of used oil, antifreeze, paint, and other household chemicals at municipal hazardous-waste collection sites, not down the drain or in drainage ditches.

- Clean up oil, grease, and other fluid spills, rather than hosing them into the street or gutter, where they can reach our streams and ground water.

- Buy only as much as you will use of products containing hazardous chemicals. Give unwanted or excess chemicals to neighbors who can use them. Never dump them on the ground or in drainage ditches where chemicals can be carried into streams.

- Use nonhazardous alternatives to household chemicals whenever possible; for example, baking soda instead of scouring powders, boiling water instead of drain cleaners.



The fundamental purpose of any best management practice (BMP) is to protect water quality. Forestry BMPs are designed to reduce or eliminate the negative impacts listed above. Most forestry BMPs are often very easy and economical to apply. One such practice is leaving an uncut buffer around all streams in a harvested area. This will reduce or eliminate soil washing into the streams and also keep logging debris out of the streams. In most cases, proper BMP planning before a forest activity will help avoid more costly BMPs. All forest landowners should become familiar with forestry BMPs and apply them on their lands during all forest activities.

The Forestry Incentives Program is a cost-sharing program under the USDA-Agriculture Stabilization and Conservation Service. Subject to approval by the South Carolina Forestry Commission, half the cost of forestry practices (site preparation, tree planting) is paid to land users. The South Carolina Forestry Commission works with the land users to install conservation practices and BMPs like water bars and filter strips.

The Forest Stewardship Program is a multiresource program that requires land uses other than commercial timber be considered. Stewardship plans

- Use pesticides and fertilizers sparingly and according to instructions. Dispose of unwanted pesticides at designated municipal collection sites.

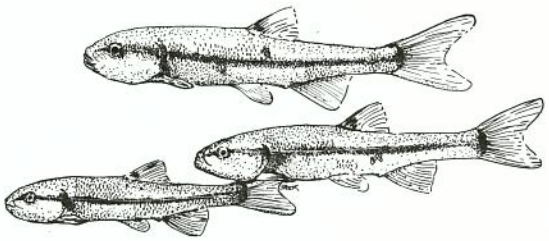
- Landscape your yard so that trees and grass can help trap stormwater, thereby reducing the amount of runoff from your property. Vegetation also will control soil erosion and help remove various pollutants in runoff.

- Keep leaves, grass clippings, and pet wastes out of street gutters and storm drains.

- Never dispose of toxic and hazardous chemicals in your septic system. These can contaminate ground water supplies.

- Have your septic system pumped regularly, every three to five years. Have it inspected every year or two to be sure it is operating properly.

Source: FYI...Nonpoint-Source Pollution, SCDEHC



detail practices for recreation and fisheries habitat, wetlands and streamside management, soil and water conservation, and forestry. Once the plan is written, landowners are eligible for cost-sharing to install the practices.

10. Use a dynamic water quality model for the river to address nonpoint-source pollution. "Dynamic" includes stormwater runoff, impoundment releases, droughts, and other changing flow conditions.

11. Reduce urban nonpoint-source pollution:

    a. *Make improvements to existing stormwater systems and their management. For example, use a stormwater utility as specified by the Stormwater Management and Sediment Reduction Act. Best management practices should be cost effective and might include retention and detention basins, treatment of stormwater, greenways, or vegetated swales. (reference the EPA report "Urban Targeting and BMP Selection," 1989).*

b. *Develop an interstate basinwide public awareness campaign on the effects of urban runoff. South Carolina DHEC and North Carolina DEM should coordinate a group of public and private participants. The Bi-State Catawba River Task Force should be involved. Public education is the best method for long-term improvements in nonpoint-source pollution.*

c. *Require new stormwater systems to include best management practices through ordinances, planning commission permits, and stormwater utilities.*

   1. *Do planning on subwatershed basis rather than lot-by-lot permitting.*

   2. *Develop joint planning commissions (such as city/county, county/county, or council of government district).*

   3. *Councils of governments should help to develop goals and guidelines.*

d. *Planning commissions should develop overlay zones for protection of sensitive areas, such as wetlands, endangered species, delicate soils, and highly impacted tributaries, from nonpoint-source pollution. These overlay zones should be a part of planning ordinances that contain regulations to protect the sensitive areas in the watershed.*

> The urbanization or development of a watershed typically results in changes in the physical, chemical, and biological characteristics of that watershed and its receiving waters. As development and population increase, runoff and pollutants also increase. In most cases, these pollutants enter urban streams and lakes with runoff without undergoing treatment. This nonpoint-source pollution can result in damaged water quality, negative impacts on native plants and animals, and the loss of important water uses such as swimming and fishing.

e. *Agencies such as South Carolina DHEC, South Carolina Water Resources Commission, North Carolina DEM, and USDA Soil Conservation Service should increase efforts to provide urban and residential waterfront landowners with advice and planning assistance to aid those landowners in protecting sensitive areas and improving water quality. This should include landowners along the main river, tributaries, and impoundments.*

f. *State government should promote individual efforts to protect sensitive areas and reduce nonpoint-source pollution by granting a tax credit to urban and residential waterfront landowners based on the costs of water quality improvements. This could be similar to the state "pond tax credit." These improvements should be certified by an agent of an appropriate state agency to claim the tax credit.*

g. *Septic tanks within the immediate area of the river and tributaries, and especially concentrations of septic tanks, should be closely monitored for proper operation. The septic tank permitting agency should pursue funding from the state and grant sources to initiate an inspection program for illicit connections (connections to stormwater systems with no treatment system) and improperly functioning septic systems.*

> Waterfront homeowners can be active participants in improving water quality. As they become more numerous, the consequences of their actions on water quality will become proportionately greater. Expert advice and incentives of many state and federal agencies should be made equally available to waterfront landowners as it is now available to farmers, foresters, and units of government. This will encourage individual efforts to improve water quality.

12. Mining:

    a. *New permits should continue to require preservation of the immediate streamside zone and use of BMPs.*

    b. *Existing permitted mines should continue to be required to use BMPs to reduce sediment loads, such as intercept ditches, berms, sediment basins, and filter strips. This should be a condition of permit renewal.*

13. Recommend an overlay district for the river corridor and its tributaries to be developed cooperatively by local governments and the Catawba Regional Planning Council to reduce or minimize nonpoint-source pollution.

    a. *Tributaries should be given special consideration due to the cumulative effects of nonpoint-source pollutants and existing development.*

    b. *Designate areas where uses and activities are controlled, through ordinances and permitting processes, depending on their potential to cause nonpoint-source pollution.*

14. Encourage and educate the public on recycling, especially elements that cause nonpoint-source pollution. Encourage adequate funding for governments and other groups to hold periodic "amnesty days" for toxic and hazardous wastes.

15. Initiate a nonpoint-source pollution education program in schools; newspapers, radio, television, and using brochures; volunteer groups; and public events. Cooperate with other groups to include nonpoint source topics in programs such as Project WILD, Project Learning Tree, RESPECT, and Clemson's PEAK and Master Waste Educators.responsibility for proper stewardship. If we are to do our part in maintaining and/or improving the quality of the river, we must accept the challenge to educate ourselves and others about the negative impact our daily actions might create, especially in terms of adding to the river's nonpoint-source pollution.

POINT SOURCE

Point-source discharges into water bodies are those discharges that flow from a single point, typically a pipe. Point-source discharges into the Catawba River come from municipalities releasing treated wastewater into the river and from industrial users.

Rivers like the Catawba serve as an important source of water for municipal and industrial purposes and then assimilate the treated wastewater. Point source discharges are regulated through the National Pollution Discharge Elimination System (NPDES), which was established by the Clean Water Act.

Bill Vogel and Noel Hurley co-chaired the Point Source Subcommittee. The committee consisted of 10 individuals representing municipalities, industries, government agencies, and private citizens. The subcommittee met three times. The committee agreed that its mission was to evaluate the effect of point-source discharges on the Catawba River and its tributaries in the study area and make recommendations to achieve best uses for the river without compromising water quality.

During the course of its meetings the members of the subcommittee reviewed existing NPDES permits, heard a presentation on the South Carolina Department of Health and Environmental Control's Watershed Management Program and reviewed the existing water quality model for the Catawba and the river's assimilative capacity. This led to the drafting of the following recommendations by the subcommittee.

Recommendations

1. South Carolina Department of Health and Environmental Control's (DHEC) Watershed Management Program should serve as the point source management tool in the Catawba River Corridor, as the program is designed to directly examine present dischargers and their compliance with NPDES permits. DHEC would allocate resources needed to ensure compliance or minimize impact of nonpoint sources.

2. Wasteloads should be distributed in accordance with the river's capacity to accept discharge (100% Total Maximum Daily Load [TMDL] allocated without reserve capacity).

   a. *Equitable redistribution of total maximum daily load would be considered in the case of a new discharge applicant.*

   b. *New or updated model should be used to calculate and distribute wasteload allocation.*

   c. *Nonpoint source impacts must be considered.*

WATER MANAGEMENT

The Water Management Subcommittee was concerned with the ability of the Catawba River to handle current and future community needs associated with drinking water and wasteload allocations.

The subcommitte's mission statement is "to recommend land use planning and practices, including minimum water quality standards, necessary to ensure the Catawba River's capacity to supply the area's long-term needs." The subcommittee consisted of15 members and was chaired by Mike Medlin. The group met eight times over the course of eight months, and ultimately concluded that a comprehensive watershed planning and management program should be developed for the river corridor. This program should include a coordinated wastewater permitting plan and be based upon basinwide minimum water quality standards.

The subcommittee tackled these issues through a series of discussions by experts on the subjects of water quality modelling, the 201-208 Sections of the Clean Water Act (wastewater facilities and planning), and the South Carolina Interbasin Transfer Program.

The subcommittee focused significant attention on the water quality model for the Catawba River. The present water quality model is based on data gathered in 1983.

This model, known as QUAL2e mathematically relates physical and chemical actions and reactions taking place in the river. The model is divided into two distinct portions. A hydrology portion which describes the water budget and physical characteristics of the stream (slope, velocity, etc.) and a quality portion which predicts the biochemical characteristics of the water on the basis of hydrological, chemical, and biological stream characteristics. Field data are used to calibrate and verify the model.

Limitations of this model were also examined by the subcommittee. The key limitation of this model is that it is a "steady state" model that does not take into account the dynamic nature of streamflow. The values are calculated on the basis of the value of 7Q10. This is a streamflow measurement that is the lowest average flow expected during seven consecutive days on average of once in ten years.

The subcommittee suggested that a new model be developed to predict conditions based on instream rates and temperature change. The model should include tests upstream of discharges, verified under different conditions, to achieve a model of critical conditions produced by instantaneous flows, maximum loads, high temperature, or low flow. There was agreement that there is a need for more data reflecting low flow dynamics, hydro electric operation, and changes in discharges and withdrawals. Adding data to the model on nonpoint source contributions to the river was recommended by the subcommittee. It

was also suggested that metals analyses be included.

The subcommittee heard reports on several ongoing or proposed studies in the Catawba watershed by the United States Geological Survey (USGS). The USGS is exploring the possibility of producing a new water quality model for the Catawba River.

A second project, led by the North Carolina Office of USGS, is in the upper Catawba River basin. This study is examining water quality in Rhodhiss Lake and Lake Hickory. A similar study began in 1993 for Mountain Island Lake near Charlotte.

A third study of the Santee-Catawba basin started in October 1993, as part of a USGS study of 60 watersheds in the country through the National Water Quality Assessment (NAWQA). This study will involve intensive water quality monitoring over a three-year period, followed by six interpretive or less intensive years of monitoring to determine long-term water quality trends in the basin.

The subcommittee also reviewed other programs such as the 201-208 sections of the Clean Water Act and the South Carolina Interbasin Transfer Permit Program. The 201-208 program deals with wastewater facility siting and community-based planning.

Maps of hazardous-waste sites, sewer service lines, mines, water withdrawals, industry, and endangered species were reviewed by the subcommittee. The committee agreed that a master map should be created with the combined information, including sampling sites in the corridor and a table of all constituents sampled.

Recommendations

1. Data collected in the corridor should be coordinated and kept current to aid in producing a long-term water quality characterization for the corridor.

2. Water quality data or sources of data collected for the corridor should be held by one central clearinghouse, such as the Catawba Regional Planning Council; a counterpart agency in North Carolina should operate as a similar repository of data.

3. A new basinwide water quality model should be developed, and the Bi-State Catawba Task Force should collaborate on its development. The subcommittee suggests that the following participants cost-share on development of the model: York, Chester, and Lancaster counties and counties in North Carolina; private individuals; Catawba-Wateree Water Users Association; SCDHEC; Duke Power Company; Charlotte Metropolitan Utilities District; USGS; and the Bi-state Catawba River Task Force. One agency should maintain a geographic information system data base for the project, with information made available in digital format.

4. A regional planning tool, such as a model ordinance or set of regionwide practices, should be adopted by affected counties to manage land development and maintain stated water quality goals.

5. The regional wastewater treatment concept should be discussed collectively on a regionwide basis. One appropriate forum for such a discussion is the regional council of government (versus a county-by-county basis). In order to ensure regional opportunities for input in the decision making process, all impacted entities should be included in such a forum.

EXISTING DATA/RESEARCH NEEDS

This subcommittee met five times during the study process to determine what information and data were available to the task force and what data needs were lacking and needed to be addressed. This group was chaired by L.A. Graham and had nine members. The members were environmental professionals from both state and federal governments, private citizens and landowners, private industry representatives, and local government planners.

The mission statement of the subcommittee was "to identify sources of data and make known additional data needs in order to facilitate the management of the Catawba River." The group found that there was a wealth of information and data on the river but there were some gaps that needed to be addressed.

Recommendations

1. With existing data there can be few recommendations. We recommend that the existing data be maintained and made available to all interested parties, be they governmental or private.

2. While accepting that the South Carolina Department of Health and Environmental Control's water quality model is sufficient for present loading conditions in the corridor area, we recommend that a dynamic water quality model be developed at such time as a significant expansion of an existing facility or the receipt of an application for a new NPDES permit.

3. We applaud the efforts of SCDHEC, Duke Power Company, and the United States Geological Survey in South Carolina and highly recommend that their monitoring programs be continued uninterrupted at their usual levels.

4. We want to encourage SCDHEC to incorporate data from all available sources into the Watershed Water Quality Management activities.

5. A comprehensive sediment survey is suggested in the corridor area. While recognizing that SCDHEC performs some sediment monitoring activities at its monitoring locations, the chemical characteristics analyzed are inconsistent. A survey should be conducted with consistent coverage in the corridor area at additional locations to identify potential localized impacts.

6. The South Carolina Wildlife and Marine Resources Department has indicated that additional information on the status of the fisheries and fish populations is needed in the corridor area. We recommend that comprehensive cooperative efforts among SCWMRD and SCDHEC and other appropriate entities be initiated to address this need.

7. We encourage future cooperative studies, such as the Lake Wylie study, between interstate organizations.

8. Volunteer networks should be encouraged and supported to conduct sampling in conjunction with rain events to gather data on nonpoint source runoff.