

The French Broad River Corridor Study

Prepared by the Knoxville Knox County Metropolitan Planning Commission



FRENCH BOARD RIVER HERITAGE TASK FORCE

- Karen Clausen
Seven Islands Foundation
- Lee Clauss
Eastern Band of Cherokee Indians
- Ed Clebsch
University of Tennessee Professor of Botany and Ecology (retired)
- Steve Cotham
McClung Historical Collection
- Charles Faulkner
University of Tennessee Professor of Anthropology
- Lisa Huff
Tennessee Department of Environment and Conservation
- Elise LeQuire
Communications Specialist
- Kathy Lovingood
Chair, Rural Preservation Task Force
Nine Counties. One Vision.
- Karen Nolt
Knox County Parks and Recreation Department
- Pauline Prosser
Rural Preservation Task Force
Nine Counties. One Vision.
- Chip Ramsey
Natural Resources Conservation Service
- Russell Townsend
Eastern Band of Cherokee Indians
- John Webber
Three Rivers Preservation Association
- Bob and Chris Wolfenbarger
French Broad Preservation Association
- Donna Young
Knoxville Parks and Recreation Department

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- Mary Parker Slack
- R. Larry Smith
- Jean Teague
- Patsy Vittetoe
- David Wolf

KNOXVILLE•KNOX COUNTY
METROPOLITAN PLANNING COMMISSION
PROJECT TEAM

- Ewing Johnson
Interim Executive Director
- Norman Whitaker
Former Executive Director and
Nine Counties. One Vision. Advisor
- Michael Carberry
Principal Planner
- Ann Bennett
Senior Planner
- Kristin Herrington
Intern
- Karen Perdue
GIS Specialist
- Jo Ella Washburn
Graphic Designer
- Charlotte West
Administrative Assistant

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September 2003

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Chapter 1

Introduction



The valley as seen from the ridge near Riverdale.

Conservation of the land, water and historic resources that are associated with the French Broad River has been an objective of various interests. In forming land use plans for the East and South County sectors, area residents expressed concerns about uncontrolled development and the need to protect agricultural, historic and natural features, including the river and nearby ridges. Other citizens in Knox and surrounding counties have also been motivated to protect similar attributes in their rural

communities. These groups came together through a regional planning process called Nine Counties One Vision to point out the importance of agriculture and the preservation of the region's rural heritage. A Nine Counties task force decided that a pilot study would be a reasonable way to address rural preservation issues. In view of its historic, agricultural and scenic assets and because of the expressed citizen interest, the lower French Broad River (that area in Knox County above its confluence with the

Holston River) was viewed as an ideal area for the pilot study.

The primary purposes of this report are to:

1. Identify significant natural and man-made assets along the Lower French Broad River;
2. Outline options to conserve a rural heritage; and
3. Establish a framework whereby other rural communities in the Nine Counties area can assess their resources systematically and begin a process to conserve their heritage.

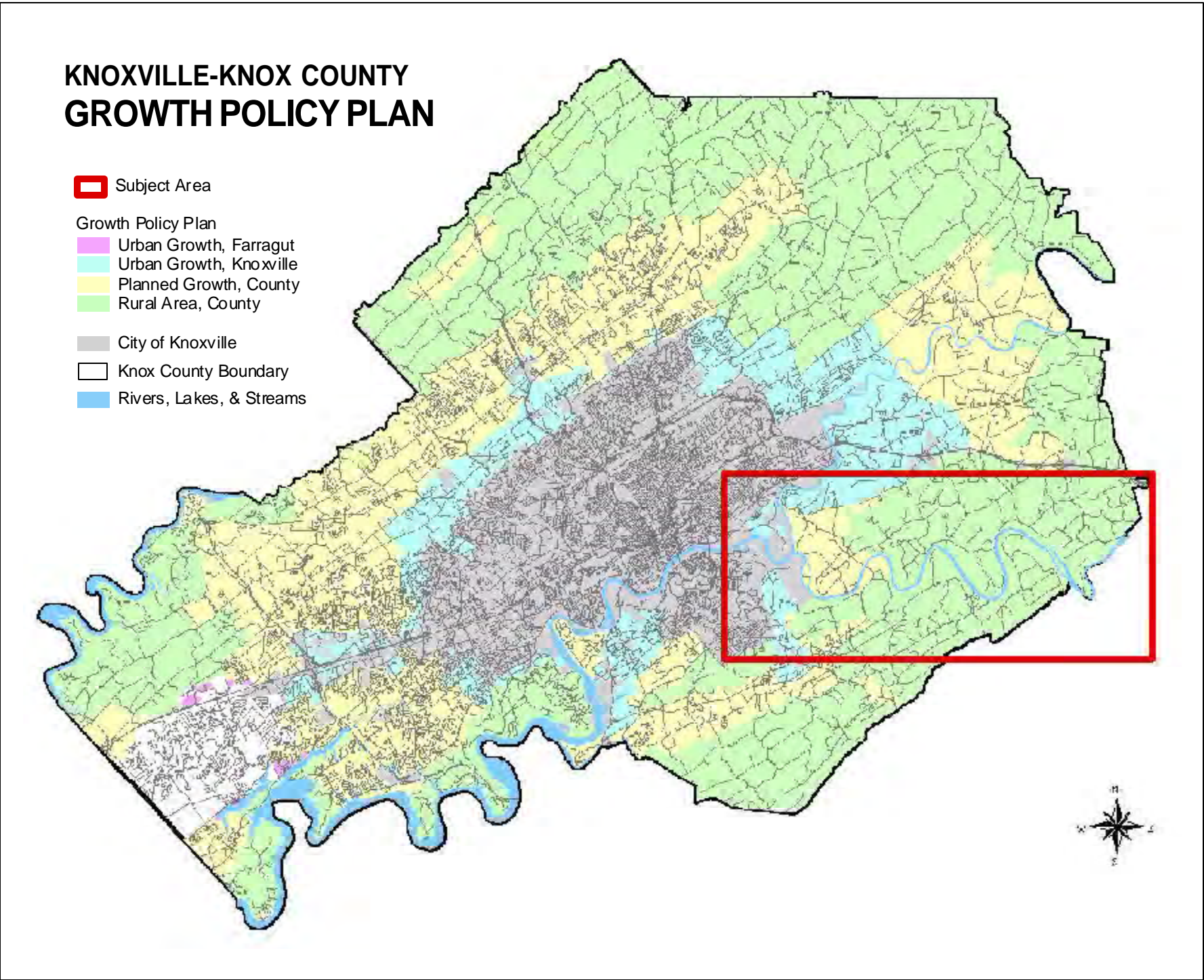
GROWTH MANAGEMENT, LAND USE PLANS
AND CITIZEN INVOLVEMENT

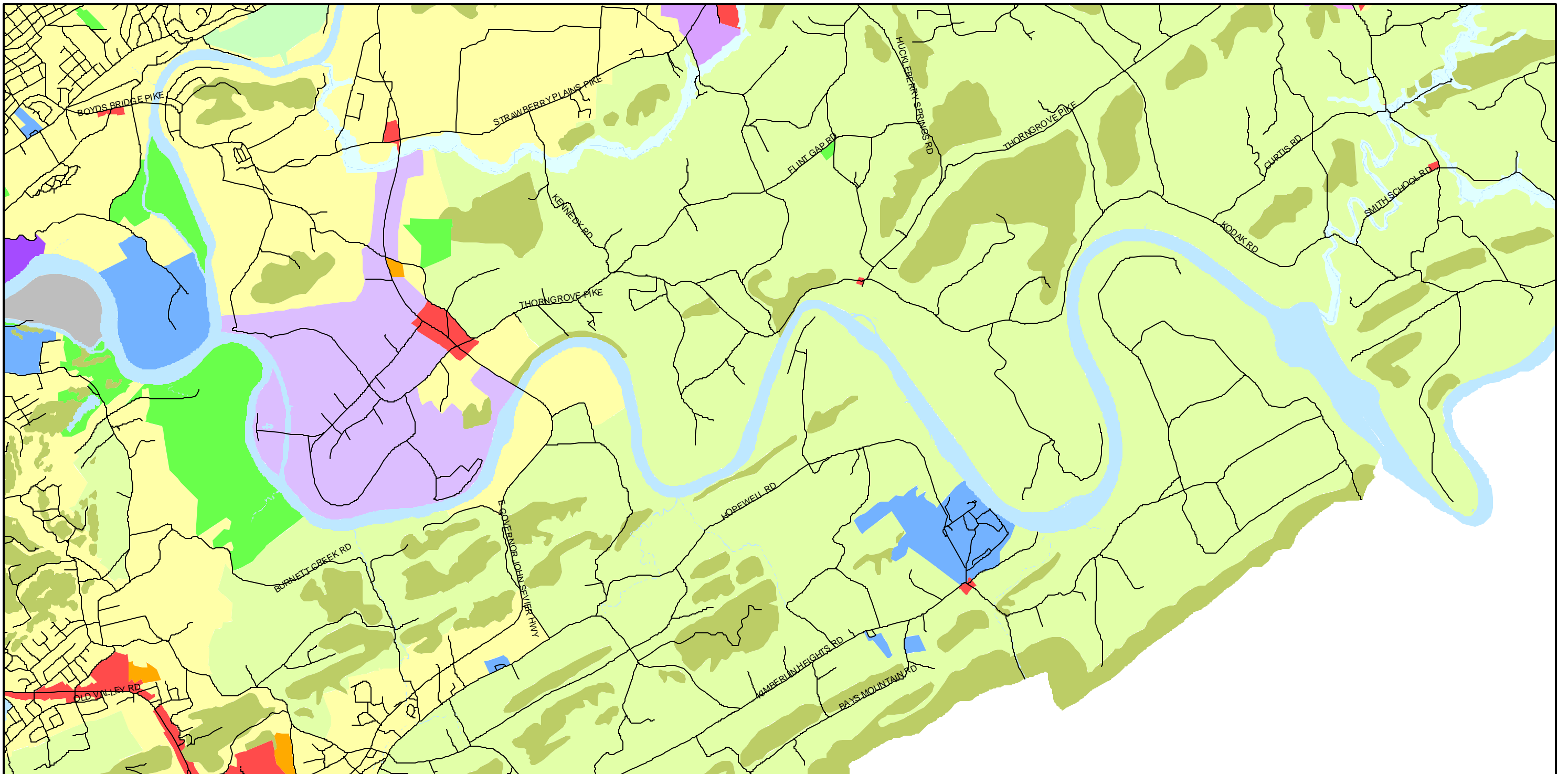
Various plans have been adopted that affect development and conservation in the area. These include:

The Knoxville-Knox County Growth Policy Plan
In 1998 the State mandated that each city and county in Tennessee create growth management plans, looking at their needs for housing, commercial uses and economic development 20 years into the future. The law also includes provisions for the identification of rural areas which should be held for agricultural and growth reserve purposes. Most of the land along the lower French Broad is designated as a rural area in the Growth Policy Plan. The exception is the area near the Forks of the River, where there are industrial and mining operations. The wildlife refuges on either end of the corridor are in keeping with the rural area designation and growth management provisions.

The Knoxville-Knox County General Plan
This plan is a 30-year vision and policy plan guiding land use, transportation, environmental conservation and facility development. It was adopted in May 2003. A n agenda for quality growth is outlined in the plan which includes concepts for rural preservation and environmental conservation.

Sector Plans and Zoning
Knox County is divided into 12 geographic areas called sectors for land use planning purposes. Sector land use plans are used as a basis for zoning. The East and South County sectors comprise significant portions of the study area. The sector plans for the two areas were adopted in 2002.

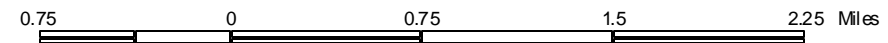




- Slope Protection Area
- Stream Protection Area
- Public Parks & Open Space
- Other Open Space
- Agricultural/Rural Residential
- Low Density Residential
- Medium Density Residential
- Mixed Use, Medium Density Residential & Office
- Commercial
- Office
- Public Institutional
- Light Industrial
- Heavy Industrial
- Transportation
- Water



1" = .75 Miles



Approximate Scale in Miles

French Broad River Corridor Study Map 2 Proposed Land Use

In the East County sector, agricultural and rural residential land uses are proposed for most of the area east of John Sevier Highway. Almost all of that area is zoned agricultural (allowing both farm-related uses and rural residential development on one-acre or larger sized parcels). Agricultural and rural residential uses are also proposed for most of the area south of the French Broad (the South County sector) and over 90 percent is zoned for those purposes.



Left: Development on large lots along the river has not been extensive but is a concern in conserving agricultural land.

Below: An example of clustering on smaller lots, allowing for the conservation of a farm and recreation areas. In such a subdivision, septic system drain fields could extend into the open space.



Rural heritage and environmental conservation is proposed in both plans. The following potential programs were identified:

- Historic Overlay Zoning for Riverdale, Frazier Bend and Kelly Bend
- Creation of a Rural Conservation Zoning District in which the minimum lot size for residential development is as great as 20 acres, particularly in the Seven Islands-Kimberlin Heights community
- Slope protection by limiting development to very low density residential uses
- Cluster residential development where housing is concentrated on a portion of the landscape so that agricultural or environmental resources can be preserved
- Greenway/blueway designations to preserve stream/river corridors
- Limited extension of such infrastructure as sewer lines and expansion of roads in rural areas

Nine Counties. One Vision.

In 2000, several thousand East Tennesseans came together to create a collective vision for the region. Citizens, politicians, not-for-profit organizations, business leaders and special interest groups contributed their expertise to outline various environmental, recreational and economic development goals. The conservation of rural assets, including farms, historic sites and natural resources, was seen as vital to the well being of the area. The environmental and recreational interests of Nine Counties looked to a system of natural areas, greenways and blueways as a need for the multi-county area. Rural preservation advocates envisioned a rural heritage preservation organization which would be established to protect scenic and natural assets and to promote agricultural ways of life. The creation of the Nine Counties' Rural Preservation Task Force is an outgrowth of that interest.



The lower French Broad River as seen from Kimberlin Heights

Chapter 2

Soil and Geologic Resources



Some of the soils of the French Broad River corridor are the most productive agricultural soils in the county (Knox County Soil Survey, 1955).

Soil scientists provide three classifications related to agricultural production: (1) prime farmland; (2) other soils suitable for agriculture; and (3) soils unsuitable for agriculture. The soils categorized as prime farmland are found along the river, particularly on the flood plains of such bends as Frazier Bend and Kelly Bend. The prime farmland soils account for approximately one-quarter of the surface of the study area. These river soil deposits are characterized by high fertility and exceptionally favorable moisture for plant growth. The soils are suited to intensive agricultural uses, chiefly in the production of crops like corn, tobacco and hay. These soils also yield pastures of excellent quality. Roughly half of the area covered by the prime soils has been converted to non-agricultural uses, most notably in the area near the Forks of the River Industrial Park.

Secondary in quality are soils characterized as suitable for agriculture. They vary greatly in composition. Their terrain includes both forested and cleared tracts with slopes ranging between 5 and 25 percent. While some of the soils cannot sustain crops requiring tillage, other soils can provide a wide variety of

Left: The rolling terrain away from the river contains less fertile soils and is often used for hay production.

uses, including row crops, hay production and pastures of excellent quality. Their main limitation is low fertility, weak moisture-holding capacity and shallow bedrock. Their slope and slow permeability cause runoff to be a frequent hazard. The agricultural use of these soils is principally for hay production and grazing. More than half of the areas occupied by these soils are forested or in agricultural use.



When the soil resource reports were issued in the 1950s, erosion on the hilly terrain was a typical problem. Conserving reforested slopes is essential in preventing water pollution.

The soils that are not suitable for agriculture lie on steep, easily eroded slopes and comprise about 40 percent of the land in the corridor. Fortunately, more than two-thirds of these soil areas remain undeveloped and are typically forested. These soils are unsuitable for agricultural production because they are shallow, often contain rocky outcrops and have poor moisture holding capacity. Farming or development on the slopes leads to rapid erosion and uncontrolled runoff. Most of these areas contain slopes in excess of 25 percent. Sector plan guidelines regarding such steep slopes recommend conservation as open space and very low-density residential development (the recommended density being no more than one dwelling unit per two acres).



French Broad farming, late 19th century: the rich river bottom soils are among the most productive in the county. (Photograph courtesy of the McClung Historical Collection)

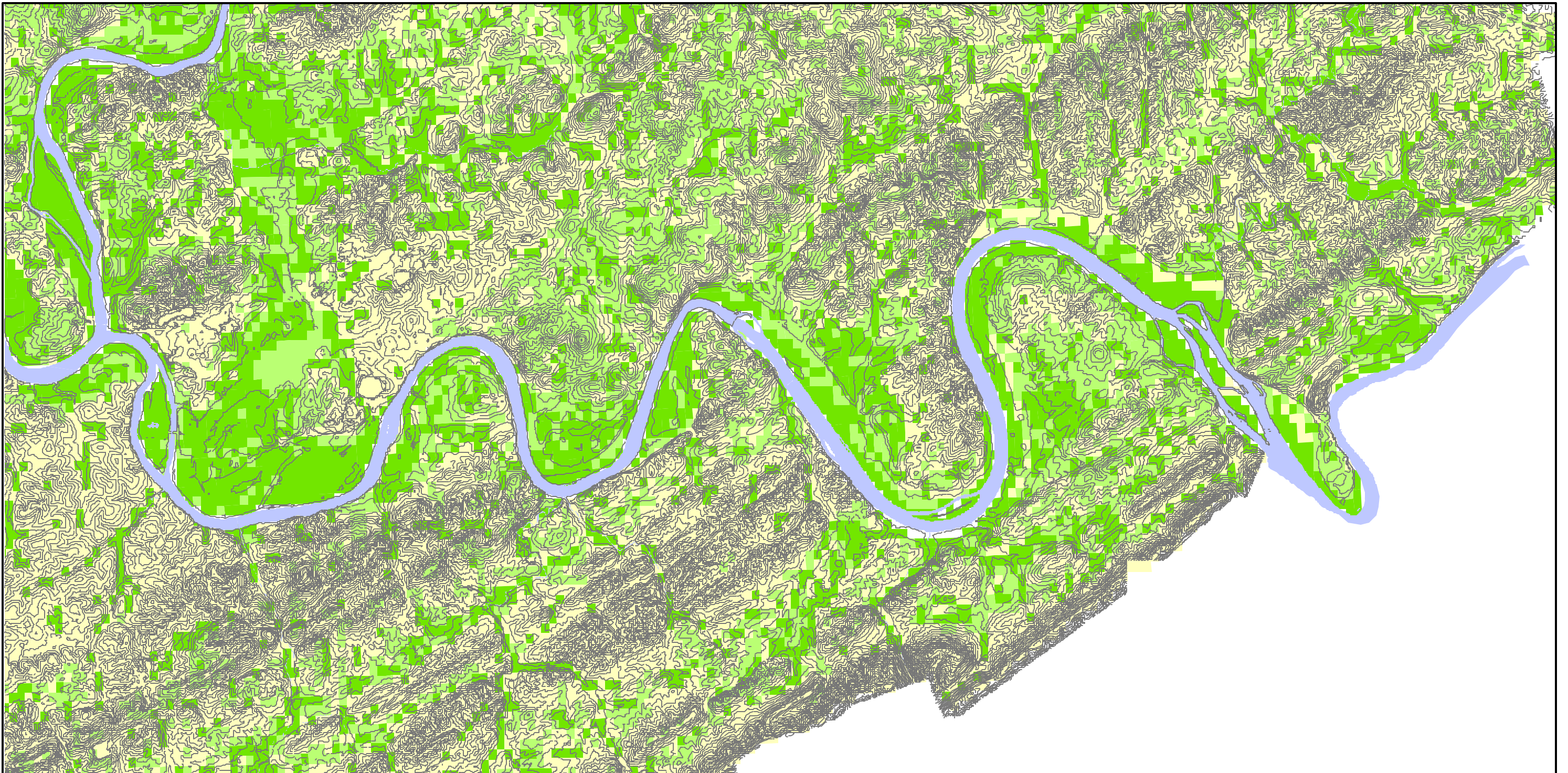
Like other portions of the Tennessee Valley, the geology of this area was created when layers of sands, clays and other sedimentary deposits of an inland bay solidified, folded and eroded over millions of years. Those processes formed the ridges and valleys associated with the landscape. Sandstone and

siltstone are typically associated with the ridges while the more easily weathered limestone and dolomite lie below the floor of the valleys. The foremost geologic feature of the corridor is the Holston Formation which contains a coarse-grained, highly colored limestone referred to as Tennessee marble. This resource,

although not technically a marble (because it is a carbonate not a metamorphic rock), polishes beautifully and meets the commercial definition of marble. For many years Tennessee ranked among the nation's highest producers of marble because of the production emanating from this area. This Tennessee marble was used in constructing many fine buildings. Locally, this included the Knoxville's Depression-era U.S. Post Office and Courthouse and, nationally, a number of the public buildings in Washington, D.C.



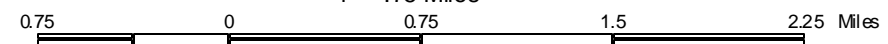
The US Post Office and Courthouse, downtown Knoxville, was constructed of Tennessee marble.



-  Soil Suited for Prime Farm Land
-  Soil Suited for Agricultural Use
-  Low Potential for Agricultural Use
-  Rivers, Lakes, & Streams
-  20' Contour Lines



1" = .75 Miles



Approximate Scale in Miles

French Broad River Corridor Study
Map 3

Agricultural Land

Chapter 3

Slope Analysis



Slopes are characterized on the corresponding map by the severity of their incline:

Less than 15%:

Such slopes range from level to gently rolling terrain and comprise approximately two-thirds of the study area (source: MPC/GIS calculations). Virtually all the farmland along the river falls into this category. With the exception of flood-prone areas, development constraints are generally low on such terrain. The prime agricultural soils are concentrated in these areas.

15 - 25%:

These areas include forested hillsides and in a number of places, relatively steep pastureland. This terrain accounts for 22 percent of the study area. Slope protection policies which are outlined in the sector plans state that development should not exceed two dwelling units per acre on such slopes.

Greater than 25%:

Steep, forested hillsides and ridges are characteristic. Rocky outcrops and cliffs also form some of this terrain. This category accounts for 11 percent of the study area. Development practices that result in extensive clearing and grading are detrimental to

Left: Level and gently rolling land is typically found near the river.



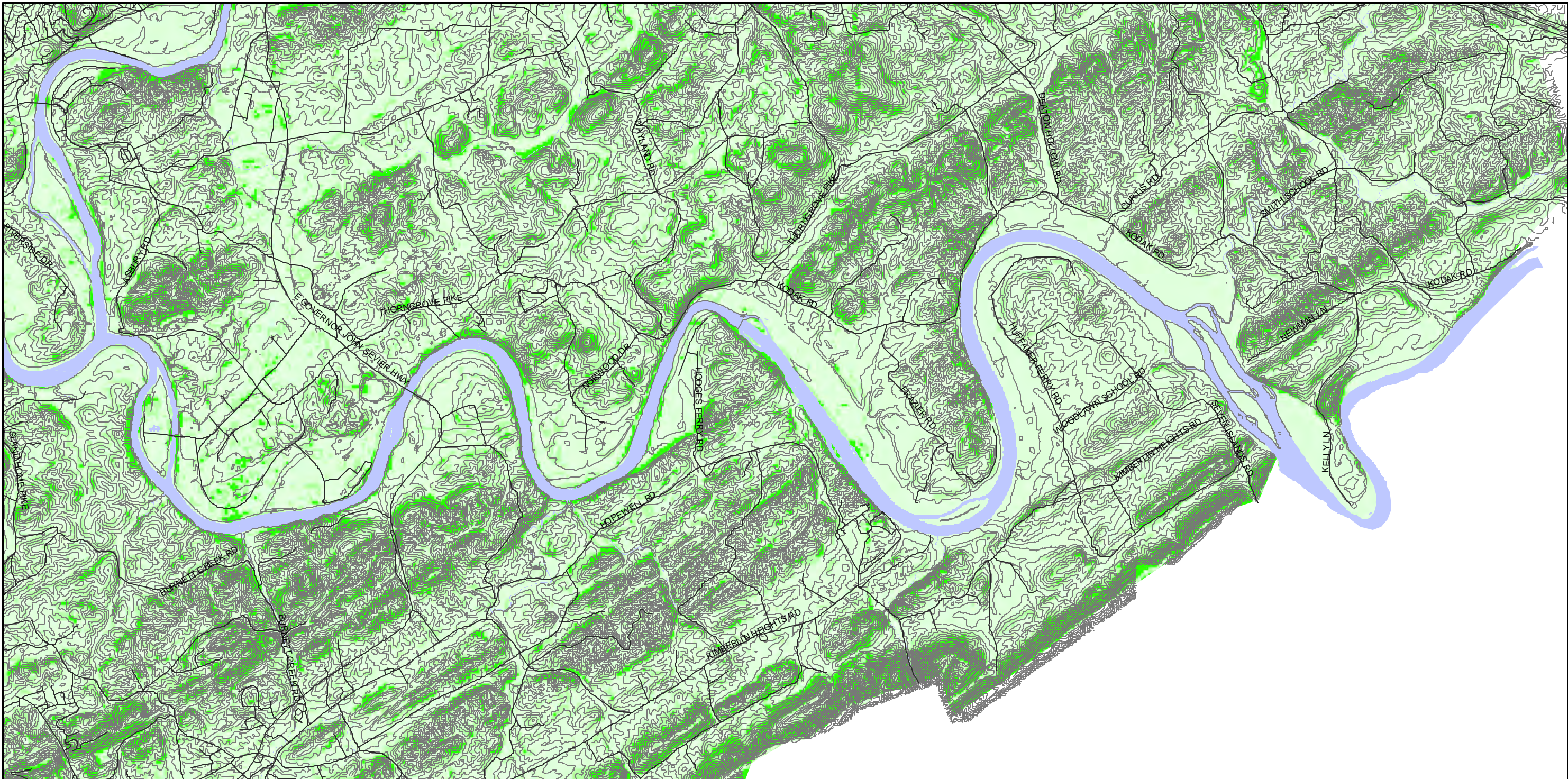
environmental characteristics and aesthetic attributes of the hills and ridges. Clearing and slope cutting often results in erosion problems and loss of habitat and scenic value. The sector plan policy regarding steep slopes is to retain the open space of the hillside. Should development be pursued, extremely low-density residential uses (at maximum density of one dwelling unit per two acres) are recommended.

In the latter two categories, the soils are typically not conducive to agriculture. The rocky nature of some of this terrain can result in higher cost for utility extensions, including sewer and gas lines.



Above: Most of the forested ridges are characterized by steep slopes (greater than 25%).

Left: Residential development is appropriate on modest slopes (foreground). Forested steep slopes (background) should be protected.



French Broad River Corridor Study
Map 4

Slope Analysis

Slope Percentage:

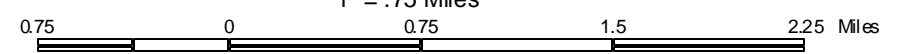
- <15%
- 15-25 %
- >25%

Other Mapped Features:

- River
- Contour Lines
- Roads



1" = .75 Miles



Approximate Scale in Miles

Chapter 4

Water Resources



Much of the vegetation along the French Broad is intact.

This pilot study area is included in the lower French Broad watershed, spanning parts of Knox, Sevier, Cocke and Jefferson counties. The river originates in the highlands of the Blue Ridge. The upper French Broad, an area from the North Carolina line to Douglas Lake, is recognized as a state scenic river.

The lower French Broad watershed includes several tributaries and their sub-basins. One of them, Tuckahoe Creek, is also listed under the state scenic river program which recognizes the natural and man-made attributes of streams and rivers and has provisions for land and water quality management (www.state.tn.us/environment/nh/scenicrivers.htm).

Historically, the French Broad flooded almost every year until 1943 when the Tennessee Valley Authority (TVA) completed Douglas Dam. Since then, the river has flooded twice, once in 1963 and again in 1987. Because water release can be regulated at the dam, TVA tries not to discharge when the tailwaters are experiencing a large stream flow. As a result, flooding has been minimized.

The ecological health of the French Broad has been analyzed in the Status of Water Quality in Tennessee 305(b) Report in 2000. According to this report, the lower French Broad fully supports its designated uses, including aquatic life, recreation and drinking

water supply. However, upstream impoundments are causing thermal modifications, flow alterations and low dissolved oxygen. Non-point source pollution is the main threat to its ecological health. This results from clear-cutting, lack of vegetative buffers along the river, sedimentation from construction and agricultural sites, and chemical pollutants from farm fields and golf courses.

Several different agencies are involved in regulating and permitting land use in floodplains and along shorelines. The Tennessee Department of Environment and Conservation (TDEC), TVA, Knox County Engineering and Public Works



The protection of stream banks, such as those along Tuckahoe Creek, is important to water quality.

Department, the City of Knoxville Department of Engineering and MPC follow regulations regarding development of these areas. TVA's Shoreline Management Initiative covers various activities such as dock permitting and acquisition of additional public shorelines. For other riparian areas of tailwaters, TVA does not have any regulations other than the Section 26a permit which regulates the construction and maintenance of boat docks, ramps, or other structures on the shoreline. TVA does provide landowners with technical assistance on riparian restoration and bank stabilization on a limited basis.

TDEC has a program entitled Aquatic Resource Alteration Permits to regulate activities that alter the state's rivers, creeks and streams. A section of TDEC, the Tennessee Division of Water Pollution Control, requires a general permit for activities such as construction of boat ramps, bank stabilization, sand and gravel dredging, debris removal from streams and rivers, application of herbicides in aquatic systems, stream restoration, and habitat

enhancement. The fees involved are based on the amount of acreage that is altered. For larger scale projects which might have a significant impact on the water quality such as channel relocation, bridge construction, flooding or draining of wetland, an Aquatic Resource Alteration Permit is required (www.state.tn.us/environment/permit/arap.htm).

The Knox County flood protection regulations control development in floodplains. Building construction is prohibited both in the floodway (that is, a narrower portion of the flood fringe that carries a significant portion of floodwater) and halfway between the floodway and the edge of the 100-year floodplain. If construction is initiated toward the outside of the floodplain, habitable portions of buildings must be elevated above the 100-year flood level (for example, through fill dirt or by placing the garage under the house).

Other stream corridor protection measures include MPC's guidelines for streamside development and water quality protection. A minimum setback of 75 feet is recommended to protect vegetation, including root systems that prevent erosion along creek and river banks. Interested landowners can mitigate riparian destruction that is caused by agricultural practices through the Knox County Soil and Water Conservation District on a cost share basis, depending upon available funding (www.nres.usda.gov/programs/sweafact.html).

Development of steep slopes can also impair the health of the river. Soil is quickly carried down a cleared slope towards the stream or river, resulting in sedimentation that destroys aquatic life. So, in addition to the slope development guidelines, MPC recommends replanting as part of the development process. Best Management Practices, such as those recognized by TDEC, are

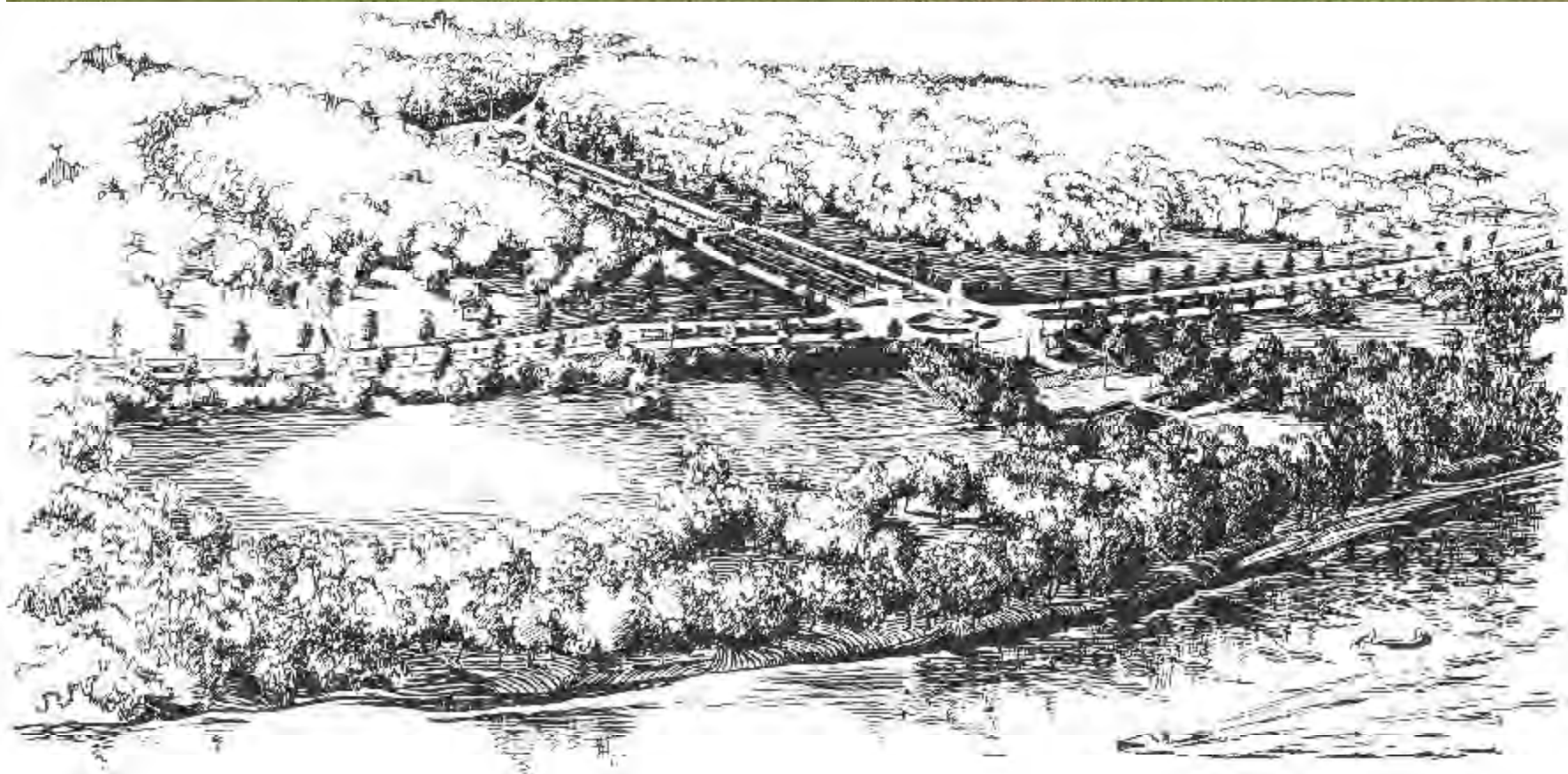
recommended to mitigate adverse impacts associated with clearing and grading, including detention ponds and vegetated filter strips.

The views of the river are often very beautiful, especially from elevated vantage points. The open space associated with forests and farms are the foremost aesthetic attributes along the river. Development at the river's edge compromises natural scenic beauty and can impair water quality. Most distracting in terms of views and enjoyment of the river are the industrial and mining areas where the river is hidden behind warehousing and quarries.

The scenic values associated with land conservation along the river can result in overall higher property values inland when neighborhoods are created. A prime local example of this economic factor is the Sequoyah Hills neighborhood where hundreds of households can reach and enjoy the scenic beauty of the open space at the river's edge.



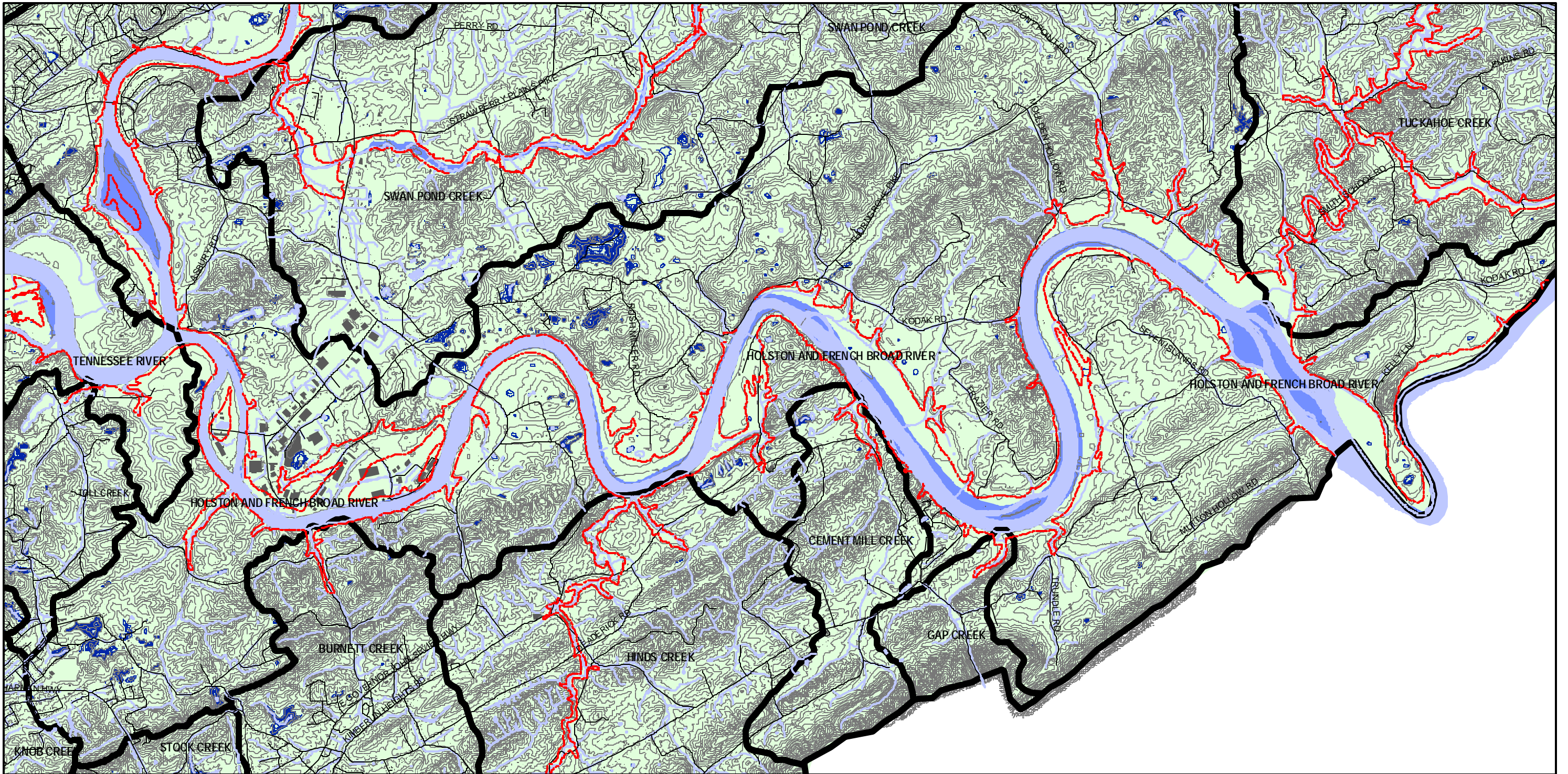
In some unfortunate circumstances, trees have been cut along the river's edge, raising the potential for erosion and sedimentation.













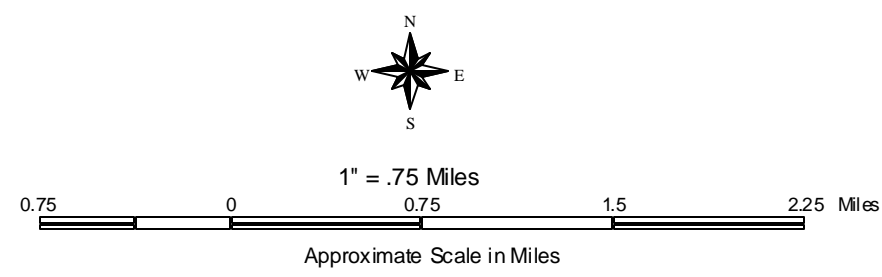
Top: Some of the most valued lots of Knox County are situated, not on the river, but across the road from the open space of Sequoyah Park.

Above: The value provided by that open space is captured throughout the neighborhood, even on relatively small lots with relatively modest homes.

Left: By keeping open space along rivers—such as in this late 1920s drawing of Sequoyah Hills—land values of all the lots in nearby subdivisions are enhanced.



- | | | | |
|---|--------------------------------|---|---|
|  | Floodfringe |  | 20' Contour Lines |
|  | Watersheds |  | Roads |
|  | Sinkhole or Mining Depressions |  | Buildings & Structures |
|  | Streams, Ponds, & Lakes |  | Storm Water flows to the river in these areas |
|  | River | | |
|  | Floodway | | |



French Broad River Corridor Study
Map 5
Water Resources

Chapter 5 Habitat



The French Broad River corridor includes valuable ecosystems with numerous botanical and biological species, some of which are rare or endangered. Much of the information concerning habitat is derived from Wayne Schacher's Land Management Plan for Seven Islands Wildlife Refuge and various state and federal sources, including TVA's Shoreline Management Initiative Environmental Impact Statement. Schacher is a private consultant who has extensive experience conducting endangered species and other biological studies for TVA and other interests in the region. Schacher's research covered only a corner of the corridor.

A more in-depth study should be undertaken to gain a thorough understanding of the area's botanical and biological attributes. Potential resources for such a study (either as volunteers or as contractors) include: the Tennessee Department of Environmental Conservation's Natural Heritage Program that is directed to statewide inventories of rare species and environmental communities, field surveys and management practice advice; the Tennessee Native Plant Society; the University of Tennessee faculty; TVA's Regional Natural Heritage Program; the Tennessee Chapter of the Nature Conservancy and various private consultants.

Left: Much of the French Broad is characterized by clear water, rich habitat and unspoiled beauty.



Types of Habitat

Habitat is linked to various types of landscape. Much of the terrain is forested or covered in grasses. The grasslands are dominated by fescue, a non-native, cool season grass planted for livestock consumption. Row crops are found to a lesser degree, most commonly along the river bottoms. In terms of wildlife diversity, non-native grasslands and croplands are not the most supportive. Common species found in grasslands are the eastern meadowlark, red-winged blackbird, rat snake, eastern garter snake and Fowler's toad. In croplands, these species and others including the common grackle and black racer are commonly found.

Much of the forest was once cleared for agricultural purposes. The remaining forestland is typically located on slopes that are too steep for crop production or grazing. According to TVA, the deciduous forests contain the greatest diversity of wildlife. Common species include red bat, short-tailed shrew, gray squirrel and white-footed mouse. Birds that are present throughout the year are woodpeckers, bluejays, Carolina chickadee and Carolina wren. The forested areas on northern and eastern facing slopes and bluffs are considered diverse plant ecosystems. As a result of facing away from the sun for a good part of the day, these steep areas are moist and cool. Since the sun does not dry out the soils, water seepage provides moisture along the entire slope. This creates a supportive environment for many plants to thrive.

The French Broad and its riparian (streamside) environment fosters a rich biodiversity. The riparian vegetation is extremely important to the river's health. According to the Land Management Plan for the Seven Islands Wildlife Refuge, native vegetation is used to provide stability and improve diversity and quality of the river's ecosystem. Vegetation along the shorelines moderates water temperature, filters out pollutants and controls erosion. The viability of some species in the river was impaired





in the past, but a strong comeback has occurred since the late-1980s through TVA programs to improve water quality and U. S. Fish and Wildlife Service and Tennessee Wildlife Resource Agency (TWRA) programs to reintroduce species that once inhabited the river. A successful comeback for the lake sturgeon and sauger—important commercial and sport fish—has taken place in this portion of the French Broad. The efforts of TWRA and other collaborators have brought back such dynamic wildlife as river otters, ospreys, great blue herons and bald eagles. Along this stretch, numerous mussel beds can be found as well. The fact that many species of wildlife have returned and are thriving is a good indicator of the improved water quality of the French Broad.



Throughout the corridor, edge or transitional habitats can be found. Usually they are in the form of overgrown field borders, fence rows, woody thickets and woodland edges. These habitats provide escape cover, foraging and nesting sites, and travel corridors for a large variety of terrestrial wildlife. While some edge habitats occur naturally, habitat fragmentation from human activity has created most of them, and invasive plant species such as privet and Japanese honeysuckle often spread and thrive in these areas. Suburban development can also cause significant change in wildlife populations. Wildlife associated with developed suburban areas commonly includes non-native species such as the house mouse, rock dove and European starling.

Common native species that occur in low-density residential areas include the eastern garter snake, the gray squirrel and the mourning dove.

To enhance wildlife diversity, the Land Management Plan of Seven Islands calls for protecting woodlands from timber harvesting and avoiding habitat fragmentation and the disturbance of dead snags and hollow trees. To enable the recovery of native flora, livestock grazing will be eliminated from Seven Island's woodland habitats, since direct grazing and soil compaction impair plant growth.

TVA's program, the Reservoir Release Improvements (RRI), targets improvements to the chemical composition of the river's water. With such tools as surface water pumps, liquid oxygen diffuser systems and turbine venting, RRI has provided stable concentrations of dissolved oxygen and minimum flow requirements. These practices facilitated a dramatic comeback of aquatic life.

Rare, Threatened and Endangered Species
The French Broad River, its tributary creeks and the lands in the corridor are known as home to nine rare species which are listed by the State and twelve species which are listed by the federal government as in danger of extinction or threatened with becoming endangered. Of those species, 14 live in aquatic habitats and 7 are terrestrial, including five fish, a salamander, five mussels, three birds, three flowering plants, two snails, an eel, one liverwort and one moss species. The survival of these 21 species and other fauna and flora is largely dependent on the conservation of the landscape of the corridor.

The Seven Islands Wildlife Refuge Management Report provides an understanding of the endangered wildlife that has been or is likely to be found in the corridor:

Photo by Paul Efird courtesy of the Knoxville News-Sentinel



Bald eagles, listed as a nationally threatened species, are found in riparian woodlands along streams and rivers. In this area, observations of bald eagles are made regularly which indicates the quality of the habitat of the French Broad River corridor is significant.

The sharp-shinned hawk is considered a partial-status-threatened species at the federal level with a need being recognized for regional management programs. These birds are found in mixed pine-hardwood woodlands when nesting. When the birds are foraging for food, they will be found in woodland edge and open spaces.

The meadow-jumping mouse also received partial-status. This animal is found in dense vegetation along waterways, herbaceous open habitats and woodland edges and wet meadows. The habitat condition for this species is only marginal at this time, but will be improved during the execution of the management plan.

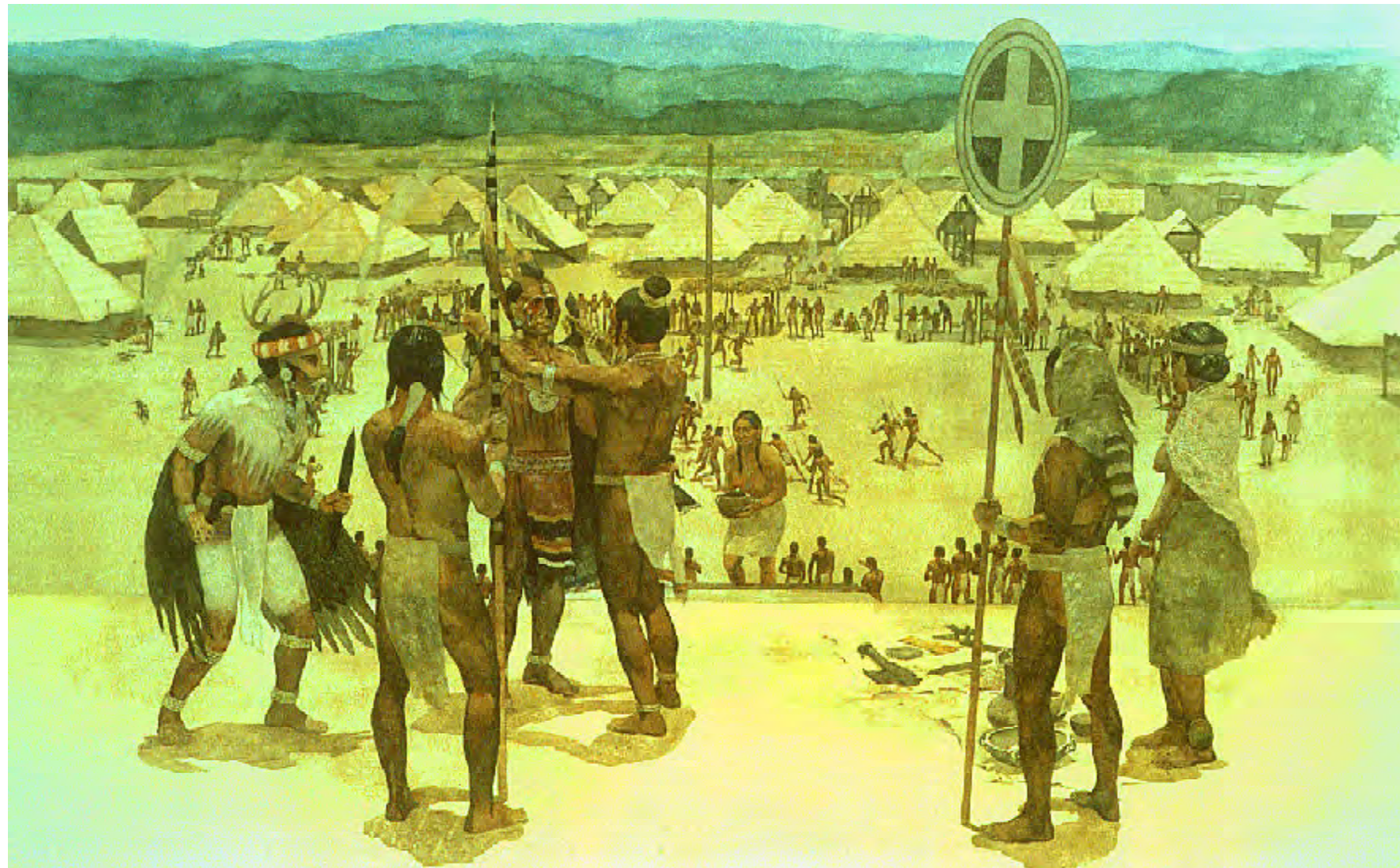
The Indiana myotis, a type of bat, is listed endangered both federally and by the state of Tennessee. These bats inhabit hollow trees or they roost beneath sloughing tree bark. Such trees are found in the riparian habitats of the French Broad and are apparently only in fair condition to aid in the survival of this species.

The gray bat is also listed as endangered nationwide and statewide. They can be found in riparian zones and over the open water of the French Broad. While foraging conditions are good for the bats, natural settings for nesting sites could be improved.

Snail darters are a federally threatened fish species found in gravel shoals of the Tennessee River and lower French Broad. They were transplanted from the Little Tennessee River over 20 years ago by TVA and are now thriving throughout the Douglas Dam tailwaters.

Chapter 6

Archaeological and Historic Resources



Evidence of human habitation along the French Broad River dates back several thousand years. During the Mississippian Period, villages were created along the river .
(illustration courtesy of the McClung Museum, University of Tennessee)

ARCHAEOLOGY

Native Americans have lived in the lower French Broad Valley for at least 12,000 years. The history of their occupation can be divided into five major cultural periods.

Paleo-Indian Period (12,000 B.C. – 8,000 B.C.)

The Paleo-Indians were the first Native Peoples to arrive in the French Broad Valley before the end of the last Ice Age, 12,000 or more years ago. As hunters of big game, including such extinct Ice Age animals as the mastodon, they moved seasonally between small hunting camps over a wide territory. Their distinctive lanceolate spear points have been found scattered throughout the valley.

Archaic Period (8,000 B.C. – 1,000 B.C.)

At the end of the Ice Age, the appearance of modern environments caused changes in the lifeways of Native Peoples. Hunting of large game was replaced by the taking of smaller animals such as deer and turkey and fishing and shellfish collecting became important. Plant foods also became a mainstay in the diet, especially hickory nuts, acorns, walnuts and chestnuts. Bands still moved seasonally, but a growing population now lived longer on the campsites that were usually established on the floodplain terraces of the river.

Woodland Period (1,000 B.C. – A.D. 1000)

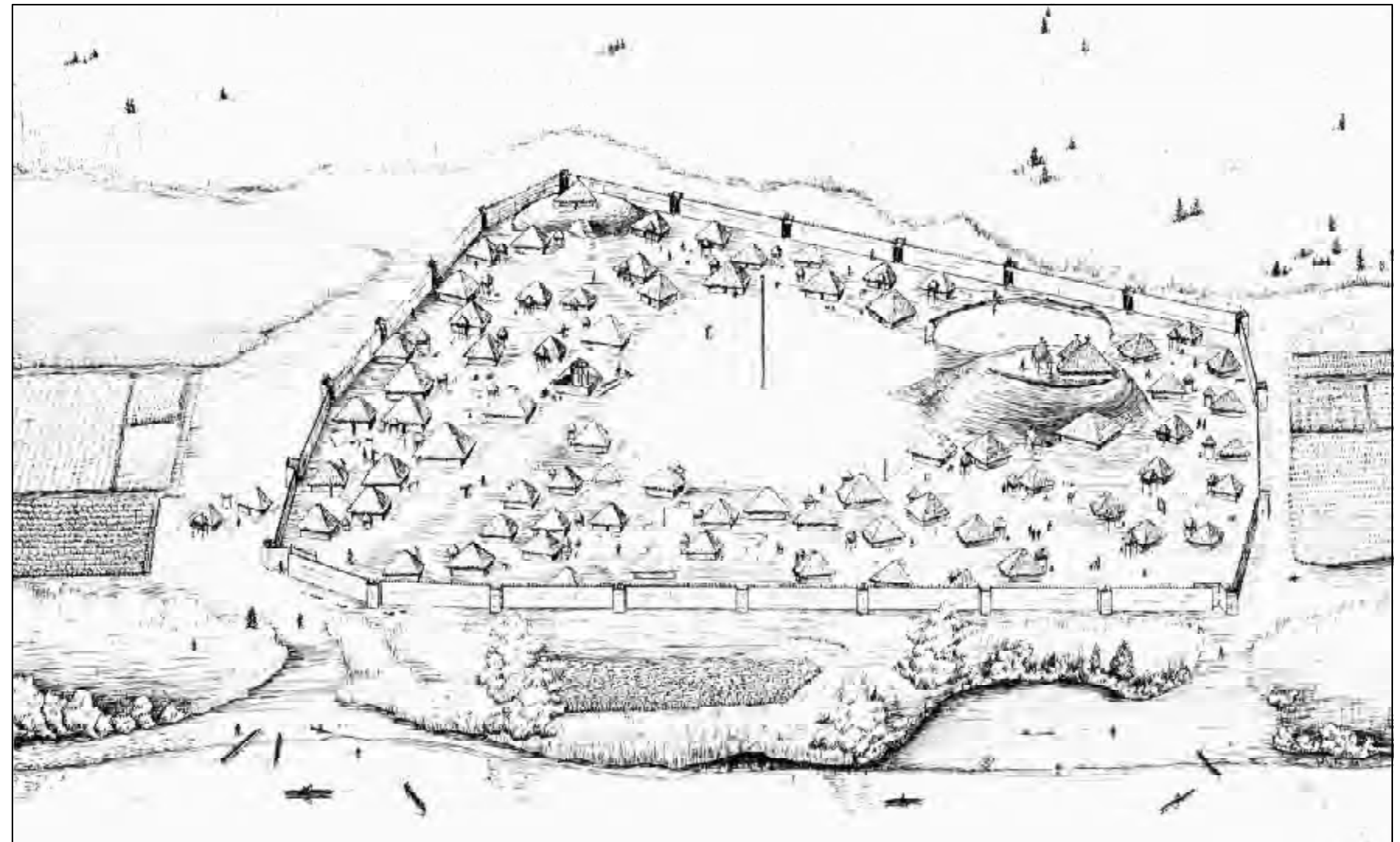
By the end of the Archaic period, Native peoples along the French Broad were beginning to plant gardens, growing a small gourd-like squash and herbaceous annuals such as sunflower. The most significant technological developments were the introduction of pottery and later, the bow and arrow. Gardening supported small, permanent villages, and there is evidence of permanent housing. The dead were often laid to rest in burial mounds.

Mississippian Period (A.D. 1000 – A.D. 1600)

In addition to small villages, the Mississippian people also established large towns, centers of political and religious life with a planned layout of substantially built houses around a plaza and large flat-topped mounds on which religious structures were situated or that served as the residence of the chief. These towns were often encircled by a stout palisade with spaced bastions or towers. The large population was supported by intensive farming of corn, beans and squash.

Historic Period (A.D. 1600 – A.D. 1835)

When the Spanish explorer Hernando DeSoto came down the French Broad River in the 16th century, he found Mississippian villages and towns occupied by the ancestors of the historic Cherokee tribe. Shortly thereafter, due to European-introduced disease and warfare, their population declined dramatically and they moved into smaller villages in the Great Smoky Mountains where they remained until they were removed by the U.S. Government in the 19th century. A few intrepid survivors remained in their mountain fastness where their descendants still live today.



Mississippian people lived in villages and towns, centered around a plaza and surrounded by fortifications and outlying fields (drawing courtesy of the McClung Museum, University of Tennessee).

ARCHEOLOGICAL SITES

For the most part, the archaeological richness of the area remains largely unknown. Dr. Jeff Chapman, director of the McClung Museum, extended his knowledge of the prehistoric people of East Tennessee to hypothesize about the presence of archaeological sites along the French Broad. He noted there is a

high probability of “prehistoric sites on all alluvial flood plains” and “on the upland hills and ridges that overlook the river.” Chapman also made the point that the landscape has changed over the last 10,000 years with periodic flooding and noted that prehistoric sites could be widely distributed along floodplains.



Evidence of Native American presence and settlements have been uncovered in floodplains.

The limited knowledge of archeological sites is largely derived from studies by the University of Tennessee (UT) and the State of Tennessee since the construction of TVA reservoirs. Such reporting, however, has been sporadic and unsystematic and provided primarily by UT faculty and students. The survey records are housed at the McClung Museum on the UT campus and at the Division of Archaeology in Nashville. A review of McClung Museum records reveals 27 documented archaeological sites in the study area.

Records of additional sites found since the 1980s are on file at the Division of Archaeology. Thirty-four cultural components from the five periods are represented in the sites, including one Paleo-Indian, 13 Archaic, 13 Woodland, 5 Mississippian and 2 historic components. The prehistoric components were identified primarily by diagnostic projectile points and pottery and the historic components by late 18th - late 19th century artifacts. The historic occupations may be either early Euro-American settlers

or historic Cherokee. Mounds are reported on two of the Mississippian sites. In addition, one cave has been reported that was probably utilized by Native Peoples. While not recorded in the state site survey reports, there are also probable native American pictographs (rock art) on a bluff along the lower French Broad River.

Since the late 1980s, three systematic surveys have been conducted at sites threatened by development to determine eligibility for National Register of Historic Places and to mitigate potential damage. In June, 1989, four archaeological sites were tested on a golf course development. Artifacts from the Archaic, Woodland and historic periods were recovered and a Woodland shell midden and possible evidence of a prehistoric structure were also recorded. Despite recommendations for further mitigation, none was done and the final impact on these sites is not known.

Archaeological survey and testing were conducted in February and March 2001 on a large prehistoric and historic site in the Kelly Bend area due to plans by TVA for riverbank stabilization. Testing revealed a 30-40 cm thick undisturbed deposit containing evidence of an intensively occupied Woodland habitation site. The site was recommended eligible for the National Register, but it was determined that the river bank stabilization would not impact the major area of the site.

In 2001 and 2002, archaeological testing was conducted in a planned subdivision in the River Islands area. Eight archaeological sites were discovered. Archaic, Woodland and historic components were identified on five of these sites. A Woodland occupation was discovered in a buried soil zone. One of the historic sites may be from an early 19th century settler's cabin.

The recent systematic testing of archaeological sites has indicated that many are deeply buried and undisturbed and were intensively occupied for thousands of years. This information is a clarion call for a systematic and comprehensive archaeological survey of the lower French Broad valley in view of potential development and the loss of archeological resources. To underscore the presence of unrecorded significant archaeological sites that occur in this valley, a large unrecorded Late Mississippian town with a mound has been discovered in the past year.



Francis Alexander Ramsey's large stone, federal-style house, dating from the 1790s

HISTORY OF SETTLEMENT

The first settlers of east Knox County migrated over the Appalachians from the Carolinas or followed the path of the rivers from the Shenandoah Valley. This area was still part of North Carolina when settlement began in the 1780s. Many of the early settlers were motivated by the “Land Grab Act” of 1783, a piece of North Carolina legislation that was enacted to sell the state’s western lands to produce revenue. William Blount, then in

the North Carolina congress, was instrumental in creating the act, resulting in the sale of millions of acres in the Tennessee Valley. Speculators “grabbed” the opportunity to purchase land. James White, Francis Alexander Ramsey, Robert Love and James Connor were among these early speculators. They surveyed and purchased land between the Holston and French Broad Rivers in 1785, and by the late 1780s, had formed frontier settlements near the lower French Broad. They looked to the area between the rivers, in part, because there were no native claims there, making it safer and less likely to suffer attacks. Native settlements along this section of the French Broad had been abandoned by this time, likely as a result of diseases introduced through early European explorations. (Note: White’s original home site is off Thorn Grove Pike. He purchased several thousand additional acres in what became Knox County, including the plateau above First Creek, a site where he established a fortified home in 1786 that led to the creation of Knoxville.)

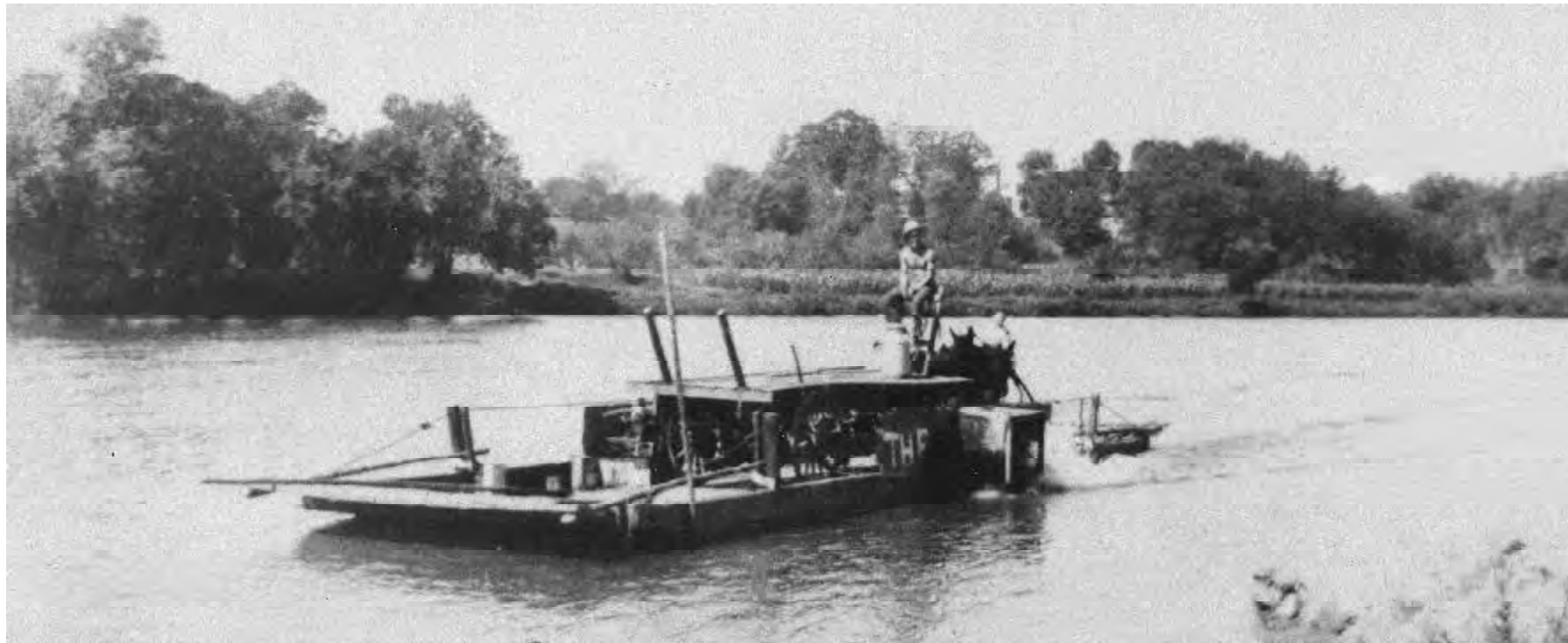
Although Indian attacks were less likely in the Forks of the River, the rapid migration of the pioneers to the area caused resentment among the remaining Native People. Settlers in the greater region occasionally had to defend their property and families. A technique of defense was to cluster settlements together and use the strongest cabin, referred to as a “station,” for shelter and safety. Stations were usually spaced a day’s journey (roughly ten miles) apart. Two stations along the French Broad were Greene’s and Manifold’s stations. Greene’s station, established in 1786, was in the Riverdale area on the south bank of the French Broad. Early settlers in this vicinity were Reverend James Kennedy, Alexander Campbell, John McNutt; their names are still associated with historic homes. Manifold’s station was built in 1797 and located north of the French Broad on Kodak Road. This station was used as a stagecoach stop and inn until 1820.



Huffaker's Ferry (photograph courtesy of the McClung Historical Collection)

Mills and ferries were influential in early settlement life in the late 18th and early 19th centuries. Mills allowed the farmers to produce grain, particularly wheat, and sell flour to markets outside the region. Ferries were the points of contact between the two shores of the river, fostering commerce and communication and linking Knoxville with its hinterland. The prominent mills in the area were Michael’s mill and Keener’s mill. The ferries were operated at the property owned by the Ramseys, Huffakers and Bowmans.

Shipping on the river sustained the region’s agricultural economy and, in 1863, the Union’s control of Knoxville. Farm produce was moved down river from the upper valley during the 19th and early 20th centuries. John H. Reagan, originally of Sevier County and later of Texas, described moving produce via flatboats to Decatur, Alabama in the pre-Civil war era. Weirs were constructed at shallow points along the river to facilitate shipping and in such places as the “gallops” or the shoals of Seven Islands, teams of mules were used to move boats when the water flow



W. D. Helsabeck operated a barge on the river in the 1930s. Here he is transporting corn for Johnson Bible College (photograph courtesy of the McClung Historical Collection).

was particularly low. Before the advent of the railroads, timber was floated on the river to Knoxville and other places where there were large sawmills. During the Civil War when Confederate General Longstreet laid siege to Knoxville, Union sympathizers in Sevier and Jefferson counties sold supplies of wheat, corn and livestock to Federal troops and, under the cover of darkness, floated the provisions down river from Bowman’s Ferry (Riverdale).

Agriculture and marble quarrying were the dominant industries in this part of the county. From 1795 to 1830, the method of agriculture was settled field and livestock culture. The agricultural economy increased with the rest of the South in the mid-1800s with the production of livestock and grains, including corn, as well as wheat.

Asbury was settled around 1786, part of the “land grab” settlements. The name Asbury probably came from Bishop Francis Asbury who traveled throughout the frontier and held the first Methodist service in Knoxville in 1800. Colonel Ramsey’s limestone house, likely designed and constructed by Thomas Hayes around 1797, was among the most prominent of the early Asbury homes.

In 1871, a marble quarry was opened in the forks of the river and a settlement called Marbledale developed. Other quarries opened nearby, including the Gray Eagle, Asbury, the Appalachian and Gray Knox. This collection of quarries in a fairly small vicinity made Knoxville one of the most important marble producing areas in the United States, comparable with Vermont and

Georgia. Eleven quarries employing over 300 workers were in operating by 1882. During the Great Depression, marble production declined and with the invention of new building materials, the industry never fully recovered.

Kimberlin Heights was first settled in 1786 on the south bank of the French Broad by Greene and James Cozby, friends of James White. In 1787, Jacob Kimberlin found lead and possibly silver in the area where Johnson Bible College now stands. Early settlers of this area were the Kellys, Huffakers, Keeners, Fraziers and Bowmans. According to the Postal Gazetteer of 1859, the post office for this community was called Gap Creek; however, the name was changed to Kimberlin Heights in 1887. The post office was located in the home of Dr. Ashley Sidney Johnson who had been appointed postmaster. Dr. Johnson probably changed the name since he had moved into the old Kimberlin place which also served as the post office facilitating correspondence with his Bible College students. Frazier Bend on the opposite side of the French Broad, is closely linked with the Kimberlin Heights community. It was originally settled in the 1790s, and its early residents included Henry Frazier and Robert and Jeremiah Johnson.

On the south shore of the French Broad east of Manifold’s station was the Seven Islands community. Representative of the early agricultural settlements of Knox County, this area was settled in the mid-1800s. Seven Islands was tied to the Frazier Bend and Kelly Bend communities by the Huffaker Ferry. The first settler of this area was William Hines, the operator of the saw and gristmill which served the Boyd’s Creek settlers in the 1780s but later became exclusively used by the Seven Islands community. Another early settler was Peter Keener who also operated a sawmill and whose house still stands overlooking the river. Other



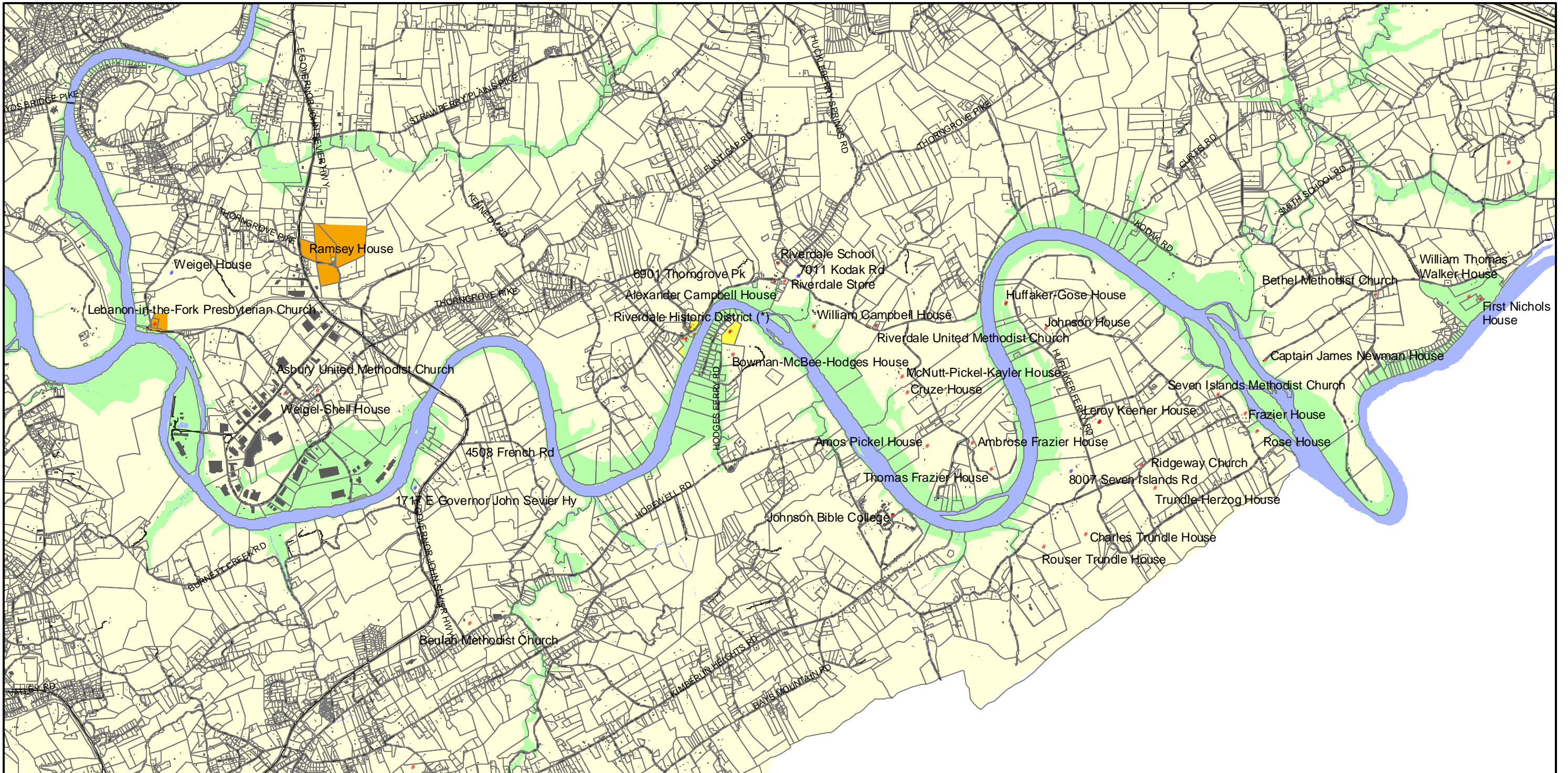
The Gray Knox Quarry in the late 19th century. (Photograph courtesy of the McClung Historical Collection)

settlers included Catherine Huffaker and her sons, George and Justus, William Widner, Henry Frazier and the Newman and Underwood families.

Although the east portion of the county was the first area settled, present day statistics reveal these areas have undergone the least amount of growth. This is an indication that the pattern of life in previous eras, particularly some forms of agriculture, are carried on today. That is apparent in looking at the landscape which is highlighted by significant late-18th century and 19th century farmhouses and outbuildings that are part of an agricultural setting that has not appreciably changed for generations.

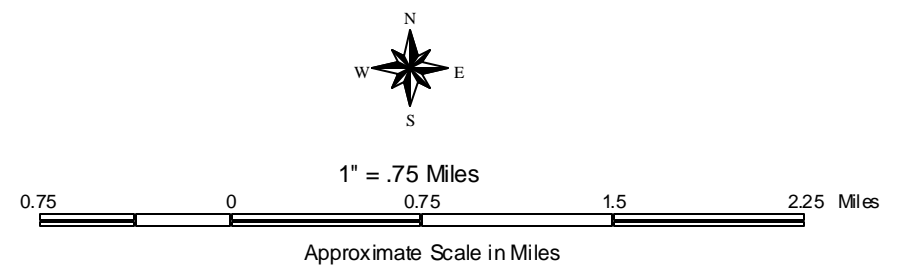
HISTORIC SITES AND STRUCTURES

Many of the houses in this corridor are on the National Register of Historic Places. Through the preservation of the sites, present day Knox Countians can see what life was like for early settlers and the importance of agriculture and the river to subsequent generations. Mills, churches and stores have also been identified and listed on the National Register. This status offers potential protection from federally funded construction projects and possible income tax incentives. (Note: There are a few other sites and structures that were identified in the original historic site survey of the 1970s. Information about those sites, such as original owners, was not well documented. The location of the sites is indicated on the following map by address. A few of the sites listed on the map are not discussed in detail in this section; additional information is contained in *The Future of Our Past*, a publication of the Metropolitan Planning Commission.)



- # Sites on the National Register of Historic Places
- # Other sites listed in the County Historic Survey
- Yellow Districts on the National Register of Historic Places
- Orange Sites with Historic Zoning
- Green Flood Plains/Potential Archaeological Sites

(*) Note: The Riverdale Historic District includes the mill, the McNutt-Campbell-Kennedy House, the Kennedy-Pickel House, and the stone bridge.



French Broad River Corridor Study
Map 6

Archaeological & Historical Resources



Houses and Sites of the Early Settlement Period

The Thomas-Frazier house was probably built by William Thomas in 1795 and was sold to George Stout in 1798. Jacob Kimberlin purchased the house from Stout a year later and it subsequently became the home of Kimberlin's granddaughter and her husband, Alexander Frazier, around 1830. This is a one-story log double pen structure with a rear ell of heavy timber frame construction. A cantilevered log barn is also on the property.



The Thomas Frazier House

Keener-Widner-Gibson house, overlooking the river, initially belonged to Peter Keener. Keener was an original settler who operated a sawmill in the area.

The land on which the McNutt-Campbell-Kennedy house stands is reputed to be James White's first settlement in the county. The existing Federal-style house was probably built by John McNutt in a typical construction practice of the era: a two-story, heavy timber frame with nogging (brick) infill. James Campbell owned the house from 1834 to 1865 when he sold it to James Kennedy.

Kennedy operated the Riverdale Mill and also founded the Seceder or New Salem Church which has since been demolished. A nearby stone foundation may be associated with White's early residence.

Manifold's Station apparently was located near the intersection of Kodak and Deeton Hollow Roads. Kodak Road is significant to this region throughout its history. Initially, a trade route used by Indians and traders, it later became a stage road known as the North Carolina Road. Built in 1797, Manifold's Station served as a stagecoach stop and inn. A log structure (several 100 yards east of the intersection) may be associated with the settlement. A marker erected by the Daughters of the American Revolution notes its existence. (Note: There is confusion as to the location of Greene's Station and Manifold's Station. Some sources suggest that Greene's Station was on the south side of the river and Manifold's was on the north side. Ramsey seems to refer to these stations as the same place.)



The Alexander Campbell House

The Alexander Campbell House is a large timber-frame house with nogging infill. It was built around 1800 to comfortably shelter his large family. Campbell had come to the area around 1791, but moved to join his brother at Campbell's Station in west Knox County to avoid the threat of Indians. In 1793, he returned to the French Broad area and built the house where he and his descendants have farmed continuously.



The Keener-Hunt House

The Keener-Hunt House, typical of early prominent Tennessee houses, is a two-story Federal style brick house with arched windows and corbeled brick at the cornices. The Keener family had settled in the area in the early 1800s and built the house around 1830. Reportedly, the widow Keener moved to this area from Pennsylvania with her seven children. The Keener's first home was probably made of logs. This second home was a significant improvement, reflecting the family's prosperity after decades of working their farm.



The McNutt-Pickel-Caylor House

Frazier Bend possesses several historic dwellings from the mid-to late-1800s representing Federal, Greek Revival and Italianate architectural styles. The Gus Frazier House, the McNutt-Pickel-Caylor House, the Cruze House, the Amos Pickel House and the Ambrose Frazier House all bear names that have significance to this area of Knox County.

The historical archaeology associated with these sites and other early sites could be very significant, providing a better understanding of early settlement and 19th century farm life. The precise location of some resources (for example, Manifold's station) and the cultural artifacts that might be uncovered should be further studied. Cemeteries are another important historic resource in the corridor. More in-depth information about cemeteries, including slave cemeteries, should be gathered.

Houses from Later Eras

The William Campbell House was constructed by the son of Alexander Campbell, William, who moved to Riverdale in 1815 from west Knox County where he had opened a general store with Charles McClung. The brick two-story house includes a front addition of Queen Anne style that was constructed in the 1890s.



The William Campbell House

The Charles Trundle House and Dr. R.T. Goodman House were built by a local carpenter, Lee Massey. These houses were constructed in 1915 from lumber cut on the property.

The Walt Trundle-Rouser House, also built by Lee Massey, is a two-story frame Neoclassical residence with Italianate influence. The Rousers purchased the home in 1940.

Structures/Houses Connected to Trade and Commerce

The Riverdale Store, a two-story, frame structure, was built in Victorian vernacular style by T.R.C. Campbell in 1880 and has been in continuous operation. Located at the intersection of two major roads, ThornGrove Pike and Kodak Road, this store is typical of the small rural trade centers that served Knox Countians. Throughout most of its existence, postal services were provided through the store. It is now known as the H&H Service Mart.



The Riverdale Store

The Riverdale Mill is one of the oldest mills in Knox County and one of the few that has survived from the early settlement. This mill was mentioned in the Union Army's staging and encampment locations. The milldam was built in 1916 to substitute for the earlier flume that led from the nearby stream. In the 19th century many of the public roads were commissioned by the county court in order to improve access to various mills. These roads also became a prime location for new residences. Houses that were tied to this mill from the early era were the Keener-Widner-Gibson House, the McNutt-Campbell-Kennedy House and the Kennedy-Pickel House.



The Riverdale Mill

The Bowman-McBee-Hodges house reminds us of the status that ferry operators held in the community. Such indications of this status include the Gothic Revival architectural details, such as ruby glass transoms and sidelights. Located on the south bank of the French Broad, this house was constructed in the vicinity of Greene's Station. Greene's son-in-law, Samuel Bowman, established a ferry in the 1830s which ran until the 1950s. The ferry was used by the Federal forces who floated supplies down the French Broad to Knoxville when it was under siege by Confederate General Longstreet in 1863. C. B. Hodges later lived in the house and ran the ferry. The house is a significant landmark in the river settlement era of Knox County.

The Huffaker-Gose house is two-story, heavy timber frame structure, originally Georgian in style with later Victorian vernacular modifications. Catherine Huffaker and her sons ran



The Huffaker-Gose House and outbuildings

the nearby ferry connecting Seven Islands to the Frazier Bend community. The Huffaker ferry and the area's mills reflected the importance of the river and the local economy. Henry Huffaker, the son of George, ran the ferry while living in this house. In 1935 the parents of Lewis Gose bought the house and Mr. Gose took over the ferry operation in 1937. The Huffaker ferry was sunk during the filming of *All the Way Home* in 1964.



The Kennedy-Pickel House

The Kennedy-Pickel house, located in Riverdale, was built in 1805 for Reverend James Kennedy. This house is now covered in weatherboard but underneath, the structure is made of log or nogging infill. In the late 19th century, Ed Pickel owned the home and used it as the Riverdale Post Office.



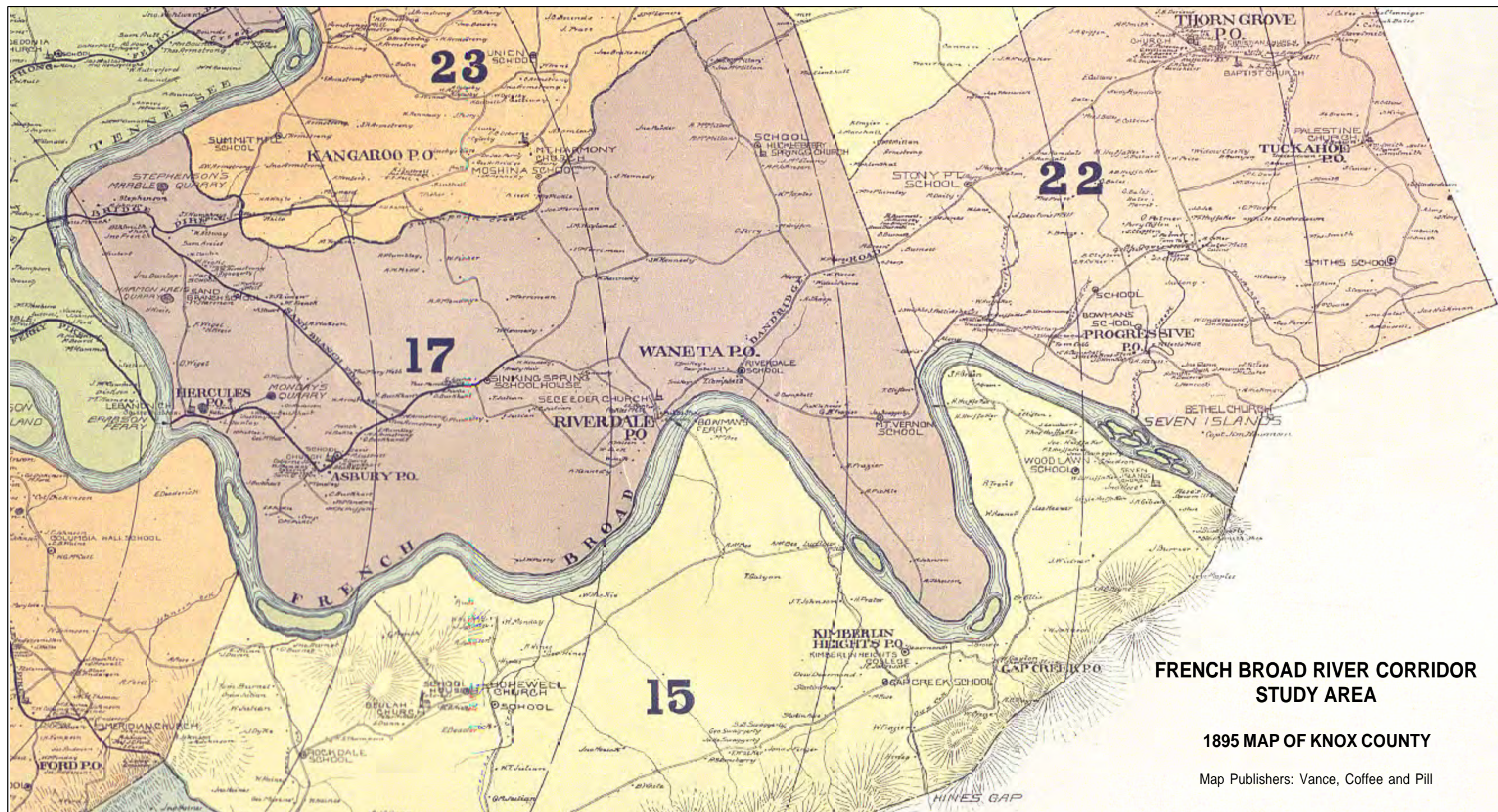
Captain James Newman’s house (pictured above) was built by the captain in the late 1800s in Queen Anne style. This property includes a landing on the river, typical of those found at other houses along the river. Newman owned and operated the riverboat Lucille Borden which ran from Knoxville to Dandridge and Sevierville in the late 19th and 20th centuries.

The Bowman Roadhouse is styled in the East Tennessee vernacular with a standing seam metal roof. The Bowman family also operated the ferry which linked the Riverdale community to the other side of the river. This ferry later became known as Hodges Ferry.



*The 1916 baptism of Margaret Drinnen in the French Broad River
(Photograph courtesy of the McClung Historical Collection)*

Structures Reflecting Church and Community History
In 1895, a map of Knox County was published by Vance, Coffee and Pill that illuminates part of the social history of the Lower French Broad. While long forgotten place names — Waneta, Progressive and Hercules — speak to a much earlier era, the fabric of the rural community is clearly featured in the churches, schools and post offices that are highlighted against the expanse of farms that were scattered across the landscape. This map (shown on the following page) also reflects the legacy of those who settled along the river, including the Fraziers, Pickels and Kennedys. Some of the structures associated with the institutions of that era include:



The Beulah Methodist Church was constructed between 1892 and 1894 as a community project. The logs that were used for the building's structure were salvaged from a flood of the French Broad River when the logs were being floated down the river. They were hauled to a sawmill by community members and cut by a local carpenter. The church still maintains its Gothic Revival appearance. The bell in the steeple that calls people to worship was donated by P. F. and J. W. Nichols. The name "Beulah," meaning promise, was selected at the request of Mrs. A. G. French which she hoped would reflect the inspiration of the congregation in constructing the church.

Johnson Bible College, established by Dr. Ashley Sidney Johnson, began as a correspondence school. In 1893, he opened Johnson Bible College on the site of the farm of his great grandfather, Jacob Kimberlin. The grounds contain several historic buildings, including "Old Main," which served as the administration and major academic building for much of the 20th Century. The oldest building on campus is the president's home.



"Old Main" on the Johnson Bible College campus was built in 1905.



Riverdale Methodist Church

The Riverdale School was built with the assistance of the Public Works Administration in 1936. It is also significant for its Neoclassical design by the architects Barber and McMurray. This was a community school for the Thorngrove and Riverdale neighborhood, a model among the elementary schools in the Depression era. It served as a school until 1985.

Riverdale United Methodist Church was built in 1898 on land donated by Samuel Campbell. The church was constructed by carpenters who were members of the congregation. The one-story frame has weatherboard and imbricated shingle wall covering in Victorian Gothic style.

Seven Islands Community Church was organized in 1803 with the help of Bishop Asbury's visit in 1802 when he ordained Justus Huffaker and James Sullivan as deacons. This Victorian vernacular church was designed with full arched windows, clapboard wall covering and standing seam metal roof.

Asbury United Methodist Church represents the Gothic Revival design likely chosen by the congregation from a pattern book around 1900. The design is typical of many Methodist churches built in late 19th to early 20th centuries, featuring a central steeple and stained glass tripartite windows.



Seven Islands Community Church

Chapter 7

Existing Land Use

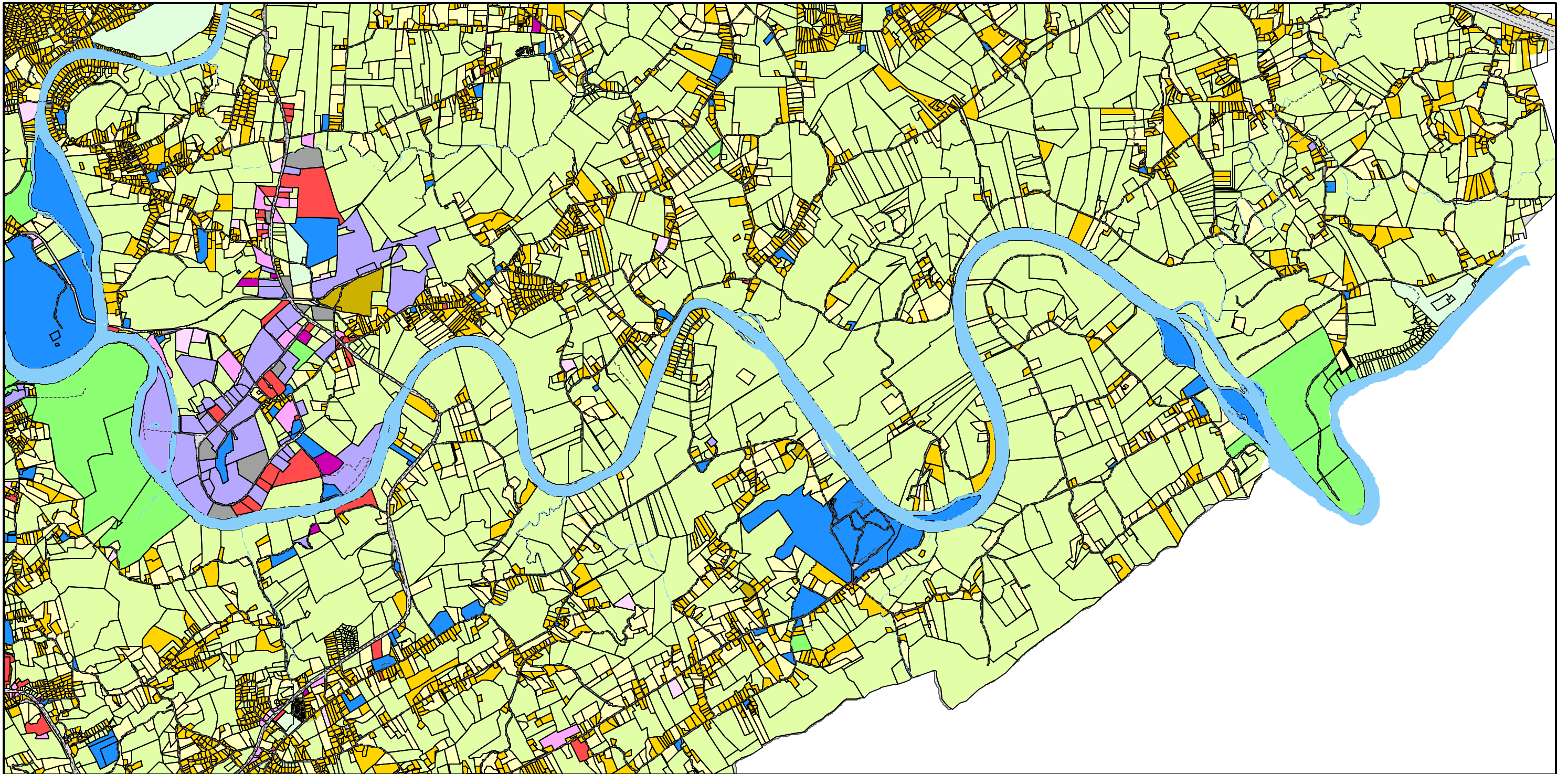


The land surrounding the French Broad River is predominantly used for agricultural and very large lot residential purposes (houses on parcels exceeding ten acres) or is retained as open space for such purposes as wildlife management. Agricultural and undeveloped (vacant) land account for over 60 percent of the land use in the study area. This land is used for livestock grazing and hay and crop production, and includes forested hillsides. The other primary uses are for single family and rural residential purposes. Each accounts for 10 percent of the land use of this corridor. The definitions of single family and rural residential differ in that rural residential parcels are between 2 and 10 acres while single family parcels are less than 2 acres.

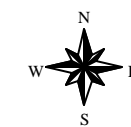
Industrial uses are concentrated in the Forks of the River Industrial Park including light manufacturing and warehouse/distribution uses. Quarrying for marble and limestone are part of historical record of land use. Quarries dot the landscape, particularly in the Asbury and Riverdale areas. Reuse of the land around abandoned quarries is a potential development opportunity. Industrial and quarrying uses account for less than ten percent of the area's land use.

Commercial uses are typically small stores, such as convenience markets and service stations and account for less than one percent of the land use. There are few office uses.

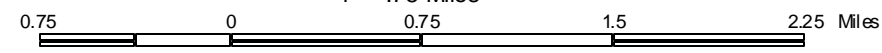
Left: Agricultural uses account for over 60 percent of the land use in the study area.



- | | |
|---|--|
| Rural Residential | Public/Quasi Public Land |
| Single Family Residential | Agriculture/Forestry/Vacant Land |
| Multifamily Residential | Public Parks & Other Open Spaces |
| Commercial | Private Recreation |
| Office | Under Construction/Other Uses |
| Industrial (Manufacturing) | Water |
| Wholesale | |
| Transportation/Communications/Utilities | |



1" = .75 Miles



Approximate Scale in Miles

French Broad River Corridor Study
Map 7

Existing Land Use



Implications of Land Use Change with Current Zoning
Changes in land use are usually the conversion of agricultural land into residential subdivisions. These include large lot subdivisions (lots typically being 1 to 5 acres) such as Riverchase, or where sewer is extended, on lots smaller than one acre such as the new subdivision on Kelly Bend. In either case such subdivisions are typically created without conservation of the rural landscape and are a manifestation of suburban sprawl.

Land use regulations, including zoning and subdivision provisions, are important in realizing long range plans. Locations, intensity of development and specific land uses are controlled through zoning. Approximately 80 percent of the land in the study area is zoned agricultural. In addition to farming and such farm-related operations as stables and veterinarian offices, the agricultural zone allows residential development on lots as small as one acre. This provision for relatively small lots in agricultural zones has resulted in considerable land absorption and, as citizens noted in the sector plans, is viewed as a problem in maintaining a rural heritage. Various programs are examined in the final chapter that could serve as alternatives to such development, including cluster housing and conservation subdivisions.



Outside of the John Sevier Highway corridor, commercial uses are small and widely distributed and include a few small grocery stores located near crossroads.



Conversion of prime farmland to large lot residential uses is a form of "suburban" sprawl.



Rural Residential Development: Under Knox County's agricultural zone, houses can be built on lots as small as one acre.

Chapter 8

Parks, Recreation and River Access

While three of Knox County's most significant open spaces – Ijams Nature Center with its adjacent Eastern State Wildlife Management Area and the Seven Islands Wildlife Refuge – sit like substantial bookends at either end of this corridor, other public open spaces are relatively small and spread far apart. The corridor's existing and proposed park and open spaces include:



Ijams Nature Center:

This nonprofit environmental education and resource center is located on 80 acres on the banks of the Tennessee River in South Knoxville. The center features three miles of trails, a greenhouse and a new education building with exhibit hall. In the past year, an area containing Mead's Quarry was added. The Nature Center

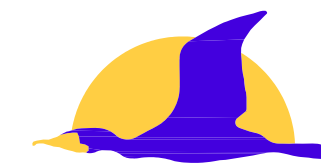
area was originally the home place of Harry and Alice Yoe Ijams. In 1954, when the couple died, the Knoxville Garden Club and the City of Knoxville purchased the Ijams property as a memorial to the couple and to preserve it as a nature park. Its educational center hosts day camps, nature interpretation activities and workshops on various topics of environmental management.

Eastern State Wildlife Management Area:

Immediately upstream from Ijams Nature Center is a state wildlife management area encompassing over 600 acres. This nature reserve was set aside through the Tennessee Valley Authority, the Knox Land and Water Conservancy and the Tennessee Wildlife Resources Agency that is in charge of its



management. The reserve contains diverse habitats such as woodlands, fields, meadows and cedar glades. Recreational opportunities include wildlife study, hunting on a seasonal basis, bicycling on the Will Skelton Greenway Trail (that starts at Ijams) and hiking on numerous footpaths.



SEVEN ISLANDS WILDLIFE REFUGE

Seven Islands Wildlife Refuge:

Located along the French Broad near the county line, this 364-acre area conserves the north side of the river and nearby woodlands, meadows and agricultural resources. The Seven Islands Foundation, a non-profit land conservancy, and Knox County Parks and Recreation Department were responsible for establishing this wildlife sanctuary. Their objectives are to provide an educational facility for wildlife management and research and to protect the area's fauna and flora while allowing public access for hiking and wildlife observation. A trail system runs throughout the reserve and river access is available.



The old Huffaker Ferry landing offers access to the blueway.

The French Broad Blueway:

A proposal by various regional interests to create a “blueway” is being realized. The blueway program fosters river protection and low-impact recreation such as canoeing and kayaking. Various agencies, including the parks departments of Knox County and the City of Knoxville, the Tennessee Valley Authority and the

U.S. National Park Service, have worked to establish this blueway. As conceived, it would extend into North Carolina. River access is a major component of the program. Four access points have been established in Knox County, including sites on the state wildlife refuge, the Seven Islands Wildlife Refuge and Island River Drive. Seven other potential sites have been identified but will require permission or acquisition from private landowners for access purposes. Site improvements will also be needed to facilitate parking and handling the canoes or other craft.

Existing and Proposed County Parks:

There are three parks in the study area, the 11-acre Kimberlin Heights Park, the 6-acre Riverdale Park, and the Forks of the River Park, a 20-acre open space that is part of the industrial park where Knox County Parks and Recreation Department operates soccer and rugby fields. The county park plan contains the following proposals:

- Creation of a passive park next to the Ramsey House, featuring interpretative exhibits and trails
- Creation of a community park in the vicinity of Swan Pond

Creek and John Sevier Highway

- Creation of a park adjacent to or near New Hopewell School
- An addition of park space at Kimberlin Heights Park
- Expansion of the State Wildlife Management Area along the river

A Need for More Parks

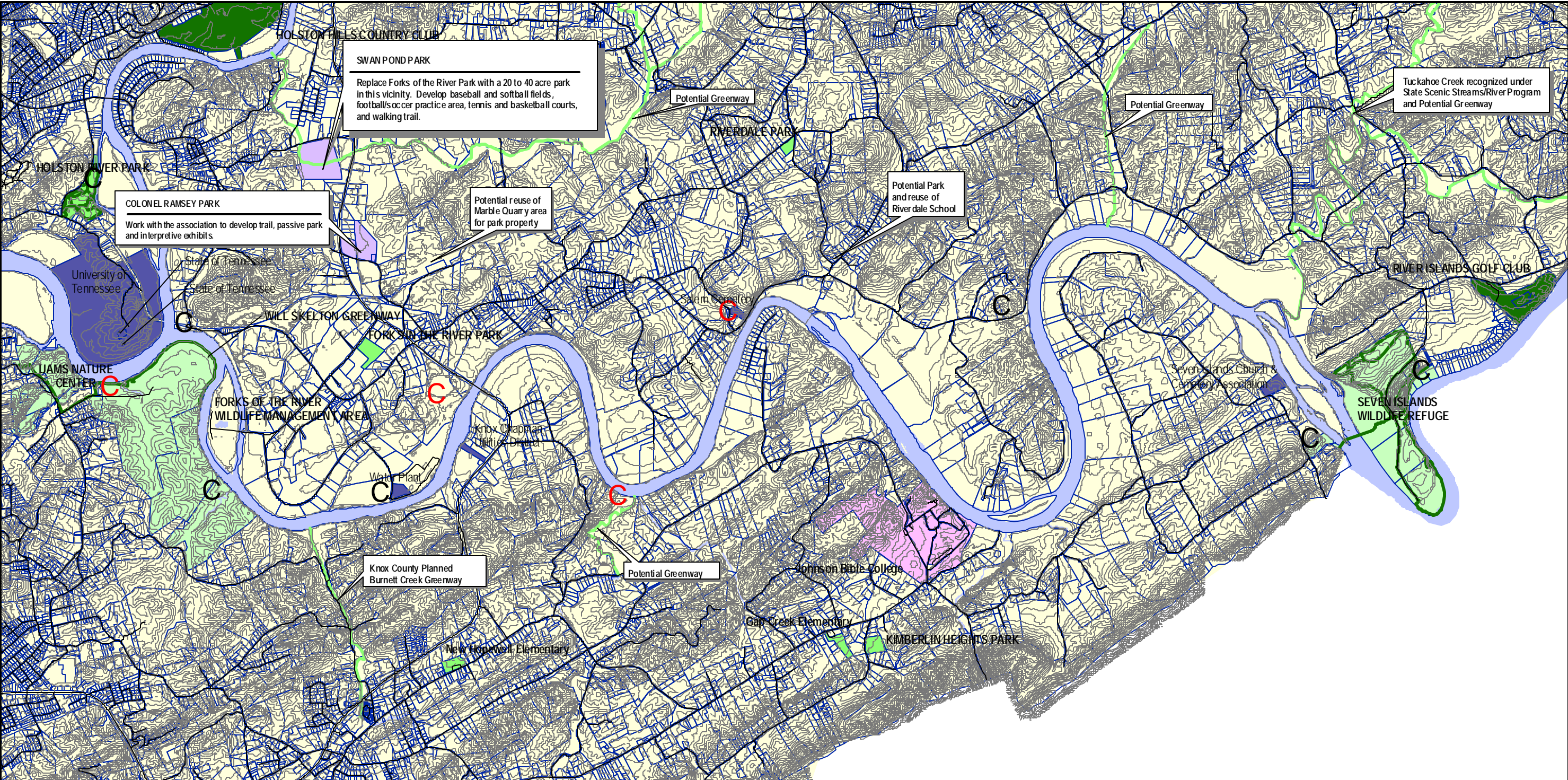
Over 80 percent of Knox County residents want more parks (Source: 1997 University of Tennessee survey for Knox County Parks and Recreation Department). As recommended in national standards and in the Knox County Park and Recreation Facility Plan, a minimum of 6.25 acres of neighborhood and community parkland should be set aside for every 1000 residents. During the course of this study, several opportunities were seen as potential expansions of the park system that would help meet long range recreation needs, and in some cases, turn underutilized land into community assets:

- Abandoned Quarries: The unused Marbledale Quarries, a few 100 yards south of the Ramsey House, could offer a glimpse into

the mining chapter of Knox County’s history. The railroad right-of way between the quarries and the Ramsey House has potential for visitor-oriented railroad use and as a separated recreational trail. There are many acres of quarry land that could be reclaimed and reused for public park and open space purposes.

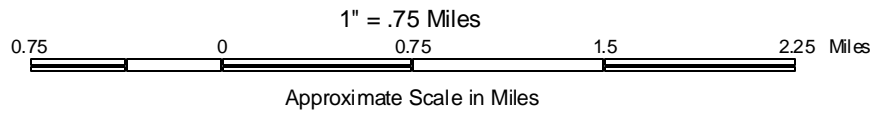
One of the the Marbledale Quarries





- Wildlife Refuge/Management Areas
- Community & Neighborhood Parks
- River
- Golf Courses
- Proposals from County Park Plan
- Existing Greenways
- Potential Greenways from County Park Plan
- Privately Owned College
- Public/Quasi Public Land bordering River

- Potential Lake Access
- Existing Lake Access (or under construction)
- Roads
- 20' Topo Lines
- Parcels



French Broad River Corridor Study
Map 8
**Parks, Recreation &
Water Access**





- For community recreation use, the building that was once Riverdale School could be renovated as a community center. Additional acreage should be acquired around the former school for park uses, if this idea is further considered.

- The numerous creek corridors could serve as wonderful nature trails since they link the outlying areas to the river. To take advantage of this, greenways should be considered along each of the major creeks of the watershed, including Burnett Creek, Swan Pond Creek and Tuckahoe Creek.



*Above:
The historic Riverdale School building has potential for recreational reuse.*

*Below:
There would appear to be significant opportunities to create equestrian facilities, including horse farms and trails.*

Summary of Concepts for a Park and Open Space System
The French Broad River corridor contains outstanding natural and man-made attributes that could form a park and open space system for the enjoyment of present and future generations. The cornerstones of the system, Seven Islands Wildlife Refuge and the State Wildlife Management Area, have been established. Significant, future opportunities revolve around a system of private and public open spaces, including farms, historic sites and parks that can be linked in various ways. The linkages that should be considered include:

- Open space along the river, where the natural vegetation and river banks are protected
- A blueway, in other words, the river itself that can be used for canoeing, fishing and similar water-based activities
- Trails, including those for walking and equestrian purposes

In addition to the linkages, new park opportunities include:

- Extensions of open space around publicly accessible historic sites, such as the Ramsey House
- Reclamation of the open spaces around some of the marble quarries for park, botanical garden and recreation purposes
- Reuse and extensions of the grounds around historic public facilities, such as the old schools
- New or expanded neighborhood and community parks
- Scenic points such as river views, bluff tops and ridge lines could be destinations on new walking or equestrian trails

Chapter 9

Rural Land Conservation Strategies



Various options can be considered to preserve the French Broad River's rural heritage. In concluding this report, an overview of several methods is presented, borrowing from techniques that have been used in Tennessee and other parts of the country. Particular attention is given to relatively new state and federal conservation programs.

Conservation Easements

Conservation easement programs have been used by many public and private interests to protect the agricultural or environmental character of the land. Under such programs, a landowner donates or sells easements that are tied to property so that the land is conserved for a specific purpose (farming, for example). All conservation easements should be permanent, binding both current and future landowners. It is the responsibility of the grantees, or the party receiving the land, to see that the conserved land is maintained for the designated purpose. Easements keep property on the tax rolls and cost less than outright acquisition. Landowners can receive federal tax benefits for donations and they remain eligible for any state or federal farm programs for which they were previously qualified. The grantor, or landowner, still holds the title to the property and can restrict public access and sell or transfer property as desired.

Many forms of tax benefits are offered when land is donated for conservation. Estate, inheritance or property taxes could be reduced depending on the land protection method chosen.

Donation by bequest is a gift of land at the time of death. The bequest can qualify as a charitable transfer which entitles the estate to a deduction equal to value of the property at the time of death. This does not change the responsibility of real estate and income taxes during one's lifetime.

Another option is to create annual income (referred as a "establish a life income" provision) by establishing a conservation easement in exchange for a charitable gift annuity. The owner of the property can receive a source of lifetime income and potential estate tax and real estate tax savings. This option allows the owner to establish an income based on his or her age and the fair market value of the assets used to establish the trust. A Tennessee law, Payment of Transfer Taxes in Kind Act, allows estate heirs to pay inheritance taxes by transferring land to a state or local government agency that will use the land for a recreational or conservation purpose. This enables heirs to donate land that has greater value to the public than it does for themselves and obtain a financial benefit. Before donating land, property owners should consult with a tax advisor and get a qualified appraisal of their land so they can take advantage of such programs.

Tennessee's Conservation Easement Act of 1981 protects the state's land, water, geological, biological, historical, architectural, archaeological, cultural and scenic resources. In accordance with this legislation, the landowner could be obligated to provide for the management of the land in the form of maintenance, preservation or possibly the enhancement of the unique characteristics of the land parcel. Tennessee includes a unique provision which authorizes easements to contain public use clauses. Easements cannot be acquired by eminent domain unless the easement is necessary to accomplish a specific public project with statutory authorization. Private, non-profit

organizations do not have the authority of eminent domain in order to acquire land. The legislation enables public bodies to appropriate or borrow funds and acquire grants in connection with the acquisition of conservation easements.

Two interesting regional approaches illustrate river valley protection:

- A model which may have merit in conserving views and allowing development is that of Scenic Hudson, Inc. That New York land trust took the proactive approach of identifying the areas to conserve so that acquisition could be pursued as opportunities arose. They purchased the land with funds that were supplemented by the state. In order to preserve the viewshed, conservation easements were designed to permit development only if the buildings' height, bulk, color and character did not detract from the view and was completely out of the line of sight. A provision of the easement was a "building envelope." The envelope identified a cluster of existing structures and allowed expansion within particular boundaries.

- Another worthwhile approach was taken in Wisconsin in conserving farms and a greenway along the St. Croix River. The state legislature set up a stewardship fund to provide for permanent protection of important natural areas. This fund, overseen by the Wisconsin Department of Natural Resources, matches any corporate or individual donation, making community participation essential. Further community involvement was galvanized with the management plan which placed volunteers and local groups in charge of the maintenance. The widening awareness of the greenway encouraged donations from local landowners, increased the value of adjoining farms and encouraged a network of conservation buyers.

The Farmland Protection Program of the Farm Bill 2002 is a federal program with similar objectives. This program provides matching funds to state, local or non-governmental organizations to purchase conservation easements. The easements are bought in exchange for a lump sum payment, not to exceed the appraised fair market value of the land's development rights. Eligible land includes cropland, grassland, pastureland and forest land that is part of an agricultural operation. At least 50 percent of the land should be prime agricultural soil or contain historic/archaeological sites. A management entity, such as a farmland protection board or land resource council, is required to demonstrate a long-term commitment to conservation of agricultural lands and have a capacity to acquire and enforce easements. In order to receive funds, the entity must show that it receives more than one-third of its annual support from a combination of gifts, grants, contributions or membership fees. The entity is also required to fund at least 50 percent of the appraised fair market value of the conservation easement.

OTHER STATE AGRICULTURAL PROGRAMS

Tennessee statutes contain several laws that offer potential agricultural conservation opportunities.

Transfer of Development Rights (TDR)

Tennessee state law enables local governments, state authorities and not-for-profit conservation organizations opportunities to conserve open space, agriculture or historical resources by selling development rights. Under TDR programs, the rights to develop a parcel of land are sold to another party who would then use those rights to build in an area that is suitable for higher intensity development. This involves the creation of "sending and receiving" areas that are identified through the planning agency



Tennessee's right-to-farm statutes provide farmer's protection from nuisance complaints and lawsuits.

in the comprehensive plan and zoning map (the sending area, being the farm or other resource to be conserved; the receiving area, being an area that is well positioned in terms of location and infrastructure to sustain growth). The transfer of rights must be voluntary and by contract.

An example of a successful TDR program is that of Montgomery County, Maryland. The county was threatened by sprawl and in order to protect its farmland heritage, it raised the minimum lot size to 25 acres to discourage single family homes and prohibited road widening and extension of water and gas lines. In order to compensate farmers for the loss of land value that these new

provisions would cause, the county devised a TDR program as a solution. Farm owners are able to sell the development rights to interested parties (with one “right” equaling five acres) so that higher intensity housing development takes place in designated areas. In turn, they are compensated and can continue a farming tradition.

Right-to-Farm Statutes

These laws are enacted to assert the importance of commercial agriculture to the local

economy and culture. In Tennessee, as in other states, the Right-to-Farm statute is used to protect farmers from lawsuits that could be brought about by neighbors who consider the sights, smells and other agricultural aspects to be a nuisance. It is unclear if Right-to-Farm laws actually maintain the land base. The main purpose is to support agriculture as a viable economic activity. At the local level, right-to-farm ordinances are enacted to strengthen and clarify state laws (for example, education information such as notices that caution potential buyers about certain inconveniences a neighboring farm might impose). Such ordinances are also used as formal statements to declare that the local government supports farmers.

Agricultural Districts

These are legally recognized geographic areas designed to encourage and protect agricultural practices. Tennessee currently has over 3,500 acres that are protected under this program. Enrollment is voluntary for a fixed, renewable length of time. Benefits of enrollment include automatic eligibility for differential assessment and protection from eminent domain and municipal annexation. Farmers are also entitled to protection from non-farm development in such districts through the Right-to-Farm statutes.

The Agricultural, Forest and Open Space Land Act
Also known as the Greenbelt Law, this act is designed to preserve farm and forest land and to maintain open space for public enjoyment. This is accomplished by basing property taxes on the land’s present use instead of its market value so that the owner’s property tax is decreased. To be eligible, agricultural land must be at least 15 acres in size, be in production and produce at least an average annual income of \$1500 over any three years. Forestland also must be at least 15 acres and trees must be grown under sustained management. The type of timber and its growth rate will also be assessed. Open space must be a minimum of three acres and include a plan of preservation. Typically, the preservation plan is in the form of a perpetual open space easement. In order to qualify, the landowner must contact the county register’s office.

Specialized Funding Sources

Some State agencies and non-profit groups procure some program funding through the sale of specialized automobile license plates. For instance, proceeds from sale of “Watchable Wildlife” plates help the state purchase land where habitat can be protected. Non-profit groups can establish a license plate

program. A possible program for French Broad conservation interests is to start a non-profit group to conserve farms and environmental resources whose funding is partially based on such a license plate program. A larger area than the lower French Broad may be needed in that a minimum of 1,000 commitments are needed to establish a specialized plate. By combining with similar interests along the upper French Broad and Holston Rivers such a program may be feasible and provide greater identity to conservation efforts.

VOLUNTARY PROGRAMS

Environmental Quality Incentive Program (EQIP) Voluntary conservation programs are a component of the federally funded Farm Bill. EQIP was a combination of two previous cost share programs in Tennessee, the Agricultural Conservation Program and the Water Quality Incentives Program. EQIP provides technical, financial and educational assistance to farmers and ranchers with soil, water and other natural resource related problems. A conservation plan must be developed by the program participant for the approval of the U.S. Natural Resources Conservation Service and local Soil Conservation District. Once accepted in the program, conservation contracts are drawn up to provide incentive payments and cost-share for the approved conservation practices. Approved practices include filter strips, agricultural waste management systems, riparian forest buffers, stream crossings and prescribed grazing. The “Riparian Forest Buffer and Filter Strip” programs are used in agricultural waste management systems along streams and rivers to improve water quality by filtering out contaminants and preventing streambank erosion. These programs recommend such things as the size of the buffers, what to plant and how to maintain streambank

vegetation. Applicants of EQIP can receive up to 75 percent cost-share for the approved conservation practice. Total payments are limited to \$50,000 per person which are spread over the life of the contract as determined by the participant.

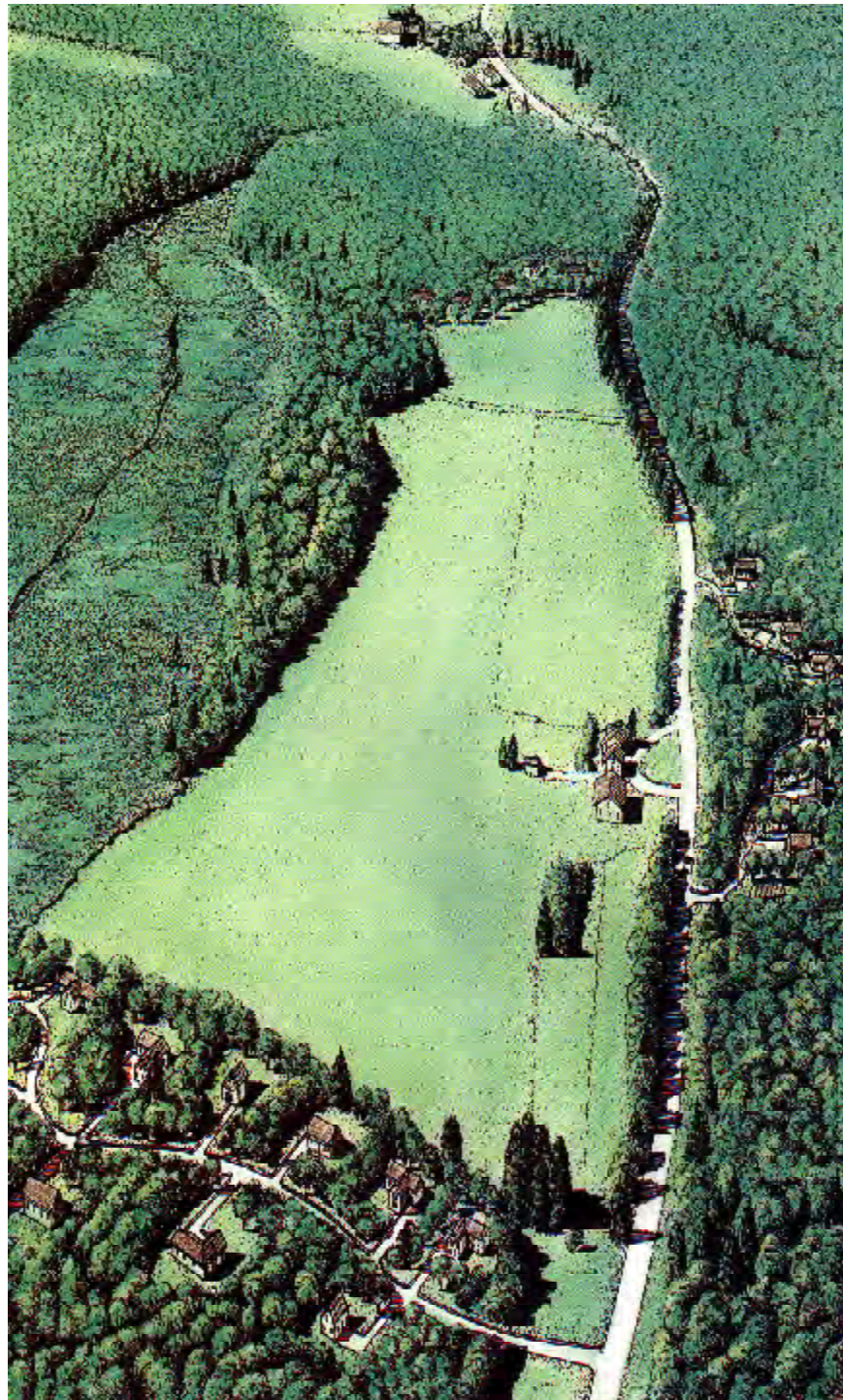
A state program with similar objectives is the Resources Conservation Fund through the Tennessee Department of Agriculture. This program provides landowners with financial assistance to address erosion control, animal waste management and related water quality issues. With an approved application to the Soil Conservation District, the land owner receives an annual payment up to \$5,000. Up to ten percent of the grant may be used to acquire technical assistance to develop and implement the management practices. Grants are typically awarded to the Soil Conservation Districts but may also be awarded to any other organization which works to promote soil conservation and water quality improvement.

LAND USE REGULATION

Agricultural Protection Zoning (APZ) is another conservation tool. The purposes of this zoning are to keep large areas intact for farming and to prevent incompatible uses. In some jurisdictions, very large lot sizes are required to build houses in agricultural areas. For example, in Lexington, Kentucky a 30-acre minimum is required for the protection of the Bluegrass farms. (In contrast, the existing Knox County agricultural zoning allows housing development on one-acre parcels.) By conserving a critical mass of farmland, an APZ program ensures that farms will not become isolated as new developments spring up around them and creates a buffer between the farmers and their non-farming neighbors. APZ keeps the costs of easements down for two reasons. First, when more land is conserved for agriculture, it is less likely that



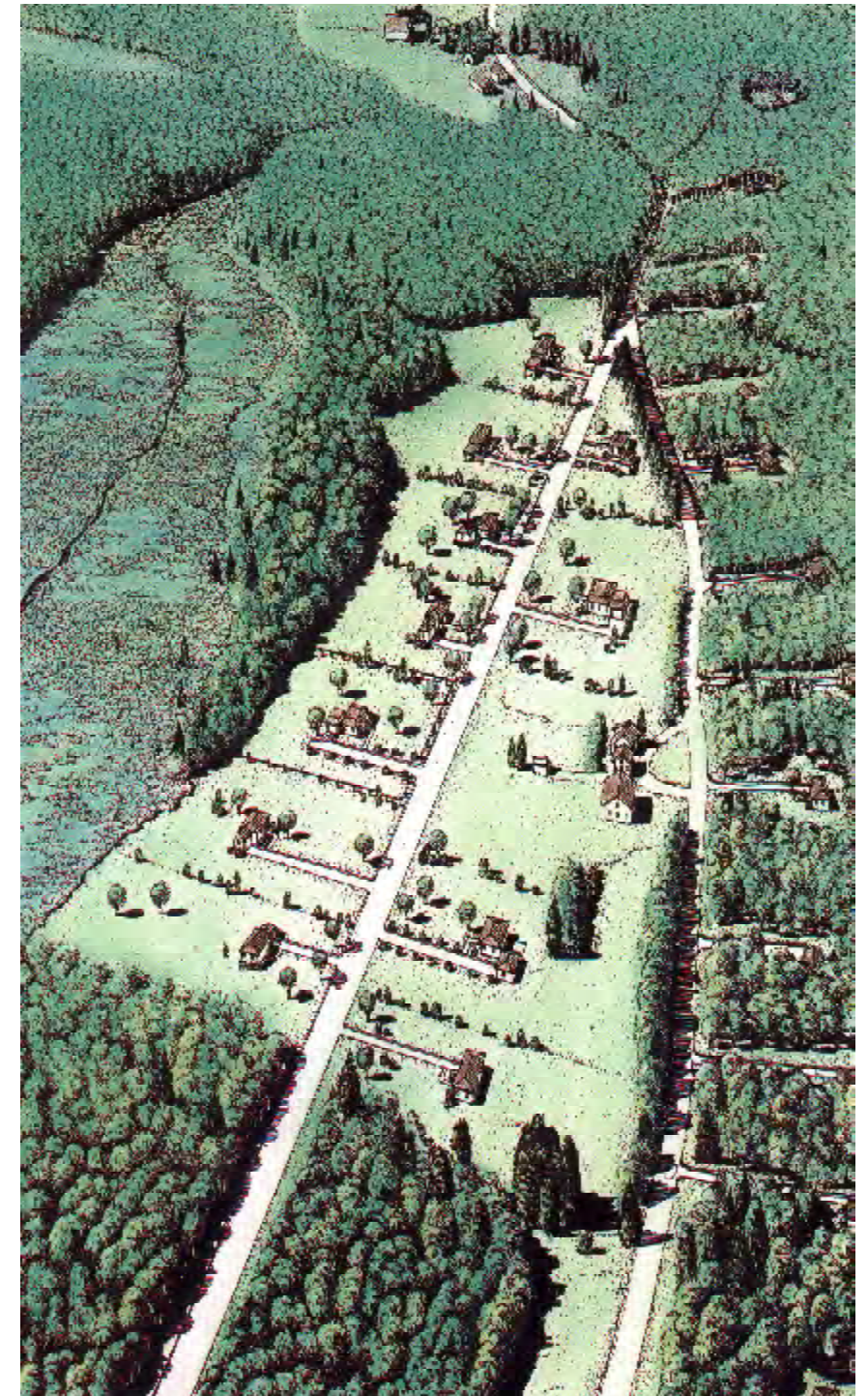
Agricultural protection zoning, requiring large minimum lot sizes, can be used to conserve farms and open space.



a request for an alternative land use will be granted. Secondly, this zoning reduces the development potential of agricultural land and consequently sustains the monetary value of agricultural uses. Along with growth management plans, such zoning has been effective in some parts of the country.

Conservation subdivisions are a compromise between development and conservation. Through creative layout and attention to natural resources, such subdivision practices protect environmentally sensitive areas, reduce building and maintenance costs and support other community planning goals like preservation of farmland or rural landscapes. Conservation subdivisions are made up of lots which are clustered in areas conducive to development while such unique characteristics as wildlife habitats, historical sites and ecologically sensitive areas are left undisturbed. In comparison to conventional subdivisions, conservation subdivisions often utilize half of the space for development while dividing the other half between green space and impervious surfaces. Impervious surfaces are such structures as buildings, driveways and tennis courts or anything that does not allow storm and flood water to seep into the ground. Conservation subdivisions reduce this area by 10 to 50 percent by clustering buildings and decreasing the need for lengthy utility lines, roads and sidewalks. Other factors to conserve include waterways, floodplains, vegetative buffers, slopes and sinkholes. Builders are attracted to this method since their expenses are reduced by 10 to 33 percent. By cutting down fewer trees, grading less land and laying less infrastructure, the costs of construction are simplified. The open space is also useful for storing floodwaters and pollutant runoff, buffering streams and reducing soil erosion.

Conservation subdivisions (left), where houses are clustered to conserve areas such as farms or stream corridors, are an alternative to more conventional practices (right).



Chapter 10

Summary and Recommendations



Some of the region's most significant historic, agricultural and water resources are part of this 14-mile long corridor. The Kahler farm, pictured above, is a good example of such resources.

Knox County's ties to the French Broad spans a relatively short 14 miles and over 200 years of recorded history. That 14 miles is an area of astounding beauty and rich wildlife habitat, a place where eagles sweep over the river and native aquatic life thrive.

Many homes and farms that are significant in the history of the region's earliest settlements still exist in this corridor. Other historic sites associated with commerce, river transportation, religion and education are located along the early roads and river. Archaeological resources associated with Native American culture are likely to be found in floodplains and adjacent elevated terrain.

The French Broad was the reason for settlement and farming. The rich bottomland was a resource easily discerned to be superior to the more hilly terrain that is predominant in East Tennessee. The area of prime soil east of Governor John Sevier Highway has largely been unscathed by urban sprawl.

Conservation of the land as open space has begun in noteworthy fashion: first, with the creation and expansion of the State Wildlife Management Area, and more recently, with the creation of the Seven Islands Wildlife Refuge. The river serves as a blueway, a place for canoeing, fishing and wildlife observation

and has tremendous potential to be connected to other open spaces in the area.

There are various options to conserve the rural assets of this part of Knox County. Conservation easements – set aside to protect agriculture, historic and environmental resources – are possible, particularly with Congressional funding of the Farm Bill. Growth management provisions and land use regulations are less sure means to foster rural preservation, although innovative programs, like clustering houses and conservation subdivisions, offer promise to conserve the French Broad landscape.

Gradually the springs and streams and rivers have changed before our very eyes. A few of the springs have gone completely; many streams have dwindled irreparably; most of the rivers have diminished. They need, like the people of the region, our concern and respect.

*Wilma Dykeman
from her book, The French Broad*



The landscape of the Forks of the River in 1935: The area to the right is now part of the State Wildlife Management Area.

RECOMMENDATIONS:

- 1. Citizen Support:** In view of the interest that has been expressed in sector planning and in the course of this study, establish an organization of French Broad interests, including property owners, Johnson Bible College and other institutional representatives and conservationists, to set priorities and pursue conservation programs.
- 2. Formal designation of the lower French Broad River as a regional asset:** Recognition could include designations under the State Scenic River Program and as an area meriting conservation as an agricultural and environmental resource by state and county officials, and finally, consideration as a national asset similar to the Chattahoochee River corridor above Atlanta.
- 3. Voluntary Programs:** Various interests, including land owners, conservation organizations and federal, state and local officials, should cooperatively pursue the Farm Bill and other conservation easement and related programs, keeping the farms in private hands and in production.
- 4. Alternatives to Conventional Development:** The land regulation “tool box” should be expanded, not only in the corridor, but also countywide. Cluster housing, conservation subdivisions and larger lot agricultural zoning are potential changes. A collaborative process should be created so that the French Broad Preservation Association and potential developers can balance the conservation of agricultural, environmental and historic resources with future development.
- 5. A Network of Open Space:** Various types of open spaces, parks and trails should be established in the corridor. Farmland conservation is one part of the network. A greenbelt of natural space along each side of the river would be particularly beneficial in preserving water quality and habitat.
- 6. Archeological and Historic Site Protection:** Various means should be pursued to preserve historic and archaeological resources. These could include historic overlay zoning and conservation easements to protect specific areas.

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- Audubon Society — www.audubon.org
- Land Trust Alliance — www.ita.org/resources/lotjobs.htm
- Knox Land and Water Conservancy
www.community.knoxville.com/category-13/directoryof.flame
- Sierra Club — www.sierraclub.org
- Tennessee Citizens for Wilderness Planning
www.kornet.org/tcwp/nrt.html
- Tennessee Parks and Greenways Foundation
www.sunsite.utk.edu/saris/watershedorgs/org/tnparis.htm
- Tennessee Trails Association — www.Tennesseetrails.org
- Tennessee Department of Environment and Conservation
www.state.tn.us/environment
- Tennessee Wildlife Resources Agency — www.state.tn.us/twra
- Trust for Public Land — www.tpl.org
- TVA Resource Stewardship — www.tva.gov/rrsc/-19K
- USDA Natural Resources Conservation Service
www.nrcs.usda.gov

HISTORIC PRESERVATION AGENCIES:

- Knoxville Heritage, Inc.
www.kornet.org/knoxarts/groupstuff/commarts.htm
- Tennessee Historical Commission
www.vic.com/tnchron/resource/thc.htm
- East Tennessee Historical Center — web.utk.edu
- Knoxville and Knox County Historic Zoning Commissions
www.knoxmpc.org/zoning/quickfct/hispres.htm

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