ROUTE 29

CORRIDOR STUDY

CITY OF CHARLOTTESVILLE AND ALBEMARLE COUNTY

TECHNICAL MEMORANDUM
FOR ENVIRONMENTAL IMPACT STATEMENT

AGRICULTURAL AND FOREST RESOURCES

6029-002-122, PE 100

U.S. Department of Transportation
Federal Highway Administration
and
Virginia Department of Transportation

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Route 29 Corridor Study
Agricultural and Forest Resources - Technical Memorandum dated April, 1990

All references to alignment 8 or Alternative 8 on tables and figures and in the text should be deleted. Alternative 8 was an earlier expressway alternative that was discarded.

Similarly, references to alignments 11N-12S and 12N-11S should also be deleted as these alternatives were also discarded.

NATURAL ENVIRONMENTAL ANALYSIS TECHNICAL REPORT

Part 3 of 3

Agricultural and Forest Resources

U. S. Route 29 Corridor Study -
City of Charlottesville and
Albemarle County, Virginia

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PREFACE

This report has been prepared for the Virginia Department of Transportation as supporting information for the Draft and Final Environmental Impact Statements (D.E.I.S. and F.E.I.S.) for the U.S. Route 29 Corridor Study project in the City of Charlottesville and Albemarle County, Virginia.

The study consists of an examination of nine (9) alternatives for a corridor selection within which to construct a limited access highway facility to provide sufficient traffic capacity to address problems now existing in the area and traffic volumes anticipated to the year 2010. The study area encompasses approximately 63 square miles of Albemarle County, and extends from a point of 0.25 miles south of the junction of U.S. Route 29 and the South Fork of the Rivanna River in the north, to U.S. Interstate Route 64 in the south.

This report is one of a series of technical reports which provides detailed supporting documentation for the summary discussions presented in the Draft and Final Environmental Impact Statements. Technical report sections for the project's Natural Environmental Analysis have been prepared for each of the following areas:

- Aquatic Resources and Water Quality
- Aquatic Ecology
- Wetlands
- Groundwater and Surface Hydrology
- Floodplains
- Terrestrial Ecology
- Geology and Soils
- Agricultural Resources
- Forest Resources

Copies of this report and associated project plans and information are available for the public's review during office hours at the Virginia Department of Transportation Offices at 1401 East Broad Street, Richmond, Virginia.

SUMMARY

1.0 INTRODUCTION

The U.S. Route 29 Corridor Study was designed to identify and evaluate transportation alternatives for the improvement of traffic conditions within the existing Route 29 transportation corridor. This study was undertaken to define environmental consequences of road construction within the study area. Effects on agricultural and forestal resources are considered on a county- and corridor-wide scale. Specific impacts on farm and forest operations are presented for each corridor. The farm impact review is limited until the U.S.D.A. Soil Conservation Service has completed preparation of the Farm Evaluation Form (Form AD-1006) for Albemarle County.

2.0 STUDY METHODS

An extensive literature search was conducted to assess impacts on existing conditions in the study area. The Department of Planning and Community Development provided much of the data to include tax and zone maps, agricultural and forestal district maps, and land use maps. The U.S.D.A. Soil Conservation Service provided soil information for the County. The Albemarle County Comprehensive Plan provided much of the historical data as well as insight into the future plans of the County.

To assess agricultural resources within the county, land use maps, aerial photographs, resource literature and field visits were utilized to evaluate the impacted zones. Data on specific farm operations and the economic impact for each farm is not available until the Farm Evaluation Form (Form AD-1006) is completed. Without the Form AD-1006, agricultural land use reviews were restricted to parcels 100 acres or greater, as shown by County land use maps.

To assess forestal resources within the county and each specific corridor, land use maps, aerial photographs, resource literature and field visits were utilized to evaluate the impacted areas.

3.0 EXISTING CONDITIONS

Albemarle County has approximately 43% of the total county acreage occupied by farms while prime farmland soils occupy 22% of the county area. The major activity on the farms is cattle production with horse, sheep, hog, poultry, vineyards, orchards and ornamental agriculture playing a vital role in the farm industry. Field crops include hay, corn, soybean, barley and wheat. Hay production is probably the most important of these, as it is related to the cattle and horse industries.

The employment trend in the agricultural services sector is anticipated to increase employment at an average rate of 1.5%. Farm employment, however, is projected to decline at an average annual rate of .4%. Residential development in rural areas has averaged better than 50% of total county residential growth since 1984, rising to 65% in 1987.

The U.S. Department of Agriculture Forest Service classified 58% of the County's acreage as timberland capable of producing 20 cubic feet of industrial wood per acre per year. The majority of the acreage is second growth hardwoods, Virginia pine and Loblolly pine. Overall, the timber industry in Albemarle County is growing more timber volume than is being harvested annually. This trend is expected to continue in the future.

Employment by the forestry sector is expected to increase at an average annual rate of 1.5%. The logging activities have an anticipated employment growth of 2% annually. The employment rates are anticipated to increase despite the annual loss of timberland to other land uses. Between 1976 and 1986, about 23,000 acres were taken out of forestland use and developed into other land uses.

Agricultural and Forestal Districts in the County attempt to preserve areas of agricultural and forestal land. These districts are subject to provisions encouraging farming, forestry, and conservation.

4.0. IMPACTS

Impacts related to construction and operation of highways will result in short- and long-term impacts upon the agricultural and forestal resources. Short-term impacts are generally associated with construction and usually cease or decrease immensely after construction. The most important of these result from erosion, which can be limited by appropriate erosion control measures. The long-term impacts include the loss of prime farmland sites, the impact on the number of farms and forest stands in operation, and the annual economic loss which would result from the loss of productive lands.

Agricultural and Forestal Districts will be impacted by five alignments, 10, 11, 12, 11N-12S, and 12N-11S. Table 4.1, Land Use Impacts Along Proposed Alignments (Acres), lists the impacts created on the agricultural and forestal land use areas, the agricultural and forestal districts and the prime farmland soils. In reviewing the table, it must be remembered that the length of each alignment must be considered when comparing impacts. Impacts tend to be greater along the longer roadways, particularly in the case of prime farmland soil impacts. Alignment 12 impacts upon the most agricultural land acreage, agricultural and forestal district acreage, and prime farmland soil acreage.

TABLE 4.1
LAND USE IMPACTS ALONG PROPOSED ALIGNMENTS (ACRES)

ALIGNMENT	* AGRICULTURAL LAND USE	* FORESTAL LAND USE	AGRICULTURAL AND FORESTAL DISTRICT	PRIME FARM-LAND SOILS
6	27.9	18.8	0.0	89.5
6B	47.6	16.8	0.0	78.1
7	11.9	7.9	0.0	78.2
8	0.0	0.0	0.0	**
9	0.0	0.0	0.0	**
10	31.7	0.0	13.5	48.7
11	100.1	0.0	116.3	101.7
12	133.9	0.0	174.2	157.6
11N - 12S	118.0	0.0	159.0	110.7
12N - 11S	116.0	0.0	131.5	147.1

* Excludes Agricultural and Forestal District acreage

** Current right-of-way and development preclude the creation of new impacts upon prime farmlands soil found along existing Route 29

The construction of a roadway through a forested area affects the soil, hydrology, wildlife habitat, and economic potential for forest products. Soil erosion may occur if adequate measures are not taken to protect the exposed land. Water tables and stream flow can be affected by compaction and unintentional channelling and changes to the topography. The removal of wildlife habitat is unavoidable in such projects, however, right-of-ways may enhance the terrain for more wildlife species through the creation of a greater variety of habitat types.

The loss of forestal land use is greatest along Alignment 6, at 18.8 acres, while Alignments 6B and 7 have a projected loss of 16.8 and 7.9 acres, respectively. The remaining alignments do not impact designated forestal land use areas.

5.0 MITIGATION

The loss of productive land can be reduced by making all remaining tillable and forested land, not needed for the highway or auxiliary uses, available for the production of agricultural and forest products.

Design refinements will continue in an attempt to further reduce the extent to which a farm or forest operation is impacted. Where a bisection is unavoidable, reasonable access to each portion will be assured or the State will help facilitate land exchanges where reasonable access is not possible.

Advance relocation of impacted on-farm investments will be provided to maintain continuity of farm operations. Continued detailed discussions with affected farmers and forestland owners will be maintained throughout the design and construction periods.

The loss of wildlife habitat may be counter-balanced by the creation of a greater variety of habitats in the right-of-ways and the movement of more wildlife species into the area.

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1.0 INTRODUCTION

The objective of the Route 29 Corridor Study is to identify and evaluate a wide range of transportation alternatives for the improvement of traffic conditions within the Route 29 transportation corridor in the City of Charlottesville and Albemarle County. Based upon technical evaluation, the Project Study Team made recommendations of which specific alternatives should be carried through to the Draft Environmental Impact Statement (DEIS).

Initially, more than four hundred possible combinations of alignment alternatives were suggested. These included all alignments proposed from previous studies, possible new routes identified from topographic maps, and suggestions from citizens and public agencies. Through succeeding stages of analysis, many of the roadway segments and potential alternatives were eliminated. The remaining alignments have been the subject of equal examination to provide additional technical data to the Study Team.

The area is characterized by farmland, forest, and wetlands with concentrations of residential, commercial, industrial, and public service uses in and around Charlottesville and Albemarle County. The largest community and the main urban area within the study area is Charlottesville. It is also the most diverse of the communities in the study area with significant residential, commercial, industrial, and institutional development. The 1985 population of Albemarle County, 60,200, reflects an average annual growth rate of 1.6%. Continued growth at this rate will double the population in approximately 42 years. Areas surrounding Charlottesville tend to be devoted to farming activities. However, increased development has created a decrease in agricultural land use. The Comprehensive Plan Review, Background Information, prepared by the Albemarle County Planning Commission, 1986, reports that 209,602 acres or 44% of the County's 474,000 acres are carried under the land use program for forestry. The same document reports 201,409 acres or 43% of the total County acreage as occupied by farms.

2.0 STUDY AREA AND METHODS

2.1 AGRICULTURAL RESOURCES

The potential effects of the proposed highway alignments range from site-specific effects on existing agricultural operations and resources, to the cumulative effects on the countywide agricultural industry. Due to the broad range of the potential effects, the entire County of Albemarle is of major concern, the area of major focus being bounded by Interstate 64 to the south, the Southwest Mountains to the east, the North Fork Rivanna River to the north, and State Route 601 to the west (Figure 2.1).

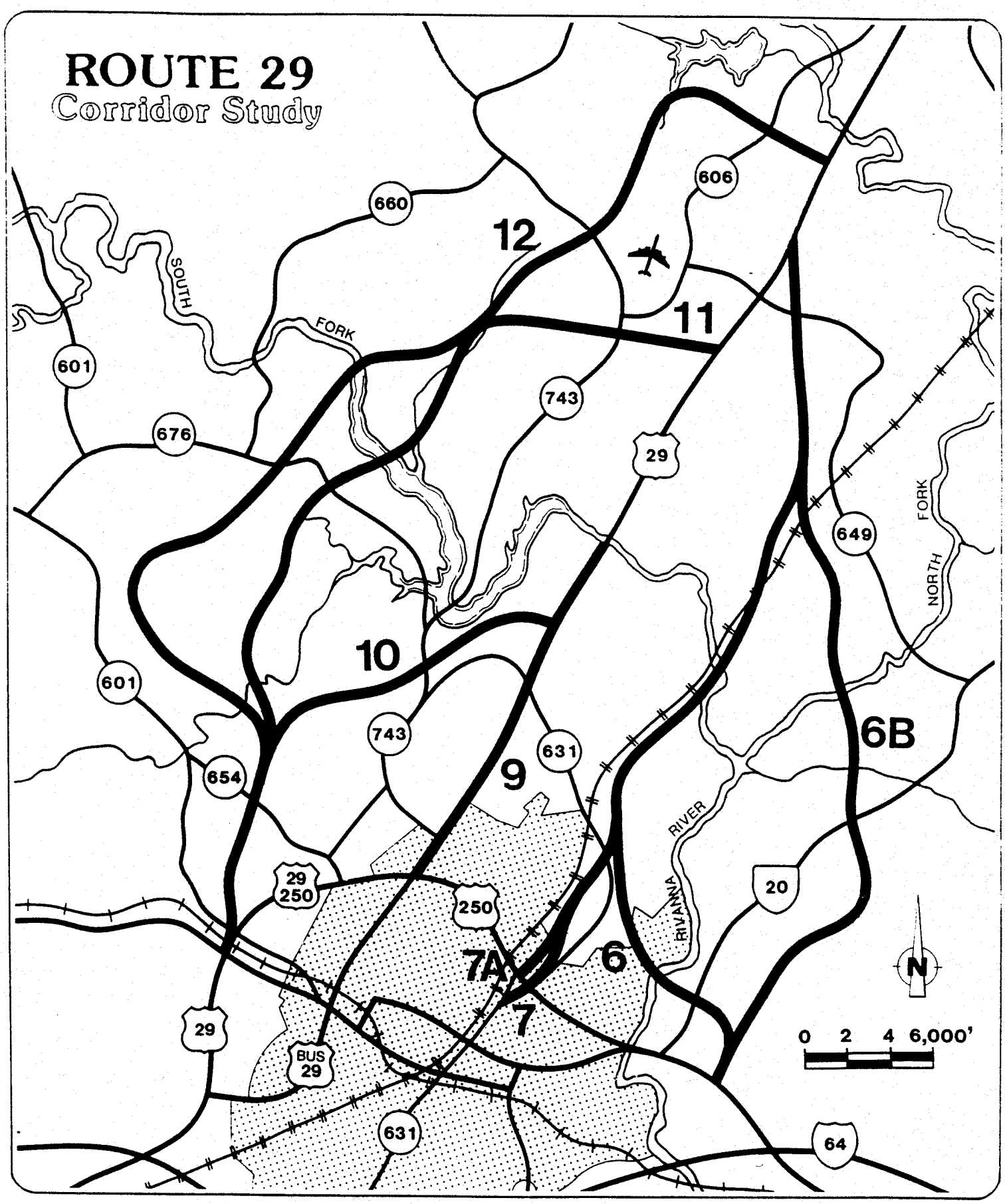
The agricultural resources of the study area are being evaluated according to the provisions of the Farmland Protection Policy Act. The Soil Conservation Service is responsible for assessing the potential impacts to prime agricultural lands through their completion of the Farmland Evaluation Form (Form AD-1006) for Albemarle County. The U.S.D.A.'s Land Evaluation and Site Assessment (LESA) System evaluates not only the quality of the soils affected by the project (Land Evaluation), but also considers site-specific factors which affect the productivity of individual farm operations (Site Assessment).

Aerial photographs, topographic maps, literature sources, and site visits were utilized in describing the general areas impacted, pending completion of Forms AD-1006 by the Soil Conservation Service.

2.2 FOREST RESOURCES

The potential effects of the proposed alignments on the forest resources are minimal as compared to the entire county's forest assets. Within the borders of the study area, the only forestal land use areas impacted by the proposed alignments are located east of State Route 29.

The Albemarle County Planning and Community Development Office provided the land use maps from which forestal areas were obtained. Topographic maps, aerial photographs, literature sources and site visits were utilized in describing the general areas impacted. The U.S.D.A. Forest Services Resources Bulletin SE-84 provided the forest resource statistics provided in Section 3.0, Existing Conditions.



Proposed Alignments along the Route 29 Study Corridor

Figure No. 2.1

3.0 EXISTING CONDITIONS

3.1 AGRICULTURAL RESOURCES PROFILE

3.1.1 Farm Soils

Soils are classified according to their suitability for most kinds of field crops. Capability classes are designated by Roman numerals I through VIII, which indicate progressively greater limitations for cultivation. Only classes I through III are suitable for cultivation. However, suitability for pasture and hay crops is also important in Albemarle County. Class IV soils are moderately well suited for these uses. Class VI soils are moderately well suited for pasture and may be suitable for hay crops. Table 3.1 lists the soil capability classes of Albemarle County. Table 3.2 lists the land use acreage summary by soil class.

Table 3.3, Soil Association Distribution and Suitability, lists the eight soil associations found in Albemarle County. Three soil associations are located within the study area: the Braddock-Thurmont-Unison, the Hayesville-Ashe-Chester, and the Elioak-Hazel-Glenelg. This table lists the suitability of each soil association with regard to cultivation, pasture, and woodland productivity.

3.1.2 Nature of Farm Operations

In 1982, the U.S. Census of Agriculture reported 829 farms in Albemarle County. These farms occupied 201,409 acres, or 43% of the total county acreage. The major activity on the farms is cattle production. Other industries include horse, sheep, hog, poultry, vineyards, orchards, and ornamental agriculture (landscape installations, irrigation, nurseries, greenhouses, and tree maintenance).

The State Code defines important farmland as land that has historically produced or is producing agricultural or forestal products and is soil classified as Class I, II, III or IV; or consists of:

- Prime farmlands are lands that have the best combination of physical characteristics for the production of food, feed, fiber, forage, oilseed, and other agricultural crops with minimum inputs of fuel, fertilizer, pesticides, labor, and without intolerable soil erosion. Prime farmlands also include land that possesses the above characteristics but is currently being used to produce livestock or timber. It does not include land already in, or committed to, urban development or water storage.

- Unique farmlands other than prime farmlands and are used for production of specific high-value food and fiber crops. They have the special combination of soil quality, location, growing season, and moisture supply needed to economically produce sustained high quality or high yields of specific crops when treated and managed according to acceptable farming methods. Examples of such crops include citrus, tree nuts, olives, cranberries, fruits including grapes and apples, and vegetables.

TABLE 3.1
SOIL CAPABILITY CLASSES
ALBEMARLE COUNTY

		ACREAGE	% OF TOTAL COUNTY ACREAGE
Well suited to cultivation, pasture and hay crops	Class I	350	0.07
	Class II	107,870	22.76
Moderately well suited to cultivation; well suited to pasture and hay crops	Class III	69,860	14.74
Poorly suited to cultivation; moderately well suited to pasture and hay crops	Class IV	67,460	14.23
	Class V	---	---
Unsuitable for cultivation; moderately well suited to pasture; may be moderately well suited or unsuitable for hay crops	Class VI	89,500	18.88
Unsuitable for cultivation and hay crops; poorly suited for pasture	Class VII	133,980	28.27
	Class VIII	---	---
Pits		250	0.05
Udorthents (cut & fill)		1,550	0.33
Urban Land		660	0.14
Water		2,520	0.53
TOTAL		474,000 AC	100.00

TABLE 3.2
LAND USE ACREAGE SUMMARY BY SOIL CLASS

SOIL CLASS	AGRICULTURE	HORTICULTURE	FOREST	OPEN SPACE	TOTAL	% TOTAL
I	271.208	1.000	72,731.336	0.000	73,003.544	22.8
II	37,369.570	422.007	30,500.355	2.463	68,284.395	21.3
III	29,735.852	447.794	106,364.378	0.352	136,548.376	42.6
IV	20,405.720	369.846	6.800	4.222	20,786.588	6.5
V	261.761	0.000	---	0.000	261.761	0.1
VI	13,086.220	376.964	---	1.758	13,464.942	4.2
VII	7,959.384	305,068	---	0.000	8,264.452	2.6
VIII	17.237	0.000	---	0.000	17.237	0
TOTAL	109,096.952	1,922.679	209,602.869	8.795	320,631.295	100.0

Source: Albemarle County Department of Finance, Real Estate Division, August 1986.

TABLE 3.3
ALBEMARLE COUNTY - SOIL ASSOCIATION DISTRIBUTION AND SUITABILITY

	SOIL ASSOCIATION	ACRES	% TOTAL	WOODLAND PRODUCTIVITY	CULTIVATION	PASTURE	L
1.	Myersville-Catoctin-Lew	28,440	6	Mod. to High	Not Suited	Mod. Well	s
2.	Parker-Chester-Porters	52,140	11	Mod. High to High	Not Suited	Mod. Well to Poorly Suited	s
3.	Braddock-Thurmont-Unison	37,920	8	Mod. High to High	Well Suited to Mod. Well Suited	Well Suited	e
4.	Hayesville-Ashe-Chester	99,540	21	Mod. High to High	Well Suited to Mod. Well Suited	Well Suited	e
5.	Elioak-Hazel-Glenelg	80,580	17	Mod. to High	Well Suited to Mod. Well Suited	Well Suited	e
6.	Rabun-Myersville Catoctin	71,100	15	Mod. to Very High	Well Suited to Mod. Well Suited	Well Suited	e
7.	Manteo-Nason-Tatum	80,580	17	Mod. to Mod. High	Most - poorly or not suited. Some-Mod. Well to Well Suited	Mod. Well to Well Suited	e
8.	Totier-Klinesville-Rapidan	23,700	5	Mod. to High	Mod. Well Suited to Well Suited	Well Suited	e
	TOTAL	474,000	100				

NOTES: 279,660 ACRES (59%) of Albemarle County is wooded
312,840 ACRES (66%) of Albemarle County is well suited for cultivation

Key to Limitations:

a = acidity
d = depth to bedrock
e = erosion
f = fertility
p = moderately permeable subsoil
r = rock fragments
s = slope
sh = shrink/swell

Source: Soil Survey of Albemarle County, Virginia. U.S. Department of Agriculture, Soil Conservation Service, 1985.

- Farmland, other than prime or unique farmlands, that is of statewide or local importance for the production of food, feed, fiber, forage, or oilseed crops.

Prime farmlands can be identified through the use of the Soil Conservation Service survey. About 103,530 acres or 22% of the soils in Albemarle are prime agricultural soils, as defined by the U.S. Department of Agriculture. This includes all Class I and II soils not limited by wetness. Unique farmlands, or farmlands of local importance have not been identified within the county.

The 1982 U.S. Census of Agriculture classified 201,409 acres or 43% of the total county acreage as "land in farms." This percentage had fallen only slightly since 1974, when the "land in farms" equalled 45% of the total acreage. The number of farms in the county has increased since 1974, as shown in Table 3.4, Land in Farms and Value of Agricultural Products Sold in Albemarle County. Though these combined statistics would indicate a smaller farm size, the average farm size in Albemarle County is about 35% larger than the state average. The value of farm property (land and buildings) is almost twice the state average. These statistics indicate that the "average" farmer in Albemarle County may not be wholly dependent on market forces of the agricultural economy to maintain financial stability.

The major activity on the 620 farms is cattle production. The 1982 Census showed 38,500 head of cattle in Albemarle, with only about 1,800 milk cows included in this total. Albemarle's beef cattle industry is recognized nationally, with more beef cattle seed stock producers than any other county in Virginia.

Equally recognized on a national level is the Albemarle horse industry. A Virginia Horse Inventory, which was prepared for the Virginia Horse Council by the VPI Cooperative Extension Service during 1979-81, shows over 3,100 horses in Albemarle, with a total investment in land, buildings and animals exceeding $24 million. That survey also showed that the Albemarle horse industry grossed over $8.6 million annually, ranking second among Virginia counties. According to the Albemarle Extension Agent, Albemarle has 35 breeding farms, 30 boarding farms, 20 stud farms, and five training stables. Support industries include feed dealers, tack stores, horse transportation, and veterinarians.

Hog and poultry farming are minor County activities. There are two hog farms with 20-40 sows each, and one purebred breeder. The poultry industry has been reduced to one flock of 35,000 laying hens. Two poultry farm operations have closed due to remoteness from the industry in the rest of Virginia.

Sheep farming, by contrast, shows growth potential. In 1982 there were 29 farms raising over 1,200 sheep for lambs and wool production. Thirty-three percent of county producers indicated, in a 1986 Extension Service survey, plans to expand within five years.

TABLE 3.4
LAND IN FARMS AND VALUE OF AGRICULTURAL PRODUCTS SOLD
ALBEMARLE COUNTY

	1974	1978	1982
# Farms	750	751	829
Land in Farms (acres)	213,398	208,476	201,409
Average Farm Size			
Albemarle	285	278	243
Index (State = 100)	155	147	134
Value of Land and Buildings			
Average per Farm ($)			
Albemarle	203,384	299,469	406,856
Index (State = 100)	199	174	198
Average per Acre ($)			
Albemarle	715	1,066	1,458
Index (State = 100)	128	118	130
AGRICULTURAL PRODUCTS SOLD ($)			
Crops	2,982,000	3,141,000	4,719,000
Livestock, poultry, and their products	7,394,000	15,032,000	17,183,000
TOTAL	11,754,000	18,173,000	21,902,000
Average Per Farm ($)			
Albemarle	15,672	24,231	26,420
Index (State = 100)	86	96	85

NOTE: A farm is defined by the Census Bureau as "any place from which $1,000 or more of agricultural products were sold, or normally would have been sold, during the census year."

Source: Bureau of the Census, Census of Agriculture, 1978 and 1982.

Vineyards and orchards are significant agricultural enterprises in the county. Fruit has the highest market value of county crops sold according to the 1982 Census. The Agricultural Stabilization and Conservation Service (ASCS) in 1987 showed 1,500 acres in apples and 300 acres in peaches in Albemarle. Albemarle County is second in the state in number of peach trees.* Grape production is oriented to wine making with about 200 acres in production. Albemarle has four vineyards open to the public.

Hay is an important crop which is related to the cattle and horse industries. In 1987, the ASCS reported 29,943 acres in hay, 2,600 acres in corn (grain), 2,400 acres in corn (silage), 500 acres in soybeans, 400 acres in barley, and 200 acres in wheat.

Ornamental agriculture has also increased in importance with the urbanization of the area. Sixty local businesses are involved in landscape design, irrigation, landscape installations and maintenance, nurseries, greenhouses, tree maintenance and turf establishment and maintenance.

Larger home lots have led to increased levels of home horticultural activities. Most production is oriented to home food consumption, although some production provides supplemental income.

3.1.3 Nature of Farm Support Infrastructure

An extensive network of support facilities exists in Albemarle County which provides vital services to the agricultural community. Processing plants, materials and equipment suppliers, and storage facilities are among the elements of this network. The relationship between the support facilities and the farmers is crucial. The farmers are dependent on these facilities to provide necessary services while the facilities operators are dependent on the continuing level of productivity from the farmers to support the investments made in the support facilities.

3.1.4. Trends

Farm employment is projected to decline at an average annual rate of .4%, as recorded in the Albemarle County Comprehensive Plan, 1988-2010 Draft. This represents a slower rate of decline than is generally projected for farm employment in the County. The agricultural services sector, which includes livestock and horse breeders and veterinary services, is anticipated to increase employment at an average rate of 1.5%. Analysis of residential growth indicates that current County efforts to preserve agricultural and forestal lands, primarily through restrictions on rural development, are insufficient. Residential development in rural areas has averaged better than 50% of total County residential growth since 1984, rising to 65% in 1987. Residential development in rural areas often conflicts with agricultural or forestal uses and has an adverse impact on the continuance of agriculture or forestry in an area.

* 1982 Virginia Apple and Peach Tree Survey

3.2 ECONOMIC PROFILE

3.2.1 Characteristics of the Agricultural Economy in Albemarle County

Albemarle County is among the top 20% of counties in Virginia in the value of agricultural products sold. Total value of these sales exceeded $20 million in 1982, including $17 million in livestock and livestock products and $4.7 million in crops (Table 3.4, Land in Farms and Value of Agricultural Products Sold). Agriculture, as well as forestry, also provide related benefits such as: 1.) protection of water supply watersheds; 2.) preservation of the natural and historic landscape and open space; and 3.) less costly service delivery needs than would be required by scattered residential subdivision development in the vast rural areas.

As of September 1985, employment by the agriculture, forestry and fishing industries comprised 616 persons or 2.3% of the work force in Albemarle County, according to the Virginia Employment Commission, Covered Employment and Wages in Virginia by 2-Digit SIC Industry, Annual Report. This report also lists the agriculture sector as paying the lowest wages of all emloyment sectors. The projected employment growth rate for the farm sector is actually a decline at an average annual rate of .4%. The agricultural services sector, which includes veterinary services and livestock and horse breeders, has a projected annual employment growth rate of 1.5%. The employment projections are derived from the 1984 Tayloe Murphy Institute economic base analysis of the Charlottesville-Albemarle County economy.

3.2.2 Economic Linkages With Other Sectors

In Albemarle County, agricultural resources have strong linkages to other industries in the economy and are major contributors to the local economy. Beef cattle, horse breeding, vineyards, and orchards are all viable and nationally or regionally recognized county industries. Paragraph 3.1.2., Nature of Farm Operations, discussed the livestock and crop industries in more detail.

Agriculture has traditionally contributed to the quality of life in Albemarle County and has also provided the rural character and scenic quality which distinguishes this county by preserving the natural landscape and open space. Most of the county's agricultural lands are used as grassland, either for hay production or pasture. Of the remaining 3-5% of farmland that is cultivated, only 1% is located in a water supply watershed.

Literature has cited the positive effects that agriculture has on the external local economy. It must also be recognized that agricultural activities can be adversely affected, directly or indirectly, by: 1.) vandalism of crops and equipment and the harassment or destruction of livestock by persons or pets; 2.) the attempts of new residents to regulate routine farm activities through nuisance suits (spraying of pesticides and herbicides; spreading of lime and manure; grazing livestock near residences; operating machinery at odd hours); and 3.) higher land prices which make it difficult for existing farmers to expand and new farmers to locate in the area.

Development in an agricultural area may create additional adverse affects. Increased residential traffic on rural roads can result in hazardous conflicts with slower moving tractors and farm vehicles. New or expanded utility corridors through active farms may be required to serve new development. Scattered rural development often increases the service delivery needs and the costs for improved roads, schools, utilities, and other public services in the vast rural areas.

The potential exists for an additional link between agricultural resources and other economic sectors. Parimutuel racing is one potential link which could effect additional changes to the agricultural economy as well as other industries.

3.3 FOREST RESOURCES PROFILE

3.3.1 Forest Soils

Eighty-five soil profiles are identified as present along the proposed alignments. Eighty-three of these soil profiles are suitable for wood crops. The remaining two profiles are the Udorthents and Urban land profiles, both of which cannot support wood crops. Table 3.3, Albemarle County - Soil Association Distribution and Suitability, provides the suitability and productivity potential of the eight soil associations described within the County. Table 3.2, Land Use Acreage Summary by Soil Type, provides additional acreage data pertaining to agriculture, horticulture, and forest land use. All classes of soils listed on the Land Use Table are suitable for woodlands.

3.3.2 Nature of Timber Operations

In 1986, the U.S. Department of Agriculture Forestry Service classified 275,629 acres or 58% of the total County acreage as timberland (capable of producing 20 cubic feet of industrial wood per acre per year). The majority of the acreage is second growth hardwoods, Virginia pine, and Loblolly pine. The original woodland consisted of mixed stands of Chestnut oak, White oak, Post oak, Scarlet oak, Black oak, Northern Red oak, Southern Red oak, and hickory. Most of the original woodland was cleared and the soil was cultivated as the lands were settled and consolidated into farms. Gradually the soils became eroded, fertility was depleted, and the woodland was allowed to return. The present stands of mixed hardwoods, Virginia pine, and Loblolly pine are mostly in areas that were farmland.

As stated earlier, 58% of the total County acreage is timberland, capable of producing 20 cubic feet of industrial wood per acre per year. Most of the timberland is of the Oak-hickory group (66%), Loblolly-Shortleaf pine (20%), and Oak-Pine (12%) as shown in Table 3.5, Timberland in Albemarle County by Forest Type. Corporations, including farm corporations, own 16%, and the

TABLE 3.5
TIMBERLAND IN ALBEMARLE COUNTY BY
FOREST TYPE

FOREST TYPE	ACRES
White Pine - Hemlock	3,565
Loblolly-Shortleaf Pine	54,118
Oak - Pine	32,083
Oak - Hickory	182,298
Elm - Ash - Cottonwood	3,565
TOTAL	275,629

Source: Forest Statistics for the Northern Piedmont of Virginia, 1986. U.S. Department of Agriculture, Forest Service, Southeastern Forest Experiment Station. Resource Bull. SE-84

forest industry owns 8% of the timberland. Four pulp and paper companies have substantial land holdings in the County. Eighteen Albemarle County businesses are related to the timber industry for home components, logging, plywood, pulpwood concentrations, saw milling, and wood treatment.

3.3.3 Trends

Statistics from 1986 indicate that 35.5 million board feet of the 59.7 million board feet of sawtimber grown annually in Albemarle County is harvested. Table 3.6, Net Annual Growth and Removals . . ., shows growing stock and sawtimber data reported by the U.S.D.A. Overall, the forest industry in the county is growing more timber volume than is being harvested annually. This is projected to continue in the future. A major concern is the amount of timberland lost annually to other land uses. Between 1976 and 1986, about 23,000 acres were taken out of forest land use and developed into other land uses.

3.4 ECONOMIC PROFILE

3.4.1. Characteristics of the Forest-related Economy of Albemarle County

According to the 1986 U.S. Department of Agriculture statistics, 35.5 million board feet of sawtimber is removed annually from the County, with an average value of $2.5 million. Of the $2.5 million, hardwoods account for 84% or $2.1 million while pine wood accounts for the remainder. Overall, the forest industry in Albemarle County is growing more timber volume than is being harvested annually; this is projected to continue in the future. A major concern is the amount of timberland lost annually to other land uses. Between 1976 and 1986, about 23,000 acres were taken out of forestland use and developed into other land uses.

The projected employment growth rate for the forestry services sector of Albemarle County is expected to increase at an average annual rate of 1.5%, according to the 1984 Tayloe Murphy Institute economic base analysis. Logging activities are categorized under the manufacturing sector which has an anticipated employment growth rate of 2% annually.

3.4.2. Economic Linkages With Other Sectors

In Albemarle County, forest resources and production have strong linkages to other industries in the economy. The benefits of forested land includes its commercial value, watershed protection, recreational opportunity, screening, aesthetic value, wildlife habitat, air pollution, noise and glare reduction, windbreak, and shade.

TABLE 3.6
NET ANNUAL GROWTH AND REMOVALS OF GROWING STOCK AND SAWTIMBER ON TIMBERLAND IN ALBEMARLE COUNTY, VIRGINIA
1985

GROWING STOCK (THOUSAND CUBIC FEET)

	All Species	Pine	Other Softwood	Soft Hardwood	Hard Hardwood
GROWTH	13845	2211	476	3839	7319
REMOVALS	10148	1710	---	1404	7034
% HARVEST	73	77	0	37	96

SAWTIMBER (THOUSAND BOARD FEET)

	All Species	Pine	Other Softwood	Soft Hardwood	Hard Hardwood
GROWTH	59792	5103	1657	22593	30439
REMOVALS	34525	2783	---	6968	24774
% HARVEST	58	55	0	31	81

Source: Forest Statistics for the Northern Piedmont of Virginia, 1986. U.S. Department of Agriculture, Forest Service, Southeastern Forest Experiment Station. Resource Bull. SE-84

The magnitude of forest/industry linkages is difficult to quantify. However, some of the businesses related to forest production and harvest include logging, retail/wholesale lumber, pulpwood concentrations, saw milling, wood treatment, and home and building components. The economic linkages between forest resource harvesting and other industries demonstrate that if forest harvests in Albemarle County were decreased or increased, there would be a subsequent economic impact throughout the economy. The greatest impact on the local economy would be the number of personnel employed in the local harvesting and processing of the timber. A decrease in the local timber harvest would reduce employment opportunities for those involved in logging and processing of the timber. Businesses that rely upon local wood products would find a supplier outside Albemarle County to meet the continuing demand. Thus the economy of Albemarle County might be marginally impacted in either a positive or negative fashion by a change in the commercial forest harvest activities.

3.5 AGRICULTURAL AND FOREST PRESERVATION DISTRICTS

3.5.1 General

Agricultural and Forestal Districts attempt to preserve areas of these type lands. The concept of Agricultural and Forestal Districts is unique in that it uses neither the police power of the State nor the expenditure of public funds to control the use of land. A district is created by the voluntary action of landowners who approach the local government requesting that a district be formed. The landowners must present a core of 200 acres of predominantly agricultural or forest land. Through a four-step process that includes, among other things, a public hearing, an option for others to join, and adoption of the district by the local government, the district is created for a period of from four to ten years. During that period the district is subject to provisions encouraging farming, forestry, and conservation, including use value taxation, relief from nuisance laws, and restrictions on subdivision, special use permits, and rezonings. Among other requirements are the notification of pending state eminent domain action within the district and the prohibition of any new sewer, water, and utility assessments against property owners in the district. During the time period of its existence, the district may not be changed, but at the end of this period, it is subject to review after which it may be continued, modified, or terminated. Table 3.7 lists the Agricultural and Forestal Districts within the County as of May 1, 1988.

Since May 1, 1988, four Agricultural and Forestal Districts have been created in Albemarle County; Buck Mountain, Yellow Mountain, Free Union, and Ivy Creek Districts. Amendments or additions have also been made to existing Districts and were reviewed during the preparation of this study to determine possible impact by the proposed alignments.

TABLE 3.7
AGRICULTURAL/FORESTAL DISTRICTS
IN ALBEMARLE COUNTY, MAY 1, 1988

NAME	CURRENT ACREAGE	CREATED	REVIEW PERIOD
Totier Creek	6,138.01 acres	06-29-83	8 years
Hatton	2,873.63 acres (original acreage 2,913.63 acres. 40 acres withdrawn on 11-19-89)	06-29-83	8 years
Eastham	764.75 acres	10-02-85	8 years
Blue Run	1,136.00 acres	06-18-86	8 years
Keswick	5,921.240 acres (including 9-7-88 addition of 699.010 acres)	09-03-86	8 years
Kinloch	1,586.62 acres	09-03-86	8 years
Moorman's River	10,303.381 acres (including 9-7-88 addition of 2,269.03 acres)	12-17-86	8 years
Hardware	6,023.940 acres	11-04-87	10 years
Jacob's Run	722.282 acres	01-06-88	6 years
Carter's Bridge	7,969.719 acres	04-20-88	10 years
Lanark	996.047 acres	04-20-88	10 years
Panorama	1,066.100 acres	04-20-88	10 years
TOTAL	45,501.719 acres	(9.6% of 474,000 acres in Albemarle County)	

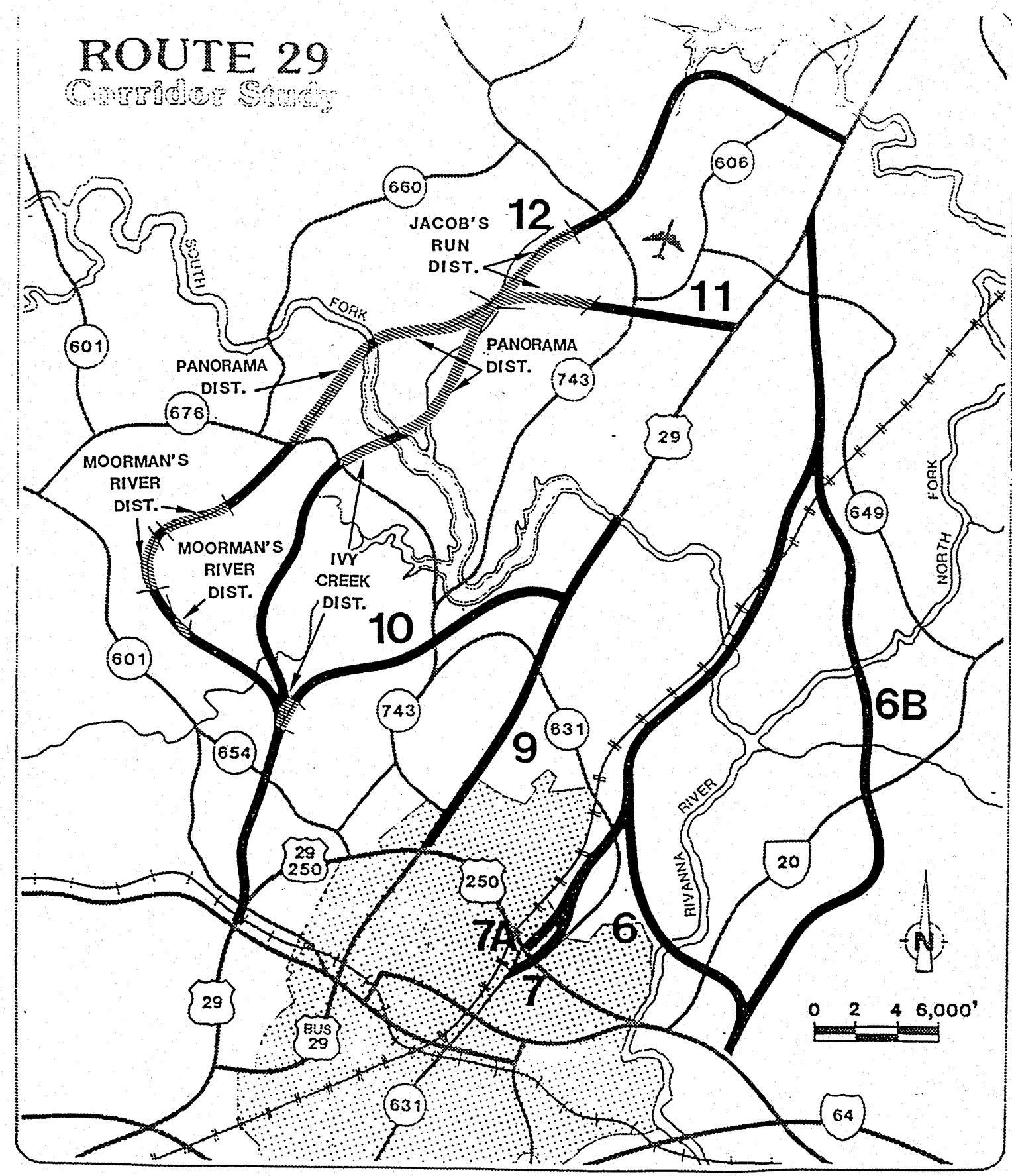
3.5.2 Potential Impacts

The proposed alignments create potential impacts on four Agricultural and Forestal Districts: the Moorman's (3 locations), the Panorama (2 locations), the Jacob's Run (2 locations), and the Ivy Creek (2 locations). The zones of impact were determined utilizing property maps, provided by the Albemarle County Department of Planning and Community Development, and aerial photographs containing the proposed right-of-way boundaries.

Table 3.8 lists the Districts and acreage impacted by the proposed alignments. Alignment 12 creates the greatest impact as it passes through four districts at six locations (Figure 3.1).

TABLE 3.8
AGRICULTURAL AND FORESTAL DISTRICTS IMPACTED
BY PROPOSED ALIGNMENTS

Alignment	District Name	Acres Impacted Within District	Total Acres Impacted Along Alignment
6	---	0.0	0.0
6B	---	0.0	0.0
7	---	0.0	0.0
10	Ivy Creek	13.49	13.49
11	Ivy Creek	36.42	
	Panorama	53.40	
	Jacob's Run	26.51	
			116.33
12	Ivy Creek	10.18	
	Moorman's River	45.59	
	Panorama	86.24	
	Jacob's Run	32.20	
			174.21
11N-12S	Ivy Creek	33.57	
	Moorman's River	45.55	
	Panorama	53.40	
	Jacob's Run	26.51	
			159.03
12N-11S	Ivy Creek	13.03	
	Panorama	86.24	
	Jacob's Run	32.20	
			131.47



AGRICULTURAL AND FOREST AL DISTRICTS

Figure 3.1

4.0 IMPACTS

4.1 AGRICULTURAL RESOURCES AND FARMLAND

4.1.1 General Impacts

In Albemarle County, the construction of a roadway is very likely to make an impact upon the agricultural resources and farmlands of the County. These impacts might include the loss of prime farmland sites, the impact upon the number of farms in operation, and the annual economic loss which would likely result from the loss of production capacity.

Section 1540(b) of the Farmland Protection Policy Act, 7 U.S.C. 4201(b), states that the purpose of the Act is to minimize the extent to which Federal programs contribute to the unnecessary and irreversible conversion of farmlands to nonagricultural uses.

The U.S.D.A. Soil Conservation Service (SCS) field office serving Albemarle County is responsible for determining whether a farmland site is subject to the Act, and if so, measure the relative value of the site as farmland on a scale of 0 to 100 according to the criteria in section 1541(a) of the Act, 7 U.S.C. 4202(a). Additional information to be provided by the S.C.S. includes the following: the total amount of farmable land (the land in the unit of local government's jurisdiction that is capable of producing the commonly grown crop); the percentage of the jurisdiction that is farmland covered by the Act; the percentage of farmland in the local government's jurisdiction that the project would convert; and the percentage of farmland in the local government's jurisdiction with the same or higher relative value than the land that the project would convert. The score of a site's relative value, provided by the S.C.S., is necessary prior to applying the site assessment criteria which are set forth in Section 658.5(b) and (c) of the Act. By utilizing the resulting score, the effect of the project on farmland may be identified, and a determination made as to the suitability of the site for protection as farmland.

Evaluation of each proposed alignment by this study is limited to the general identification of agricultural land use areas, and does not delineate individual farmland operations nor property boundaries of which the S.C.S. is tasked to identify. The absence of livestock activity on a particular site does not eliminate the possibility of the area being used for grazing at certain times during herd rotation.

In 1982, the U.S. Census of Agriculture reported 829 farms in Albemarle County. The farms occupied 201,409 acres or 43% of the total county acreage. About 103,530 acres or 22% of the soils in the county are prime agricultural soils, as defined by the U.S. Department of Agriculture. Table 4.1, Land Use Impacts Along Proposed Alignments, lists the acres of land in agricultural use and prime farmland soils impacted by each proposed alignment. Figures 4.1 through 4.9 illustrate agricultural land use parcels, 100 acres or larger, located along the proposed alignments. The agricultural land use areas were obtained from the Albemarle County Planning and Community Development Office.

TABLE 4.1
LAND USE IMPACTS ALONG PROPOSED ALIGNMENTS (ACRES)

ALIGNMENT	* AGRICULTURAL LAND USE	* FORESTAL LAND USE	AGRICULTURAL AND FORESTAL DISTRICT	PRIME FARM-LAND SOILS
6	27.9	18.8	0.0	89.5
6B	47.6	16.8	0.0	78.1
7	11.9	7.9	0.0	78.2
8	0.0	0.0	0.0	**
9	0.0	0.0	0.0	**
10	31.7	0.0	13.5	48.7
11	100.1	0.0	116.3	101.7
12	133.9	0.0	174.2	157.6
11N - 12S	118.0	0.0	159.0	110.7
12N - 11S	116.0	0.0	131.5	147.1

* Excludes Agricultural and Forestal District acreage

** Current right-of-way and development preclude the creation of new impacts upon prime farmlands soil found along existing Route 29

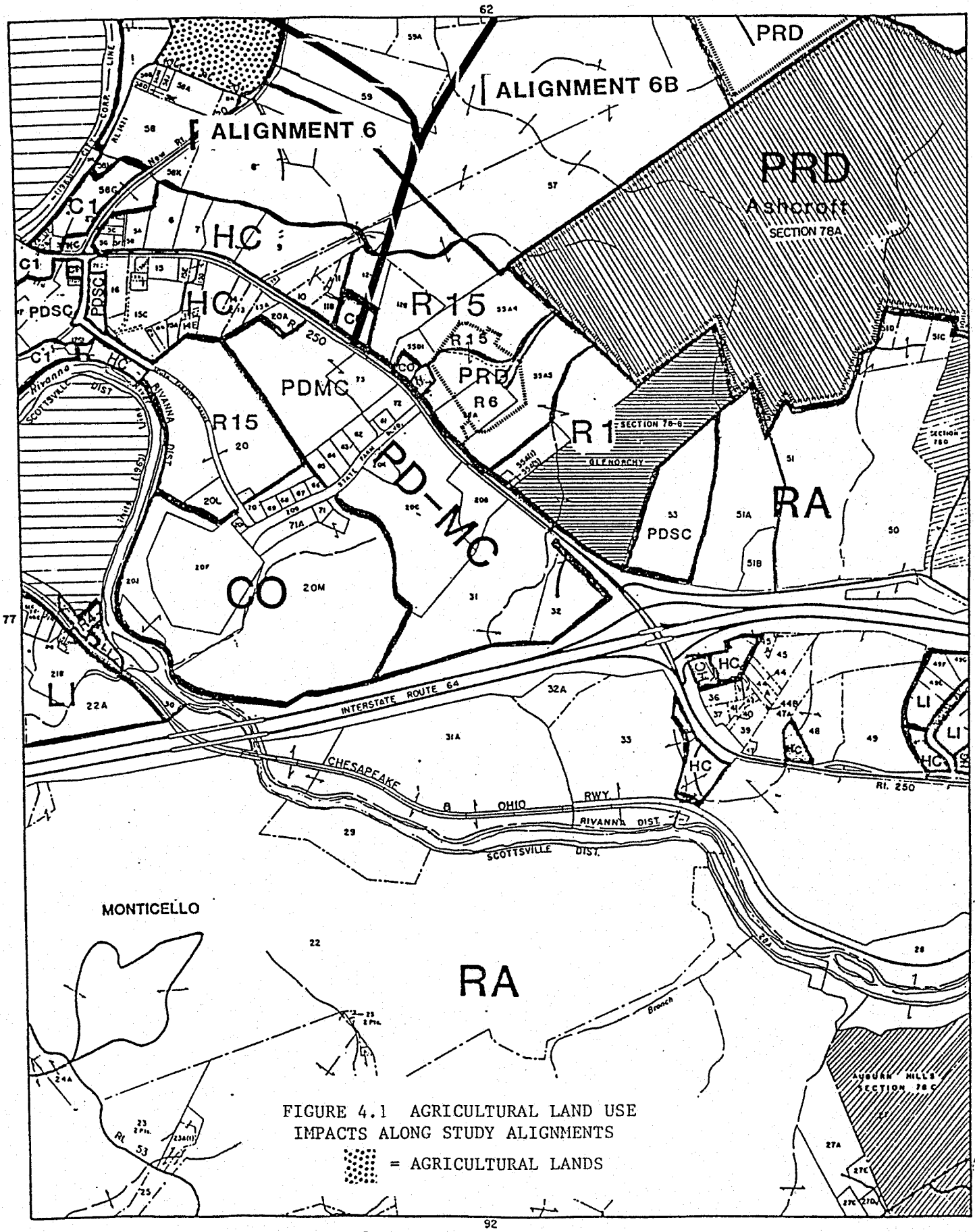


FIGURE 4.1 AGRICULTURAL LAND USE IMPACTS ALONG STUDY ALIGNMENTS

= AGRICULTURAL LANDS

SCALE IN FEET

SCOTTSVILLE AND RIVANNA DISTRICTS

SECTION 78

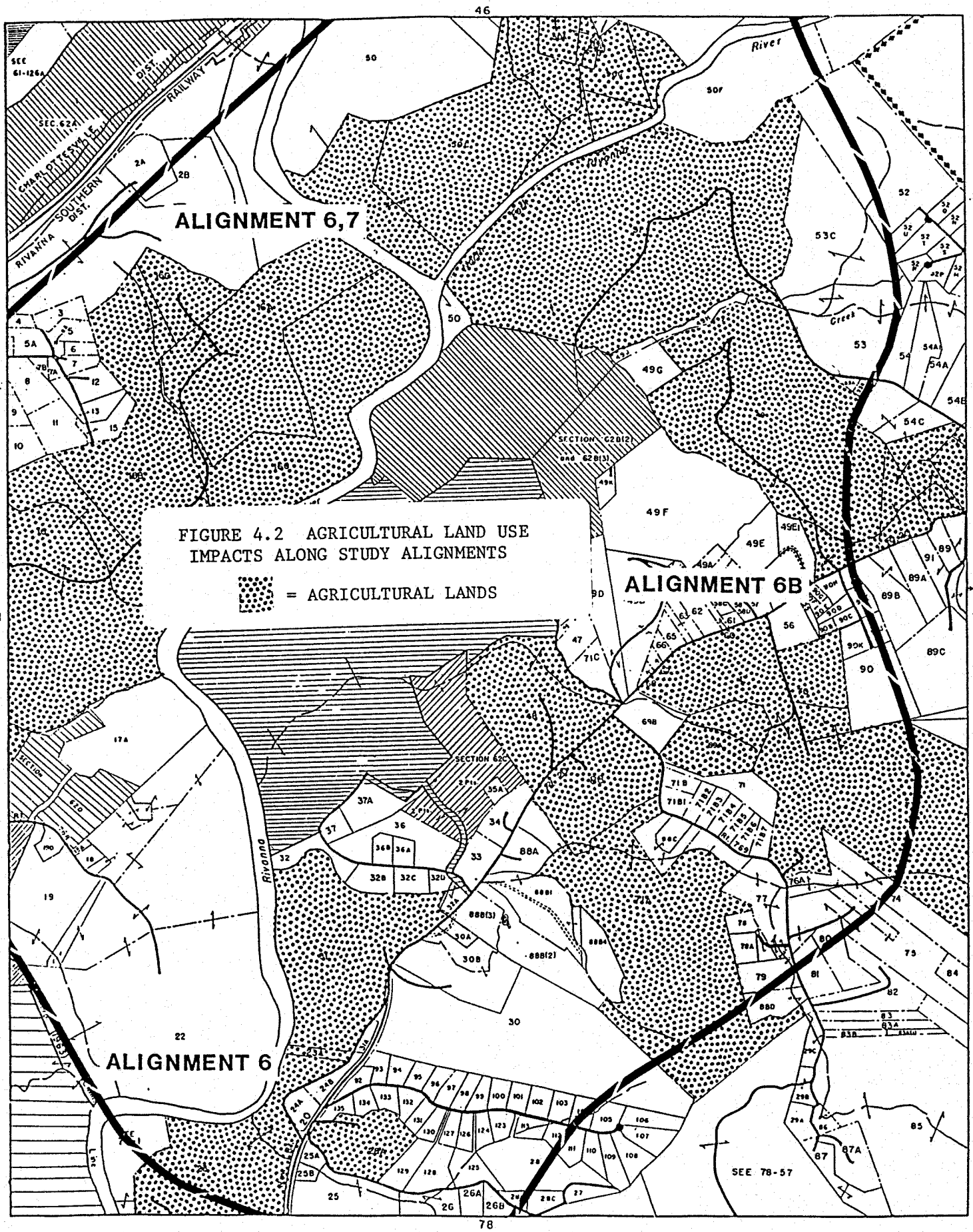


FIGURE 4.2 AGRICULTURAL LAND USE IMPACTS ALONG STUDY ALIGNMENTS

= AGRICULTURAL LANDS

CHARLOTTESVILLE & RIVANNA DISTRICTS

SECTION 62

ALBEMARLE COUNTY

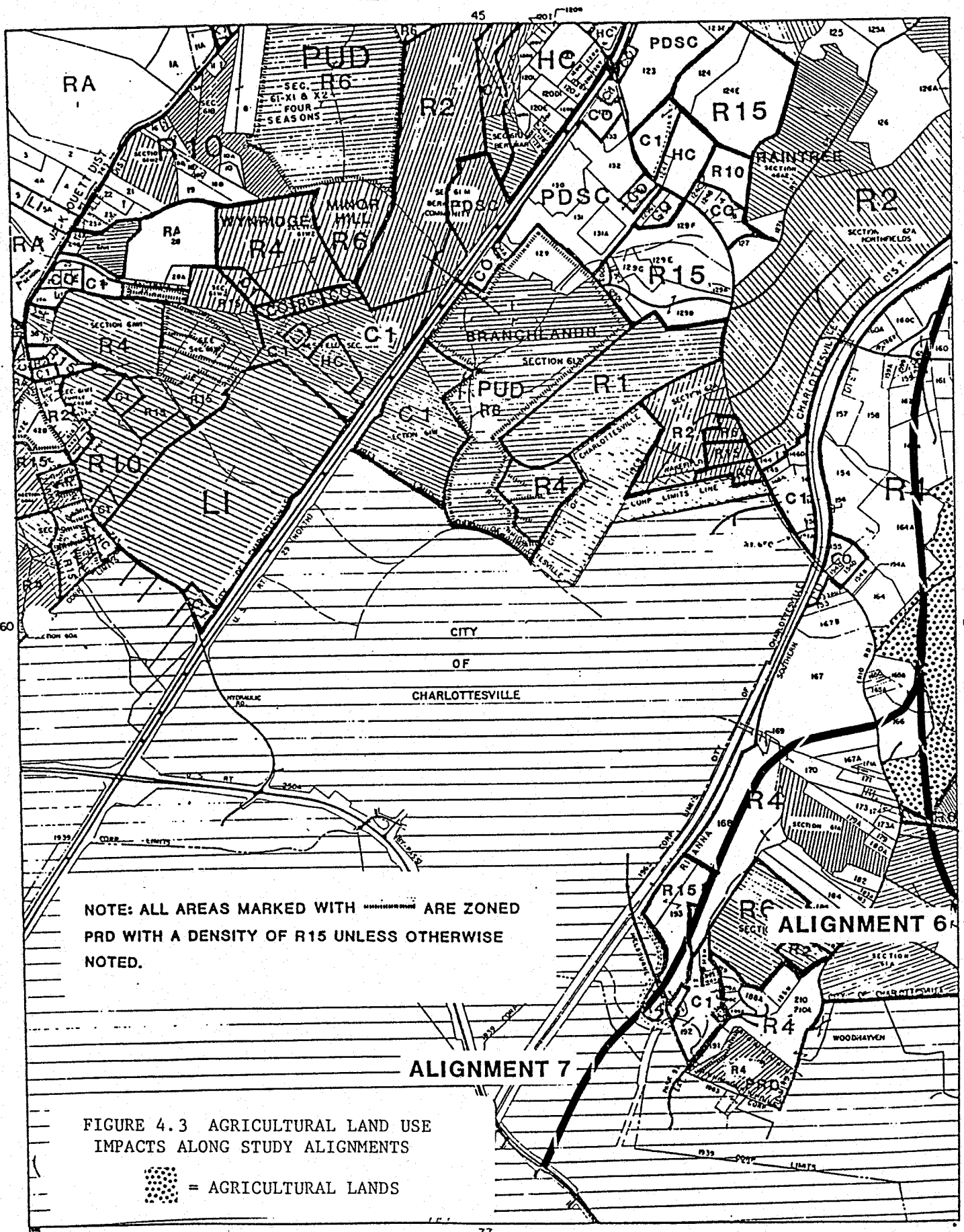


FIGURE 4.3 AGRICULTURAL LAND USE IMPACTS ALONG STUDY ALIGNMENTS

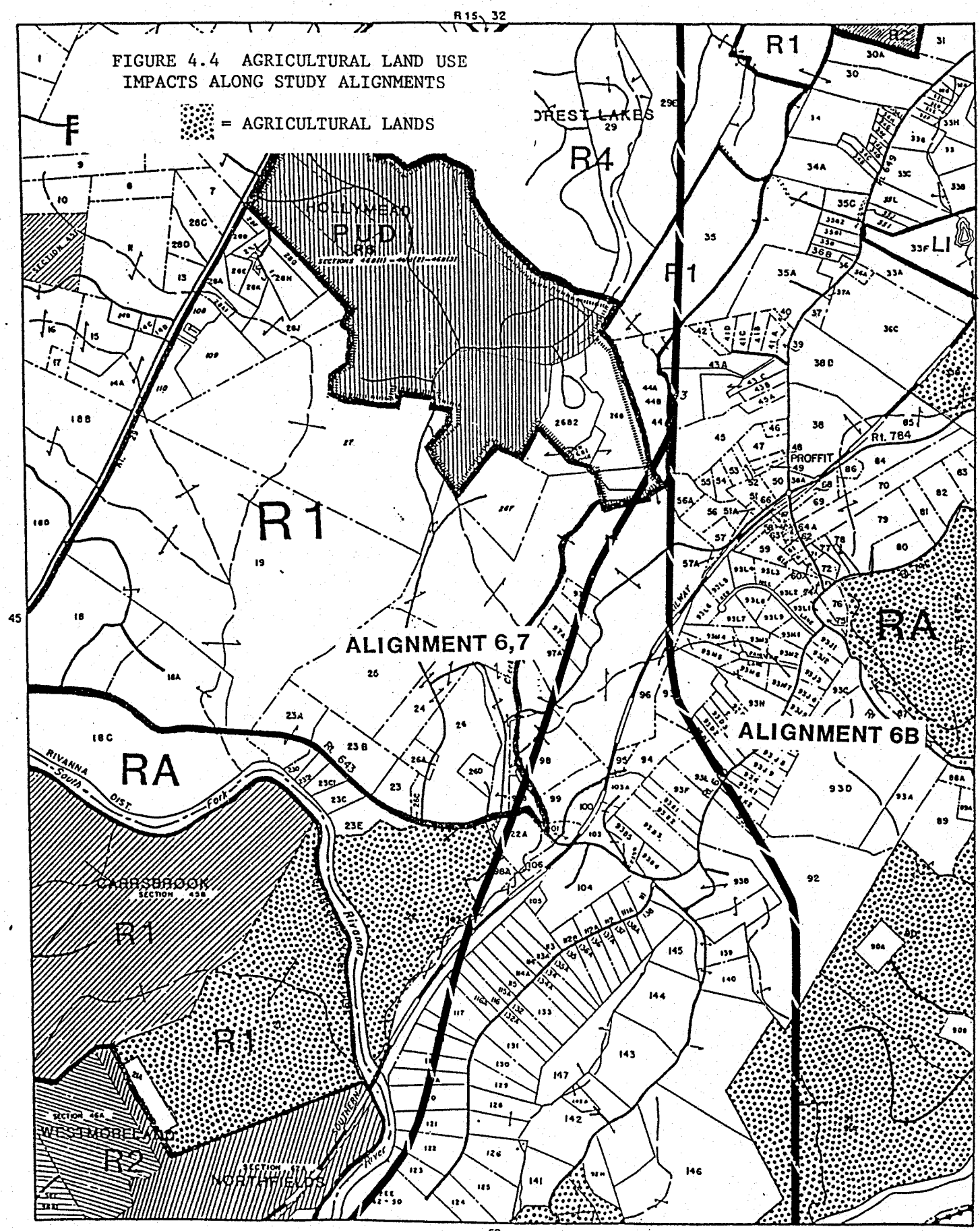
= AGRICULTURAL LANDS

77

JACK JOUETT, RIVANNA AND CHARLOTTESVILLE DISTRICTS

SECTION 61

ALBEMARLE COUNTY



CHARLOTTESVILLE AND RIVANNA DISTRICTS

SECTION 46

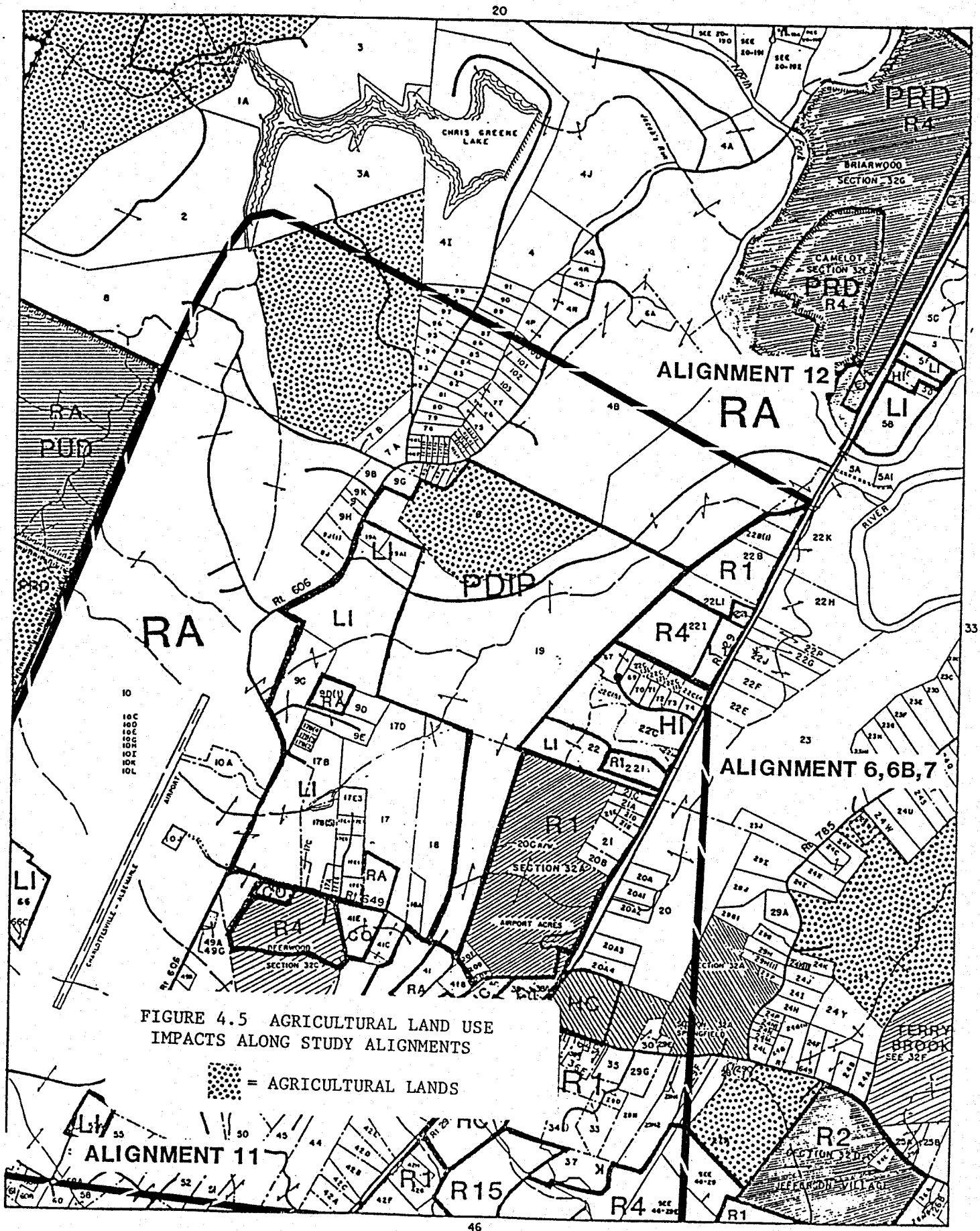


FIGURE 4.5 AGRICULTURAL LAND USE IMPACTS ALONG STUDY ALIGNMENTS

= AGRICULTURAL LANDS

ALBEMARLE COUNTY

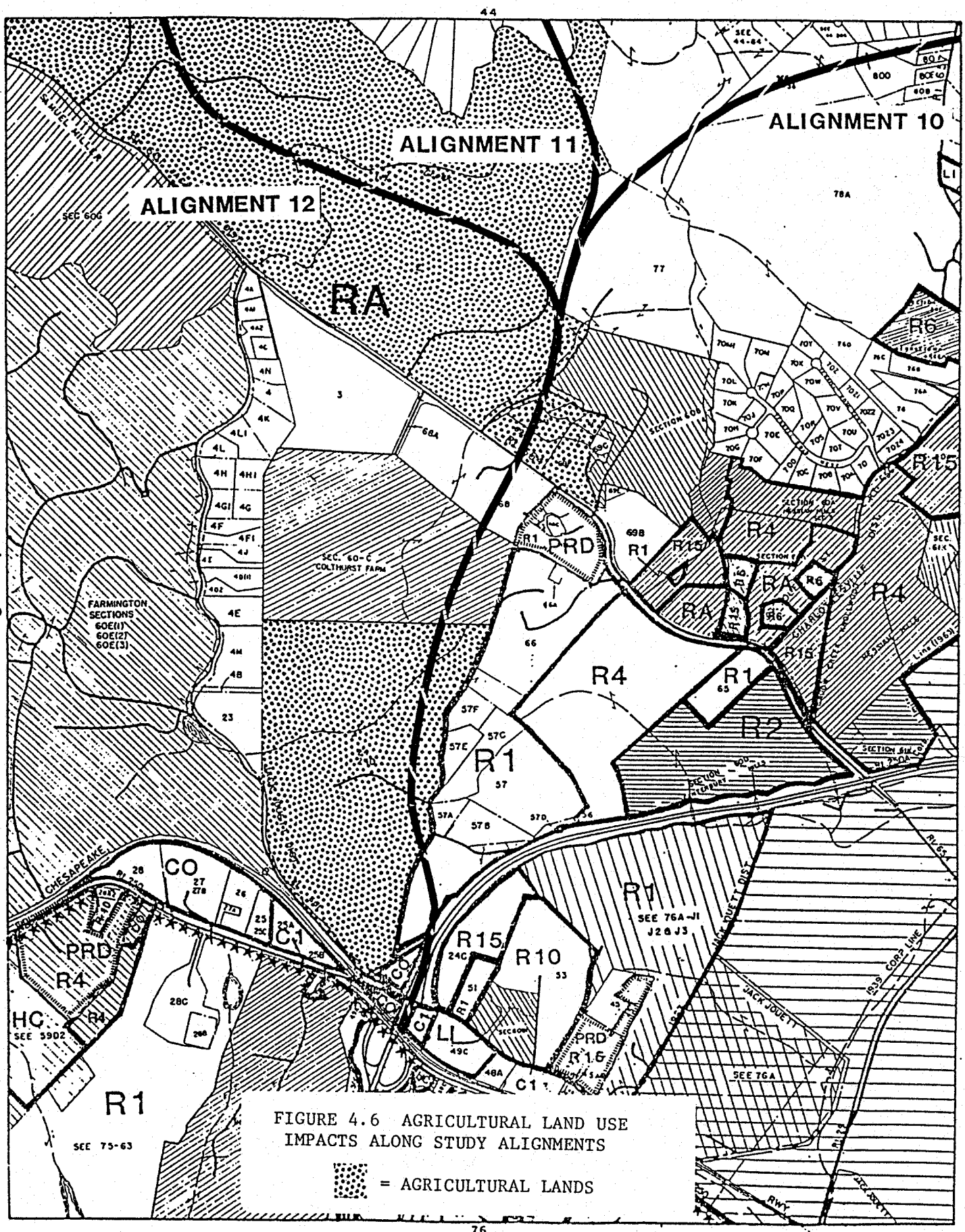


FIGURE 4.6 AGRICULTURAL LAND USE IMPACTS ALONG STUDY ALIGNMENTS

= AGRICULTURAL LANDS

SAMUEL MILLER, JACK JOUETT AND CHARLOTTESVILLE DISTRICTS

SECTION 60

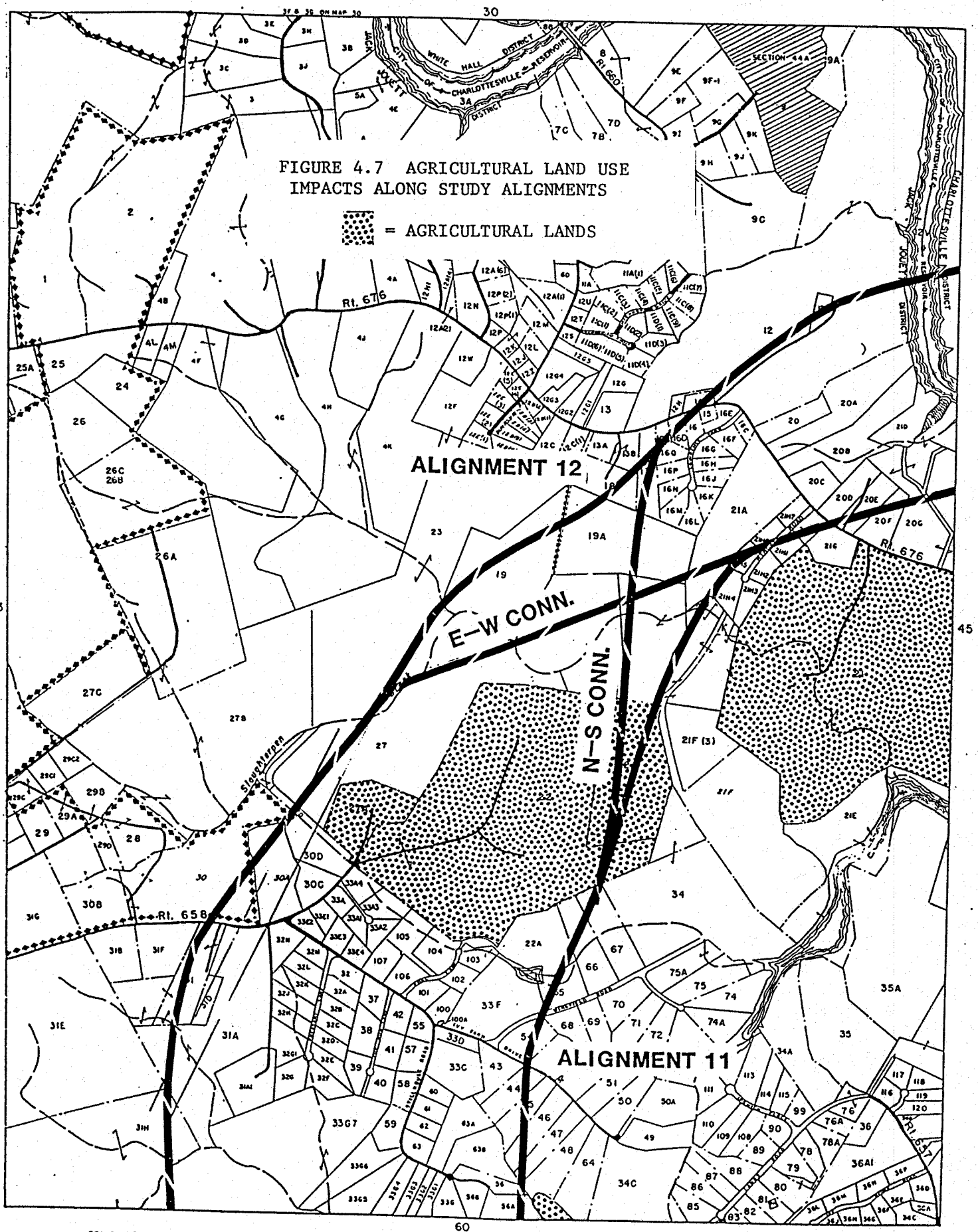


FIGURE 4.7 AGRICULTURAL LAND USE IMPACTS ALONG STUDY ALIGNMENTS

= AGRICULTURAL LANDS

SCALE IN FEET

"MOORMAN'S RIVER AGRICULTURAL & FORESTAL DISTRICT"

WHITE HALL, JACK JOUETT AND CHARLOTTESVILLE DISTRICTS

SECTION 44

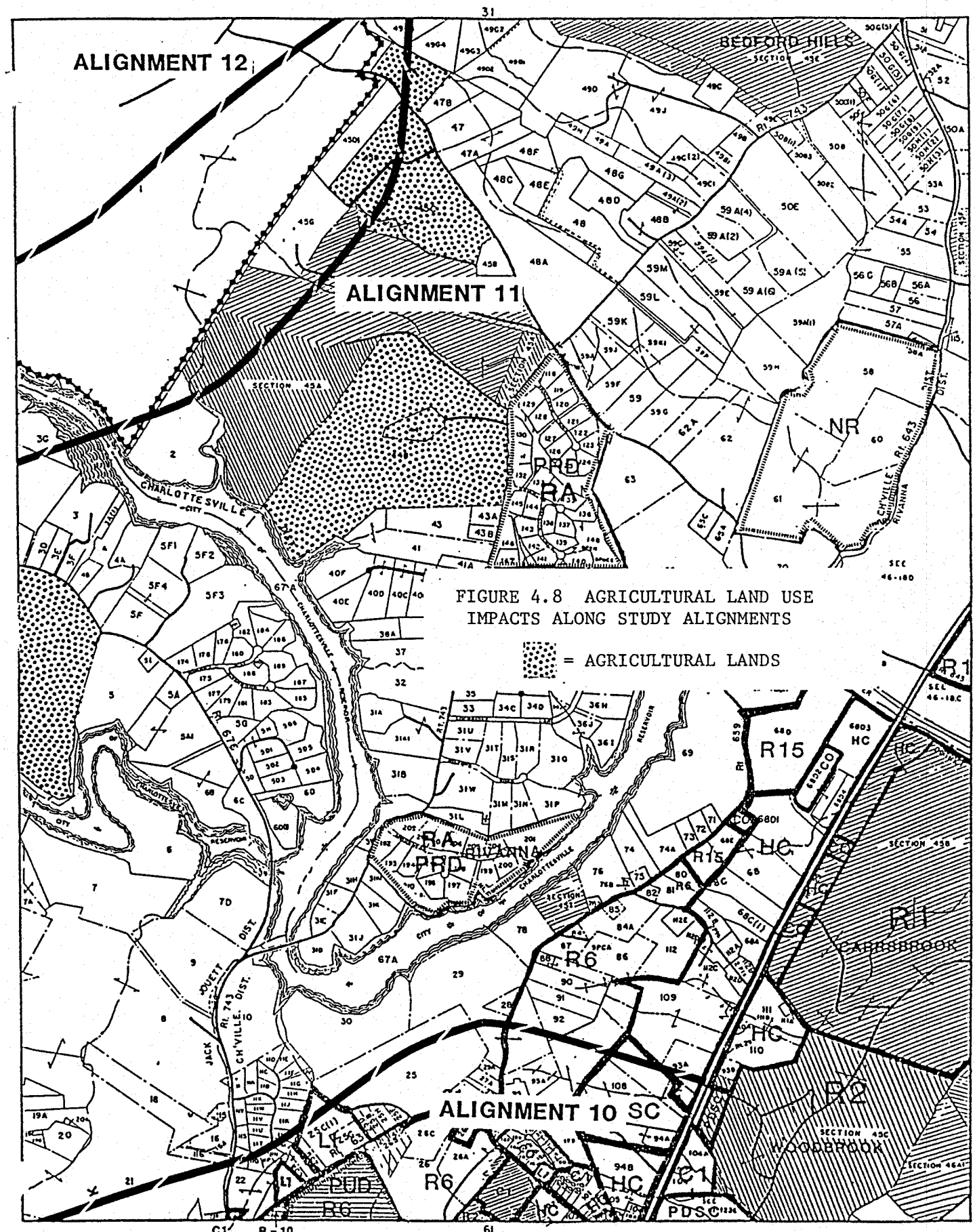


FIGURE 4.8 AGRICULTURAL LAND USE IMPACTS ALONG STUDY ALIGNMENTS

= AGRICULTURAL LANDS

CHARLOTTESVILLE, RIVANNA & JACK JOUETT DISTRICTS

SECTION 45

ALBEMARLE COUNTY

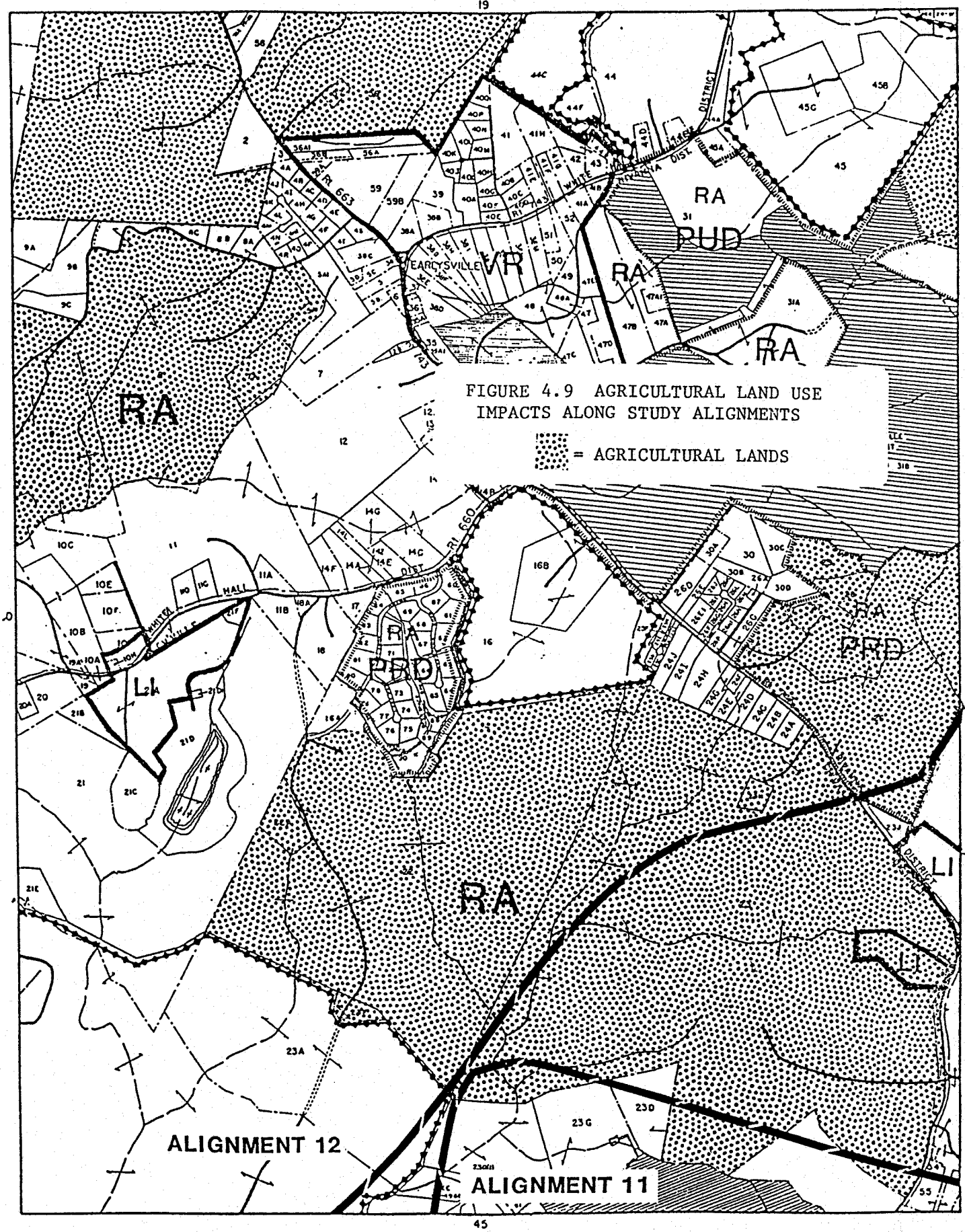


FIGURE 4.9 AGRICULTURAL LAND USE IMPACTS ALONG STUDY ALIGNMENTS

= AGRICULTURAL LANDS

RIVANNA, WHITE HALL AND CHARLOTTESVILLE DISTRICTS

SECTION 31

4.1.2 Specific Impacts

A specific agricultural impact evaluation such as the United States Department of Agriculture's (USDA) Land Evaluation and Site Assessment (LESA) System must be carried out on any Federally-funded project which affects prime farmlands. LESA evaluates not only the quality of the soils affected by a project (Land Evaluation), but also considers site specific factors which affect the productivity and relative importance of individual farm operations (Site Assessment). The LESA methodology, however, does not readily lend itself to corridor type projects. Due to the nature of the methodology and the necessary data required prior to initiating a LESA type evaluation, only a general impact evaluation is possible pending completion of Form AD 1006 by the S.C.S. Table 4.1, Land Use Impacts Along Proposed Alignments, lists the acres of land in agricultural use and prime farmland soils impacted by each proposed alignment.

4.1.2.1 Alignment 6

This alignment impacts upon 27.9 agricultural land use acres, as shown on Table 4.1. Though the map obtained from the Albemarle County Planning and Community Development Office depicts the southernmost area as agricultural use, the area is classified as a residential district (R-1) as of June 1988 (Figures 4.1 and 4.2). The cultivated fields now contain a large recreational facility with baseball diamonds, dugouts, a concrete floodwater control ditch and holding pond. Cultivated fields still exist on the peripheral areas of the recreational facility.

The second agricultural land use area, in the vicinity of State Route 631 (Figure 4.3), has a new housing development underway. The area consists of sparse tree and shrub cover, a recently created pond, and residential homes. The 1988 county zoning book classifies the site as a residential district (R-4). No crops or livestock activities were observed in this area.

The northernmost agricultural land use area is in the vicinity of Powell Creek and State Route 643 (Figure 4.4). The 1988 county zoning book classifies this site as a rural area. The site consists of an open grass field with sparse tree and shrub cover. No livestock activity was evident nor was there sign of recent cultivation.

Alignment 6 impacts upon 89.5 acres of prime farmland soils. The S.C.S. manual, Soil Survey of Albemarle County, Virginia, lists 13 prime farmland soil profiles located on the alignment. These soil profiles are scattered along the alignment, providing no large linear plots of prime farmlands.

4.1.2.2 Alignment 6B

This alignment impacts on 47.6 agricultural land use acres. The four sites located along this alignment are not common to any of the corridors east of State Route 29 (Figure 4.2). The southernmost site is on the east side of Rocky Hollow. Though the county land use map depicts the area as agricultural

land use, the area consists primarily of dense stands of hardwoods. There is no evidence of current farming activities in the Rocky Hollow site. This site is categorized as Rural Area (RA) in the County zoning book.

The second agricultural land use site is located 2000 feet northeast of Rocky Hollow (Figure 4.2). This area has small stands of hardwood in a mosaic around open grass fields and fields left fallow and having dense shrub growth. No livestock activity was sighted during field trips. The area is classified as Rural Area (RA) in the County zoning book.

The next land use site is located 2000 feet west of the intersection of State Routes 20 and 621 (Figure 4.2). The area is primarily open grass fields with fence row hedges. The proposed alignment bisects the largest grass field, and severs the access road leading from State Route 20 to the homesites located north of Redbud Creek. Livestock activity was not evident in the area, however, cultivation of the fields has been observed. The area is classified as Rural Area (RA) in the County zoning book.

The northernmost agricultural land use area of this alignment is located 4000 feet west of State Route 20 on the north bank of the North Fork Rivanna River (Figure 4.4). The area is primarily hardwood forest and is not densely vegetated. The clearings adjacent to the woodland stand are utilized for cattle grazing. These grazing locations are not in the alignment right-of-way. This area is classified as Rural Area (RA) in the County zoning book.

Alignment 6B impacts upon 78.1 acres of prime farmland soils. The S.C.S. manual, Soil Survey of Albemarle County, Virginia, lists 13 prime farmland soil profiles located on the alignment. These soil profiles are scattered along the alignment, providing no large, linear plots of prime farmlands.

4.1.2.3 Alignment 7

This alignment impacts on 11.9 agricultural land use acres, as shown on Table 4.1. The two locations on this alignment are also common to Alignment 6. The area in the vicinity of State Route 631 (Figure 4.3), has new housing development underway. The area consists of sparse tree and shrub cover, a recently created pond, and residential homes. The 1988 County zoning book classifies this site as a Residential District (R-4). No cultivation or livestock activities were observed in this area.

The northernmost agricultural land use area is in the vicinity of Powell Creek and State Route 643 (Figure 4.4). The 1988 County zoning book classifies this site as a Rural Area (RA). The site consists of an open grass field with sparse tree and shrub cover. No livestock activity was evident nor was there sign of recent cultivation.

Alignment 7 impacts upon 78.2 acres of prime farmland soils. The S.C.S. Soil Survey Manual lists 8 prime farmland soil profiles located on the alignment. These soil profiles are scattered along the alignment, providing no large linear plots of prime farmland.

4.1.2.4 Alignment 8

This 8-lane option has no impact upon agricultural land use areas. The current right-of-way and existing development preclude the creation of new impacts upon prime farmland soils found along the existing Route 29.

4.1.2.5 Alignment 9

This 10-lane option has no impact upon agricultural land use areas. The current right-of-way and existing development preclude the creation of new impacts upon prime farmland soils found along the existing Route 29.

4.1.2.6 Alignment 10

This alignment impacts on 31.7 agricultural land use acres, as shown on Table 4.1. The two locations on this alignment are also common to Alignments 11, 12, 11N-12S and 12N-11S (Figure 4.6). The southernmost area, located west of Belfield School and north of U.S. Route 250, has grass fields with fence row hedges. The alignment passes through the site along the eastern edge creating minimal impact on the area, however, eliminating the primary access road to the centrally located homesite. An unimproved dirt road, located immediately south of the homesite, may be upgraded to replace the primary access road. Upgrading of the south access road would split the cultivated field, removing additional soil from production capability. No livestock was observed on the site during field trips. The 1988 County zoning book classifies this site as Rural Area (RA).

The second and final agricultural land use area on this alignment is located north of State Route 654 and west of Montvue (Figure 4.6). The area has grass fields interspersed with fence row hedges and scattered shrubs. The proposed alignment would eliminate the access road leading to an isolated homesite 1600 feet north of Montvue. The County zoning book shows this site as Rural Area (RA). No livestock activity was observed during field trips.

Alignment 10 impacts on 48.7 acres of prime farmland soils, the least amount from among the build-options. The S.C.S. soil survey lists 7 prime farmland soil profiles located on this alignment.

4.1.2.7 Alignment 11

This alignment impacts upon 100.1 agricultural land use acres, as shown on Table 4.1. The two southern locations are also common to Alignments 10, 12, 11N-12S and 12N-11S (Figure 4.6). The southernmost area, located west of Belfield School and north of U.S. Route 250, has grass fields with fence row hedges. The alignment passes through the site along the eastern edge creating minimal impact on the area, however, eliminating the primary access road to the centrally located homesite. An unimproved dirt road, located immediately south of the homesite, may be upgraded to replace the primary access road. Upgrading

of the south access road would split the cultivated field, removing additional soil from production capability. No livestock was seen on the site during field trips. The 1988 County zoning book classifies this site as Rural Area (RA).

The second agricultural land use area on this alignment is located north of State Route 654 and west of Montvue (Figure 4.6). The area has grass fields interspersed with fence row hedges and scattered shrubs. The proposed alignment would eliminate the access road to an isolated homesite 1600 feet north of Montvue. The County zoning book shows this site as Rural Area (RA). No livestock activity was observed during field trips.

The next agricultural land use site encountered on the alignment is the northern portion of the site previously discussed and consists of open grass fields with scattered trees and fence line hedges (Figure 4.6). This site is common to Alignment 12N-11S and has minimal impact upon the northern edge of the land use site. No cultivation nor livestock activities were observed during field trips.

Two thousand feet south of Jumping Branch, on Alignment 11, is the location of the next agricultural land use site (Figure 4.7). The proposed roadway is on the eastern edge of the grass field, skirting the adjacent woodland, thus creating minimal impact on the overall land use section. The site is classified as Rural Area (RA) in the County zoning book.

The next agricultural land use site is located north and south of the point where State Route 844 crosses Naked Creek (Figure 4.8). The area has sparsely wooded slopes and an adjacent grass field upon which cattle were found grazing. The County zone designation for this site is Rural Area (RA).

The largest agricultural land use area along Alignment 11 is traversed by the proposed roadway at three locations (Figure 4.9). This area is located west of the intersection of State Route 743 and 606. The site has gently sloping pasture upon which cattle graze on a rotational basis. A total of 30 acres will be impacted by the proposed roadway. The land located south of the alignment will be eliminated as a productive pasture as a result of isolation from the main pasture. This site is classified as Rural Area (RA) in the County zoning book.

Alignment 11 impacts upon 101.7 acres of prime farmland soils. These soil profiles are scattered along the alignment, providing no large, linear plots of prime farmland. The S.C.S. soil survey lists 9 prime farmland soil profiles located on this alignmment.

4.1.2.8 Alignment 12

This alignment impacts upon 133.9 agricultural land use acres, the greatest quantity among the build-options. The southernmost location is common to Alignments 10, 11, 11N-12S, and 12N-11S (Figure 4.6). The site is located west of Belfield School and north of U.S. Route 250 and has grass fields with fence row hedges. The alignment passes through the site along the eastern edge

creating minimal impact on the area, however, eliminating the primary access road to the centrally located homesite. An unimproved dirt road, located immediately south of the homesite, may be upgraded to replace the primary access road. Upgrading of the south access road would split the cultivated field, removing additional soil from production capability. No livestock was seen on the site during field trips. The County zoning book classifies this as Rural Area (RA).

The second agricultural land use area on this alignment is located north of State Route 654 and west of Montvue (Figure 4.6). The area has grass fields interspersed with fence row hedges and scattered shrubs. The proposed alignment would eliminate the access road to an isolated homesite 1600 feet north of Montvue. The County zoning book shows this site as Rural Area (RA). No livestock activity was observed during field trips.

The next agricultural land use site encountered on the alignment is the northern and northeastern portions of the site previously discussed and consists of open grass fields with adjacent wooded areas (Figure 4.6). The proposed alignment remains on the edge of the grass fields, skirting the adjacent woodline, thus, creating minimal impact on the overall land use section. A half-mile oval track abuts the right-of-way in this extensive agricultural land use area. This site is classified as Rural Area (RA) in the County zoning book.

The largest agricultural land use area along Alignment 12 is located west of the intersection of State Route 743 and 606 (Figure 4.9). The site has gently sloping pastures upon which cattle graze on a rotational basis. A total of 49 acres will be impacted at this site by the proposed roadway. The critical concerns at this site are the bisecting of grazing area, access to each section, and water sources for the cattle. Easy access to each section is required for herd rotation, and for vehicles transporting supplemental feed to the grazing animals. This site is classified as Rural Area (RA) in the County zoning book.

An agricultural land use area is located 2000 feet northwest of the Teledyne facility, adjacent to State Route 743 (Figure 4.9). This site is presently a grass frontage not under cultivation, nor being used for grazing. The area utilized for grazing is located north and east of the right-of-way, thus, the proposed alignment will not create an impact on agricultural production. This site is classified as Rural Area (RA) in the County zoning book.

The final agricultural land use area is located north of the Charlottesville-Albemarle Airport (Figure 4.5). This site has sloping pastures upon which cattle graze. The critical concerns at this site are the bisecting of the grazing area, access to each section, and water sources for the cattle. Easy access to each section is required for herd rotation and for vehicles transporting supplemental feed to the grazing animals. This site is classified as Rural Area (RA) in the County zoning book.

Alignment 12 impacts upon 157.6 acres of prime farmland soils, the greatest quantity among the build-options. The 9 prime farmland soil profiles are scattered along the alignment, providing no large, linear plots of prime farmland.

4.1.2.9 Alignment 11N-12S

This alignment impacts upon 118 agricultural land use acres, the second highest quantity among the roadway options. The southernmost location is common to Alignments 10, 11, 12 and 12N-11S (Figure 4.6). The site is located west of Belfield School and north of U.S. Route 250, and has grass fields with fence row hedges. The alignment passes through the site along the eastern edge creating minimal impact on the area, however, eliminating the primary access road to the centrally located homesite. An unimproved dirt road, located immediately south of the homesite, may be upgraded to replace the primary access road. Upgrading of the south access road would split the cultivated field, removing additional soil from production capability. No livestock was seen on the site during field trips. The County zoning book classifies this site as Rural Area (RA).

The second agricultural land use area on this alignment is located north of State Route 654 and west of Montvue (Figure 4.6). The area has grass fields interspersed with fence row hedges and scattered shrubs. The proposed alignment would eliminate the access road to an isolated homesite 1600 feet north of Montvue. The County zoning book shows this site as Rural Area (RA). No livestock activity was observed during field trips.

The next agricultural land use site encountered on the alignment is the northern and northeastern portions of the site previously discussed and consists of open grass fields with adjacent wooded areas (Figure 4.6). The proposed alignment remains on the edge of the grass fields, skirting the adjacent woodline, thus, creating minimal impact on the overall land use section. A half-mile oval track abuts the right-of-way in this extensive agricultural land use area. This site is classified as Rural Area (RA) in the County zoning book.

The next agricultural land use site is located north and south of the point where State Route 844 crosses Naked Creek (Figure 4.8). The area has sparsely wooded slopes and an adjacent grass field upon which cattle were found grazing. The County zone designation for this site is Rural Area (RA).

The largest agricultural land use area along Alignment 11N-12S is traversed by the proposed roadway at three locations (Figure 4.9). This area is located west of the intersection of State Routes 743 and 606. The site has gently sloping pastures upon which cattle graze on a rotational basis. A total of 30 acres will be impacted at this site by the proposed roadway. The land located south of the alignment will be eliminated as a productive pasture as a result of isolation from the main pasture. This site is classified as Rural Area (RA) in the County zoning book.

Alignment 11N-12S impacts upon 110.7 acres of prime farmland soils. These soil profiles are scattered along the alignment, providing no large, linear plots of prime farmland.

4.1.2.10 Alignment 12N-11S

This alignment impacts upon 116 agricultural land use acres, and has the two southern locations common to Alignments 10, 11, 12, and 11N-12S (Figure 4.6). The southernmost area, located west of Belfield School and north of U.S. Route 250, has grass fields with fence row hedges. The alignment passes through the site along the eastern edge creating minimal impact on the area, however, eliminating the primary access road to the centrally located homesite. An unimproved dirt road, located immediately south of the homesite, may be upgraded to replace the primary access road. Upgrading of the south access road would split the cultivated field, removing additional soil from production capability. No livestock was seen on the site during field trips. The 1988 County zoning book classifies this site as Rural Area (RA).

The second agricultural land use area on this alignment is located north of State Route 654 and west of Montvue (Figure 4.6). The area has grass fields interspersed with fence row hedges and scattered shrubs. The proposed alignment would eliminate the access road to an isolated homesite 600 feet north of Montvue. The County zoning book shows this site as Rural Area (RA). No livestock activity was seen during field trips.

The next agricultural land use site encountered on the alignment is the northern portion of the site previously discussed and consists of open grass fields with scattered trees and fenceline hedges (Figure 4.6). This site is common to Alignment 11 and has minimal impact upon the northern edge of the land use site. No cultivation or livestock activities were seen during field trips.

Two thousand feet south of Jumping Branch, on Alignment 11, is the location of the next agricultural land use site (Figure 4.7). The proposed roadway is on the eastern edge of the grass field, skirting the adjacent woodland, thus,creating minimal impact on the overall land use section. The site is classified as Rural Area (RA) in the County zoning book.

The largest agricultural land use area along Alignment 12N-11S is located west of the intersection of State Route 743 and 606 (Figure 4.9). The site has gently sloping pastures upon which cattle graze on a rotational basis. A total of 49 acres will be impacted at this site by the proposed roadway. The critical concerns at this site are the bisecting of the grazing area, access to each section, and water sources for the cattle. Easy access to each section is required for herd rotation, and for vehicles transporting supplemental feed to the grazing animals. This site is classified as Rural Area (RA) in the County zoning book.

An agricultural land use area is located 2000 feet northwest of the Teledyne facility, adjacent to State Route 743 (Figure 4.9). This site is presently a grass frontage not under cultivation, nor being used for grazing. The area utilized for grazing is located north and east of the right-of-way thus, the proposed alignment will not create an impact on agricultural production. This site is classified as Rural Area (RA) in the County zoning book.

The final agricultural land use area is located north of the Charlottesville-Albemarle Airport (Figure 4.5). This site has sloping pastures upon which cattle graze. The critical concerns at this site are the bisecting of the grazing area, access to each section, and water sources for the cattle. Easy access to each section is required for herd rotation, and for vehicles transporting supplemental feed to the grazing animals. This site is classified as Rural Area (RA) in the County zoning book.

Alignment 12N-11S impacts upon 147.1 acres of prime farmland soils, the greatest quantity among the build-options. The soil profiles are scattered along the alignment, providing no large, linear plots of prime farmland.

4.2 FOREST RESOURCES

4.2.1 General Impacts

The construction of a roadway through a forested area creates several direct impacts upon the forest community. The stripping of the forest canopy and underbrush along a highway corridor also affects the soil, hydrology, wildlife habitat, as well as the economic potential for forest products.

Soil erosion is likely to occur if adequate measures are not taken to protect the exposed land. Water tables and stream flow can be affected by compaction and unintentional channeling and changes to the topography. The topography of Albemarle County is characterized by gently rolling hills to steep ravines along the stream banks, thus, very susceptible to the actions described. The removal of wildlife habitat is unavoidable in such projects, however, right-of-ways may enhance the terrain for more wildlife species by the creation of a greater variety of habitat types.

The loss of forestal land use acres is greatest along Alignment 6 with 18.8 acres, while Alignments 6B and 7 have a projected loss of 16.8 and 7.9 acres, respectively. The remaining alignments do not impact upon designated forestal land use areas.

4.2.2 Specific Impacts

4.2.2.1 Alignment 6

This alignment impacts upon two forestal land use areas. The southernmost site is located north of State Route 250 and east of State Route 20 (Figure 4.10). The site contains equal amounts of dense and sparse patches of trees south of the Virginia Power Company right-of-way. The proposed alignment would impact upon 10.9 acres of forestal land use acres at this site.

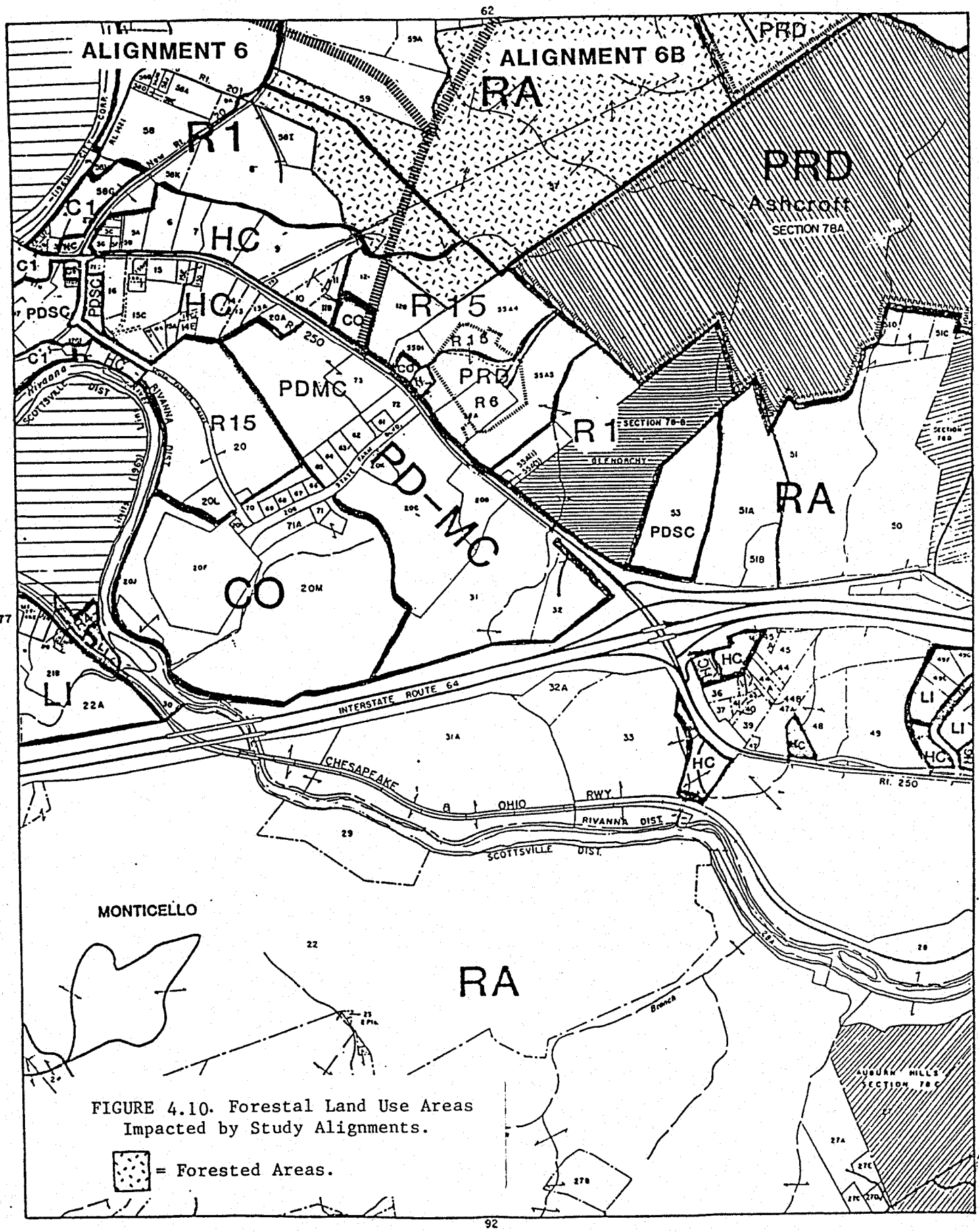


FIGURE 4.10. Forestal Land Use Areas Impacted by Study Alignments.

= Forested Areas.

SCALE IN FEET

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The alignment also impacts on a forestal land use site located 2000 feet west of Proffit, Virginia (Figure 4.11). The land use area is impacted on its eastern edge creating very little disturbance to the area as a whole. The alignment passes within the growth area boundary of the Hollymead development, avoiding future disturbance to the development plan. The forest land use area is located entirely within the Hollymead growth area boundary as shown on the Albemarle County Planning and Community Development Office maps.

4.2.2.2 Alignment 6B

This alignment impacts upon the same forestal land use area as Alignment 6, however, an additional 5.9 acres of this land use area is impacted as the alignment proceeds in a northeasterly direction (Figure 4.10). A total of 16.8 acres may be disturbed if this alignment is selected. A telephone utility corridor is intersected by the proposed roadway in addition to the Virginia Power right-of-way.

4.2.2.3 Alignment 7

This alignment impacts upon a forestal land use site located 2000 feet west of Proffit, Virginia (Figure 4.11). The land use area is impacted on its eastern edge creating very little disturbance to the area as a whole. The alignment passes within the growth area boundary of the Hollymead development, avoiding future disturbance to the development plan. The forest land use area is located entirely within the Hollymead growth area boundary as obtained from the Albemarle County Planning and Community Development Office maps.

4.2.2.4 Alignment 8

There are no forestal land use areas located along this 8-lane option, therefore, no impacts exists.

4.2.2.5 Alignment 9

There are no forestal land use areas located along this 10-lane option.

4.2.2.6 Alignment 10

No forestal land use areas exist along this alignment.

4.2.2.7 Alignment 11

No forestal land use areas exist along this alignment.

4.2.2.8 Alignment 12

No forestal land use areas exist along this alignment.

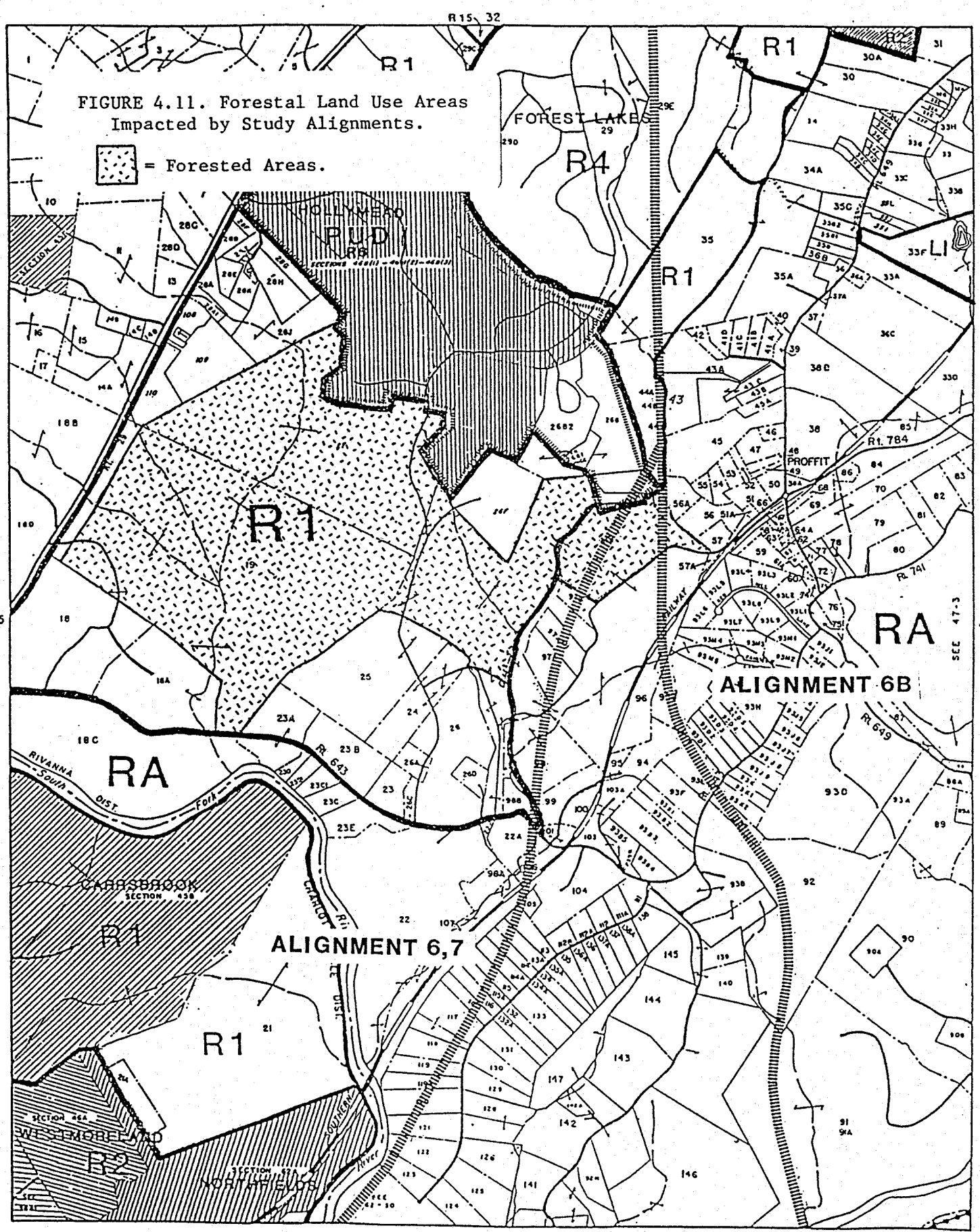

FIGURE 4.11. Forestal Land Use Areas Impacted by Study Alignments.

= Forested Areas.

4.2.2.9 Alignment 11N-12S

No forestal land use areas exist along this alignment.

4.2.2.10 Alignment 12N-11S

No forestal land use areas exist along this alignment.

5.0 MITIGATION

5.1 AGRICULTURAL IMPACTS

There are four basic types of agricultural impacts which may result from the U.S. Route 29 build alternatives and can potentially be mitigated. The four types of impacts and the possible mitigation measures for each are summarized below:

- Loss of Productive Land

  All remaining tillable land not needed for the highway or auxiliary uses will be made available for the production of agricultural products.

- Disruption of Existing Farm Operations

  Where possible, design refinements will continue in an attempt to further reduce the extent to which a farm operation is impacted. Where a bisection is unavoidable, reasonable access to each portion will be assured or the State will help facilitate land exchanges between farms where reasonable access is not possible.

- Impacts to Farm Investments

  Advance relocation assistance of impacted on-farm investments will be provided to maintain continuity of farm operations. To the extent possible, interchanges will not be located in areas of high quality agricultural resources where improved accessibility could contribute to conversion of farmland to other uses.

- Continuing Coordination

  Continued detailed discussions with affected farmers will be maintained throughout the design and construction period.

5.2 FOREST RESOURCES IMPACTS

The development of mitigation includes designing measures which will reduce potential impacts to acceptable levels, rectifying impacts by restoring the affected environment, and compensating by replacement of forest resources. It is critical to plan the management practices prior to stand entry. Preharvest planning is necessary prior to initiating a roadway clearing operation. Selecting and marking harvestable trees, and locating skid trails and access roads are some of the practices that minimize impact on adjacent forest productivity. The types of impacts and possible mitigation measures for each are summarized below:

- Loss of Productive Land

  All remaining forest land not required for the highway or auxiliary uses should remain as a natural stand, irregardless of tree species, density, and undergrowth. Best Management Practices must be utilized to reduce impact upon the water quality and the natural hydrology of adjacent forest stands. Woodland creation, as a mitigation process, must consider several factors prior to the initiation of such a project: topography of the area and its immediate watershed; soil characteristics, primarily texture, moisture retention capacity, and resistance to erosion; hydrology in terms of seasonal rainfall, water table, and stream flow; forest canopy in terms of desired tree species density, composition and suitability with the existing soils and hydrology; forest undergrowth in terms of desired species composition and relative abundance at various stages of succession.

- Loss of Wildlife Habitat

  The loss of terrestrial habitat from mostly natural vegetation to a man-made, grassed right-of-way is an immediate and permanent impact. Because larger species of wildlife displaced by habitat conversion are generally not absorbed into adjacent areas, the net result is a reduction in wildlife populations. However, the terrain might be enhanced for more wildlife species by the creation of a greater variety of habitat types and more vegetation edge effects for existing species such as the white-tailed deer. In general, most wildlife populations would not be seriously affected.

- Disruption of Forest Operations

  Where possible, design refinements will continue in an attempt to further reduce the extent to which the forest land use operation is impacted. Where bisection is unavoidable, reasonable access to each portion will be assured or the State will help facilitate access through private lands if public access is not possible.

- Continuing Coordination

  Continued detailed discussions with affected land owners will be maintained throughout the design and construction phase.

6.0 COORDINATION

Methods to gather comments in the preparation of this report included publication of a Notice of Intent to prepare an Environmental Impact Statement in the Federal Register; preparation of an early coordination letter and Plan of Study; development and distribution of study newsletters; establishment of mail and telephone communications between the Study Team and interested agencies, public officials, and individuals; verbal and written communication with various agencies, groups, and individuals; and a series of meetings and exhibits with key agencies, local officials, and the general public.

These coordination and comments gathering efforts have been an integral part of the planning and environmental studies prepared for the U.S. Route 29 Corridor Study. As a result, the alternatives under consideration reflect numerous changes, major and minor, which were made in response to ideas and concerns raised by people outside of the Study Team. This process has led to the development of alternatives which sensitively reflect these ideas and concerns while achieving the desired transportation objectives.

6.1 AGENCY SCOPING

An Interagency Coordination Meeting for the U.S. Route 29 Corridor Study was held by the Virginia Department of Transportation on September 22, 1988. The purpose of this meeting was to solicit comments regarding the selection of the Candidate Build Alternatives, and to allow concerned agencies the opportunity to make recommendations for inclusion in the Draft Environmental Impact Statement (DEIS). An information packet was provided to all agencies outlining the study methodologies and references for the Natural Environmental Analysis task, and the considerations that were being given to the environment during the selection process for the build alternatives. The following agencies and/or organizations coordinated efforts or provided information on the U.S. Route 29 Corridor Study during its conduct (partial list):

* U.S. Department of Agriculture
  - Soil Conservation Service

* U.S. Department of the Army
  - Army Corps of Engineers, Regulatory Branch

* U.S. Environmental Protection Agency (Region III)

* U.S. Geological Service

* U.S. Department of Interior
  - National Park Service, Mid-Atlantic Region
  - Fish and Wildlife Service

* Virginia Council on the Environment

* Virginia Department of Agriculture and Consumer Services

* Virginia Department of Conservation and Historic Resources

* Virginia Department of Forestry

* Virginia Department of Game and Inland Fisheries

* Virginia Department of Transportation

* Virginia Natural Heritage Program

* Virginia Water Control Board

* The Nature Conservancy

* Piedmont Environmental Council

* Virginia Native Plant Society

* Virginia Society of Ornithology

* Virginia Wildlife Federation

* County of Albemarle, Department of Engineering

* County of Albemarle, Department of Planning and Community Development

* County of Albemarle, Office of Watershed Management

* Rivanna Water and Sewer Authority

The following agencies/organizations were represented at the Interagency Coordination Meeting (partial list):

* U.S. Department of the Army
  - Army Corps of Engineers

* U.S. Department of the Interior
  - Fish and Wildlife Service

* U.S. Environmental Protection Agency (Region III)

* U.S. Federal Highway Administration

* Virginia Council on the Environment

* Virginia Department of Game and Inland Fish

* Virginia Department of Transportation

* Virginia Marine Resources Commission

6.2 PUBLIC COORDINATION

An exceedingly large number of community meetings have been held during the course of this study. These meetings include one-on-one sessions between study team members and public officials, as well as private citizens, talks to residents, associations, and civic groups, monthly meetings of the City of Charlottesville and Albemarle County Route 29 Joint Task Force, a series of Public Information Meetings, and a Route 29 Project Open House. Attendance at the public meetings have varied from several hundred to in excess of 1,500 persons with varying degrees of interests in the project.

Ideas and comments received at these meetings and exhibit sessions were instrumental in the location and details of preliminary alternates selection and in refining the process of selecting the study alternates evaluated in this report. These meetings were often general in nature but by and large they usually dealt with specific issues of importance to a particular individual or group.

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REFERENCES

Albemarle County Planning and Community Development Office, Albemarle County Agricultural and Forestal Districts Pamphlet.

Albemarle County Planning and Community Development Office, Albemarle County Generalized Zoning Map Book, June, 1988.

Albemarle County Planning Commission, Comprehensive Plan Review, Background Information, August 1986.

County of Albemarle, Virginia, Albemarle County Information Sheet, 1986.

Lee, G. Fred, and R. Anne Jones. 1982. Evaluation of Potential Water Quality Problems Associated with Highway Excavation and Fill. Transportation Research Board, National Academy of Sciences. Transportation Record, 892, pp. 2-8.

Reed, J.R., Jr. 1977. Stream Community Response to Road Construction Sediments. Virginia Water Resources Research Center. Bull. No. 97.

Shelor, M.H., and R.W. Ayers. 1984 Virginia State Water Control Board Procedure for Conducting Qualitative Biological Surveys. Virginia State Water Control Board, Bureau of Surveys and Field Studies, Division of Ecological Studies. Unpublished Draft, May 1984.

United States Department of Agriculture, Forest Service Resource Bulletin SE-84, Forest Statistics for Northern Piedmont of Virginia, 1986.

U.S. Department of Agriculture, Soil Conservation Service. 1985. Soil Survey of Albemarle County, Virginia. 326 pp.

U.S. Department of Transportation. 1981. Constituents of Highway Runoff. Vols. I through VI. Federal Highway Administration Report No. FHWA/RD-81/042-047.

U.S. Department of Transportation. 1985. U.S. Route 13 Relief Route Study. Parts 1 through 4.

Yousef, A. Yousef, M.P. Wainelista, H.H. Harper, and E.T. Skene. 1983. Impact of Bridging on Floodplains. Transportation Research Board, National Academy of Sciences. Transportation Research Record, 948, pp. 26-30.