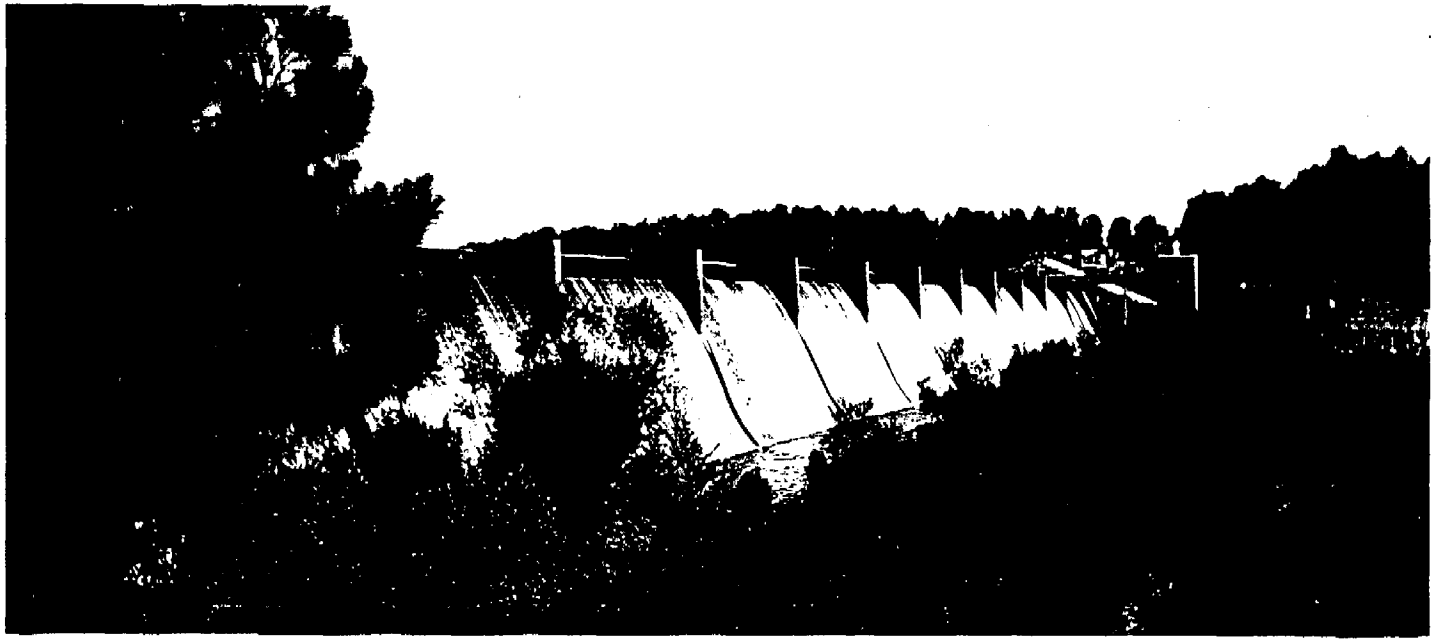
APPOMATTOX RIVER CORRIDOR STUDY

PHASE II

Prepared by Crater Planning District Commission
with assistance from
Crater Coastal Resource Management Task Force
September, 1994



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INTRODUCTION

The Appomattox River is a major tributary of the James River. It flows in an easterly direction across the piedmont and coastal plain of south central Virginia between Appomattox Courthouse and its confluence with the James River in Hopewell. The River is an important regional resource that is unique and irreplaceable. The portion of the River in the Crater Planning District meanders through six jurisdictions: the Counties of Chesterfield, Dinwiddie, and Prince George, and the Cities of Colonial Heights, Hopewell and Petersburg, and is a valuable resource for commerce, industry, farming, fishing, and recreation. (See map 1).

As more growth occurs, more pressure is being placed on the Appomattox River and its adjacent lands. Competing uses must find ways to survive compatibly, without significantly depleting the resources available.

A primary problem with providing a regional perspective has been the lack of a single reliable source of information about the natural, scenic, historic, and man-made features of the Appomattox River. Historically, the River has been the boundary for local planning and decision-making.

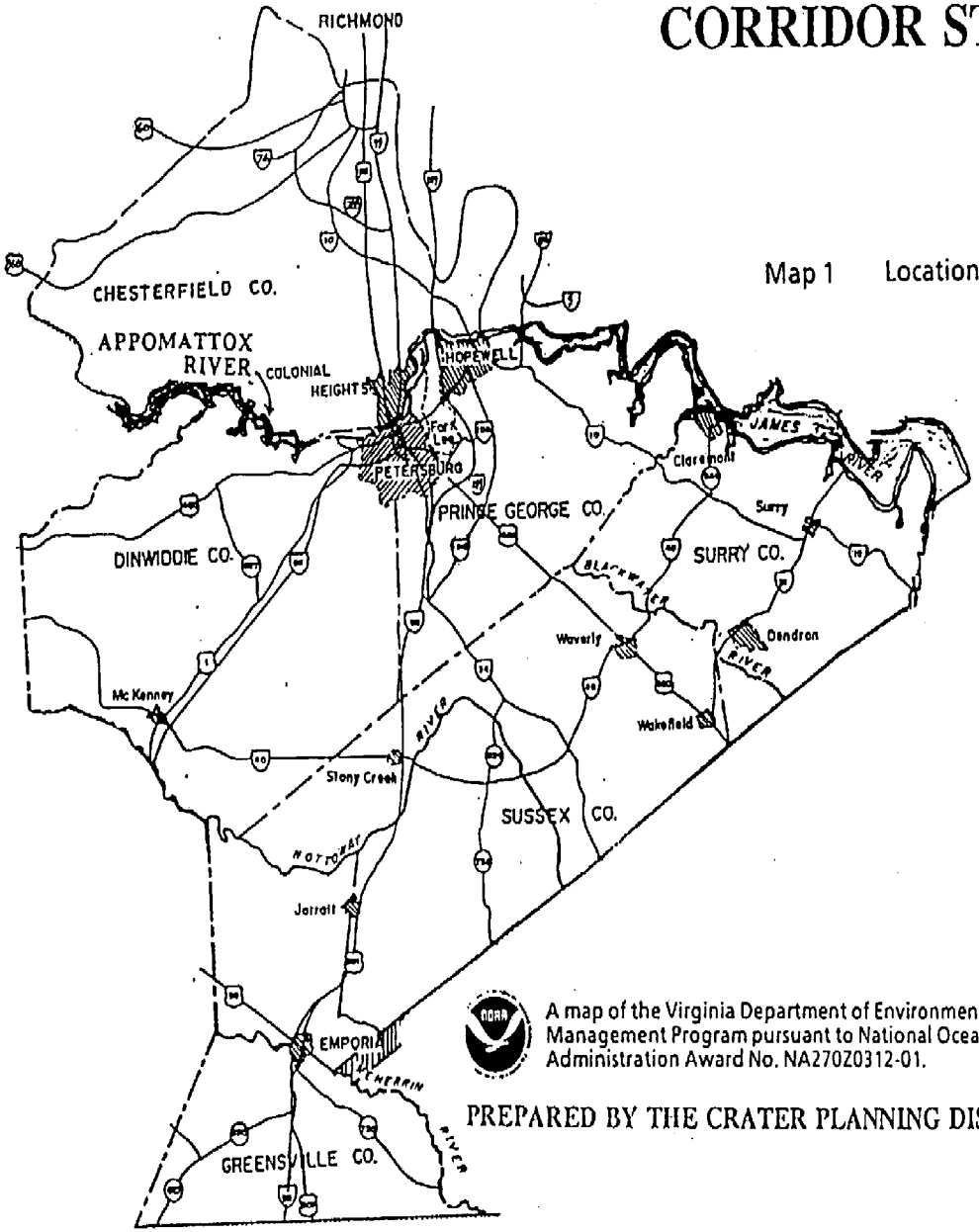
The purpose of this corridor study is to help decision-makers understand the complex nature of managing the Appomattox River, and find innovative solutions to balance competing interests while protecting valuable resources. This task is envisioned as the beginning of a corridor effort to establish a regional data base for the purpose of improved coastal planning.

Phase I of the corridor study was completed in 1993. It inventoried recreation and riverfront features such as, riverfront configuration, parks and recreation, scenic and cultural areas, as well as wildlife and natural areas. A total of twenty-three existing and potential public access sites were identified.

The second phase of the study will examine existing and future land use information, zoning, ownership patterns, water and sewer utilities, as well as soils and mineral resources within the corridor. No additional, potential public access facilities have been identified.

APPOMATTOX RIVER CORRIDOR STUDY

Map 1 Location Map



A map of the Virginia Department of Environmental Quality's Coastal Resources Management Program pursuant to National Oceanic and Atmospheric Administration Award No. NA270Z0312-01.

PREPARED BY THE CRATER PLANNING DISTRICT COMMISSION

Study Area

This report was undertaken with the guidance of the Crater Coastal Resources Management Task Force, which is comprised of the directors of planning from the Commission's "Tidewater communities" (Counties of Chesterfield, Prince George and Surry, and the Cities of Colonial Heights, Hopewell, and Petersburg). In addition, Dinwiddie County's planning director is being invited to participate in this effort. The task force determined the study area and the specific width of corridor to be studied. The task force has determined that the study is limited to a section of the River approximately twenty-two miles long, between Lake Chesdin, three miles west of the Brasfield Dam, to its confluence with the James. The width of the study corridor currently sits within 750 feet of the edge of the 100-year floodplain (as defined by the Federal Emergency Management Agency) on either side of the River. However, the corridor width could fluctuate depending on the River's characteristics. The task force may choose to enlarge the boundary slightly in order to include a particularly significant piece of property.

Western View from Fleet Street Bridge

POPULATION

From 1980 to 1990, the population of those jurisdictions within the study area increased at an annual average rate of 2.4 percent. Numerically, it is an increase from 270,626 persons to 335,179 persons. The largest increase in population was reported in Chesterfield County (48.1 percent). Prince George is another locality within the study area that experienced growth in population. The remaining localities decreased in population size from 9.8 percent to 1.3 percent. It is projected that the total population in the jurisdictions within the study area will be 391,675 by the year 2000, and 441, 538 by the year 2010. The breakdown of the existing and projected population of the area is presented in Table 1.

Table 1

Existing and Projected Population
1980 - 2010
Appomattox River Corridor Jurisdictions
Crater Planning District

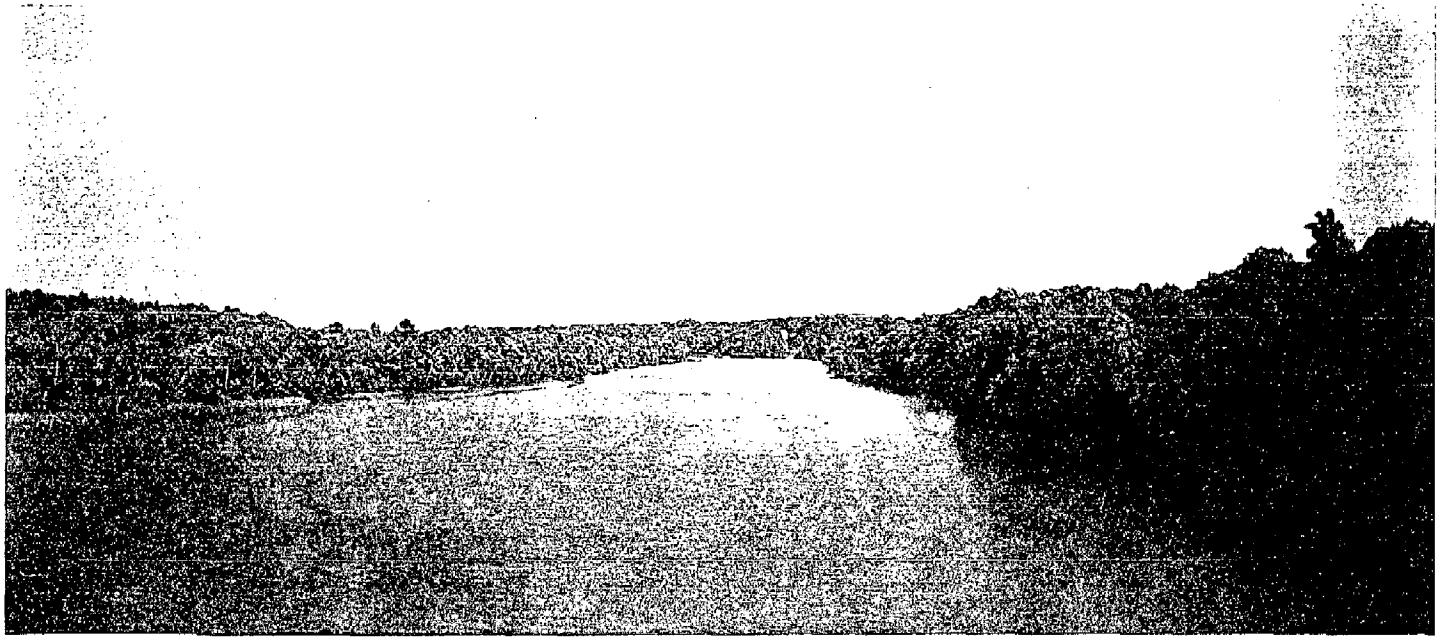
	1980	1990	2000	2010
Chesterfield	141,330	209,274	265,435	315,142
Dinwiddie	22,602	20,960	22,898	23,298
Prince George	25,733	27,394	29,309	31,047
Colonial Heights	16,509	16,064	15,715	15,283
Hopewell	23,397	23,101	22,822	22,567
Petersburg	41,055	38,386	35,496	34,201
	270,626	335,179	391,675	441,538

Source: Virginia Employment Commission, Virginia Population Projection 2010, June, 1993.

As indicated earlier, the Appomattox River meanders through six jurisdictions in the Crater Planning District. The rural versus urban dichotomy of the corridor is evident in the population density figures reported in 1990. The City of Hopewell's population density was 2,310.1 persons per square mile, as compared to Dinwiddie County's population density of 44.0 persons per square mile. Similar variations were apparent among other localities. The Cities of Colonial Heights (2,008) and Petersburg (1,609.9) are much more densely populated than Chesterfield (482.2) and Prince George (103.0) Counties.

Population By Traffic Zones

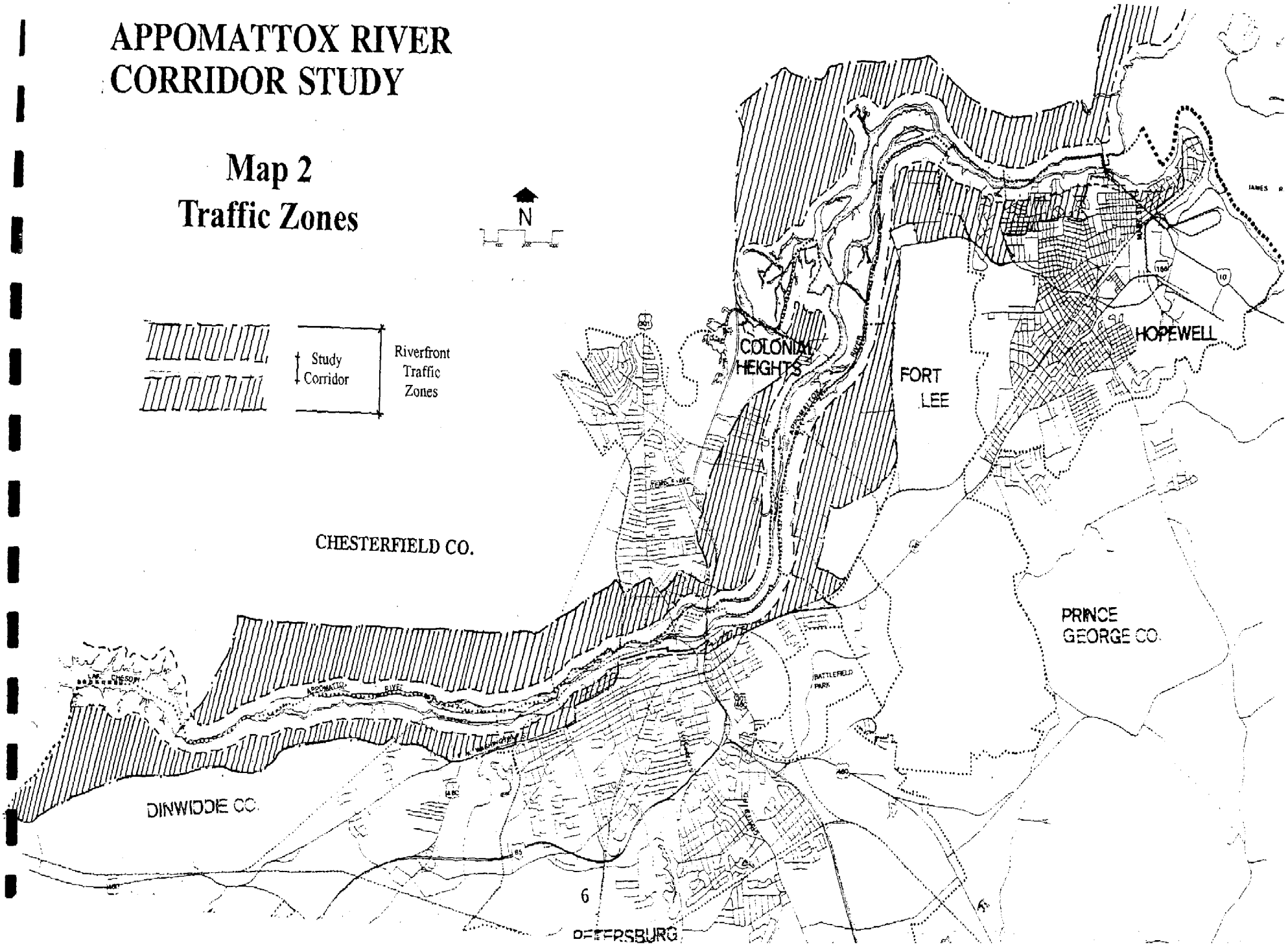
There is no demographic data available for the river corridor area. The study corridor follows a distance of 750 feet from the edge of a 100 year floodplain on both sides of the River. The best available source of data is from the traffic zones. The boundaries of the riverfront traffic zones do not coincide with the study corridor's, but they do represent confined geographical areas for which limited data are available. Map 2 presents selected traffic zones along both sides of the Appomattox, which actually cover an area three times larger than the study corridor.



Eastern View from I-295 Bridge

APPOMATTOX RIVER CORRIDOR STUDY

Map 2
Traffic Zones



Along the Appomattox, there are forty traffic zones. The 1993 estimated population of this area is 14,795 persons. Of this total, approximately 24.3 percent reside in Colonial Heights and about 19.8 percent live in Hopewell. The other jurisdictions' share of population along the River are Dinwiddie County, 19.5 percent, Chesterfield County, 15.5 percent, Prince George County, 11.6 percent and Petersburg, 9.3 percent.

LAND USE

Land and water are intimately intertwined; what is done to one impacts upon the other. Although changes in land use over a large area such as the river corridor seem incrementally small, the cumulative impact of such changes is significant.

Suburbanization increases land and vegetation disturbances which accelerate erosion and sedimentation. As the amount of impervious surfaces increases, so does stormwater runoff and loading of non-point pollutants, resulting in the disruption of natural watershed functions and the degradation of water quality.

This section, therefore, explores general land use and land cover patterns of the River corridor by examining the following indicators: existing and future land use, zoning, and other land use regulations as required by the Code of Virginia.

Agricultural and Forest Land

Agricultural practices have variable impacts upon water quality. Fertilizer and pesticide applications, density and management of farm animals, and tilling practices are key factors in water quality degradation. Farms with similar acreages, crops and soils can have variable impacts on water quality depending on farming practices. Both Chesterfield and Dinwiddie Counties are heavily wooded, with a large portion of the forests held in private ownership.

In the study area, there are several large farms still in operation. Most of these farms are located in Chesterfield and Dinwiddie Counties. Together with the forest land, they contribute to the open space, scenic beauty, and rural atmosphere of the corridor. The highest concentration of agricultural land in the corridor is on the north side of Lake Chesdin in Chesterfield County.

According to the 1993 traffic zone data, about 46 percent of the riverfront land area in the traffic zones is classified as agricultural, forest, or vacant lands. The estimated percentage of agricultural and forest land in the corridor is approximately 50 percent.

Residential

Data from the 1993 traffic zone files reveal that about 2,200 acres or 11 percent of the land in the selected riverfront traffic zones is residential land. There are 5,425 housing units; of this total, 4,540 (83.7%) units are single-family dwelling units and 885 (16.3%) units are multiple-family units. This is an increase of 131 units from 1990's record (5,294 units). Most of the new development is in Dinwiddie County.

The majority of residential development in the corridor has been in the form of single-family homes. On a per unit basis, the average lot size in the urban area is about 1/3 acre. The counties normally require lower density and larger lot sizes than the cities. The average lot size in the counties is about 1 acre.

Industrial and Commercial

In the river corridor, there are several water-dependent commercial and industrial developments. The largest industrial land use is in Chesterfield in the Ruffin Mill Road industrial area. There are two planned industrial parks where several manufacturing plants are located. These industrial developments front on the Walthall Channel, a tributary of the Appomattox.

The other industrial operations in the corridor are on the south side of the River in downtown Petersburg, and the Puddledock area in Prince George County. The primary operations there consist of railroad yards, warehousing, wood processing and sand and gravel operations. One junk yard is located on the north shore of the River across from downtown Petersburg in Colonial Heights.

Other than several water-dependent activities such as marinas, and a restaurant, there is no commercial land use located in the study corridor. Instead, immediately outside of the study area, there are four large commercial areas, downtown Petersburg, Hopewell, the Southpark Mall area, and the Boulevard in Colonial Heights. The community of Ettrick is located less than 2,000 feet from the edge of the River.

Chart 1 on page 9 presents the land use breakdown of those riverfront traffic zones. Industrial and commercial uses comprise 11.4% and 1.4% respectively of the land area in riverfront traffic zones.

Public Lands

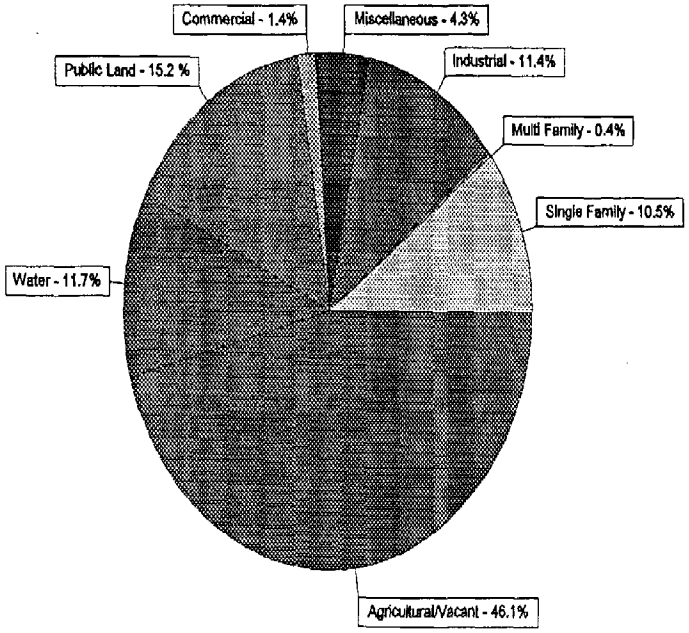
There are significant public land holdings in the study corridor, the estimate is approximately 15 percent. They include Petersburg National Battlefields, the U. S. Army Quartermaster Center and Fort Lee, the Federal Correctional Institute, Riverside Regional Correctional Center, Virginia State University, and several state and local parks and recreational sites which were identified in Phase I of this study.

Chart 1

Existing Land Use

River Front Traffic Zones

The Appomattox River Corridor Study



SOURCE: 1993 Traffic Zone Data, Crater Planning District Commission

Comprehensive Plan

Land use decisions in Virginia are decided at the local government level. The Code of Virginia defines the authority, and describes the tools used by localities for implementation. All jurisdictions in Virginia's Tidewater area are required to adopt comprehensive plans, zoning ordinances, and subdivision ordinances. All of these measures are important because together they define what land development can occur and how it should occur in each locality.

The comprehensive plan is a guide for communities' growth and development. It outlines each jurisdiction's long-term development scheme and defines the goals and objectives for achieving the derived level of land use and development. According to the Code of Virginia, the plan must be reviewed at least every five years. Each of the localities within the river corridor study area has a comprehensive plan.

Chesterfield County's Comprehensive Plan was adopted in June, 1977. Its plan updating process involves the development of area plans. Four of Chesterfield's area plans address the development issues and land use recommendations for those properties along its side of the corridor. They are the Southern and Western Area Plan, the Ettrick Village Plan, the Eastern Area Plan, and the Ruffin Mill Planning Area Plan. Floodplains, protection of water quality and conservation rivers were all addressed in those plans.

Following is the adoption dates for all comprehensive plans in the corridor study area.

Chesterfield County	June, 1977
Southern and Western Area Plan	January, 1993
Ettrick Village Plan	May, 1991
Eastern Area Plan	August, 1984
Ruffin Mill Planning Area Plan	December, 1987
Dinwiddie County	April, 1979
Prince George County	1986
Colonial Heights	July, 1976
Hopewell	1991
Petersburg	1983

Two other comprehensive plans were adopted in the seventies. Both of those localities, Colonial Heights and Dinwiddie, are in the process of updating their comprehensive plans. The City of Petersburg is near completion of its plan update.

With the exception of Dinwiddie County, each of the other corridor localities is required to amend its comprehensive plan to address the importance of water quality protection under the Chesapeake Bay Preservation Act and Regulations. According to the Regulations, "it shall be the development policy of the locality to protect and enhance the quality of state waters pursuant to the Chesapeake Bay Preservation Act. All functions of the local government shall be administered in a manner which recognizes that what occurs on the land ultimately affects water quality. Land use and development occurring in Chesapeake Bay Preservation Areas located within the locality shall comply with the Chesapeake Bay Preservation Act and Regulations".

In addition to the above conservation objectives, most of the plans also call for additional recreational facilities, preservation of prime agricultural lands and open space along the river corridor.

Pocahontas Island

In the urban portion of the Corridor, there is very little buildable land available for new development. One project currently on the drawing board is Anchor Point, proposed to be located on the western edge of Hopewell in the Cabin Creek area. It calls for the development of a 600-unit high rise condominium, 100-slip marina, and a 90-slip dry-storage complex.

Another major development in the corridor is the Appomattox River Heritage Trail project in the City of Petersburg. The project calls for the rehabilitation of the old passenger train station and the Railway Express Agency building and the development of a pedestrian/bicycle trail. The trail will extend from the railroad buildings in Old Towne Petersburg on the east, to Campbell's Bridge on U. S. Route 36 on the west. This project is envisioned as the first phase of a multi-phase, long-term plan to develop a greenway and trail system along the Appomattox, connecting the old harbor area in Old Towne Petersburg to Lake Chesdin.

Prince George County is proposing the development of a 50-acre riverfront park next to the new Riverside Regional Correctional Center. A water-access canoe launching facility is planned for the site.

As indicated earlier, new residential development in the area has occurred in the western portion of the corridor on both the Dinwiddie and Chesterfield sides of Lake Chesdin. Actually, there is more development being proposed on both sides of the Lake, further west of the Corridor outside of the study boundary.

The residential density recommended for the Corridor varies from one jurisdiction to another. The least density is found in the Western Area Plan of Chesterfield County, where residential development calls for one dwelling unit per acre. In Colonial Heights' General Land Use Plan, certain planned unit development areas along the River allow up to 15 dwelling units per acre of development. Commercial land uses are found in Prince George, Petersburg, and the Ettrick Village Plan.

Map 3 is the composite land use plan of the Corridor. It should be noted that land use designations in different jursidictions vary.

Chesapeake Bay Preservation Act

The Chesapeake Bay Preservation Act addresses a need to preserve the quality of the water in the Chesapeake Bay. It focuses on regulation of the use of land that abuts the Bay and its tributary tidal streams. The Appomattox River is within the protected area and, accordingly, the shoreline and lands are subject to regulation under the Chesapeake Bay Preservation Act.

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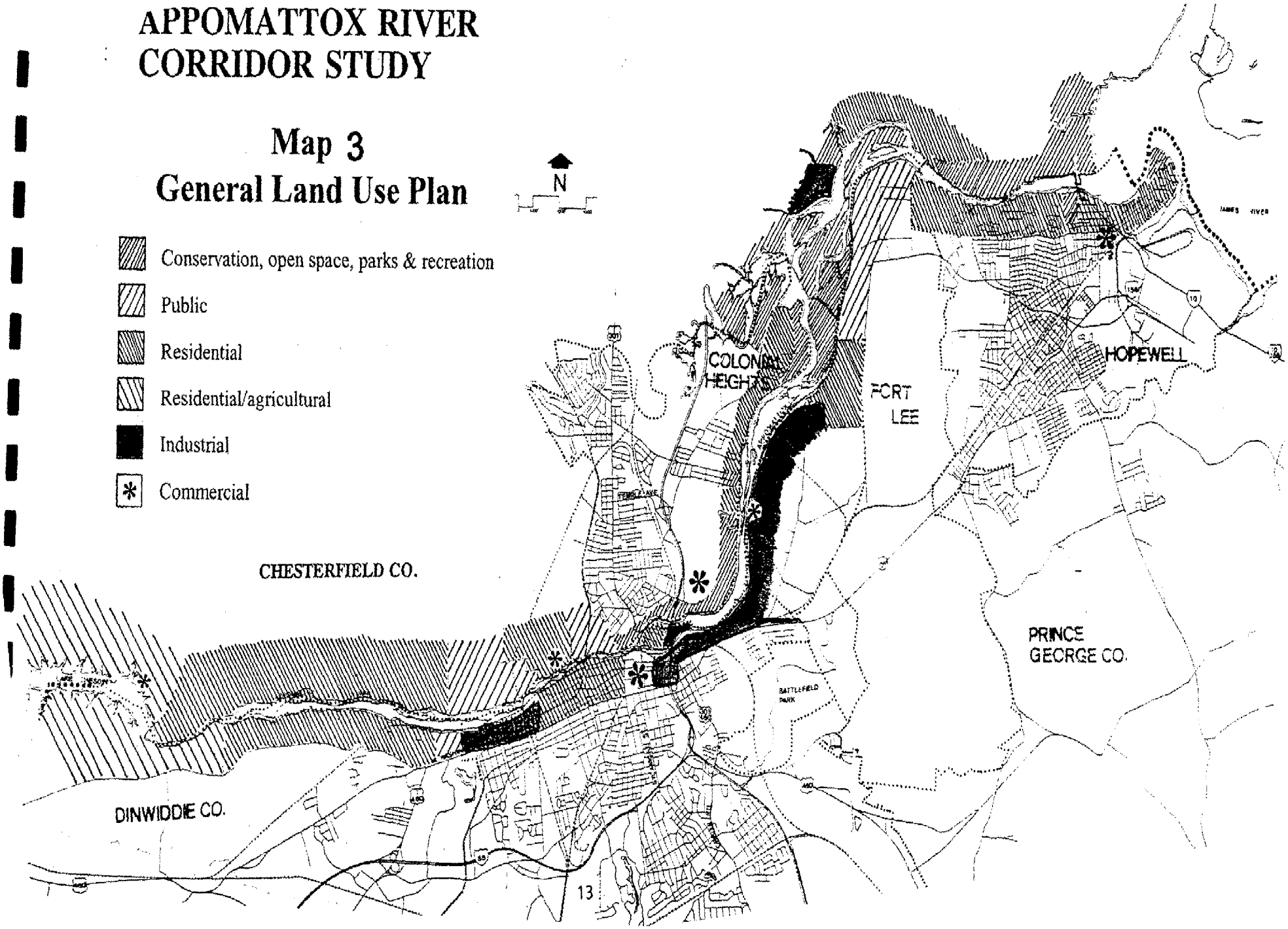
Map 3
General Land Use Plan



With the exception of Dinwiddie County, all other jurisdictions in the Corridor adopted the Chesapeake Bay Preservation Overlay District as an amendment to their zoning ordinances to implement the requirements of Section 10.1-2100 et seq. of the Code of Virginia (The Chesapeake Bay Preservation Act). The purpose of this Act is to protect the water quality of the Chesapeake Bay and its tributaries from pollution, erosion, and degradation resulting from land use and development based on the following finding of fact:

> "The Chesapeake Bay and its tributaries is one of the most important and productive estuarine systems in the world, providing economic and social benefits to the citizens of the Commonwealth of Virginia. The health of the Bay is vital to maintaining Virginia's economy and the welfare of its citizens. The Chesapeake Bay waters have been degraded significantly by many sources of pollution, including non-point source pollution from land uses and development. Existing high quality waters are worthy of protection from degradation to guard against further pollution. Certain lands that are proximate to shorelines have intrinsic water quality value due to the ecological and biological processes they perform. Other lands have severe development constraints from flooding, erosion, and soil limitations. With proper management, they offer significant ecological benefits by providing water quality maintenance and pollution control, as well as flood and shoreline erosion control. These lands together, designated by the Tidewater jurisdictions as Chesapeake Bay Preservation Areas, need to be protected from destruction and damage in order to protect the quality of water in the Bay and consequently the quality of life in the Commonwealth of Virginia."

The purpose of the overlay districts are to: (a) protect existing high quality state waters; (b) restore all other state waters to a condition or quality that will permit all reasonable public uses and will support the propagation and growth of all aquatic life, including game fish which might reasonably be expected to inhabit them; (c) safeguard the clean waters of the Commonwealth from pollution; (d) prevent any increase in pollution; (e) reduce existing pollution; and (f) promote water resource conservation in order to provide for the health, safety, and welfare of the present and future citizens of the Commonwealth.

The Chesapeake Bay Preservation Overlay District consists of a Resource Protection Area (RPA), within which land development is restricted to water-dependent uses, or allowable redevelopment of existing uses, and a Resource Management Area (RMA), within which limited development is allowable. These areas are defined below.

Resource Protection Area (RPA): This area consists of (a) tidal wetlands, (b) non-tidal wetlands connected by surface flow and contiguous to tidal wetlands or tributary streams, (c) tidal shores, and (d) a 100-foot vegetated buffer area located adjacent to and land-ward of the components listed, and along both sides of any tributary stream. All five jurisdictions followed the designation guidelines and designated RPAs as required.

Resource Management Area (RMA): This is the area where local designations are different from one to another. Because of a lack of soil-type information, designations of RMAs in the cities are primarily based on floodplains and steep slopes data. Following is information on the local designations of RMAs.

Colonial Heights: The City's RMAs are generally composed of an area that is 100 feet wide contiguous to all RPAs or the 100-year floodplain and stream-side steep slopes. It includes an entire lot or parcel within a RMA if any part is included.

Hopewell: This area is composed of the following land categories: 100-year floodplains, stream-side steep slopes, and non-tidal wetlands not included in the RPA. The whole lot provision is also required.

Petersburg: The area is composed of the greater of a 100 foot area landward and contiguous to RPAs or the 100-year floodplain, and hydric soils adjacent to tributary streams.

Chesterfield: County-wide RMA designation with opt-out provisions.

Prince George: It includes 100-year floodplains, nontidal wetlands contiguous to intermittent streams, or a 150-foot minimum linear width measured from the landward edge of RPAs.

The regulations of the Chesapeake Bay Preservation Overlay Districts permit land development and redevelopment in the Resource Management Areas consistent with the underlying zoning districts and compliant with other provisions for development in the overlay districts, as well as all erosion and sediment control requirements and other applicable performance standards. Development in a Resource Protection Area is specifically restricted to water-dependent uses and redevelopment.

All jurisdictions in the Corridor also adopted an erosion and sediment control ordinance as required by the Virginia Erosion and Sediment Control Law.

Zoning

Zoning ordinances are the tools used to implement the comprehensive plan. They define how each parcel of land in a jurisdiction may be used, type and density of development, as well as areas of restrictions. This information is illustrated on zoning maps. Subdivision ordinances are concerned with general design standards and the process by which those subdivisions are created. They spell out requirements for site plans, streets, roads, water and sewer, etc.

Each of the localities within the study area has zoning and subdivision ordinances. Like comprehensive plans, however, the degree of requirements and implementation of the ordinances vary among the jurisdictions.

Map 4 is the generalized zoning map of the Corridor. All zoning classifications used in the maps are direct transfers from each jurisdiction. It should be pointed out, however, that land use classifications differ in the jurisdictions. A summary of each locality's zoning requirements for properties along the Corridor follows.

Chesterfield County

For the purpose of zoning, the County is divided into 22 zoning districts. There is one agricultural district and no conservation district. The land in the corridor area is zoned for R-15, R-7, A, and I-2 districts. The minimum lot area requirements are listed as follows:

R-15	Single-Family Residential District	15,100 sq. ft.
R-7	Single-Family Residential District	7,000 sq. ft.
A	Agricultural District	15,000 sq. ft.
I-2	General Industrial District	None

In the agricultural district general farming and forestry operations are permitted. Sand and gravel pits and other operations for mining of materials and removal of natural resources from the earth are also permitted.

Dinwiddie County

The County is divided into thirteen zoning districts. Of those, four are different agricultural districts; limited agricultural (A-1), general agricultural (A-2), conservation agricultural (A-3), and Rural Residential Agricultural (A-R). The general agricultural district covers the territory immediately adjacent to Lake Chesdin where residential and recreational uses are provided.

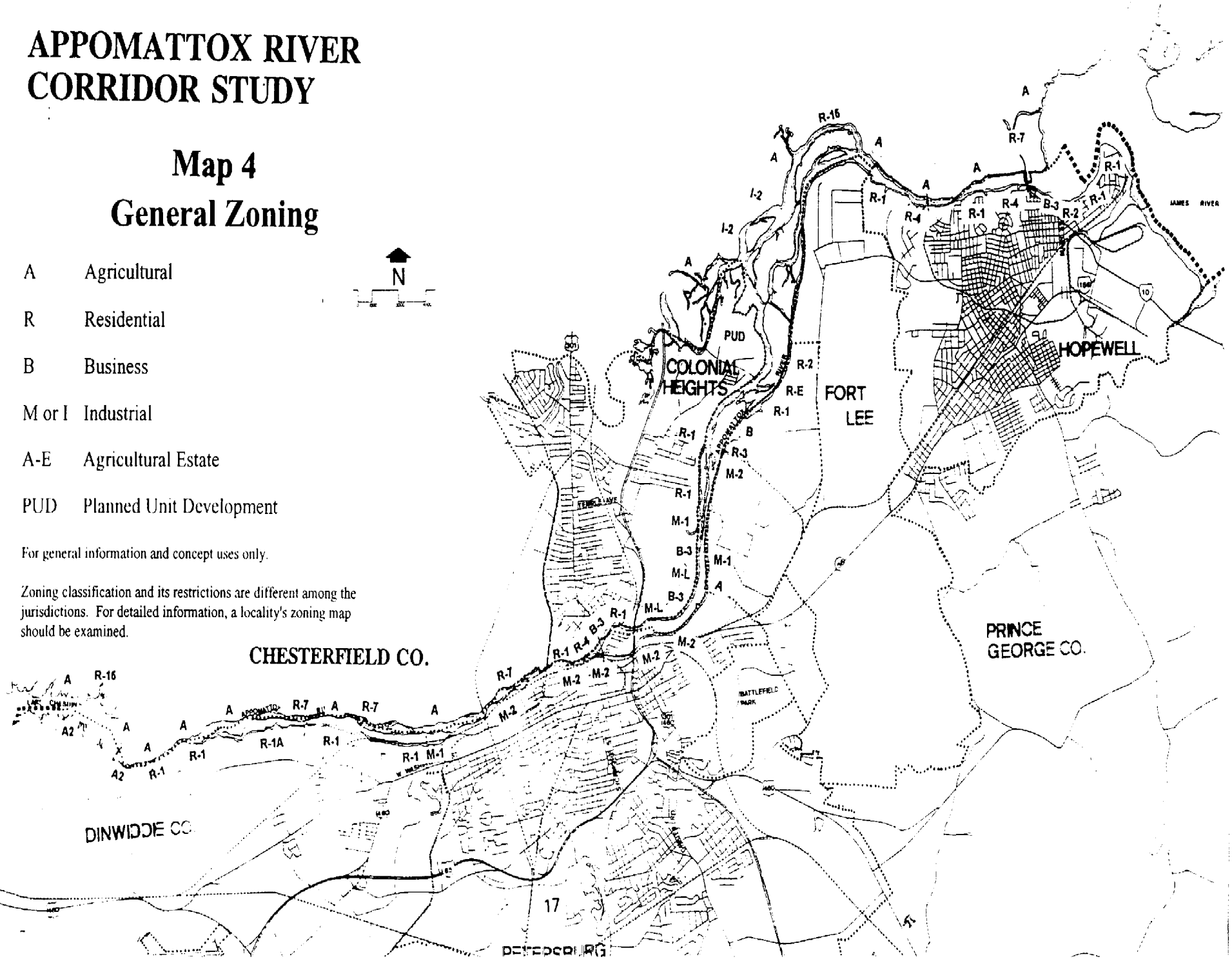
APPOMATTOX RIVER CORRIDOR STUDY

Map 4
General Zoning

A	Agricultural
R	Residential
B	Business
M or I	Industrial
A-E	Agricultural Estate
PUD	Planned Unit Development

For general information and concept uses only.

Zoning classification and its restrictions are different among the jurisdictions. For detailed information, a locality's zoning map should be examined.



The land in the corridor area is zoned for A-2, A-3, AR, R-1, and R-A districts. Their minimum lot area requirements are listed as follows:

A-2	General Agricultural	One Acre
A-3	Conservation Agricultural	One Acre
A-R	Rural Residential Agricultural	Two Acres
R-1	Limited Residential	20,000 sq. ft.
R-1A	Limited Residential	15,000 sq. ft.

In both R-1, and R-1A districts, larger lot sizes are required if public water and sewer services are not available.

Prince George County

There are one agricultural, five residential, one commercial and two industrial districts in Prince George County. In the agricultural district, the minimum lot size is five acres for permitted residential uses. In residential districts, larger lot sizes are required if public water and sewage facilities are not available.

The zoning designations for land in the Prince George portion of the corridor are A, R-E, R-1, R-2, R-3, B-1, and I-1. The minimum lot size requirements are listed as follows:

A	Agricultural	5 acres
R-E	Residential Estate	43,560 sq. ft.
R-1	Limited Residential	15,000 sq. ft.
R-2	Limited Residential	12,000 sq. ft.
R-3	General Residential	10,000 sq. ft.
B-1	General Business	Not Applicable
I-1	General Industrial	Not Applicable

Colonial Heights

The City of Colonial Heights adopted both zoning and subdivision ordinances in 1960. There are five residential, one residential-professional office, four business, and three industrial zoning districts.

The land along the River is currently zoned for R-1, R-2, R-4, B-3, M-L, M-1 and PUD. The minimum lot area requirements in those zoning districts are listed as follows:

R-1	Single Family Residential	6,250 sq. ft.
R-2	Single Family Residential	6,250 sq. ft.
R-4	Multi-Family Residential	5,000 sq. ft.
B-3	General Business	None
M-L	Limited Industrial	None
M-1	Heavy Industrial	None
PUD	Planned Unit Development	7,500 sq. ft.

Hopewell

The City adopted a zoning ordinance in 1979. The subdivision ordinance was adopted in 1983.

There are six residential, four commercial and two industrial zoning districts in Hopewell. In addition, a floodplain district, historic district, planned unit development district, and Chesapeake Bay Preservation Area overlay district have been established as overlay zones.

The land in the corridor area is zoned for R-1, R-2, R-4, RO-1, and B-3. The respective minimum lot size requirements are listed as follows:

R-1	Residential-Low Density	12,000 sq. ft.
R-2	Residential-Medium Density	8,000 sq. ft.
R-4	Residential-Apartment	2,000 sq. ft.
RO-1	Residential-Office	8,000 sq. ft.
B-3	Highway Commercial	8,000 sq. ft.

Apartment developments must have a minimum of 25 percent of their gross area dedicated to open space.

Petersburg

The City of Petersburg's zoning ordinance was revised and adopted in 1991. The subdivision ordinance was adopted in 1970. Most of the land in the Corridor area is zoned for industrial use. The zoning classifications are R-2, R-3, R-6, M-1, M-2, and MXD-2.

R-2	Single Family Residential	5,000 sq. ft.
R-3	Two Family Residential	5,000 sq. ft.
R-6	High Rise Residential	5,000 sq. ft.
M-1	Limited Industrial	None
M-1	Heavy Industrial	None
MXD-2	Industrial	None

LAND OWNERSHIP

All of the property along the Corridor were identified by examining each locality's tax maps. Courthouse records, then, were verified to determine all properties' ownership, size, current land use, and zoning information. Map 5 presents the tax maps composite of the Appomattox River Corridor. Those properties of ten acres or more in size are listed in Table 2 and located on Map 6.

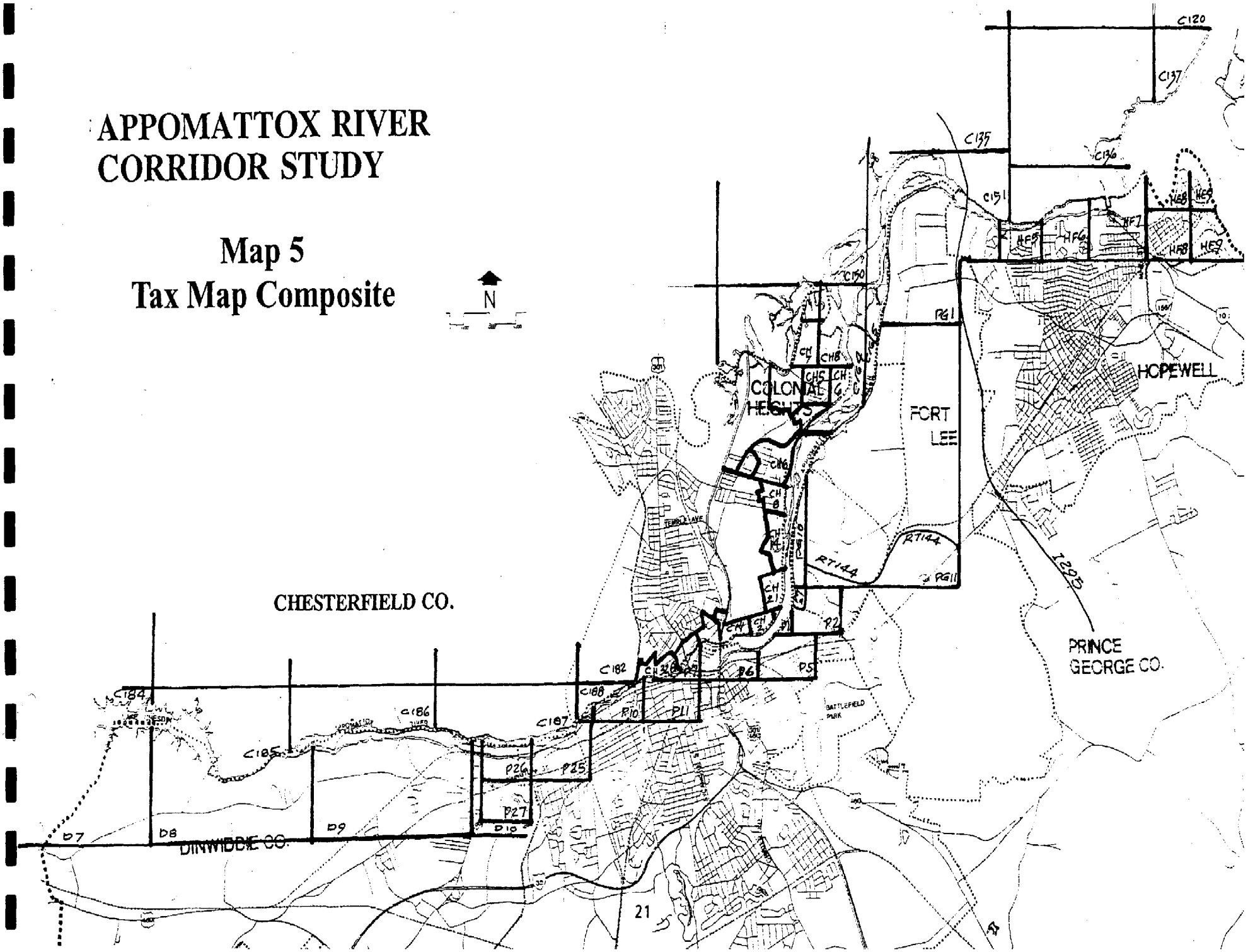
In the Study Corridor, forty-five parcels of land have ten acres or more. The United States Government is the largest land holder. Between the U. S. Army and the Federal Correctional Center, the federal government owns over twelve hundred acres in the Corridor. The Commonwealth of Virginia is the second largest land owner with approximately 400 acres. There are eight other large tracts of 100 acres or more. All of them are privately owned.

Approximately one-third of the large tracts identified here are located in Chesterfield County (fourteen out of forty-five tracts). Ten tracts are in Dinwiddie County. Many of those large tracts are forest or farm lands and zoned for agricultural uses. Conversion of those properties for future residential or other higher intensity uses is very possible.

Northeastern View from Federal Correction Institute

APPOMATTOX RIVER CORRIDOR STUDY

Map 5
Tax Map Composite

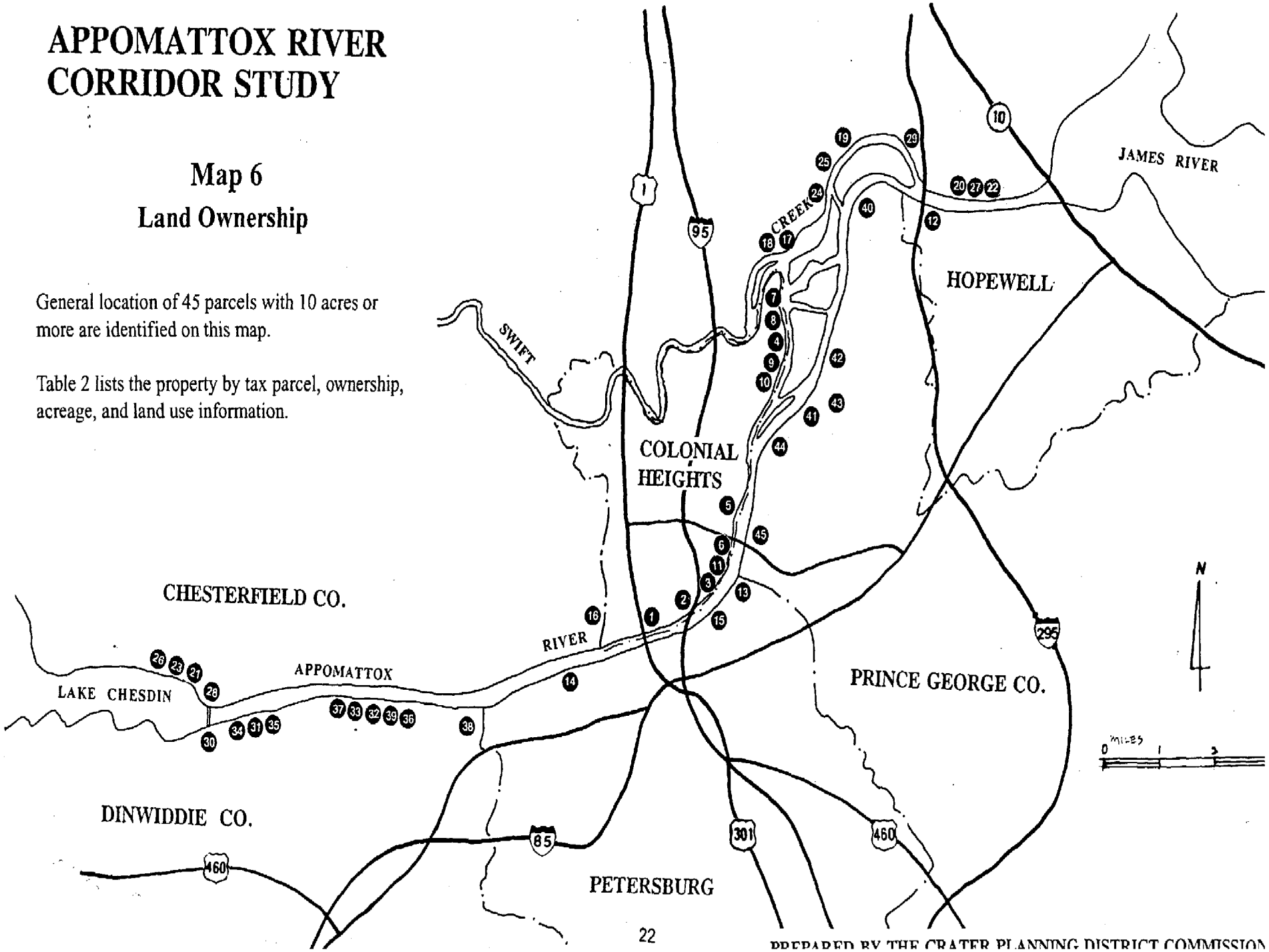


APPOMATTOX RIVER CORRIDOR STUDY

Map 6
Land Ownership

General location of 45 parcels with 10 acres or more are identified on this map.

Table 2 lists the property by tax parcel, ownership, acreage, and land use information.



PREPARED BY THE CRATER PLANNING DISTRICT COMMISSION

Table 2

Property Ownership Patterns
(10 acres and more)
Appomattox River Corridor

JURISDICTION	ID #	SECTION	LOT INFORMATION	OWNER	ACREAGE	LAND USE
Colonial Heights	1	35	Lot 1	U.S. Corps of Engineers		unimproved
	2	37	3-Lot 1A,1	U.S. Corps of Engineers		unimproved
	3	69-1	Lot 5	Private	155.70	unimproved
	4	66-8	Parcel 12	Private	153.60	unimproved
	5	68-19	Parcel 18	Private	111.04	unimproved
	6	68-21	Lot 13	City	90.50	Landfill, animal shelter
	7	66-10	Deed Book 138; p. 524	Private	64.50	unimproved
	8	66-8	Parcel 11	Private	27.58	unimproved
	9	66-6	Lot 11	Private	27.50	unimproved
	10	66-6	Lot 10	City	23.90	Fort Clifton
	11	69-2	3	City	15.40	vacant
Hopewell	12	12	106-59	Private	11.02	residential (R-4)

JURISDICTION	ID #	SECTION	LOT INFORMATION	OWNER	ACREAGE	LAND USE
Petersburg	13	1	2-1-1	City	53.62	industrial (M-1)
	14	25	3-001	City	31.00	industrial (M-1)
	15	5	5-1-1	N&W RR	25.00	industrial (M-1)
Chesterfield County	16	182-6	1-6	Commonwealth of Virginia	397.75	Virginia State University
	17	150-10	1-14 Lot	Private	283.00	general industrial (I-2)
	18	150-10	1-3 Lot	Private	110.70	general industrial (I-2)
	19	151-1	1-1 Lot	County	70.00	agricultural (A)
	20	151-8	1- Lot 2	Private	62.76	agricultural (A)
	21	179-14	1-36	Private	35.03	business (B-2)
	22	152-5	1-1	Private	34.08	agricultural (A)
	23	179-14	1-13	Private	28.96	residential (R-15)
	24	150-16	1-1 Lot	Private	27.80	agricultural (A)
	25	150-12	1-1 Lot	Private	26.00	agricultural (A)
	26	179-14	1-25	Private	25.22	agricultural (A)
	27	152-5	1-2	Private	24.89	agricultural (A)
	28	185-2	2-163	Appomattox River Water Authority	20.90	agricultural (A)
	29	151-3	1-3	Private	11.00	agricultural (A)

JURISDICTION	ID #	SECTION	LOT INFORMATION	OWNER	ACREAGE	LAND USE
Dinwiddie County	30	8	2	Private	315.20	agricultural (A-3)
	31	8	10	Private	104.20	agricultural (A-3)
	32	9	8	Private	81.10	agricultural (A-3)
	33	9	9G	Virginia Power	65.00	agricultural (A-3)
	34	8	9	Private	56.90	agricultural (A-3)
	35	8	13	Private	42.10	agricultural (A-3)
	36	9	24	Private	34.70	agricultural (A-3)
	37	9	6A	Private	30.60	agricultural (A-3)
	38	10	2	Private	23.50	agricultural (A-3)
	39	9	14C	Private	17.80	agricultural (A-3)
Prince George County	40	11	-	U.S. Government	>1,250.00	Federal Corrections Institute & U.S. Army
	41	11	4-9 incl.	Private	220.73	industrial (M-2)
	42	11	11	Private	75.98	residential (R-E)
	43	11	6-A	Private	20.06	residential (R-2)
	44	11	A-26	Private	10.78	industrial (M-2)
	45	11	A-27	Private	10.30	industrial (M-2)

SOURCE: Crater Planning District Commission, Data collected and sorted from tax maps and Commissioner of Revenue's offices, August, 1994.

UTILITIES

Water

There are two water systems in the Corridor, the Appomattox River Water Authority and Virginia American Water Company.

The Appomattox River Water Authority draws water from Lake Chesdin and delivers it to its member jurisdictions after treatment. Jurisdictions in the Authority include the Cities of Petersburg, Colonial Heights, and Chesterfield, Dinwiddie, and Prince George Counties. Each locality owns and operates its own water distribution and storage system.

The Authority owns and operates a 4,000 acre reservoir and a 46 MGD water treatment plant. Lake Chesdin stores approximately twelve billion gallons of raw water. Serving the member localities, the Authority also maintains approximately thirteen miles of water lines.

The water in Hopewell is provided by the Virginia American Water Company. It supplies water to Hopewell, Fort Lee and the suburban areas in Prince George County. The Company withdraws its water from the Appomattox River near the confluence with the James River.

Ettrick Riverside Park

The treatment plant has a current capacity of 33 MGD. The average total water production is 21 MGD. Eighty-five percent of the water processed is consumed by the industries of Hopewell. There are currently over 8,500 connections to the system.

Map 7 presents the major water facilities in the Corridor.

Waste Treatment

There are two municipal wastewater treatment plants located in the Corridor area to treat essentially all of the domestic wastewater and most of the industrial waste generated in the area.

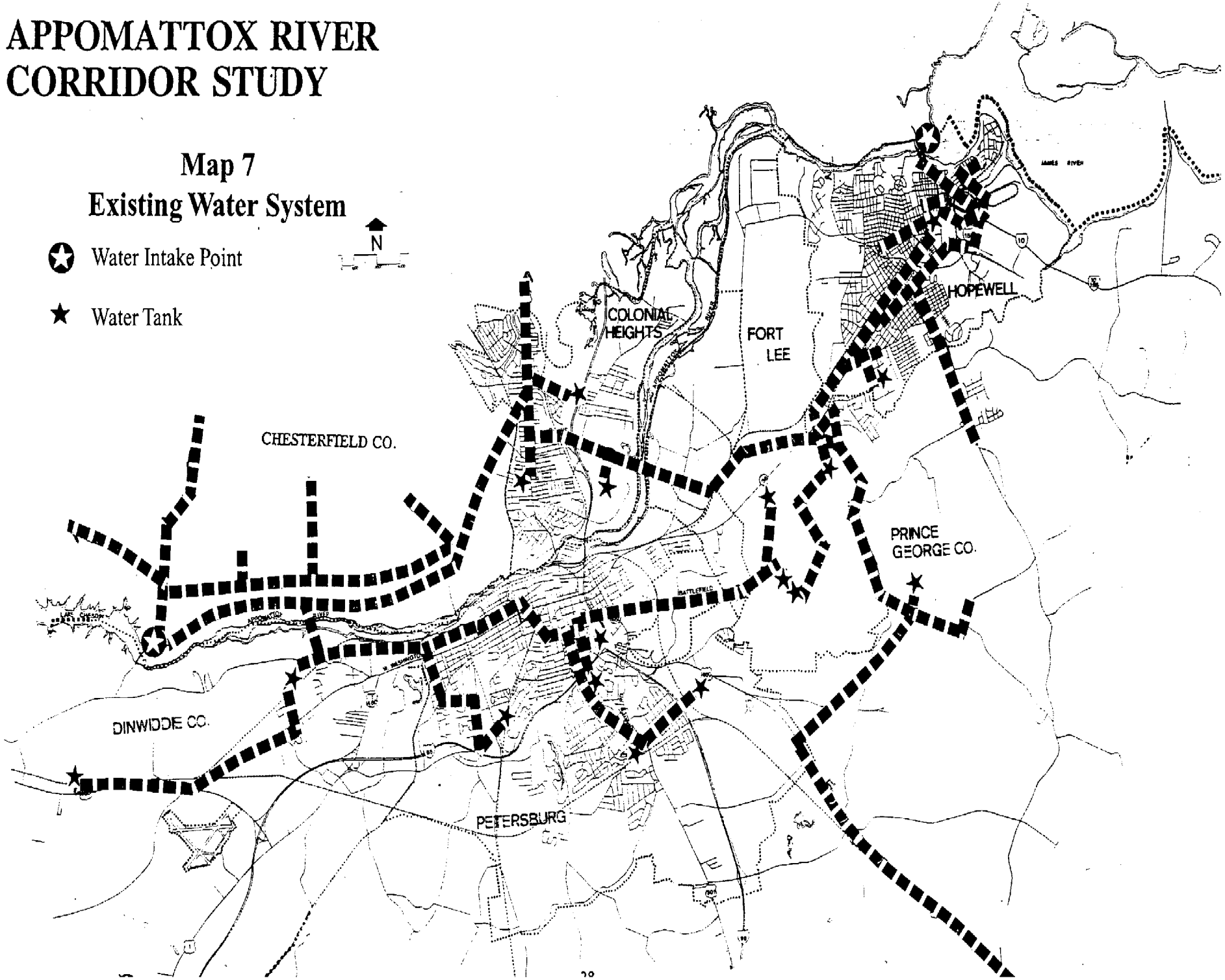
The capacity of the Petersburg Regional Wastewater Treatment Plant is 15 MGD. It is located on Pocahontas Island in the Appomattox River. It serves the City of Petersburg, the lower Swift Creek Watershed, the Old Town Creek Watershed, the Matoaca and Ettrick areas of the Appomattox Watershed of Chesterfield County, the City of Colonial Heights, the northeast portion of Dinwiddie County (West Petersburg, Central State Hospital, Southside Virginia Training School), and portions of the Rives and Bland Districts of Prince George County. Petersburg currently has under construction a major expansion that will ensure the accommodation of increased demand.

The Hopewell Wastewater Treatment Plant serves the City of Hopewell and the associated industrial complex, Fort Lee Military Reservation, the drainage area of Bailey Creek and portions of the Appomattox River drainage area in Prince George County.

Map 8 presents the major waste treatment facilities in the Corridor.

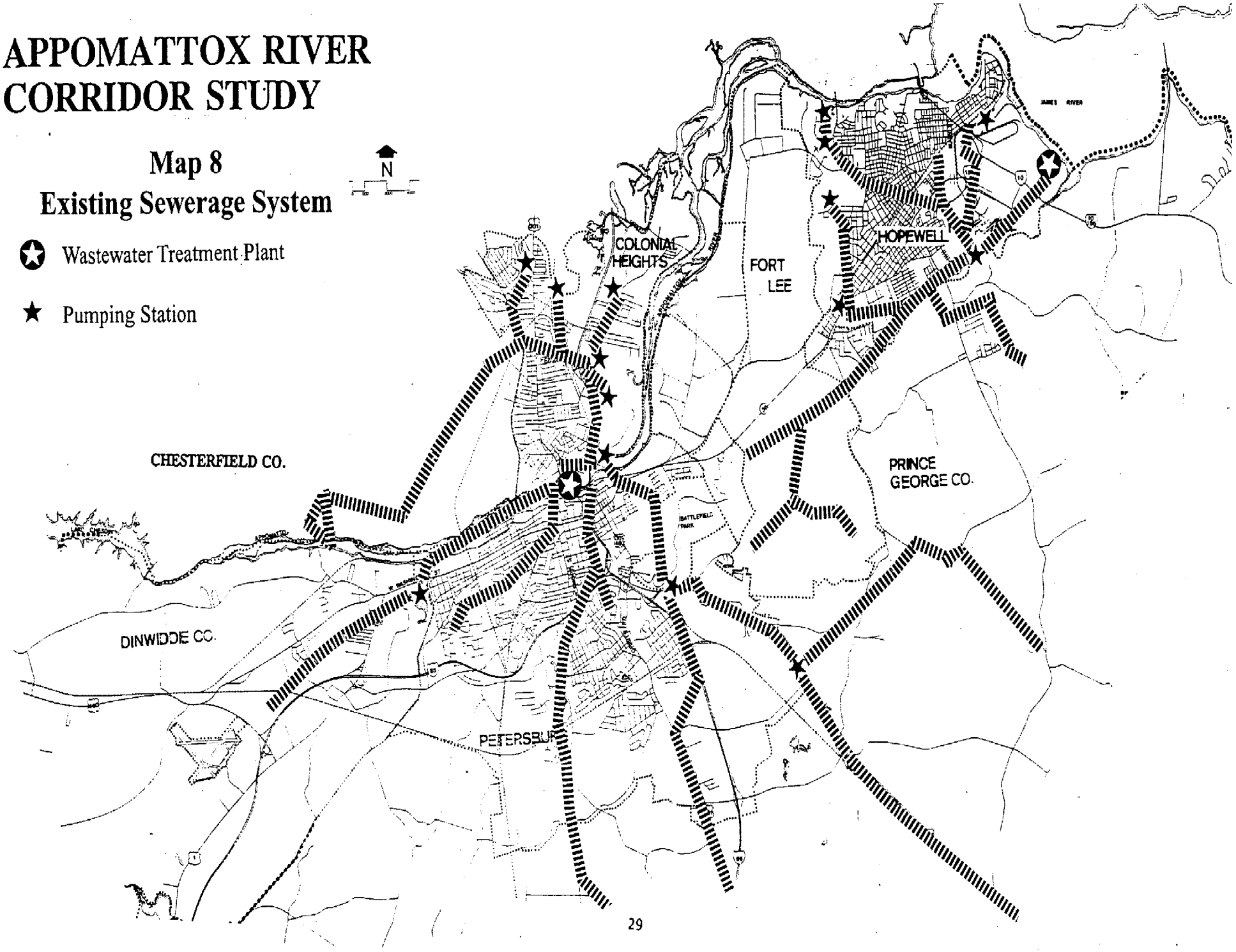
APPOMATTOX RIVER CORRIDOR STUDY

Map 7
Existing Water System



APPOMATTOX RIVER CORRIDOR STUDY

Map 8
Existing Sewerage System



SOIL AND MINERAL RESOURCES

Soils

Soil is the result of chemical and physical reactions on a myriad of geological materials under a variety of climatic conditions. It plays a critical role in the formation of any land use plan. It is estimated that there are over 1,000 different kinds of soil in the Commonwealth of Virginia. Along the Appomattox River Corridor, ninety-two kinds of soil were identified. Understanding the characteristics of these soils will help to decide where to locate buildings and where to avoid any land disturbance.

The suitability and the numerous limitations of soils in the River Corridor have a significant impact upon future land development. Determining the most suitable areas for urban development is accomplished through thorough soil analysis. A working knowledge of soil conditions is desirable for formulating comprehensive land development plans, subdivision layouts and zoning districts. The suitability of soils is basic to the design, layout and grading of roadways, as well as excavating basements, and the sanitary operation of septic tanks. Soil factors such as percolation, depth, absorption, shrink-swell conditions, wetness, and filtering action all affect urban development. Knowledge of such factors should help in determining lot sizes and density of development.

Appomattox Riverside Park

An evaluation of soil associations within the Corridor reveal that soils along the Appomattox River are highly productive for timber and agricultural uses. Slopes and wetlands are limiting factors, but very few areas exist that will not support some vegetation. Generally, soil occurring along river terraces are composed of a range of poorly drained to well drained soils. Poorly drained soils generally occur in upland depressions, in low lying areas of terraces, along drainageways, and in marshes. Soils along the higher elevations of river terraces are excellent for farming, but are also suitable for development, with possible drawbacks being soil acidity, low fertility and erosion. Poorly drained, low-lying soils along tidal creeks and streams generally support only grassy vegetation, but are critical to support aquatic life and provide sediment filtration. These soils are usually inadequate for development.

Soil Surveys

Soil information in this section is provided through soil surveys of each county, published by the U. S. Soil Conservation Service, in cooperation with Virginia Polytechnic Institute and State University. They are the most detailed sources for soils information. In the Corridor study area, the soil surveys for Chesterfield County (and Colonial Heights) and Prince George County (and Hopewell) are mapped at a scale of 1" = 1,320'. The Dinwiddie County (and Petersburg) soil maps are at a scale of 1" = 2,000'. The latter one conforms to the scale of the USGS topographic map series.

Map 9, entitled General Soil Map of the Corridor, illustrates the relative degree of hazard, risk or limitation for essentially undisturbed soils. These are intended for general planning purposes. They are not to be considered site-specific, nor do they eliminate the need for on-site investigation of the soils or analysis by persons experiened in design and engineering. The description of each soil association is listed in Appendix A.

APPOMATTOX RIVER CORRIDOR STUDY

Map 9
General Soil Map

Each area outlined on this map consists of more than one kind of soil. The map is thus meant for general planning rather than a basis for decisions on the use of specific tracts.

A Ochrepts and Udults - Vaucluse Association

B Fluvaquents - Hydraquents Association

C Bourne-Aquults - Tetotum Association

D Appling - Grover-Colfax Association

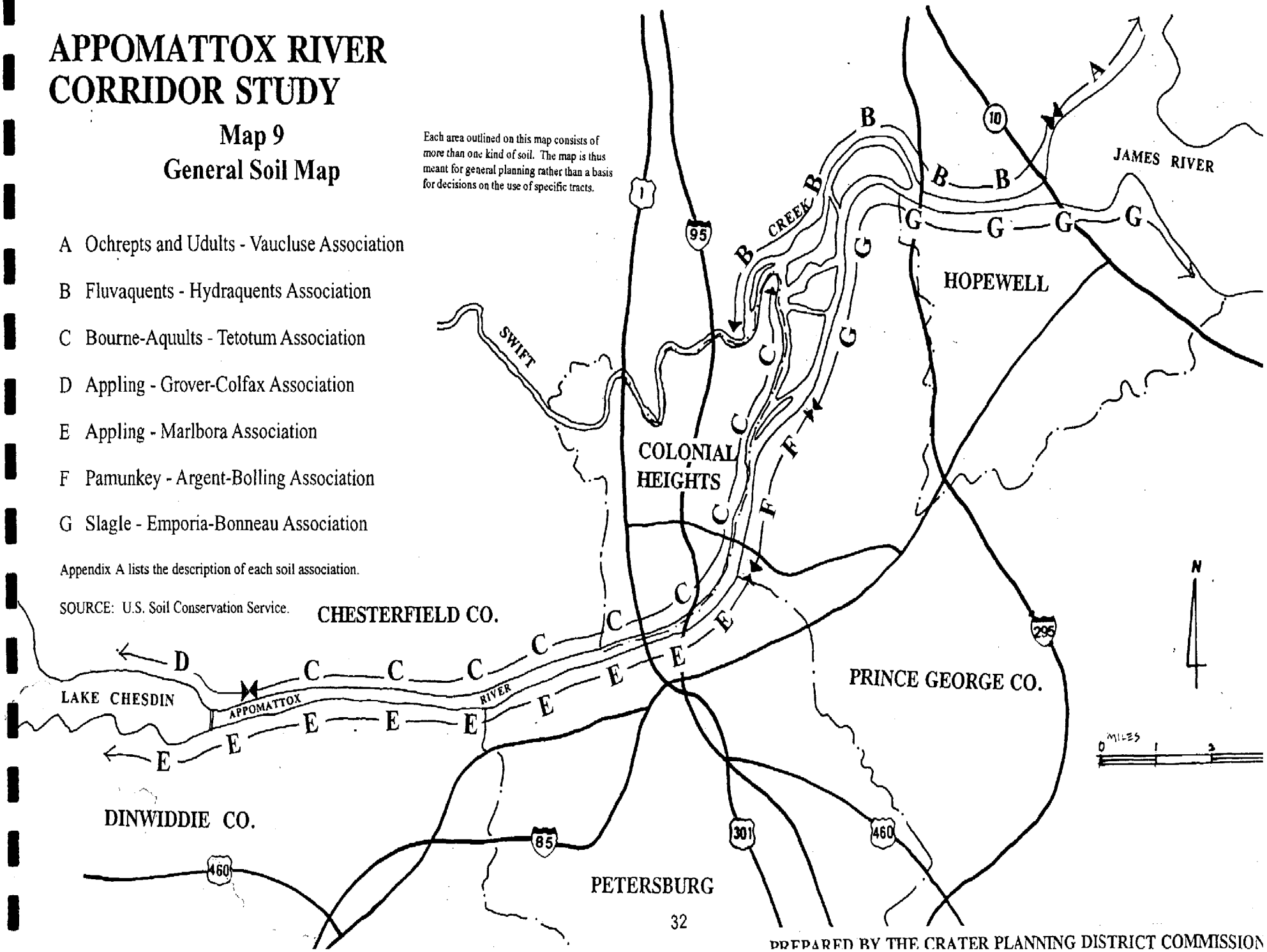
E Appling - Marlbora Association

F Pamunkey - Argent-Bolling Association

G Slagle - Emporia-Bonneau Association

Appendix A lists the description of each soil association.

SOURCE: U.S. Soil Conservation Service.



PREPARED BY THE CRATER PLANNING DISTRICT COMMISSION

Mineral Resources

The Falls of the Appomattox in Petersburg marks a geologic transition from the hard, resistant granite rock on the eastern edge of the Piedmont Province to the soft, easily eroded sedimentary rock on the western edge of the Coastal Plain Province. From this transition zone to the City Point area where the Appomattox meets the James, the geology of the Coastal Plain is a mix of unconsolidated sand, silt, clay, and shell. It is natural that sand, gravel, and clay comprise the principal mineral resources of the region.

Tarmac of Virginia is the major mining operator in the region. It has two plants operating in the Corridor; Kingsland Sand and Gravel in Chesterfield County and Puddledock Sand and Gravel in Prince George County. Sand and gravel are produced at both plants. Because mining of sand and gravel operations involves disturbance to soils and existing drainage, their environmental impact should be evaluated. Once land is mined it cannot be returned to its original grade. When the land's mineral resources are depleted, the operator is required by state and federal laws to reclaim the land. The process of reclamation usually involves the formation of ponds, regrading of steep slopes, and reseeding.

I-95 Bridge, Petersburg

Appomattox Small Boat Harbor

WATER BASED ACTIVITIES AND DEMANDS

The Virginia Division of Planning and Recreation Resources updated its Demand Survey and Inventory of Recreational Areas and Facilities in the fall, 1992. The survey indicates demand for the twenty-six measured recreational activities, while the inventory enumerates the supply of places for those leisure activities to take place. Stream use and lake, river and bay uses are two of the selected recreational activities being measured. The former covers the combined activities for canoe, kayak, rafting, tubing, and stream fishing activities, while the latter combines activities for jet skiing, lake and salt water fishing, power boating, sailboarding, sailing, and water skiiing. Table 3 presents the current supply and projected needs for the above-mentioned water based recreational activities for the corridor region. It includes the Citites of Colonial Heights, Hopewell, and Petersburg, and the Counties of Chesterfield, Dinwiddie and Prince George.

Demand and supply studies are undertaken for the purpose of calculating the need for recreation lands and facilities. The "needs" picture provides a reasonably accurate guide for directing the expenditure of local, state and federal resources and suggests emphasis for other governmental and private acquisition and development programs.[1]

As a result of the State's survey and inventory of the current water based recreational activities in the study region, the needs are for 2,628 additional water acres for lake and river uses, and 1,565 additional stream miles for stream uses.

[1]Division of Planning and Recreation Resources, Draft, 1994 Virginia Outdoor Plan, p. 460, March, 1993.

Table 3

Projected Needs of Water Based Recreational Activities
Appomattox River Corridor Jurisdictions
Crater Planning District Commission

	Units	Current Demand	Supply	Current Needs	Demand in 2000	Need in 2000	Demand in 2010	Need in 2010
Lake, River and Bay Use	water acres	24,201	21,573	2,628	28,232	6,659	31,880	10,307
(combined needs for jet skiing, lake fishing, power boating, sail boarding, sailing, salt water fishing, and water skiing)								
Stream Use	stream miles	1,593	28	1,565	1,859	1,831	2,099	2,071
(combined needs for canoe, kayak, jon boat, rafting, stream fishing, and tubing)								

SOURCE: Division of Planning and Recreation
Virginia Department of Conservation and Recreation, Fall 1992.

Appendix A

Soil Associations
Map 9
Appomattox River Corridor

A Ochrepts and Udults-Vaucluse association: Deep, excessively drained, well drained, and moderately well drained soils that have a sandy, loamy, clayey, or gravelly subsoil or that have a fragipan; on uplands

B Fluvaquents-Hydraquents association: Deep, poorly drained and very poorly drained soils that are frequently flooded and that have a sandy, loamy, or clayey substratum; along drainageways and streams

C Bourne-Aquults-Tetotum association: Deep, moderately well drained and poorly drained soils that have a fragipan or that have a loamy or clayey subsoil; on uplands and upland flats

D Appling-Grover-Colfax association: Deep, well drained and somewhat poorly drained soils that have a dominantly clayey or loamy subsoil or that have a fragipan; on uplands and upland flats

E Appling-Marlbora Association: Fine sandy-loam to sandy-loam surface soils. Gently sloping to sloping relief

F Pamunkey-Argent-Bolling: Deep, well drained, poorly drained, and moderately well drained soils that have a loamy or clayey subsoil; formed in fluvial sediments on river and stream terraces

G Slagle-Emporia-Bonneau: Deep, moderately well drained and well drained soils that have a loamy subsoil; formed in fluvail and marine sediments on uplands

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