RURAL LAND MANAGEMENT PLAN

An Element of the Loudoun County Comprehensive Plan

Loudoun County, Virginia

November 5, 1984

CPAM 89-01: Rural Land Management Plan

Amendment adopted January 2, 1991

The following changes should be made to the RLMP:

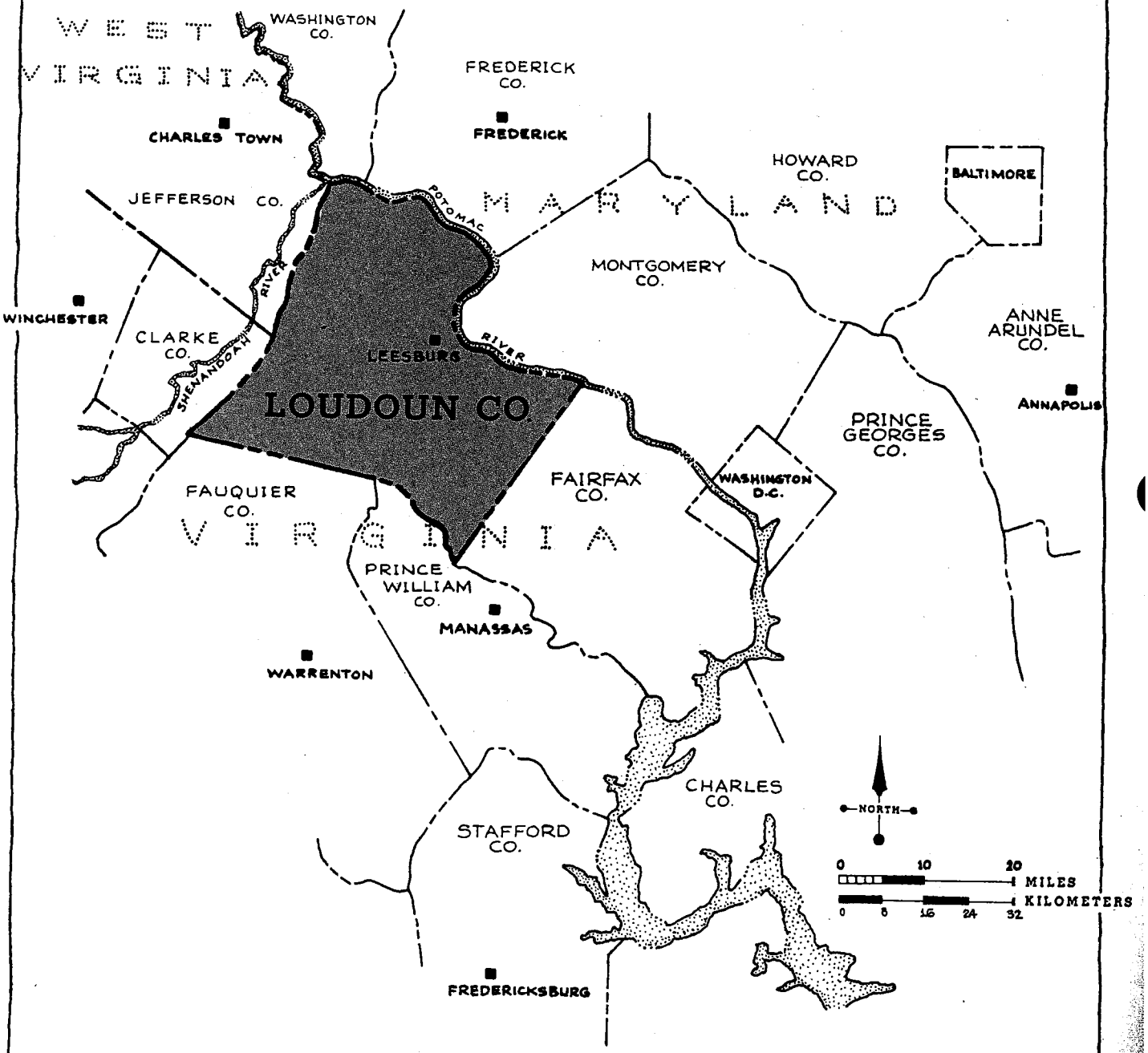
Page 156, #b.i: delete the following:

"The railroad at one time ran to Bluemont, but the right-of-way has been long abandoned and the potential for recombining it west of Purcellville into a single ownership is uncertain."

Page 160, Chapter #2, VI.C.3: add new #e as follows:

"The Northern Virginia Regional Park Authority, of which Loudoun County is a member, has developed the Washington and Old Dominion (W&OD) Railroad right-of-way as a 45 mile linear park for hikers, bicyclists and horseback riders. The County should encourage the extension of the W&OD Railroad Regional Park and its multi-use trail system from its present terminus in Purcellville, Virginia to its proposed terminus in Bluemont, Virginia with a footpath extending from Bluemont to the Appalachian Trail."

REGIONAL LOCATION



Rural Land Management Plan

Loudoun County, Virginia

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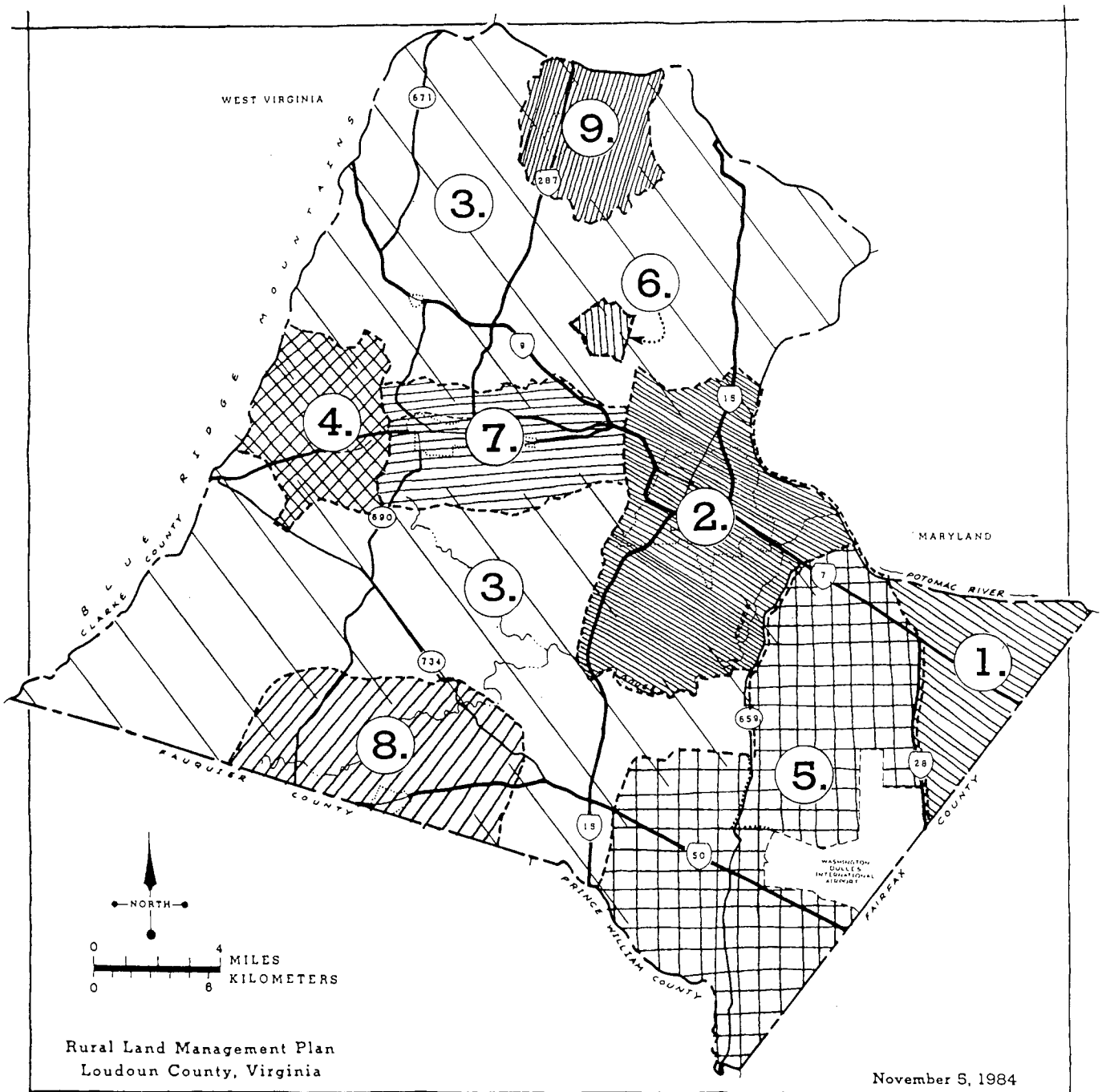
An Element of the Loudoun County Comprehensive Plan

November 5, 1984

Loudoun County
Department of Planning, Zoning and Community Development
18 North King Street
Leesburg, Virginia 22075

Second Printing March 1988



LOCATION AND SEQUENCE OF AREA MANAGEMENT PLANS

1. Eastern Loudoun
2. Leesburg
3. Rural Land Management Plan (includes all areas not planned for central utilities extensions)
4. Round Hill
5. Dulles North - Dulles South
6. Waterford
7. Purcellville - Hamilton
8. Middleburg - St. Louis
9. Lovettsville

Figure 1

LOUDOUN COUNTY BOARD OF SUPERVISORS

James F. Brownell, Chairman	Blue Ridge District
Frank Raflo, Vice Chairman	Leesburg District
Andrew R. Bird, III	Sterling District
Thomas S. Dodson	Mercer District
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Roger M. Lloyd (appointed 1/17/84)	Broad Run District
Amos Martinez	Sterling District
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Ernest DeCorte, former Planning Commissioner
James Brooks, former Planning Commissioner

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CITIZENS' COMMITTEE FOR THE RURAL LAND MANAGEMENT PLAN

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Donald Virts
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Special Subcommittee:

John Sleeter, Chairman
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Rodion Cantacuzene
Basil DeLashmutt
Robert East
Joan LaRock
Charles Planck
James Rowley
Donald Virts

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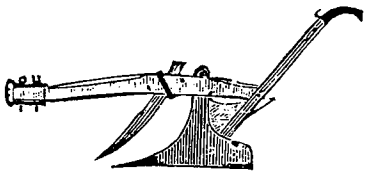
PREFACE

The Rural Land Management Plan is an element of the Loudoun County Comprehensive Plan, and contains policies and programs for the County to implement in order to manage development in the rural areas and to conserve important agricultural and environmental resources.

This document is the result of the efforts of the Citizens' Committee for the Rural Plan, the Loudoun County Planning Commission, the Loudoun County Board of Supervisors and the County staff. The Board of Supervisors adopted this document on November 5, 1984.

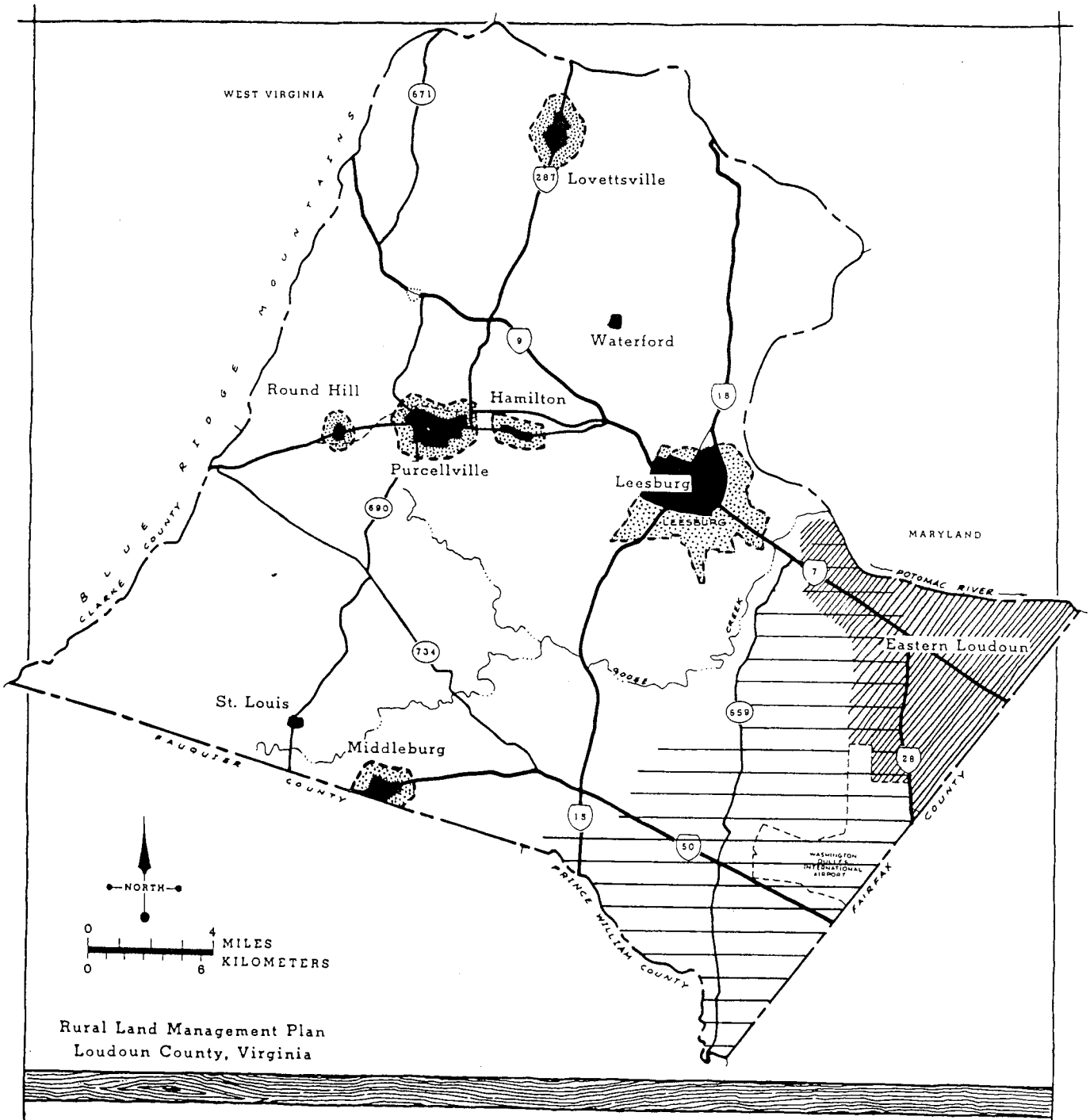
The essential elements of this Plan are summarized in the first chapter of the document. For detailed explanations of the provisions outlined in the Introduction, the reader should refer to the appropriate following chapter.

Some of the terms used in this plan may be unfamiliar to many readers and therefore, a glossary is included at the end of the document.



PREAMBLE

The citizens of Loudoun County recognize the value of the local agricultural industry for the revenue base that it generates, for the economic assets that it provides, for the aesthetic amenities of its open land, for the quality of life that exists in and around local farming communities, and for its food producing capability which serves not only local citizens, but the population of the region as well. It is the primary goal of this Plan to preserve and enhance farming and farmland in Loudoun County by the most feasible, effective and equitable methods available. All other goals of the Plan are intended to help support this primary goal. Establishing a future growth pattern that promotes farming and farm related industries is the most important concern of this planning document.

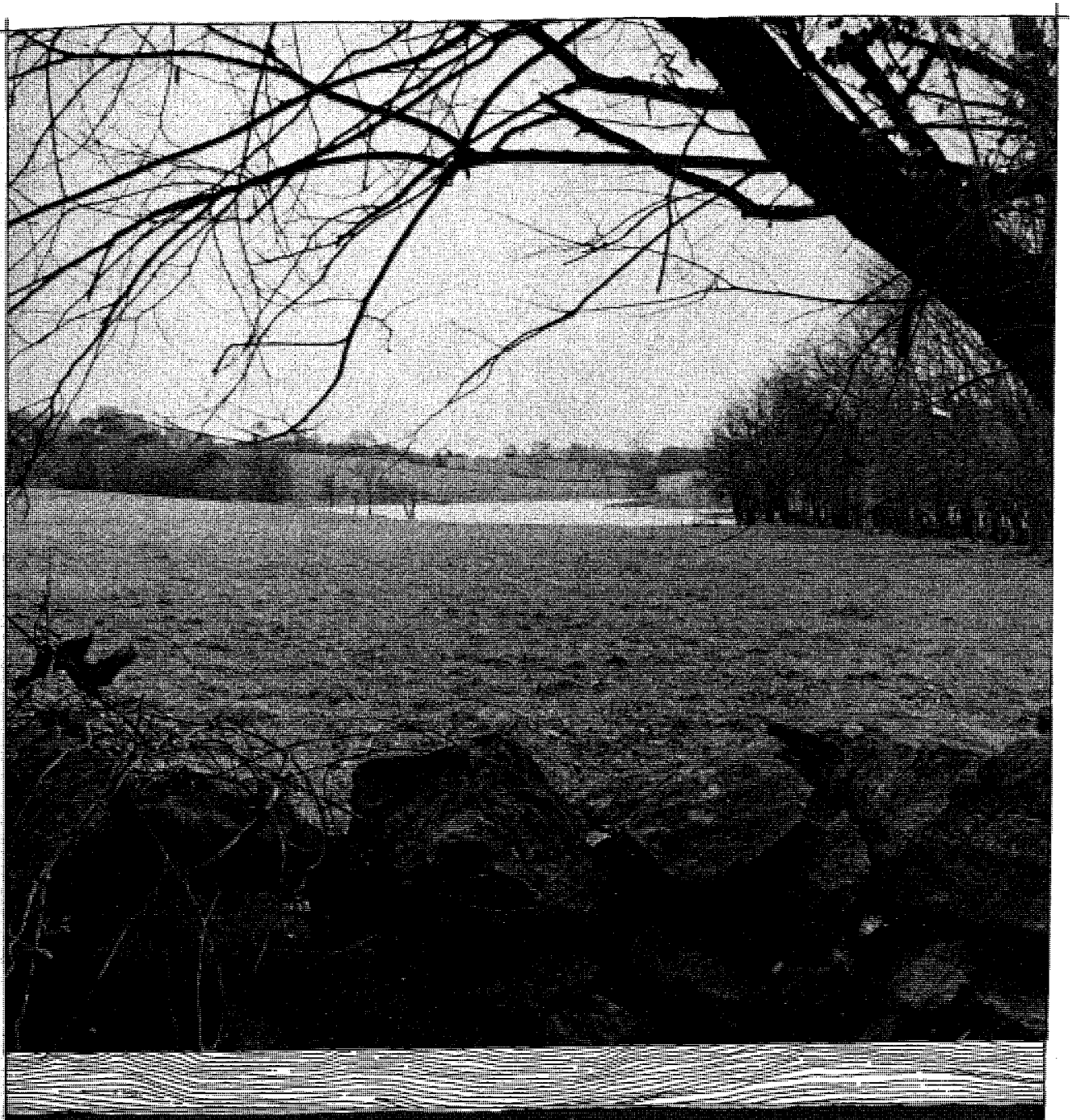


LOCATION MAP

[Generalized]

- Dulles North - Dulles South Area Plan
- Eastern Loudoun Serviced by Sewer [Potential Area]
- Urban Growth Area [Potential - To be established in area plans]
- Urban Limit Line [Potential - To be established in area plans]
- Existing Sewer Service Area

Figure 2



Chapter 1

CHAPTER ONE

INTRODUCTION AND SUMMARY OF PLAN

I. BACKGROUND AND PURPOSE OF PLAN

In October, 1982, the Loudoun County Board of Supervisors responded positively to a request from the Planning Commission that the Board make the formulation of a Rural Land Management Plan its top priority for long range planning. The Commission's request and the Board's approval were the result of a recognition that while most of the County's recent growth has been taking place in a relatively compact pattern in the urban areas of eastern Loudoun, there has been a significant amount of large-lot rural development and land division in the County's major farming areas. The large number of land divisions in the rural areas indicates a foreshadowing of future farmland conversion, as well as great uncertainty among the owners of rural land.

The Planning Commission found that, in 1982, there were about 2,000 recorded residential lots in rural Loudoun, (approximately 20,000 acres) and approximately 500 of these, totaling over 6,000 acres, were created in 1982 alone. The County's population is projected to grow by nearly fifty per cent during the 1980's, totaling 83,000 people by 1990. With many of the western towns unable to absorb growth due to water supply limitations, the trend toward costly, scattered rural development threatens to continue and possibly increase. Such a dispersed growth pattern is contrary to current County goals as set forth in the Resource Management Plan (RMP) due to the potential negative land use, environmental, transportation and fiscal impacts.

With growth pressure from the east of Loudoun continuing to mount as the Tyson's Corner area expands, and with farmers facing hard financial times due to depressed prices and rising costs, the uncertainty about the future of Loudoun's agricultural industry, farming community and rural landscape has greatly increased.

It was these and similar concerns which prompted the Planning Commission and Board of Supervisors to begin developing the Rural Plan for the purpose of designing a set of policies and programs with which the County can guide future rural land use changes, increase the opportunities and choices of farmland owners, establish a healthy and affordable pattern of growth in the rural areas, and conserve irreplaceable agricultural and environmental resources.

In October of 1982, the Planning Commission appointed a Citizens' Committee to draft a Rural Plan, and the Committee held its first meeting on Monday, November 4, 1982. The Committee then met every Monday night through July 5, 1983, in an attempt to resolve the major questions that face the County in its effort to manage future rural growth.

Confronted with the mammoth task of resolving the fundamental issues of growth and conservation, the 28 member Committee divided itself into four subcommittees of about seven members each in order to study in greater detail the issues and choices which faced them.

The Subcommittees were:

- Agricultural
- Residential and Commercial
- Public Facilities and Transportation
- Environmental

These four Subcommittees met separately for several weeks and then reconvened as a whole committee to discuss their respective findings. This pattern of work was repeated in three major cycles: first to formulate broad goals; second to develop general policy options; and finally to refine policies and begin developing specific program solutions.

During this lengthy and thorough process, the Committee identified many points of agreement, hammered out points of compromise, and also found many questions which it was not able to resolve during this time period. Throughout these many weeks, the Committee heard comments and suggestions from many members of the public, as well as representatives of various County and State agencies.

On April 24, the Committee submitted an Interim Report to the Planning Commission, a document which summarized its findings and points of internal disagreement. The Committee then created a special subcommittee made up of nine members, which was charged with resolving the remaining issues and points of disagreement, and refining the policy and program proposals into a detailed set of planning recommendations.

The Special Subcommittee met each Monday night from April 18 through June 13, and presented a draft plan to the full Committee on June 20. The Committee made several revisions and completed the draft plan on July 11, 1983.

The Committee's draft was then submitted to the Planning Commission which held public hearings in September, and reviewed it during October and November, making some modifications to the plan. The Commission completed an amended draft Plan in December and then continued to refine that document during the winter and spring of 1984. It was certified to The Board of Supervisors on June 13, 1984. The Board adopted it on November 5, 1984.

The Rural Land Management Plan is a plan for the rural areas of the County, similar in structure and general content to the area plans which have been completed for the Leesburg and eastern Loudoun areas and, like the other Plans, is a component of the County's overall Comprehensive Plan. It includes goals, policies and detailed programs which the County will use to guide the location, timing and character of development in

the rural areas. Generally, the policies and programs of the Rural Plan apply to those areas of the County which are not served by central water and sewer facilities.

II. SUMMARY OF ISSUES

The issues concerning rural land uses and rural growth can be placed in three major categories: Economic and Fiscal, Public Health and Safety, and Social and Aesthetic Issues.

A. ECONOMIC AND FISCAL ISSUES

1. Growth Rate, Pattern and Location:

Possibly the most significant issue is the question of whether and how the County can guide the rate, pattern and location of development, in the rural areas. This is an economic issue in terms of the County's tax base and public service costs, and it is also a social and aesthetic issue. The question is whether the County's present planning goal of achieving a compact growth pattern around towns and existing urban areas can become a reality in the future.

2. Farmland Conversion:

As farmland is subdivided and new rural houses built, the County's agricultural industry is further constrained, and available resources further limited. This concern has economic implications due to the fact that farming is a large and basic industry for the County as well as fiscal implications in that farmland is a local net tax revenue producer. A healthy agricultural industry requires a "critical mass" or minimum amount of neighboring farms and farmland in order to support the necessary suppliers, dealers and organizations required to provide farmers with goods and services.

3. Taxes:

In general, new residential development requires more new services than it pays for in new tax revenues. A dispersed growth pattern is believed to cause higher tax rates due to higher transportation and other service costs, and the tendency for it to bring a demand for urban services into the rural areas.

4. Landowner Equity in Land and Protection of Rural Property Values:

A fourth economic issue concerns the equity that owners of large tracts of property have in their land and their desire to protect and expand that value. For many farmers, their land is

their retirement fund, and while many wish to keep farming as long as they are physically and financially able, they do not want the government to take any actions that might substantially reduce their property values, or inhibit their freedom to develc their land, or their ability to sell their land to developers.

5. Zoning and Other Land Use Regulations

This issue is closely related to the issue of equity in that zoning regulations and other restrictions on land use limit the freedom of landowners in order to protect one from another. The extent of the restrictions that zoning imposes is an issue throu out the County, especially in the rural areas. A balance must b struck between the public interest, the wishes of individual landowners to ask the highest monetary return on their property and use their land freely, and the rights of all landowners to b protected from disruptive or dangerous land uses occurring next to or near their own property. The possibility exists that the value of land that is zoned for lower densities may be minimally reduced or even enhanced in the long run. Zoning and subdivisio regulations that affect the size and number of rural building lots together with land preservation strategies designed to main tain designated lands in permanent open space uses may increase the demand for and value of the lots that are available.

6. Highway Funding:

The Commonwealth of Virginia owns and operates the County's primary and secondary roads and the funding for major improvements is very limited. With traffic loads on rural roads constantly increasing, Loudoun County is in a difficult position in terms of obtaining and preserving a safe and efficient transportation system.

7. Cost of Housing:

More affordable housing, housing for the elderly, and elimination of substandard housing are important County goals althoug the implications concerning the tax base and rural development pattern raise other complex and conflicting issues such as continued scattered development and lower tax revenues.

8. State Enabling Legislation:

The County needs enabling legislation from the Virginia General Assembly in order to implement some of the recommendations contained in this plan. Can this authority be acquired, and if so, how soon? Legislation was introduced in both the 1984 and 1985 sessions, with the 1985 session producing legislation allowing Loudoun County to draft a local TDR/ordinance for review by the General Assembly in 1986.

B. PUBLIC HEALTH AND SAFETY ISSUES

1. Water Supply and Quality:

This Plan establishes a goal of encouraging growth to take place in and around existing towns in order to re-establish the historic compact settlement pattern that would keep development and service costs to a minimum and that would help reduce the development pressure on rural farmland located away from the towns. However, several of the County's towns have severe water supply limitations which prevent them from providing significant development opportunities. How can these constraints be solved?

2. On-site Sewage Disposal Regulations:

An alternative to large, sprawling rural residential lots is new rural residential developments clustered into a corner of a farm, thereby retaining a large block of contiguous land for continued agricultural activities. However, a major concern which must be successfully addressed in order to make rural clustering a viable development alternative is the safe and economical disposal of sewage. Massed septic fields and small package treatment plants are both possible solutions, but each brings potential problems with it in terms of ownership, maintenance and repair. If a proper and safe mechanism for on-site waste disposal can be established that will not become a risk to the public safety or a burden to local taxpayers, cluster developments could be viable alternatives to large-lot developments.

A related issue is the need for solutions to existing septic system failures that are occurring in many of the County's existing historic rural villages.

3. Road Improvements:

Many of the County's rural roads have serious capacity and safety problems due to sight distance, road width and condition. How can these problems be solved given current funding limitations?

4. Environmental Quality and Constraints:

The County has several environmental conditions which present immediate or potential hazards to the public health and safety. Development must be carefully controlled in these areas in order to protect the lives and health of local citizens. These resources which cause concern include:

- 100 year Flood Plains
- Steep slopes
- Diabase rock where quarrying/mining activities can or do take place.

- Limestone geologic formations which present the risk of sinkholes and groundwater contamination.

What limitations, regulations or guidelines should be applied to development in these areas?

C. AESTHETIC ISSUES

1. Scenic Quality:

It can be assumed that most Loudoun citizens are both aware and appreciative of the visual beauty that Loudoun County's landscape possesses. Several of this Plan's goals address the desire to preserve this aesthetic quality. The issue that arises from this desire is: how can the County promote and achieve the preservation of scenic quality while still allowing development to occur? This issue relates directly to the economic issue of farmland conversion and rural growth pattern, discussed earlier.

2. Environmental Quality:

Aside from the health and safety aspects of environmental resources, there are aesthetic aspects. Clean water and air, diverse wildlife, and attractive and healthy natural vegetation all contribute to the pleasure and joy that local citizens get from living in Loudoun. Again, the question is how can these features be best preserved while still allowing growth to occur, and how much should the use of land be regulated in order to ensure that these resources are saved for the benefit of all of Loudoun's current and future citizens?

III. SUMMARY OF GOALS

The major goals as set forth in this Rural Plan are:

A. Proceed in spirit from the goals stated for agriculture in the Resource Management Plan (RMP). The initial aims are:

1. To preserve and further develop the many benefits of an ongoing agricultural industry and community for Loudoun County;

2. To do this by creating programs which reduce economic and other pressures that cause land to be converted from agriculture; and also

3. To encourage farming practices that promote the conservation of agricultural resources and avoid the pollution or degradation of surrounding communities.

B. In seeking these goals, the County should develop a range of optiona programs that will enhance the economic viability of agricultural operations in Loudoun County while maintaining the equity of farmlan

C. Coordinate planning efforts with existing communities in the provision of public facilities and utilities.

D. Protect the health, safety and welfare of citizens from potential environmental hazards.

E. Encourage land uses in rural Loudoun to be compatible with the existing environmental resources, natural systems and scenic and historic character.

F. Residential development should take place in close proximity to existing towns and villages where transportation, water and waste problems can be efficiently and economically handled rather than on important agricultural lands or on environmentally sensitive land such as steep slopes, potential water impoundment sites and floodplains.

G. Promote a transportation system which causes the least negative agricultural, community, environmental, fiscal and social impacts.

(See the related sections of Chapter Two for a complete list of the Rural Plan Goals.)

IV. SUMMARY OF RECOMMENDATIONS

A. THE BASIS OF THE STRATEGY

The fundamental purpose of the Rural Plan is to establish a strategy of land use management for the County to follow in its attempt to maintain the quality of life in the rural areas.

The County is attempting, through its planning process, to predict the possible negative impacts of growth and to mitigate them through careful implementation of effective land use management policies, programs and regulations as set forth in the various elements of the Comprehensive Plan.

Based upon the goals and policies established in the Resource Management Plan and this plan, any such land use programs and regulations must meet several basic criteria in order for them to be accepted and to be effective. These criteria include:

1. Any adopted programs must be within the authority granted to the County by the Commonwealth of Virginia in order to be implemented.

   Loudoun County's land use regulatory and taxing powers are severely limited by State Law and the Dillon Rule. This Plan identifies the need to expand local authority to deal with growth issues and problems.

2. All programs must be economical.

   Strategies and programs proposed in the Rural Plan aim to achieve maximum resource conservation as economically as possible.

3. All programs must be equitable.

   It must be recognized that a serious economic injustice occurs to all landowners when rural growth is not managed in a manner which requires developers and new residents to pay substantially for the costs that such new growth imposes on the local government and existing local taxpayers.

4. All programs must neither severely diminish the market value of rural land, nor excessively restrict the choices for use or development that are now available to the landowner.

   Owners of rural land in Loudoun have high expectations for the potential future development value of their land, and that value should not be substantially diminished due to any actions on the part of local government.

In order to meet the above criteria, the strategy selected is a compromise between strong regulation or costly purchase programs on the one hand, or no regulation at all on the other.

This Rural Plan, therefore, establishes the following basic strategy framework for managing future growth in rural Loudoun and for achieving the goals set forth in the RMP and in this Plan:

- Provide additional land use choices to landowners by creating new development options for rural land such as clustered housing and by creating new but cost-effective conservation options such as leasing of easements and transfer of development density.

- Rely heavily on the principle of offering incentives to encourage landowners to choose to conserve their land, rather than using regulations to force landowners to conserve their land.

The above two fundamental strategic principles serve as the basis for all of the policies and program recommendations of this Plan, and are intended to produce options for the landowner that will allow the owner some immediate financial benefit, but which fall short of totally converting the land to residential development.

B. THE REASONS FOR IMPLEMENTING THE RURAL PLAN

The reasons for managing rural growth and conserving rural land resources are as follows:

The County's rural land resources possess various inherent values which the local citizens have a desire and a right to preserve in order to continue to receive the direct and indirect benefits from these resources.

1. The benefits from agriculture and agricultural land include

   a. The economic benefits from the income that is brought into the County from the sale of locally produced goods to buyers outside the County: these incoming dollars are turned over several times in the local economy through the purchase of local goods and services.

   b. The fiscal benefits from the net tax revenues on agricultural land, due to the very low public service costs associated with open land: farmland is a net revenue producer for the County government and helps offset the deficit caused by residential uses.

Table 1 contrasts revenues and expenditures by the three major land uses and shows that Loudoun County is financing residential properties with the transfer of over $7.5 million from positive balances generated by the Industrial/Commercial and Farm properties.

Table 1

COUNTY GOVERNMENT REVENUE AND EXPENDITURE
BY MAJOR LAND USES 1980-1981*

	Residential	Industrial/ Commercial	Farm	Totals
Revenue	$39,244,278	$ 6,580,280	$ 4,975,932	$50,800,490
Expenditure	46,833,971	1,751,187	544,178	49,129,331
Balance	($ 7,589,693)	$ 4,829,093	$ 4,431,759	$ 1,671,159

* Issues and Options Report, page 109, November, 1982

c. Cultural benefits of strength, stability and diversity that the agricultural community provides for the County: farmers are independent businessmen with close ties to the land and to the County's cultural past. As the County urbanizes, the social and cultural stability that members of the agricultura community offer to the entire County, are valuable and irreplaceable assets.

d. Potential long-term benefits of agriculture: should the costs of transportation continue to rise substantially, local food producing resources could provide the long-term potential for keeping the availability of foodstuffs high due to the close proximity of producers and consumers. It will be to the benefit of the County and the region to keep as many economic and agricultural options as possible available during the uncertain times that lie ahead during the rest of this century and into the next one.

2. The benefits from open space and a healthy natural environment include

a. Clean air to breathe and clean water to drink.

b. Lower costs for treating ground and surface water.

c. Direct and indirect financial benefits from another major economic base generator, the tourist industry, which depends on the historic and scenic quality of the County.

3. The benefits of achieving a compact growth pattern include

a. Lower public service costs for schools, law enforcement and other services due to the lower transportation and infrastructure needs of a compact settlement pattern.

b. Less disruption of the farming industry and the natural environment due to a reduced amount of intrusion of development into the rural areas.

c. Less disruption of the rural landscape, the scenic and historic resources, and the tourism industry.

d. Preservation of diversity in the natural environment.

C. SUMMARY OF RECOMMENDATIONS

1. General Strategy

To achieve its goals, the Rural Plan offers landowners a broad range of voluntary options that will assist each landowner in his or her individual requirement for short or long-range financial return on his or her real property including options that will allow the landowner to conserve the land. The voluntary options are intended to enhance the development potential in

existing urban areas as outlined by the Resource Management Plan and area plans, while encouraging the retention of agricultural and open space land uses in the rural areas. (See Table 2, page 12 and Figure 3, page 13 .)

2. Summary of Policy Area Framework

This Plan establishes five geographically distinct Policy Areas which will serve as the framework for applying the land use programs and policies of this Plan during the next twenty years. The policies for these areas are structured so as to encourage growth to occur in the towns and urban areas while providing conservation options to landowners in the rural areas in an attempt to discourage development from occurring in a costly, scattered pattern.

The five Policy Areas are defined as follows:

a. Urban Growth Areas (UGAs):

These are areas which have existing public utilities such as sewer and water systems or are planned for such service within the next twenty years. This Plan confirms the policy of the Resource Management Plan to encourage growth in areas with existing or planned public facilities in order to minimize costs of providing these facilities in the future, to continue the historic growth pattern of Loudoun County and to preserve the agricultural and open space areas. These areas include the six largest incorporated towns, eastern Loudoun, and portions of the Ashburn/Arcola/Pleasant Valley area to be determined specifically by the Dulles Area Plan.

(Refer to pages 229 through 234 for specific recommendations.)

b. Rural Fringe Areas:

The Rural Fringe area is to act as a transition zone between the densely developed urban areas and the low density rural countryside.

The Fringe areas are seen as appropriate locations for residential development at rural densities of one unit per three to ten acres on septic systems. It is hoped that these areas will absorb much of the rural residential development that would otherwise occur in the more rural areas farther from towns. The fringes are defined as those areas within one-half mile of the five largest western towns (less the UGA), the fringe surrounding the Town of Leesburg as defined in the Leesburg Area Management Plan, and the Ashburn/Arcola/Pleasant Valley area until such time as a detailed area plan is done for that area.

(Refer to pages 234 through 239 for specific recommendations.)

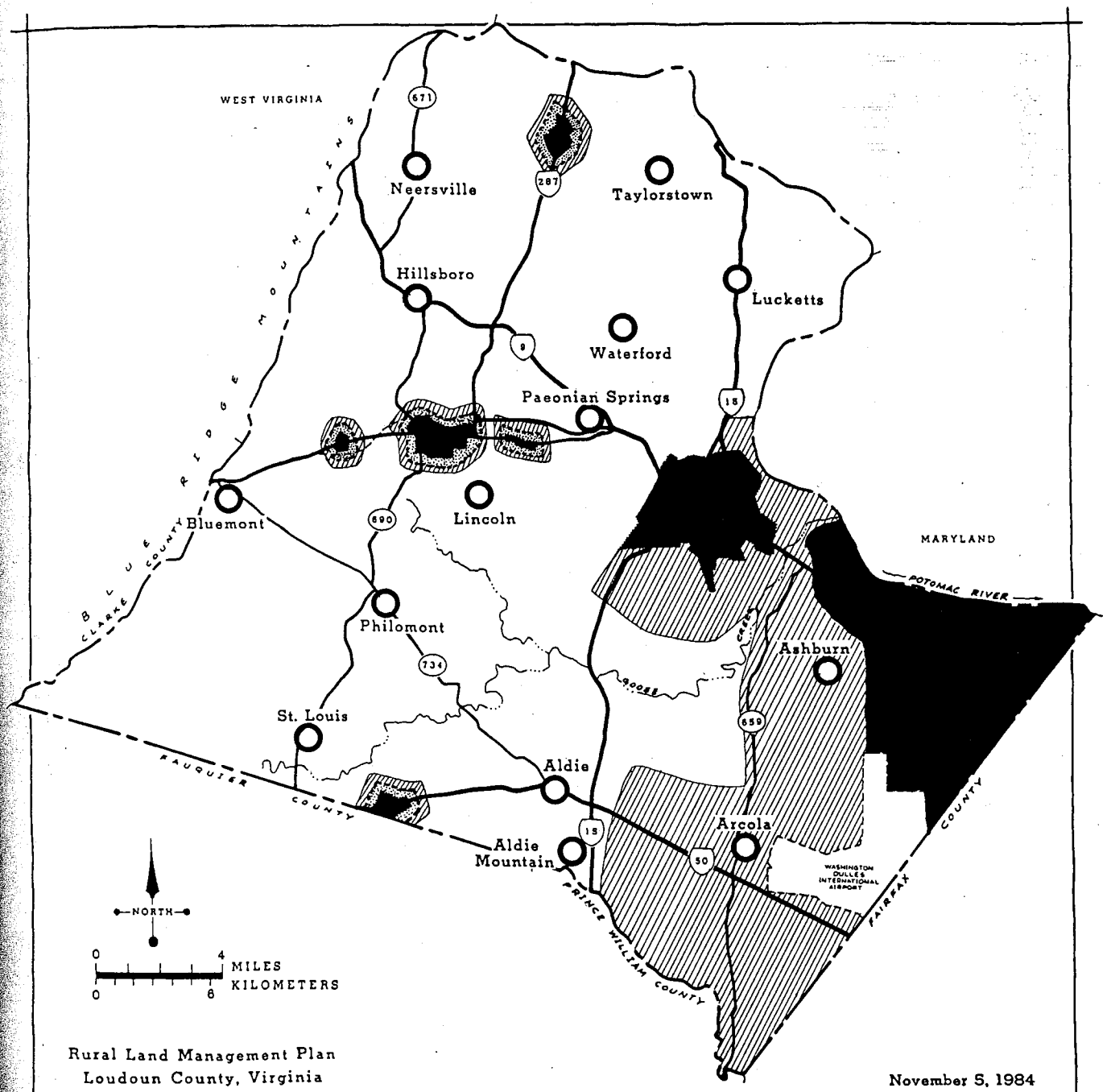
Table 2

SUMMARY OF PROGRAMS BY POLICY AREAS

(Refer to Figure 3 Page 13 for General Locations)

PROGRAMS

POLICY AREAS	Use-Value Taxation (Refer to page 43)	Ag-Districts (Refer to page 44)	Rural Cluster Development (Refer to page 122)	Leasing of Conservation Easements (Refer to page 55)	TDR/Density Transfer (Refer to page 46)	Subdivision & Zoning Regulations (Refer to page 120)
Urban Growth Areas (Areas with Central Water and Sewer and/or within Urban Limit Lines)	- Continue Use-Value Program	- Do not renew.	- Same as Fringe Areas.	- None	- Seek Enabling Legislation for TDR. - Adopt D.T. immediately. - Receiving Areas. - No Sending.	- Same as for other Policy Areas and as determined by other Area Plans.
Rural Fringe (land within one-half mile radius of the corporate limits of the 5 largest western towns; Dulles Planning Area, and the Leesburg Fringe)	- Continue Use-Value Program	- Renew w/revised ordinance which limits subdivision and development.	- 10 acre density allowed. - Subdivision approval. - 2 acre density by Special Exception and TDR/D.T. - Minimum 50 acre initial tract. - Package Plants by Special Exception.	- Adopt immediately - 5 or 8 year terms - 25 acre minimum area for eligibility.	- Receiving area for TDR/D.T. - Cluster at up to 2 acre density using TDRs/D.T. - Sending area, except Broad Run and Occoquan watersheds. - Transfer at rate of one unit per three acres, less floodplain, slopes. - Maximum receiving density to be determined by Area Plans.	- Retain A-3 allowed density. - Change definition of subdivisions to include all divisions of land. - Limit use of access easements.
Rural Village Areas (Villages with a substantial complement of community facilities)	- Continue Use-Value Program	- Renew w/revised ordinance which limits subdivision and development.	- 25 acre density. - Package plants by Special Exception. - 50 acre minimum initial tract.	- Adopt immediately - 5, 8 or 16 year terms. - 25 acre minimum parcel size for eligibility.	- No Receiving except for commercial transfers.	- Same as for other policy Areas.
Agricultural Conservation Areas (Land Beyond the Rural Fringe and not in a Rural Village.)	- Continue Use-Value Program	- Renew w/revised ordinance which limits subdivision and development.	- 25 acre density by subdivision approval - 50 acre minimum initial tract size. - Package plants prohibited.	- Adopt immediately 5, 8 or 16 year terms. - 25 acre minimum parcel size for eligibility.	- Sending Area. - No Receiving. - Transfer rate of 1 unit per 3 acres, less floodplains, slopes. - 50 acre minimum tract size for eligibility.	- Retain A-3 density. - Change definition of Subdivision. - Limit Use of access easements. - Rezone 10 acres lots to A-10. - Add voluntary A-50 zone.



LAND USE POLICY AREAS

[Generalized]

- Urban Limit Line (To be determined by area plans)
- Urban Growth Area — Incorporated areas of towns and/or areas with central sewer and water
- Rural Fringe Area
- Rural Village Area
- Agricultural Conservation Area
- Potential Urban Growth Area (To be specifically determined by area plans)

Figure 3

c. Rural Village Areas:

These are fourteen of the rural villages in the County which have some amount of public facilities and which might be capable of absorbing a limited amount of new development.

(Refer to pages 126 and 239 for specific recommendations.)

d. Agricultural Conservation Areas:

This area is defined as all land which is not included in the three previous Policy Areas, and includes most of the County's farmland. This area will be the location of the County's major efforts to apply farmland retention programs and policies and to discourage any development which is not compatible with existing agricultural activities.

(Refer to pages 42 and 243 for specific recommendations.)

e. Environmental Overlay Areas:

These areas occur throughout the County, overlaying the other four Policy Areas and include important or hazardous natural features such as floodplains, steep slopes and problem soils. Various policies are recommended for these areas in order to conserve the functions and value of natural systems and to protect the public health and safety, and to tap the economic development potential of those resources in a safe and practical manner.

(Refer to page 186 for specific recommendations.)

3. Summary of Zoning And Subdivision Regulation Recommendations

a. Change the definition of "subdivision" to include all divisions of land, regardless of the size of the new lots, in order to better ensure that new rural development will be adequately designed to prevent future road and traffic problems, land use conflicts, erosion problems, public health and safety problems and other land use impacts.

b. Limit the use of private access easements to clustered developments, family subdivisions and historic sites only.

c. Establish a voluntary A-50 agricultural zone with a 50-acre minimum lot size for those landowners who wish to have such a low density agricultural zone for their land.

d. Establish a rural cluster provision for the existing A-3 and A-10 zoning districts in order to give farmland owners a partial development option that would allow some residential development but which would still preserve significant blocks of farmland and open space.

e. Rezone existing lots of 10 to 15 acres from the A-3 to the A-10 zoning classification.

(Refer to page 120 for detailed recommendations.)

4. Summary of Agricultural Conservation Recommendations

a. Use-Value Taxation and Agricultural and Forestal Districts:

This Plan recommends that the County continue both the Use-Value Taxation Program and the Agricultural District Program. While both of these programs have weaknesses, they are seen as valuable programs if the County can strengthen them with stricter eligibility requirements, greater benefits to farmland owners and/or greater use restrictions (refer to page 43 for detailed recommendations).

b. Transferable Development Rights (TDR) and Density Transfer:

This Plan recommends that the existing Density Transfer Program be strengthened and expanded county-wide, and that the County vigorously pursue State enabling legislation to allow the implementation of a full-fledged Transferable Development Rights Program.

Under a Transferable Development Rights Program (TDR), the County will designate sending and receiving areas for Development Rights. The sending areas will be those areas which the County wishes to preserve in agricultural or open space uses. The receiving areas will be those areas which have public facilities and utilities and in which the County wishes new development to occur. Landowners in the receiving areas could buy TDRs (the "right" to develop a dwelling unit) from owners of land in the sending areas. These TDRs would then be applied to the land in the receiving areas, thereby increasing the allowed development density on that land, while causing a permanent easement restriction to be placed on the land in the sending areas from which the TDRs were sold.

Through Transferable Development Rights, a farmland owner is able to receive some reasonable compensation for preserving his farm for the future by selling his development rights and placing a restrictive easement on the farmland limiting future

development. A developer would purchase these rights and use them within designated urban areas to increase the allowable development density of his project over what the zoning for the area now allows.

Thus the farmer is able to take advantage of increased land values due to development pressures and in fact may use the proceeds from the sale of development rights to buy more land for a larger and more efficient farming operation.

Under a TDR Program, the developer must buy development right in order to acquire higher density for his project. The unfa past practice of creating a "windfall" by permitting a change of zoning on the land is thus eliminated, but he should be able to recoup his expenses by encountering far fewer costly delays, legal expenses, and planning problems by not having to go through a lengthy rezoning procedure. In addition his public image will be enhanced by the fact that he is helping to preserve the countryside at the same time that he is developing the designated TDR Receiving areas.

It is essential that a market for TDRs or conservation easements under the Density Transfer Program be created. Therefore, it is the strong recommendation of this Plan that the present practice of giving increased density through proffers (other than conservation easements) be severely restricted. This should apply in all areas of the County. The County should establish standards for subdivisions at the lowest density which is legally supportable for the specific area. These standards should state what public improvements must be provided in order to obtain that density.

In the ordinance which implements a Transferable Development Rights program, the Board of Supervisors will have a choice o two alternative approaches.

The first alternative would be for the ordinance to commit the County to granting additional density to a developer of land in a designated receiving area if that developer offers TDRs to the County.

The second alternative would be to allow the County to exercise discretion when considering an offer of TDRs during a rezoning procedures. Under this alternative, a developer who wishes to rezone land in an urban growth area to a higher density could acquire TDRs from land which meets the specified eligibility requirements for conservation. The developer would present these TDRs (in the form of a conservation easement on the land) to the County in addition to any other improvements that the developer wished to proffer as part of his rezoning application. In addition, the developer could propose an alternative series of proffers which did not

include a TDR proffer. The County would evaluate the desirability of the TDRs in relation to alternative proffers that had been made. If the proposed zoning change was found to be in accordance with the goals, policies and principles of the Comprehensive Plan, the County would then decide which series of proffers to accept, and what additional density, if any, would be in order. With either alternative, the amount of density granted in return for TDRs would be predetermined by the formula set forth in the adopted local TDR ordinance, but it would also have to conform to the limits on maximum density as set forth in the Comprehensive Plan. (This Plan suggests an appropriate TDR density formula on page 51.)

Industrial development through a permitted small change in floor area ratio may provide a market for development rights as would new residential development. However, this Plan limits commercial density transfer. Since there are already hundreds of acres zoned for commercial use in inappropriate locations, commercial density should only be increased in the village areas by purchasing commercial density from another property that already has such a zoning designation.

Many communities have adopted TDR Programs in recent years without a structure and commitment to make them work and to date have not had much success. Many other communities have had remarkable success in reaching their more limited goals through purchase of development rights but still found it not politically or economically feasible to expand the program because of the enormous amount of public funds required.

This Plan recommends a relatively simple administrative and procedural framework for the TDR Program, in the hope that with a firm commitment from the County, the program will be acceptable and workable for both the buyers and sellers of TDRs.

There exists a legal problem with a TDR Program in that in Virginia, under the Dillon Rule, counties only have authority that is specifically granted by the State Legislature. Thus State enabling legislation will be required before a TDR Program can be put into full effect. However, this Plan assumes that if there is a total commitment on the part of the County to have a TDR Program, the Legislature will grant the needed authority. In the meantime, the present Density Transfer Program should be expanded to the maximum extent permissible to conform with the goals and criteria of the full TDR Program.

Density Transfer is implemented through the proffer mechanism of the rezoning application process. It is legal now, and is described in greater detail on page 47.

(See pages 46 to 54 for detailed explanation of TDR recommendations.)

c. Leasing of Conservation Easements:

This Plan recommends that the County lease conservation easements (voluntary restrictions on non-agricultural development) from holders of agricultural land. The leases would be for a somewhat greater amount of compensation to the landowners than the present use-value tax reduction, the amount to depend on the duration of the easement restriction.

The rationale for offering financial incentives for nondevelop ment commitments is two-fold: farmland requires virtually nothing in the way of County services (the farmstead excluded) whereas residential development of the same land would usually cost more in services than its tax contribution. The advantage of leasing over use value is that the leases would be of definite duration; the County can thus better predict its future service burden.

Leases are a bridge to more lasting solutions, but will benefit the County for a long time. Fixed duration leases allow the County and the landowner to make an intermediate commitment; the arrangement is not year to year, as with use-value, but neither does it require a permanent commitment to preservation. To ensure that the program includes only significant agricultural operations, eligibility will be based on larger parcels than under use-value.

The leasing of conservation easements is a particularly important part of the plan in that it will assure landowners that their actions to preserve farmland will be rewarded in direct proportion to the commitment made. It is not meant to replace land use tax assessment except for landowners who choose to take advantage of the greater benefits of the leasing program.

(See page 54 for a detailed explanation.)

d. Right-to-Farm Legislation:

To reduce the potential for nuisance suits and complaints from nonfarm neighbors of farms in the Agricultural Conservation Area, this Plan recommends that the County support the existing State Right-to-Farm Act and, in addition, adopt further policies which encourage agricultural uses in the rural areas.

e. Agricultural Development:

New and significant mechanisms presented in this Plan transcend the established and historic roles assigned to and performed by the County Department of Planning, Zoning and Community Development, the Agricultural Stabilization and Conservation Service Office, and the Loudoun Cooperative

Extension Service. The establishment of the position of Agricultural Development Officer is recommended herein to ensure the successful implementation of the Plan. This position would have, among others, the functions of serving the County farming community in providing guidance, assistance and encouragement in the understanding of and participation in the several agricultural alternatives presented in the Plan and of serving the Board of Supervisors in formulating, recommending and presenting agricultural legislative initiatives at the State level of government. The position of Agricultural Development Officer would provide administrative leadership for the County farm community similar to that provided by the Department of Economic Development for the County's industrial and tourism community.

5. Summary of Public Facilities and Utilities Recommendations

a. To re-establish the historic growth pattern, the County will encourage the location, appropriate timing of construction and operation of public water and sewer utilities in and around Urban Growth Areas.

b. The County shall assume a coordinating function with existing incorporated towns in resolving public sewer and water problems.

c. The County shall establish a committee of primary policy officials to discuss water and sewer questions with the western towns with the view of providing a cost-effective solution to current deficiencies.

d. In those rural areas where a group health hazard cannot be solved by the individual homeowners involved, the Sanitation Authority will assume a technical advisory role in determining an appropriate solution; the financial responsibility for the new systems' construction and operation will be borne by the users involved.

e. Communal water and wastewater system approval shall meet State Water Control Board and Loudoun County Health Department standards.

(See pages 157 to 160 for detailed Public Facilities and Utilities recommendations.)

6. Summary of Transportation Recommendations

a. General Recommendations:

i. New transportation improvements should be designed to cause the least possible disruption of farms, existing communities, existing land uses, historic sites, buildings and cemeteries, as well as important natural and scenic features.

ii Dedication of road rights-of-way established in the Comprehensive Plan will be a factor in all rezoning and other development permit approvals.

b. Rural Road Recommendations:

i. A high priority should be given to providing adequate width and weight capacity on the County's secondary roads and bridges for the movement of agricultural equipment and products.

ii. A high priority should be given to the correction of road hazards with special attention given to school bus routes.

iii. The County will discourage implementation of any but the most essential changes to roads which traverse scenic or historic areas.

(See page 179 for detailed Transportation recommendations.)

7. Summary of Environmental Conservation Recommendations

a. Mining Activities:

i. Prohibit uranium mining in Loudoun County until its problems are resolved.

ii. Develop and adopt an effective resource recovery zone section in the Zoning Ordinance.

b. Limestone Conglomerate Outcrop Belt:

i. Promote general agricultural use and low intensity development on central sewer facilities while providing safeguards to minimize health hazards and environmental degradation in areas of limestone geologic formations.

ii. Require that drainfields be located a minimum of 100 feet from the low points of sinkholes (50 feet from their outer edge), and that absorption trench bottoms and sides be at least four feet from the limestone rock.

iii. Require geotechnical reports and engineered solutions to problems in the limestone outcrop belt for all subdivision proposals with lots less than ten acres in size, proposals for waste disposal sites (including agricultural lagoons and sludge holding ponds), and proposals for large ponds.

c. Land Use Changes:

Require the preparation of a detailed soil and geotechnical study for proposed land use changes and developments

in soil types identified as having poor and very poor potential for development. Such reports shall generally evaluate site conditions and recommend design parameters consistent with County policy.

d. Nonpoint Source Pollution:

i. Inventory and monitor the existing nonpoint pollution levels and sources.

ii. Support State of Virginia efforts to monitor and limit nonpoint source pollution.

e. Soil Conservation:

i. Continue to lessen the negative effects of erosion and sedimentation through the Loudoun County Erosion and Sedimentation Control Ordinance.

ii. Continue support for the existing memorandum of understanding between the Loudoun Soil and Water Conservation District and the Loudoun County Commissioner of The Revenue that requires all applicants for use-value taxation to cooperate with the District in an approved conservation plan to decrease soil erosion. Review the agreement in order to determine if it can or should be strengthened.

f. On-site Sewage Disposal (Septic Systems):

Permit on-site sewage disposal only in those areas where site and soil conditions are such that the on-site disposal system can be expected to function satisfactorily for the life of the structure or until public sewer is made available based on plans and projections contained in the Rural Plan.

g. Solid Waste Disposal:

Permit solid waste disposal facilities only in suitable locations as outlined; require regular monitoring of surface and groundwater to assess pollution migrations.

h. Groundwater:

Maintain a data base on well-drilling activities in order to monitor and predict groundwater quantity and quality.

i. Surface Water:

Identify and monitor the condition of potential water supply/stormwater management impoundment sites for future use.

j. Land Forms:

i. One hundred year floodplains, as identified on maps prepared by the Soil Conservation Service and the Federal Insurance Administration, shall be preserved in their natural state except for uses permitted in the County Floodplain Ordinance (agricultural, passive recreation).

ii. Protect the public and environment from damages resulting from improper building on mountain colluvial soils subject to slippage. Minimize damage to the environment and the public by precluding development on steep slopes.

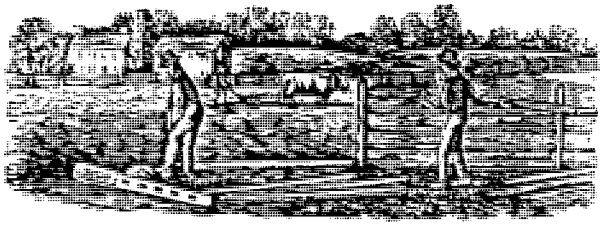
k. Vegetation:

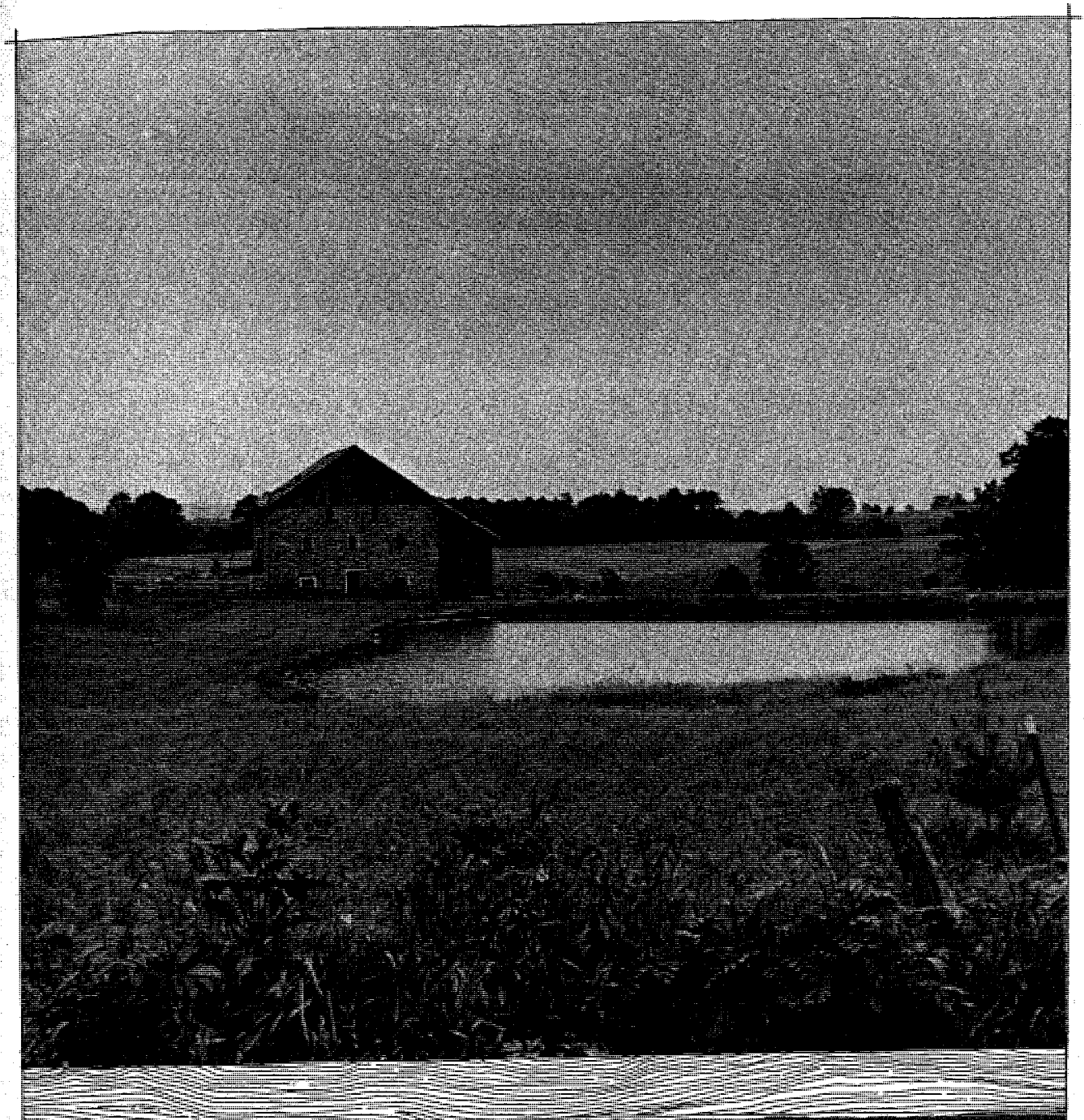
i. Encourage landowners to manage and maintain their woodlan for multiple uses such as timber and firewood production, wildlife habitat, stormwater runoff and soil erosion abat ment, recreation and scenic quality.

ii. Require harvesting plans with best management practices to be approved by the County Forester of the Virginia Division of Forestry before logging operations are to com mence on woodlands of greater than 20 acres or 25% slopes

iii. Require management plans for logging operations on woodlands of greater than 20 acres or 25% slope.

iv. Require noxious weed control through the Commissioner of The Revenue as part of land-use tax deferment. Tighten enforcement and monitoring procedures.





Chapter 2

CHAPTER TWO

ANALYSIS, GOALS, AND IMPLEMENTATION RECOMMENDATIONS BY RESOURCE TOPIC

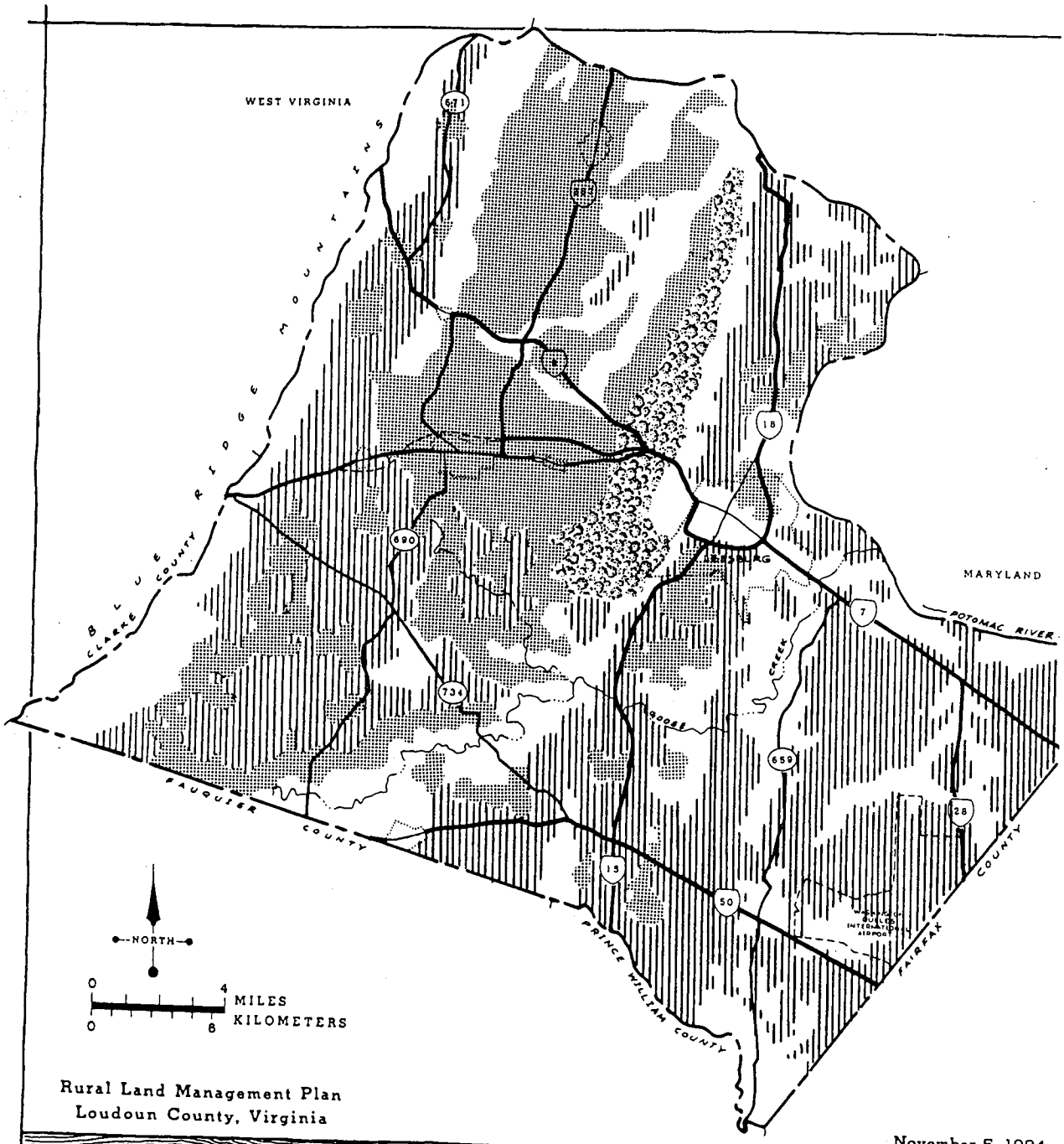
I. AGRICULTURAL RESOURCES

A. BACKGROUND, ANALYSIS AND ISSUES

Loudoun County is rich in agricultural resources, in terms of both the economic elements of production, and the cultural character and long historical basis of the County's farming industry. (See Figure 4, page 24 .) The County is blessed with good agricultural soils, a mild, moist climate, a long tradition of family farms, gentle topography, and good access to farm markets and major population centers. The inherent qualities of these basic resources have allowed for an evolving and changing farm tradition. The County's agricultural industry is now based primarily on corn, cattle and other grain production, as well as substantial horse, dairy, vegetable and sheep operations. In the 1970's corn and soybean production increased, (Loudoun was the leading corn producing County in the State in 1981)*, whereas the number of sheep farms and dairy farms has decreased. There has also been a noticeable increase in intensive specialty crops such as vineyards, Christmas trees and vegetables. In general, the number of major middle-sized farms has decreased, but per acre productivity has increased. About 228,000 acres were in farms in 1978, representing over two-thirds of the County's total land area.**

Good farmland is usually nearly level, well drained, and watered. These are the same characteristics which make land attractive for development. As development begins to occur in formerly rural areas, land values rise and property and estate inheritance taxes increase. Under dual pressure from higher taxes and tempting offers from speculators and developers, many farmers sell their land. This process began in the early 1960's in Loudoun County, when the Washington metropolitan area began to spread westward. Sterling Park and Dulles Airport were the first instances of large scale urbanization of the County's land base; the rate of development has continued to increase since that time.

* Interview with William Harrison, Loudoun Cooperative Extension Agent.
** U. S. Census of Agriculture, 1978.



Rural Land Management Plan
Loudoun County, Virginia

November 5, 1984

AGRICULTURAL SOIL SUITABILITY

[Generalized]

- Prime Soils
- Secondary Soils
- Unique Soils
- Other or Less Suitable Soils for Crops

Figure 4

As the number of farms in an area declines, important support industries (e.g., feed, fertilizer, grain dealers) begin to leave due to insufficient business. New non-farm residents require much higher levels of service from government (roads, schools, utilities), and the tax burden increases due to the necessity of providing these services. The aesthetic values of open land, fresh air, and other amenities of rural living, which make the County attractive to new residents, gradually decline.

Farmers as a group are also adversely affected by urbanization because the process brings the potential for conflict between normal farming operations and the lifestyles of new residents.

The trends in agricultural land use and the farming industry are somewhat ambiguous and thus require careful analysis in order to accurately interpret the true implications of these changes. For purposes of description and study, it is useful to distinguish between the economic land use aspects of agriculture, and the cultural/demographic aspects.

1. Trends In Land Use

Among the land use aspects, there are four major trends evident in the changes in the overall agricultural land use statistics for Loudoun County between the Agricultural Census years of 1969, 1974 and 1978, covering the decade of the 1970's. There are causes and at least partial explanations for each of these trends. The following is an analysis of the possible causes and impacts of the major trends:

First, the total number of acres in farms* in Loudoun increased by about 7% between 1969 and 1978, and the acreage planted in corn increased by about 90%, while the acreage in pasture decreased by 16%.** Several explanations for these trends can be identified. The increase in acres in farms may be due to the fact that the county adopted the Use-Value Taxation Program for qualifying farmland in 1974. This gave an incentive for owners of idle or under-used farmland to put it back into full production in order to gain the local tax benefits. The increase in corn production and the associated decrease in pastureland can be substantially attributed to the increase in the price of corn. Between 1960 and 1971 average corn prices were relatively stable,

* Defined by the U. S. Census of Agriculture as any place from which $1,000 or more of agricultural products were sold, or normally would have been sold, during the census year.

** U. S. Census of Agriculture, 1969, 1978.

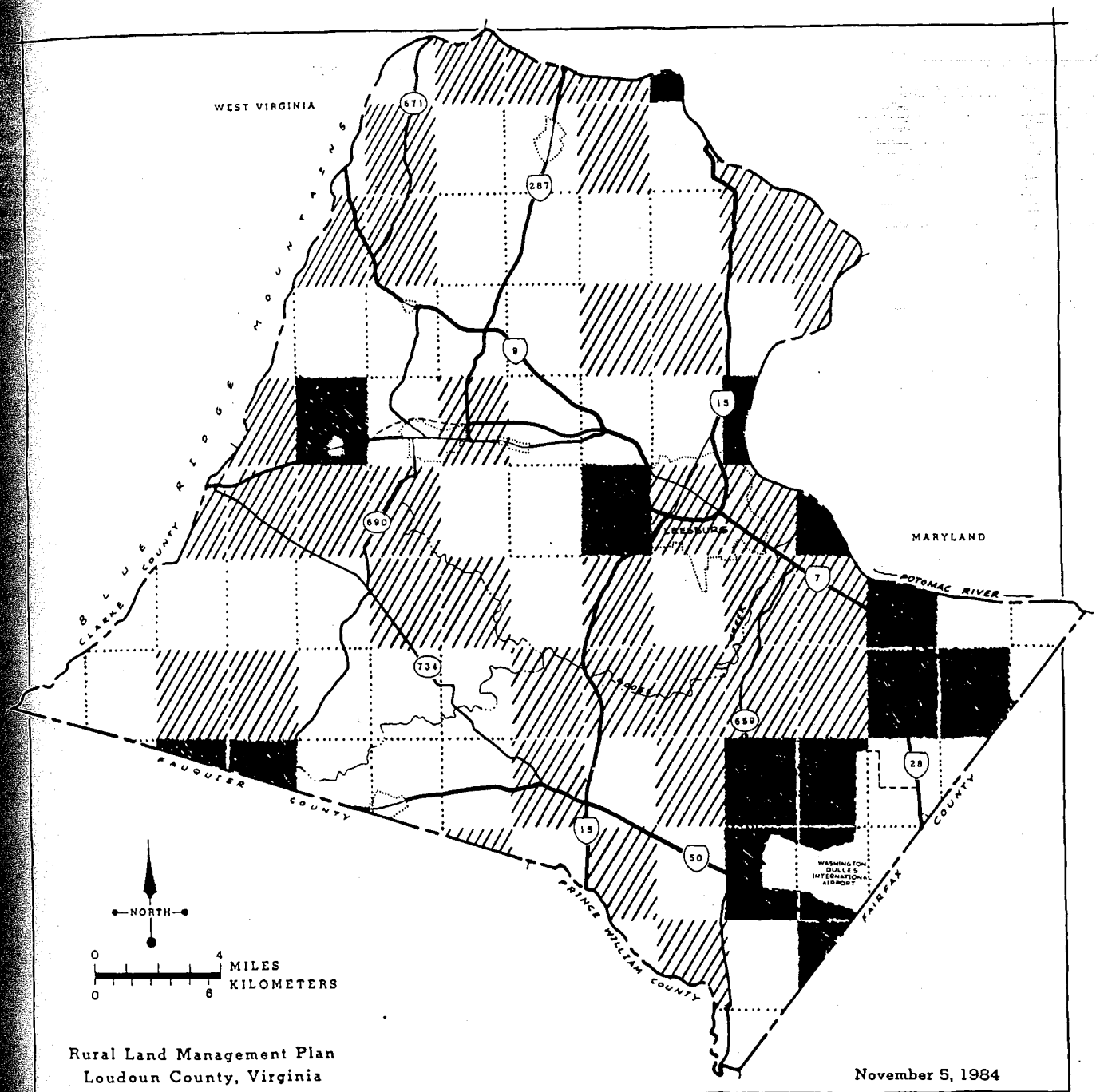
hovering around $1.25 per bushel. However, during the three year period of 1972 through 1974, corn jumped to $3.22 per bushel, and since that time the price has generally held at or near $3.00 per bushel.* This sharp increase was due to many factors, most being the result of national and international economic events. Corn has become a relatively dependable cash crop for Loudoun farmers and, therefore, they are planting more of their land in corn than they did in the 1950's and 1960's.

Second, the average farm size in Loudoun decreased by 15%, between 1974 and 1978, after having risen continually during the twenty years between 1954 and 1974. This reduction in average farm size relates strongly to the increase in the number of smaller farms (less than 200 acres), and the reduction in the number of medium sized farms (200-500 acres). The average farm size in Loudoun in 1969 was 285 acres, and in 1978 it was down to 241 acres. During this period, the number of small farms increased, as did the number of very large farms (1,000+ acres). This pattern would seem to indicate that while more smaller, part-time farming operations have been established, some farmers have expanded into very large operations by renting cropland, (see Figure 5, page 27), probably in an attempt to benefit from economies of scale. The most dramatic change in farm size was the increase in the number of small farms. This trend is strongly correlated with a similar increase in the number and percentage of part-time farmers, from 340 (49%) in 1974, to 455 (54%) in 1978.**

The causes of the changes in farm size and principal occupation of owners are difficult to isolate or prove. However, some probable causal relationships can be identified. Increases in land costs and production costs have pressured many farmers to rent additional cropland, expanding the size of the farm in order to gain economies of scale while, at the same time, these higher costs have made it more difficult for the middle-sized and small farm to survive as the sole occupation of the owner, thus causing an increase in the number of small scale, part-time farmers. Another possible cause of the increase in small farms is the rising popularity of a rural lifestyle, particularly in

* Unpublished Report form the Virginia Department of Agriculture and Consumer Services, Richmond, VA.

** U.S. Census of Agriculture, 1974, 1978.



FARMLAND LEASED TO OTHER FARMERS

[Loudoun County Tax Map Grid]

- Greater Than 67% Leased
- 33% to 67% Leased
- Less Than 33% Leased

Source : LOUDOUN COUNTY USE VALUE ASSESSMENT RECORDS

Figure 5

areas close to a large metropolitan area such as Washington, D.C. Many retired or semi-retired people or others who want a part-time or "weekend" farm have purchased smaller tracts of 10 to 100 acres for purposes of hobby, recreation, investment, or income supplement.

Third, although the total value of farm products sold has increased during the last decade, the level of operating costs such as farm machinery, labor, fuel, interest rates, and feed, has also increased. In addition, the average value of farmland increased by two and one-half times between 1969 and 1978. Such an increase in land value is a decidedly mixed blessing to the farmer for while it raises the gross market value of his property, it also makes it more difficult to acquire additional land as well as serving as an indication that the land is more valuable for development than for farming. Total expenditures for farming operations increased by 105% between 1969 and 1978, while the total sales value of farm products sold increased by 116%.* These data would appear to indicate that farming in Loudoun is becoming more expensive, more productive, and requires a great deal more in the way of capital expenditures in order to successfully compete economically. Also, it indicates that the overall rise in production expenses is nearly keeping pace with the increase in crop production and gross revenue. The County's 1981 Agricultural Survey showed that increased production costs and lack of available labor were the most severe problems facing local farming operations.** Many of the important increases in production costs are due to factors rooted in the national and international economic system and are thus beyond local control. Examples include the high cost of borrowing money, the increasing cost of fuel and electricity, and the general reduction in the purchasing power of the dollar due to inflation.

Fourth, the kinds of farming operations in the County have changed with more vegetable farms, more beef cattle farms and fewer dairy and sheep farms. (The number of corn producing farms has remained constant during the last decade even though corn acreage has increased). These changes indicate a change in production economics for the various different operations. Dairies are becoming less popular, probably due to labor problems and high capital costs, while intensive operations such as vegetables are gaining in popularity.

* Derived from the U.S. Census of Agriculture.

** Draft Loudoun County Agricultural Survey, Loudoun County Department of Planning, Zoning and Community Development, 1981.

These four major trends in agricultural economics and land use: the increase in total cropland, cornland, farm acreage and number of large farms; the decrease in average farm size combined with a decrease in the number of medium sized farms; the increase in the cost of land, money and other production factors; and the changes in farm-types, together paint a general picture of the direction in which the farming industry in Loudoun may be headed, in terms of overall land uses.

2. Trends In Cultural and Demographic Aspects

Among the cultural and demographic aspects, there are several trends which are of at least equal significance to the land use and economic trends.

First, the average age of farmers has fluctuated during the last decade, although it appears to have stabilized or possibly increased only slightly in the last few years. According to the U.S. Census of Agriculture, in 1969 the average age was 53.6, by 1974 it had risen to 55.6 and then by 1978 it had dropped down to 52.6. The recent County Agricultural Survey showed the average age of farmers to be 53.9, only a slight increase over 1978. The relatively high age of Loudoun farmers may indicate a problem for the long-term viability of family farms in that as these farmers reach retirement age, many will sell their land. Such a prospect casts a great deal of uncertainty on the future of medium-scale family farms in Loudoun.

Second, the non-farm population has increased substantially in the rural areas of Loudoun County. This increase has apparently contributed to an increase in the physical conflicts between farming activities and rural, non-farm residents. Examples would include complaints against farmers by neighboring residents about odors, machinery noise and pesticide spraying; the killing of livestock by dogs; traffic conflicts between heavy farm machinery and cars; vandalism; and trespassing on farm properties and cropland. In the County's 1981 Agricultural Survey, farmers cited encroaching development as the third most severe problem facing their farming operations behind operating costs and taxes, respectively. Conflicts between farms and new residents will likely continue to be an ever increasing problem in the County's agricultural areas. Future land use policies and regulations should focus on these existing and potential conflicts.

Third, there have been broad social and cultural changes throughout the entire community. Opportunities for non-farm education and employment are often more available and attractive to farm children. The continuity of farm ownership and management from one generation to the next is thus more likely to be broken.

3. Analysis of Impacts of Trends

Some of the past and possible future impacts of all of these trends include the following:

First, due to the increased price of land, money and other production costs, full-time farmers are finding that in order to be profitable, they must increase the scale of their farming operations by leasing additional land. Generally, the land is too expensive to buy for agricultural uses only, so they lease it with one, three and, when possible, five year contracts from landowners who are often speculators, not farmers (see Figure 6, page 31.) These short-term agreements prevent the farmer from having the security of knowing that he will always have enough land to farm in the future, thereby further increasing the uncertainty of his business. The larger farmers must compete with each other for the land which is available for leasing. This further increases the uncertainty of a farmer's land supply in addition to increasing the cost of production by bidding up the rental price of good land.

Second, due to the increase in the total number of acres in crop production, the danger of soil erosion increases. In addition, the increased competition among farmers to rent cropland tends to bid up the rental price, thus contributing to increased total production costs.

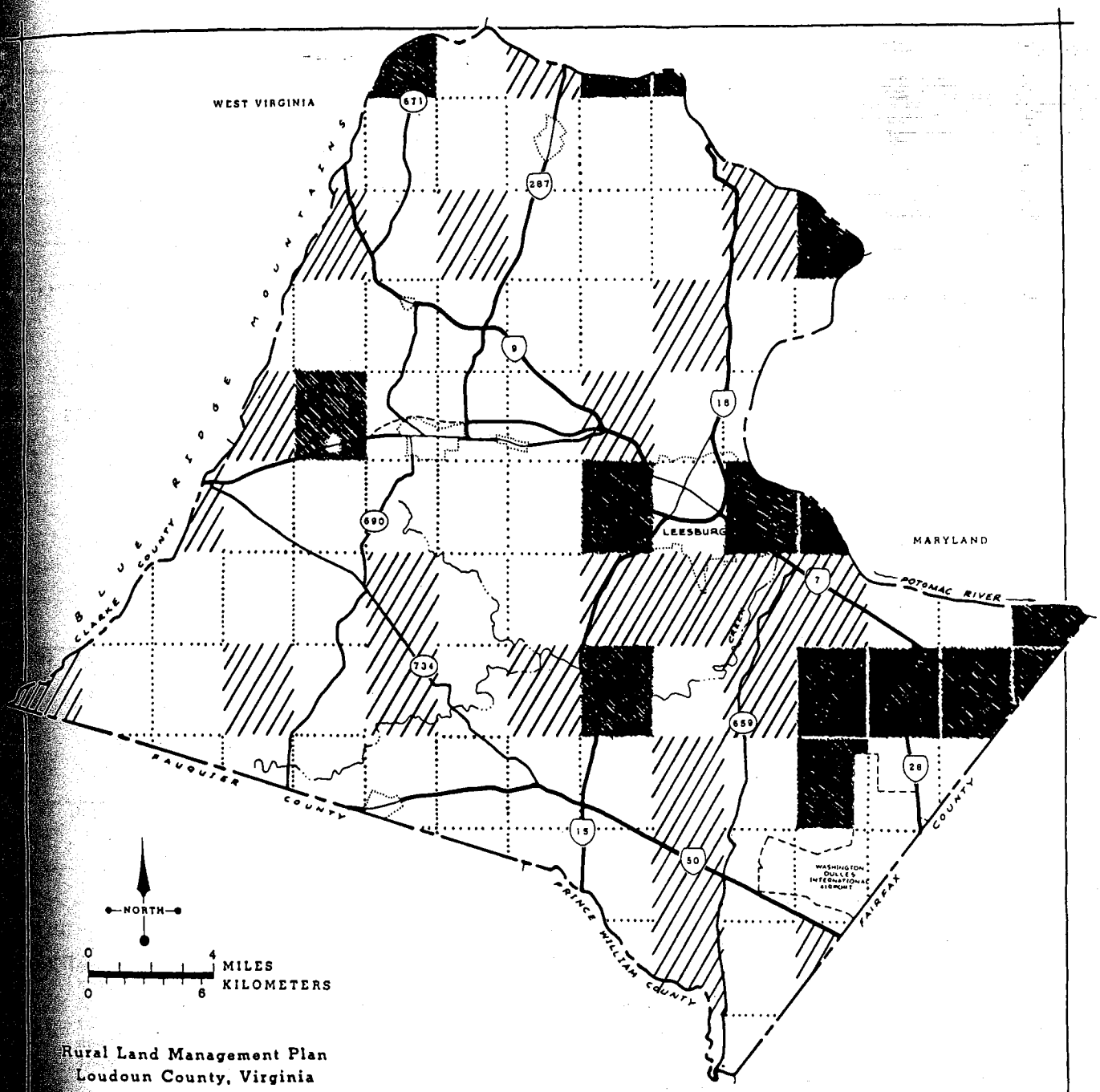
Third, the increase in average farm size and number of farms indicates that both the small farms and very large farms are gaining in number, while the middle-sized, "family" farms are being squeezed out. This trend may reduce the social and economic diversity of the County's agricultural sector. It could also tend to cause an increase in total farm productivity, however.

Fourth, any increase in the County tax rate contributes to a further increase in farm production costs, putting further economic pressure on farmers.

Fifth, the decrease in the number of sheep farms and dairies also contributes to the lower diversity of farm types in the County. This may be somewhat ameliorated by an increase in vegetable and other high intensity farms.

Sixth, the lack of available labor and pressures for economies of scale force further mechanization of farming, while at the same time discouraging older farmers who may have to invest in new equipment rather than using skilled farm labor.

Seventh, as discussed previously, the increase in the non-farm rural population causes more land use conflicts and difficulties for farmers in carrying out their farming activities.



ABSENTEE OWNERSHIP OF FARMLAND

[Loudoun County Tax Map Grid]

- Greater Than 67% Absentee
- 33% to 67% Absentee
- Less Than 33% Absentee

Source : LOUDOUN COUNTY USE VALUE ASSESSMENT RECORDS

Figure 6

Eighth, the increasing age of farmers may increase the likelihood that farmers will retire and be forced to sell their land. It could, however, also mean that retired farmers may choose to retain ownership and lease their land to younger farmers, thereby increasing the farming opportunities for these younger farmers.

Finally, and possibly most important, are the broad cultural changes in the local society and economy. Increased educational and employment opportunities for farm children, increased exposure to mass communications, increased expectations for higher, stable incomes and less physically demanding work all contribute to a decrease in an interest in farming among local young people, and thus reduce the prospects for the future of farming in the County. A possible counter trend which may be occurring is the "back to the earth" movement in which many urban people are involved. This trend, however, is generally for small farms, and may not be of enough significance to strengthen the local industry of large, mechanized farming operations.

It is clear from the foregoing analysis that all of the trends, causes and impacts of changes in agricultural land uses are interactive. To a large degree, the causal relationships are a "chicken and egg" situation where the impacts of certain changes become themselves basic causes of still other changes. This complex network of interacting factors cannot be viewed as a static, linear, cause-and-effect chain, but rather should be seen as a dynamic web of causal relationships.

Table 3, page 33 summarizes these basic trends, as well as their probable causes and impacts.

Table 3

AGRICULTURAL TREND ANALYSIS SUMMARY CHART

Trend	Probable Cause(s)	Potential Impacts
Economic:		
1) Rising land and production costs (with no control over demand or sales price)	Higher market value of farmland as potential development land Inflation Increased mechanization has raised costs such as fertilizer, machinery, etc. Increased energy costs; fuel, chemicals, electricity Higher labor costs Higher interest rates No individual control over sales price due to dependence on national and international economic, political and market forces Little or no coordination among producers regionwide or nationwide	Produces economic uncertainty and profit squeeze More uncertainty about land availability on the part of farmers Increases difficulty for small scale farms to produce adequate profit Increases incentives for land owner to subdivide and sell Forces larger scale farming operations in order to achieve economies of scale Forces more mechanization to increase scale Puts more stress on land and soil due to short term leases, need for constant maximum production Prevents or deters new or young farmers from starting up.
2) Increase in total acres of cropland	Establishment of use-value taxation in 1974 Price of corn went up during 1970's Number of farms went up during 1970's Larger farms expanded to achieve economies of scale	Increases erosion potential and problems Strain on soil fertility Increase in competition and cost to rent farmland for agricultural use Increase in total gross productivity
3) Increase in farm size, increase in number of farms	Increased popularity of rural life style Increase in cost of land Inflation & higher interest rates, higher production costs for all farms	Fewer mid-size farms survive Agricultural community loses diversity & strength Could harm certain support businesses, may help others Could increase gross productivity by encouraging more intensive operations
4) Increase in tax rate, increase in tax bill due to higher assessments on buildings	Increased demand for county services due to rise in young, suburban population Inflation Growth pressure and real estate speculation throughout D.C. metro area	Increases total net farm production costs, because taxes are one of those costs Encourages farmers to sell farm & move or retire Creates pessimistic view of farming future among local farmers Encourages the further reduction in mid-size farms & increase in small & part-time farms
5) Decrease in number of dairies, sheep farms; increase in number of vegetable farms and corn acreage	Production and capital costs for dairies are very high, creating low return on investment. Vegetables are more intensive, therefore productive. Corn has been a good cash crop, during last ten years Sheep are often killed by dogs.	More smaller and intensive farms. Less diversity in the agricultural sector of Loudoun. More corn grown on land which may be more suitable for other crops or pasture.

TABLE 3 (Cont'd.)

Trend	Probable Cause(s)	Potential Impacts
Social/Cultural:		
1) Lack of available labor	Fewer farm children interested in farming due to changing opportunities and expectations Higher, more competitive wages offered by other industries Fewer people willing to do physically demanding work	Encourages further mechanization, and thus, larger scale farming, and leasing of farmland by large farm operators Prevents mid-size farmer from expanding his operation, unless he can afford to mechanize Encourages pessimism on part of farmers
2) Increase in rural, non-farm population and in neighboring suburban counties	Regional population and employment growth due to expanding high-tech industries and government Increased desire among people for the higher "quality of life" often afforded by smaller, more rural communities	Increases pressure on and conflicts with agricultural activities Increases need for schools and public facilities and thus higher taxes Increase in local market for agricultural products Increase in potential labor sources
3) Increasing age of farmers (age appeared to have been stable over the 1970's, but may rise during the 1980's)	Fewer young farmers willing or able to enter the farm business More retired or absentee "hobby" or part-time farmers	Increases likelihood that a farmer will sell-out and retire Could mean more land will become available for young farmers to buy, but price is too high Could increase sales of land to developers/speculators, thereby increasing farmland rental and uncertainty among farmers
4) Broad cultural changes such as increased opportunities for farm children, different aspirations & expectations of farm children, increased popularity of small town/rural living exurban migration rising expectations of farmland owners for financial return from selling for development	Growth of Washington Metro area, more jobs, people, opportunities of all kinds Increasing problems in urban areas such as crime, living costs, traffic, pollution Increased mobility of local citizens Increased exposure to mass communications History of rapid growth in Northern Virginia since 1950	Fewer young farmers, agricultural laborers, and agriculturally related businessmen Increased conflicts between farms and non-farm residents Less emphasis on and awareness of agriculture in schools and other community institutions Reduces the solidarity of the local agricultural social community.

4. Agricultural Issues

The major issues regarding agricultural land uses in the County's rural areas include the following:

a. The Market Value of Rural Land and The Landowner's Equity

The value of rural land in Loudoun, particularly the land with better agricultural soils, has risen steadily during the past two decades, primarily due to its potential use for rural residential development using individual septic systems. This increase in value has caused difficulties for some of the farmers in the area, but at the same time, very few landowners, including farmers, are willing to accept any additional regulation that might reduce that market value.

b. The Pattern and Rate of Rural Residential Development

During the past two decades, residential development and land subdivision have occurred at a rapid and increasing rate, due primarily to the market demand for rural lots. While these residential lots have been subdivided and built upon, the towns and villages in rural Loudoun where growth is encouraged to take place, have experienced negligible growth due to inadequate public utilities, particularly water. The resulting scattered growth pattern is and continues to be contrary to adopted County policy as set forth in the RMP and as restated in this Rural Plan. This scattered pattern tends to use up, convert or interfere with much larger amounts of agricultural and open space land than would the desired compact, nodal growth pattern.

c. The Future of Farming in Loudoun/The "Impermanence Syndrome"

The average age of farmers in Loudoun is in the mid 50's; the County's population has nearly tripled during the past two decades with about 20% of the new residential growth occurring in the rural agricultural areas; farmland values have increased dramatically during this period due to the rising demand for large rural residential lots; the projections for future growth in the County indicate that the population may almost double again by the year 2000, and farmers in recent years have experienced a difficult and uncertain economic climate due to increasing operating costs, low product prices and high interest rates. All of these factors raise questions as to the long-term future of agriculture in

Loudoun County, particularly the large scale, highly mechanized grain operations that are prevalent in Loudoun today. The continual subdivision of rural land into 10 acre building lots has created further uncertainty among farmers as to their long-term prospects for being able to continue farming in Loudoun. As land is divided due to retirement of farmers, high market value, and conflicts with new adjacent residential uses, the feelings of impermanence and uncertainty increase among local farmers.

d. The Role of the County in Influencing Private Agricultural and Rural Residential Land Use Decisions

Having identified the above issues and concerns regarding rural land use trends, the question which must be resolved and which this Plan addresses is what should be the County's role in attempting to effect the most desirable rural growth pattern which will be in the best interests of the majority of Loudoun Citizens during the next ten to twenty years?

While there are limitations to the County's land use regulatory powers, it does have the authority to implement a wide spectrum of policies and programs, ranging from a strict regulation of rural land uses on the one hand to a major compensation to landowners for imposed use restrictions on the other hand. These two opposite extremes of action, regulation and compensation form the bounds within which the County must choose to act.

The County can also choose a combination of these choices which would be a moderate, middle ground solution and which would be more acceptable to the urban taxpayer who wants to retain low taxes as well as to the rural landowner who wants to retain his options for using his land. Such a combination of techniques is the recommendation of this Plan.

In addition to land use planning policies and programs that address the relationships and conflicts between agricultural and non-agricultural uses, the County currently implements many programs aimed at providing direct technical and other assistance to farm owners and operators such as forest management assistance, agricultural research, agricultural education, etc. Can the County better implement and manage those programs in order to provide even more effective service to the local agricultural industry?

5. Current Agricultural Policies and Programs

The RMP sets forth the following goals and policies pertaining to the County's agricultural resources (RMP, p. 237):

Goals:

1. Preserve the cultural, social, economic, environmental and aesthetic amenities provided by agricultural land use to both Loudoun County and the region.

2. Promote land use and fiscal planning efforts which help alleviate land use and economic burdens on agricultural land so as to avoid its premature conversion to urban, non-agricultural use.

3. Encourage agricultural land use practices which minimize environmental pollution.

Policies: The County will:

1. Establish and implement agricultural conservation programs designed to encourage the continuance of the agricultural economy and culture of Loudoun County.

2. Strongly discourage non-agriculturally related land uses in those areas designated prime long-term agricultural land use areas according to the Resource Management Plan.

3. Discourage the premature conversion of agricultural land uses in areas designated secondary agricultural use areas according to the Resource Management Plan

4. Develop planning and zoning standards and transition zones designed to reduce potential conflicts arising from the proximity of agriculture to established urban areas and other incompatible land uses.

(See page 43 for Agricultural Program recommendations.)

Programs:

The County currently implements, coordinates, funds and manages various technical, educational, advisory and land use programs aimed at promoting the continued strength and vitality of the local agricultural industry. These programs include the following:

1. Agricultural Advisory Committee:

   The Agricultural Advisory Committee was established by the Loudoun County Board of Supervisors in 1976 for the purpose of advising the Board on all matters relating to agriculture in Loudoun County. The Committee consists of active farmers, conservationists, bankers, feed and machinery dealers, and non-farm citizens. Members, who serve three-year terms, meet monthly and submit annual reports to the Board, in addition to other reports deemed necessary. The Agricultural Advisory Committee has been instrumental in promoting the Use-Value Taxation Program and in establishing Agricultural and Forestal districts.

2. Agricultural Stabilization and Conservation Service:

   The Agricultural Stabilization and Conservation Service (ASCS) is an agency of the U.S. Department of Agriculture which administers the Nation's farm programs (e.g., commodity, conservation, environmental protection, and emergency programs). Programs are designed to support production, to meet market demands at reasonable prices, to protect farm income, and to offer incentives to farmers to follow sound conservation practices. Programs are administered in the field by State and farmer-elected County committees.

   Agricultural programs provide loans to establish a price floor as a hedge against unfavorable market conditions; make payments to farmers when crops are damaged by disaster, when it is necessary to "set aside" land for adjusting crop production, or when market prices fall below reasonable levels; and share costs with farmers for soil and water conservation. ASCS offers technical assistance, including yields acreage maintenance for farms, commodity loans, cost-sharing for conservation practices, measurement services, Wool Incentive Payments, and Milk Diversion Program.

3. Cooperative Extension Service:

The Virginia Cooperative Extension Service is a partnership among County, State, and Federal offices working together for the improvement of agriculture and for conservation of natural resources. These goals are accomplished by dissemination of research-based technical knowledge and the promotion of the application of that knowledge. Priorities are established and programs are designed through the involvement of local advisory committees and local Extension staff; this allows tailoring of programs to best meet local needs. Loudoun County's advisory committees were formed for the areas of agronomy, farm management, dairy, livestock, commercial vegetables, horticulture, Gypsy Moth control, and noxious weed control. The Cooperative Extension Service also offers computer programs for use in the areas of least-cost ratio development; livestock, crop, and farm planning. Information on these and other subjects is presented to the public through educational seminars, newsletters, radio programs, farm and office visits, and technical assistance programs.

4. Loudoun Agricultural Research Foundation:

The Loudoun Agricultural Research Foundation (LARF) is a non-profit organization formed in 1984 for the purpose of encouraging agricultural research and development in Loudoun County. The Foundation is managed by a Board of Directors, three members of which are elected annually, with three additional members appointed annually by the President.

5. Office of Natural Resources:

The Office of Natural Resources was established in December, 1983 through reorganization of the Office of the Soil Scientist, the Loudoun County Photogrammetric Mapping Project, and the Loudoun Soil and Water Conservation District support staff. In addition to other responsibilities in natural resource management, this Office serves the agricultural community through technical assistance programs (e.g., provision of Soil Survey information, evaluation of agricultural soils on-site with the Soil Conservation Service, and assistance concerning the no-till program in cooperation with the Soil and Water Conservation District). The Office also provides: a) assistance to the Commissioner of The Revenue on the application and compliance of the Use-Value Taxation Program; b) Map products for the

conservation farm plans developed by the Soil Conservation Service for landowners within the Use Value Taxation Program; c) development and dissemination of locally-applicable agricultural research information obtained through research plot experiments, field days to observe results, test demonstrations, and an annual report of results and observations; and d) staff support to the Agricultural Advisory Committee, the Soil and Water Conservation District, and other agriculture-related committees.

6. Planning, Zoning, and Community Development:

The Department of Planning, Zoning and Community Development prepares, coordinates and administers long-range land use plans, zoning regulations, subdivision regulations and other land development and conservation efforts, many of which relate to the local agricultural industry. (Included among these are Agricultural and Forestal Districts and zoning and subdivision regulations which are discussed elsewhere in this plan.)

7. Soil Conservation Service:

The USDA Soil Conservation Service (SCS) was established by Federal legislation in 1933 to provide technical assistance to local conservation districts. Through a memorandum of understanding, the SCS provides technical staff support to the Loudoun Soil and Water Conservation District (SWCD). Landowners who desire assistance enter into a cooperative agreement with the SWCD, and in turn receive on-farm technical assistance through the SCS to solve land resource problems.

Major areas of technical assistance include the preparation of a complete conservation plan (problems are identified, cultivation or land-use changes based on soil type are recommended, and specific conservation practices are listed); and on-site assistance furnished by SCS for layout, design, and construction of structural conservation practices and management practices (e.g., construction/management of farm ponds, drainage of wet soils, erosion control, conservation tillage and cropping systems.)

8. Soil and Water Conservation District:

The Loudoun Soil and Water Conservation District, a political subdivision of the Commonwealth of Virginia, is responsible under State law for conservation work within its boundaries. The SWCD is governed by a five-member Board of Directors, two of whom are appointed by the Soil and Water Conservation Commission and three of whom are elected by the public, which provides Loudoun's citizens with the opportunity to shape the resource planning and conservation efforts within the County. The District acts as a catalyst to conservation efforts through memoranda of agreement. Through such a memorandum, a staff of conservationists carries out on-farm technical assistance to district cooperators. Through another such memorandum (with the Loudoun County Board of Supervisors) the District is furnished office space and utilities.

9. Virginia Division of Forestry:

The Virginia Division of Forestry was established for the prevention and investigation of all woodland and certain other open land fires, and for the protection of woodland. The State provides technical advice to landowners concerning the establishment, management, and harvesting of forest resources. The Division maintains numerous research plots, from which information is developed (e.g., hardwood thinnings, walnut management). The State also works closely with the ASCS to advise, initiate, monitor, and map various technical practices (e.g., tree establishment, hardwood thinning, site preparation, fencing).

B. AGRICULTURAL GOALS

1. Proceed in spirit from the goals stated for agriculture in the 1979 Resource Management Plan (RMP). In summary of the RMP, the initial aims are:

   - To preserve and further develop the many benefits of an ongoing agricultural industry and community for Loudoun County;

   - To do this by creating programs which reduce economic and other pressures that cause land to be converted from agriculture; and also

   - To encourage farming practices that promote the conservation of agricultural resources and avoid the pollution or degradation of surrounding communities.

2. Promote the development of adequate levels of the key elements of the farming system as the major land use and economic activity in the County - these elements being farmers and their employees, land of the various classifications required by different production systems, and the necessary agricultural support services and industries.

3. In seeking these goals, the County should develop a range of optional programs that will enhance the economic viability of agricultural operations in Loudoun County while maintaining the equity of farmland.

C. AGRICULTURAL IMPLEMENTATION RECOMMENDATIONS

The following policies and programs should be immediately implemented by Loudoun County in order to carry out the Goals of the RMP and this Rural Plan:

Policies

Loudoun County is blessed with some of the most productive agricultural soils in the Commonwealth, evidenced by the County's standing in agricultural production. These productive agricultural lands have fostered a healthy, viable agricultural industry, which is vital to the Loudoun County tax base and to the quality of life of County residents. Therefore, the agricultural policy of Loudoun County shall be to maintain the opportunity for a continued, viable agricultural industry through implementation of the following policies:

1. Protect the Loudoun County agricultural land base and maintain its availability for agricultural production through the Use-Value Taxation Program, agricultural districts, density transfer programs, and potential new mechanisms such as transferable development rights and other techniques or programs as may be deemed appropriate by the County.

2. Provide the management resources, such as technical assistance through government agencies, research, and agricultural education programs to facilitate long-term agricultural production.

3. Provide an ongoing review of the County's agricultural policies and programs in order to ensure that they are relevant and effective. Such reviews shall be carried out by the appropriate local agricultural committees, the Soil and Water Conservation District, the Extension Service advisory committees, the Planning Commission and the Board of Supervisors.

4. Continue agricultural educational programs and efforts.

5. Minimize the potential for conflict between agriculture and other rural land uses through right-to-farm legislation, appropriate setbacks, educational programs, appropriate review of cluster subdivisions in agricultural areas, and other appropriate land use controls.

Programs

1. Use-Value Taxation ("Land Use") Recommendations

Use-value Taxation is presently being used in various forms in 47 states, including Virginia. It has been in use in Loudoun County since 1973. Basically, the program allows qualifying land to be assessed and taxed at its use-value as farmland or forestland rather than at its fair market value as potential development land. This usually produces a lower property value assessment and thus a lower tax bill for the owner. The aim of the program is to reduce the tax burden on farmers, thereby lowering their operating costs and making it easier for them to continue farming and also to institute an equitable property tax policy, recognizing that open land does not require very many public services. In rapidly urbanizing counties, the difference between use-value and market value is often substantial.

In Loudoun County the typical market value of good farmland is about $2,000 per acre, while the typical use-value is about $400 per acre. Buildings and other structures are not eligible for the program, so the total tax saving to the farmer is about 50% (on the land itself, the saving is about 75% to 80%). Approximately 200,000 acres of land are under use-value taxation in Loudoun County, or about two-thirds of the County's total land area.

Although Use-Value Taxation has met with some criticism based upon various studies which cast doubt upon its effectiveness in preserving farmland, farm owners in Loudoun County have continually stated that for many of them use-value is an essential part of their effort to remain in business. They say it has provided many indirect benefits such as opening up large amounts of absentee-owned cropland for renting to local farmers in addition to the immediate direct benefits of providing financial assistance to farmland owners.

It is, therefore, the recommendation of this plan, that the County continue to implement the Use-Value Taxation Program.

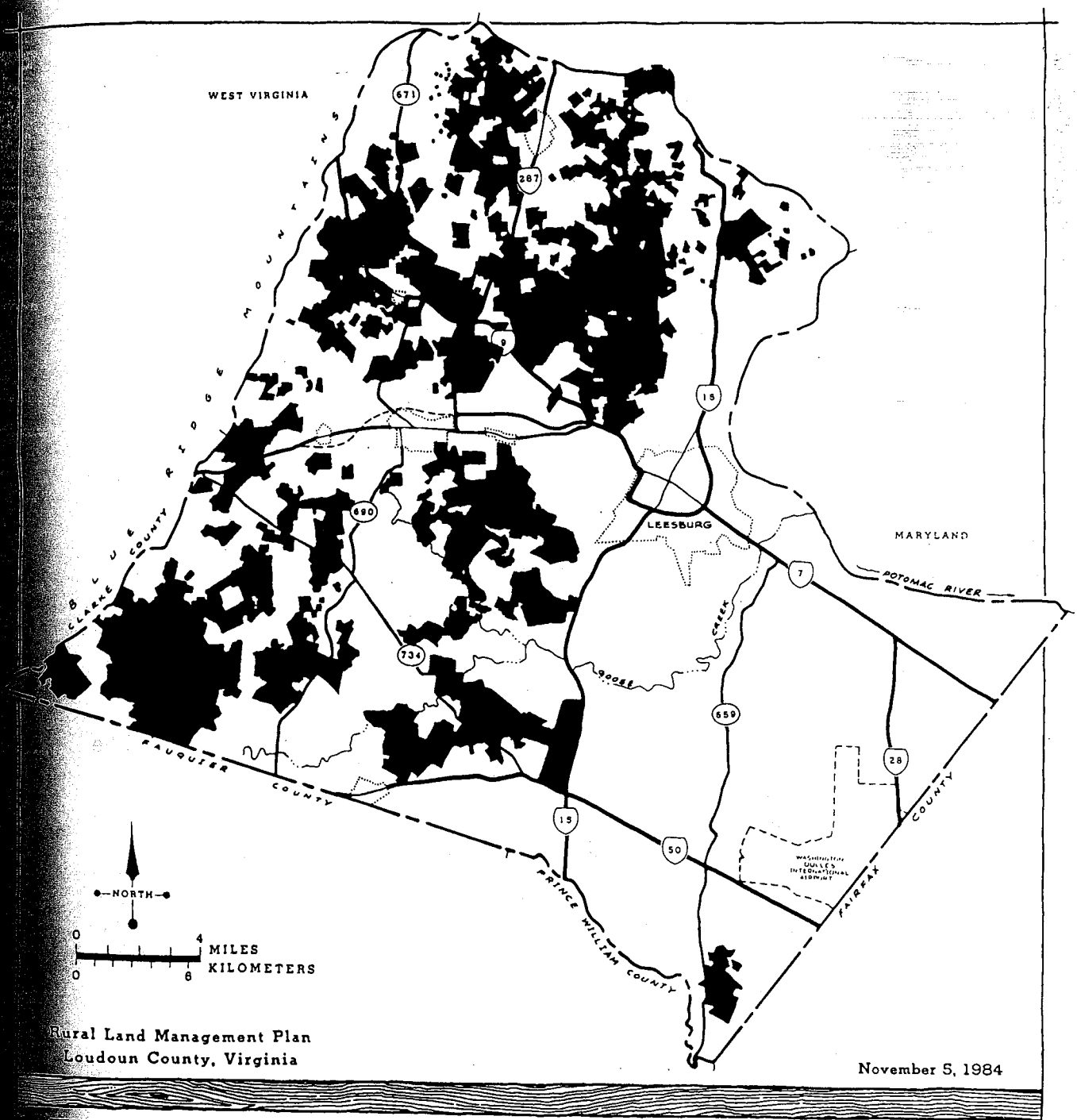
2. Agricultural and Forestal Districts Recommendations

Under state legislation enacted in 1977, Agricultural and Forestal Districts may be established in local governmental jurisdictions in Virginia at the request of landowners. Loudoun County currently has 14 Agricultural Districts totaling over 80,000 acres, more than any other County in the State. (See Figure 7, page 45.)

The formation of an Ag-District is voluntary on the part of the landowners, and provides certain benefits and protections to the land within it. A minimum of five hundred acres is required to form an Ag-District; it may be established for four to eight years and may be renewed by the Board of Supervisors. Qualifying land within the district remains eligible for use-value taxation during the term of the District; it is protected from nuisance ordinances that might interfere with agricultural activities, is exempt from special tax levies for utilities, and gains extra protection from the use of eminent domain. There are, however, no specific limitations on non-farm activities or on new residential development that might cause serious interference with the existing agricultural activities.

While the provisions of the Ag-District law are not particularly strong, the voluntary formation of 80,000 acres of districts in Loudoun indicates the presence of a very strong farming constituency. This constituency should be nourished and developed in order to enhance the professional, economic, social and cultural solidarity of Loudoun County's farm community.

It is, therefore, the recommendation of this Plan that Agricultural and Forestal Districts be renewed, if the landowners so choose but that upon renewal, the provisions for protecting and preserving farming activities be strengthened by amending the district ordinances to preclude subdivision and development at greater than 25 acres per unit density within the district during the four to eight year term of the district. It is further recommended that Ag-Districts be given advisory responsibilities for agriculturally related issues; that each district of 5,000 acres or more or combination of districts of 5,000 acres or more elect officers and a managing board for a specific period and that each district elect a member to the Agricultural Advisory Committee which would address issues of County-wide importance.



AGRICULTURAL AND FORESTAL DISTRICTS

as of January 1, 1985 [Generalized]

Figure 7

3. Transferable Development Rights/Density Transfer Recommendations

a. Transferable Development Rights (TDR)

The right to develop land is only one of the many property rights which a landowner possesses when he has a fee simple ownership interest in a parcel of real estate. That "bundle of rights" includes the right to access, air rights, water rights, mineral rights, development rights and several others.

A Transferable Development Rights Program (TDR), would take advantage of this existing legal concept. In a TDR program, the County would designate receiving zones and sending zones within the County. The receiving zones would be areas which are served or planned to be served with central public utilities and where the County's policy is to encourage growth to occur. The sending zones would be areas of the County which have valuable, irreplaceable land assets such as prime agricultural soils. The landowners in a designated receiving zone who wanted to increase their allowed development density would be allowed to purchase development rights from a landowner(s) in a designated sending zone, and transfer the development rights to their land in the receiving zone, thereby increasing the allowable density of their development tract.

The TDR concept appears to be the most logical, fair comprehensive approach to growth management and farmland preservation. TDR is based on the notion that new residential development brings in new residents who demand additional public facilities and services, thus causing an increase in the local tax burden on existing County residents. In order to share these increased burdens more equitably, a TDR program could require developers to buy development rights from owners of designated rural farmland, thereby contributing to the public purpose of land conservation, as well as spreading both the fiscal burdens and financial benefits of development among county landowners. Farmland owners who wished or needed to convert some or all of the development value of their land into cash, could do so without having to sell their land outright. They could sell only the development rights, and retain the other rights to their land and thus continue to farm. The developers would benefit from the TDR Program by being able to greatly speed up the rezoning approval process. The cost of buying TDRs should be less than the cost of purchasing the equivalent extra increment of developable land.

In summary, a TDR program would cause new residents to contribute indirectly to the public purpose of rural land conservation as well as allow farmland owners the option of selling only the development rights of their land thus reaping the development value of it, while still allowing them to continue to own and farm their land or to sell it to another farmer at an affordable price. A TDR Program would allow the "right to develop land" to be transferred (sold) from designated rural areas to designated urban areas, thereby, preserving rural land while guiding development toward urban land. The TDR process would be a voluntary, private transaction on the part of both buyers (developers) and sellers (farmland owners).

In order to implement a TDR Program, however, the County would need additional State enabling legislation that would formally and legally recognize that the development component of land ownership can be severed, sold and placed on a separate and distinct parcel of land and that any rezoning in a receiving zone can use TDR's as a criterion for either granting a rezoning to a higher density or for approving a subdivision on land that has already been rezoned and designated as eligible to receive TDR's.

b. Density Transfer:

An interim step to TDR is Density Transfer (or the Proffering of Conservation Easements), a program first adopted for use by the County in the Leesburg Area Management Plan. Density Transfer is based upon the concept that the County may grant density in the upper ranges established in area plans if developers proffer certain public facilities, road improvements and/or other amenities. Such proffers are voluntary on the part of the developer, and the amount of additional density granted is discretionary on the part of the County.

Higher density could also be granted in return for the proffering of off-site open space for the public purposes of historic, environmental and/or agricultural preservation. If a developer voluntarily elected to acquire a conservation easement on a parcel of land in a designated conservation area and offered to convey that proffer of easement to the County, the County could in turn grant a higher density for the developer's land which lies within the receiving area. Such an off-site proffer would, in effect, be a proffer of an open-space resource to the County in order to compensate the public for reducing the existing open-space resources on the

development site. The level of density granted would be directly proportional to the quality and quantity of the donated conservation easement. Such a proffer of a conservation easement and the resultant higher density could be considered a "Density Transfer" from a site which the County has designated as a priority for conservation to a site which the County has designated as a priority for development. The developer would not be required to hold fee simple title to the site upon which the conservation easement is placed.

Density Transfer can be implemented during any rezoning process in the urbanizing areas of the County, using the proffer system, and could be instrumental in helping to guide new development into designated areas adjacent to urban centers or within existing urban centers, while at the same time saving hundreds of acres of land over a period of several years. This will only occur, however, if the County's area plans provide the proper incentives to developers in terms of allowed density ranges specified in the Plans. However, it is essential that the County be very specific and firm about allowing the highest densities only in return for the proffers of conservation easements. Although it may not provide the effectiveness and strength of implementation that a full-fledged TDR Program would allow, Density Transfer, or the Proffering of Conservation Easements, is legal in Virginia and can be implemented county-wide immediately. Therefore, this Rural Plan establishes the County's commitment to seek enabling legislation for TDR, but in the meantime, vigorously seek to encourage use of the Density Transfer Program.

The fundamental difference between Density Transfer and TDR is that under a TDR Program, the County would be in a stronger position to actually require developers to buy easements in order to achieve the maximum allowable density than is called for in the County's Comprehensive Plan.

c. Legal Questions

Because certain aspects of a TDR Program are not clearly authorized by the State Code, it appears that the County must seek and obtain enabling legislation in order to implement TDR.

Therefore, the County shall implement the Density Transfer Program immediately, and at the same time begin a serious effort to acquire authorization to implement a full-fledged TDR program.

The specific areas which need to be addressed in the new legislation include but may not be limited to:

i. Intensification of Use Based on TDR:

New legislation is needed to specifically establish the use of TDRs as a unique justification for allowing a reasonable increase in density. The reasonableness of an increase in density in designated areas must be established according to the public benefit achieved by concentrating urban development for a more efficient and economic provision of public services and facilities.

ii. TDR Land Trust:

In order to ensure that a market is present for TDRs, the County may need to establish and fund a Land Trust which can receive, buy, hold and sell TDRs in order to balance supply and demand forces, and to facilitate TDR transactions.

New legislation may specifically authorize the County to use a bond issue to fund such a Land Trust if the County so desires. At a minimum, an agency would have to be authorized for the administration of functions relative to the acquisition and enforcement of the conservation easement that embodies the transferred development rights. Although administrative costs are not expected to be high, the expenditure of public funds for these purposes must be authorized as well.

iii. Severing TDRs from the Land:

While a partial ownership interest in land, such as an easement, is already recognized by State law, the ability to actually detach the development right from the land and vest it in another entity for the purpose of granting increased density should be formally authorized by the State.

iv. Conditions or Limitations on Use of TDRs:

In designing an effective TDR Program and in order to conform to good land use planning principles, the County may desire to establish reasonable limitations or conditions on the use of TDRs. The enabling legislation should clearly provide such authority.

v. Allocation of TDRs:

The development rights which may be severed from the sending area will have to be quantified by some formula or zoning regulation. The enabling legislation should give the County the authority to establish a method of allocation, and to recognize some residual development potential that could remain in the fee estate while still satisfying the conservation and preservation objectives of the program. This is not, however, a valuation of the development rights. The fair market value of the development rights allocated for a sending area should be determined in the market place.

vi. Recordation:

There must be a recordation of all TDRs alienated from the fee estates. This element should be identified as a requirement in the enabling legislation.

vii. Town Involvement:

In order to assure consistency with the goals of the Plan to encourage development in and around towns, incorporated towns within the County should be authorized to implement TDR provisions.

d. Provisions for TDR and Density Transfer

Once the necessary enabling legislation has been acquired to permit the full and proper use of TDR, the County shall implement a TDR program. In the meantime, the County shall implement a County-wide Density Transfer Program. Both of these programs shall have the following provisions:

i. Sending and Receiving Areas:

The sending area for density transfer and TDRs shall generally include all of the land located in the Agricultural Conservation Area and the Rural Fringe Area as designated in this Plan, with the exception of the land lying within the Broad Run and Occoquan watersheds which is not zoned A-3 or A-10.

The receiving areas shall include the Urban Growth Areas and all Rural Fringe Areas as designated in this Plan and other area plans. (The specific boundaries of the Urban Growth Areas will be defined by specific area plans.)

ii. Transfer Rates/Density Transfer Formula:

Density may be transferred from a rural sending tract at the same density rate as the present existing zoning district calls for (i.e., one unit per three acres for A-3 land, one unit per acre for R-1 land, etc.) excluding 100 year floodplains and land of 25% or greater slope, and giving no density credit for existing dwellings. However, in no case shall it be less than one for six acres. However, land of 25% or greater slopes shall in no case be assigned density credit.

iii. Eligible Land for Sending:

Tracts of land which are made up of contiguous (abutting) parcels of land containing a total area equal to or greater than 50 acres in size, which have an existing residential development density of no greater than one dwelling unit per 25 acres, which are located in the Agricultural Conservation Area or Rural Fringe Areas around the towns, or are within the Broad Run or Occoquan watersheds and zoned A-3 or A-10, are eligible for a conservation easement and density credit transfer or TDRs under the Density Transfer or TDR Program. The choice to sell (send) development rights/ conservation easements shall be totally voluntary on the part of the landowner. Land which is already under permanent conservation easement will not be eligible for sending TDRs or transferring density.

iv. Eligible Land for Receiving:

Parcels of land in the Urban Growth and Rural Fringe Areas which are being rezoned to a "PD" zone (or its equivalent) and are otherwise designated for development by the County's Comprehensive Plan, are eligible for higher density under the Density Transfer or TDR Program. The amount of density placed on a given site shall be in conformance with the appropriate area plan.

v. Provisions and Restrictions of the Conservation Easement:

Land in the Agricultural Conservation or Rural Fringe Area which is placed under easement as part of the Density Transfer Program shall be subject to various specific provisions that will be contained in the easement document. These restrictive provisions shall be based upon the following general principles:

(1) Further subdivision of the property is prohibited.

(2) Timber management shall be in accord with sound management plans subject to approval by the Virginia Division of Forestry.

(3) Grading, blasting, mining or earth removal shall not alter the major topographic aspects of the property and shall not interfere with agricultural uses.

(4) No building, structure or mobile home shall be built on the property other than:

- farm buildings or structures;
- tenant house(s) for full-time farm employees;
- necessary private drives or trails for the two items above.

(5) Nothing in the deed of easement shall be construed to convey a right to the public of access or use of the property. The owners shall retain exclusive right to access and use.

(6) The deed of easement shall be established in perpetuity.

(7) A residual density of not more than one unit per 50 acres, less existing dwellings, would be provided in the terms of the easement.

(8) The easement provisions shall pertain to the entire parcel or parcels from which density is transferred, and all allowed density credit on the entire parcel(s) shall be transferred at once.

vi. Density Transfer and TDR:

Density transfer within the proffer system will be continued even if a full-fledged TDR effort is enacted. Developers in urban areas may proffer off-site easements designed to secure trails, future park sites or lands of environmental or historic importance.

vii. Public Purpose:

The public purpose of a Density Transfer or TDR Program shall be to encourage efficient development and to conserve important agricultural, historic, scenic and environmental land resources, particularly farmland.

Both the Commonwealth of Virginia and the County of Loudoun have adopted policies which firmly establish the public purpose of agricultural, historic, environmental and open space conservation. The Commonwealth has established these policies in several places in the Code of Virginia, including:

Section 10 - 159 : "It is hereby declared to be the public policy of Virginia that the preservation of open space lands is in the public interest and is to be encouraged."

Section 15.1 - 1507: "It is State policy to conserve and protect and to encourage the development and improvement of its agricultural and forestal lands for the production of food and other agricultural and forestal products. It is also State policy to conserve and protect agricultural and forestal lands as valued natural and ecological resources which provide essential open spaces for clean air and aesthetic purposes."

The County has established its own related goals and policies in the Resource Management Plan (RMP) and other area plans, including this Rural Plan. (Refer to page 41)

viii. Easement Grantee:

The County of Loudoun shall be the primary recipient and holder (grantee) of conservation easements established under the Density Transfer or TDR Programs. The Virginia Outdoors Foundation may also act as recipient and holder of easements under this program, on property it deems to be compatible with the provisions of its land acquisition policies.

ix. TDRs for Commercially and Industrially Zoned Property:

Commercial TDRs may be transferred from land which is already zoned for commercial use but which is undeveloped. Industrially zoned land may receive TDRs, based upon a formula which will establish the relationship between allowed Floor Area Ratios of industrial buildings and acres of rural land.

It is, therefore, the recommendation of this plan that the County immediately enact a County-wide Density Transfer Program, with the provisions defined above, and immediately seek State enabling legislation that would allow Loudoun County to implement a program of Transferable Development Rights (TDR) with the provisions defined above in order to create a more equitable development process that would allow reasonable development in the urban growth areas while preserving rural agricultural areas.

4. Conservation Easements Recommendations

a. Leasing of Conservation Easements:

Under the provisions of Virginia's Open Space Land Act of 1966, as amended, the County may acquire open space easements on land for periods of no less than five years. The County would pay an annual fee to the landowner which would be roughly equivalent to a small additional property tax reduction, over and above that granted from use-value taxation. Such short-term easements ensure that the land will not be divided or developed during that time, thereby providing the County with a tangible value in return for the compensation paid to the landowners who choose to take part in the program.

The leasing of easements would be a voluntary program, offered as an alternative to use-value taxation. It would require the landowner to commit his land to open space uses for a longer period of time than does the use-value program, but would also offer him a slightly greater monetary reward, in recognition of the fact that open land pays for more than its of local taxes.

The leasing concept is seen as a short-term, interim solution to farmland retention, one which would "buy time" for the County until more permanent solutions such as TDR could be fully implemented. A leasing program, while being a short-term solution, would at least provide a contract guarantee to the County from the land-owner, that he would not develop his land for the duration of the lease agreement (either 5, 8 or 16 years). The County would, in effect, be buying term "development insurance" at a relatively low cost (approximately $5 per acre per year). A leasing program would be voluntary to qualifying landowners.

It shall be the County's policy to encourage the retention of farmland by means of a Conservation Easement Leasing Program organized under the following policies and with the following provisions:

Policy Provisions for Leasing Easements

- It shall be the policy of Loudoun County to grant benefits to local farmland owners at a rate which is proportional to the degree and extent to which they commit their land to agricultural or open space uses.

- A program of leasing of conservation easements can serve the farming community with the basic tradeoff being a more effective tax break than use-value in return for a temporary easement prohibiting development.

Program Provisions for Leasing Easements

- In Rural Fringe and Rural Village Areas:

  Parcels of 25 acres or more which are in agricultural use are eligible for granting five or eight year conservation easements on the land to the County in return for annual payments equivalent to an 80% or 85% reduction in the local property tax on the land under easement. Such leases would be in lieu of use-value taxation.

- In the Agricultural Conservation Areas:

  Parcels of 25 acres or more which are in agricultural use are eligible for granting five, eight or 16 year conservation easements on the land to the County in return for annual payment equivalent to an 80% reduction in the local property tax bill on the land under easement for the five year lease, 85% reduction for the eight year lease and 90% reduction for the 16 year lease. Such leases would be in lieu of use-value taxation.

(See Table 4, page 56 for a summary of leasing provisions.)

Table 4

SUMMARY OF PROVISIONS FOR A LEASING OF CONSERVATION EASEMENTS PROGRAM

PROVISIONS	LEASE PERIOD OF 5 YEARS	LEASE PERIOD OF 8 YEARS	LEASE PERIOD OF 16 YEARS
Eligible Land	All parcels currently in Use-Value program, equal to or greater than 25 acres, located in the Rural Fringe, Rural Village, or Agricultural Conservation areas, and zoned A-50, A-10, A-3 or R-1.	(Same as 5 year provisions)	All parcels currently in Use-Value Program equal to or greater than 25 acres, located in the Agricultural Conservation areas, and zoned A-3, A-10 or A-50
Restrictions	No subdivision or non-farm development, no rezoning to higher density, during term of Lease.	(Same as 5 year provisions)	(Same as 5 year provisions)
Reimbursement	A sum equal to 80% of owner's County property tax bill on the leased land will be paid to landowner each year.	85% reduction in tax bill on the leased land.	90% reduction in tax bill on the lesed land.
Rollback	5 years, upon termination and non-renewal of lease. (Rollback need not be paid if, after the lease expires the provisions of the lease are complied with for a period equal to the lease period involved.)	(Same as 5 year provisions)	4 years, upon termination and non-renewal of lease. (Rollback need not be paid if, after the lease expires, provisions of the lease are complied with for a period equal to the lease period involved.)
Withdrawal	Extremely limited provisions for withdrawal, including, option upon death of the landowner; 100% rollback with annual interest penalty. The lease shall be enforced by "specific performance requirements.	(Same as 5 year provisions)	(Same as 5 year provisions)
Other Provisions	1) Lease may be renewed at end of 8 year term, with Rollback "Rolled-over," unless County plans for the site have changed.	(Same as 5 year provisions)	(Same as 5 year provisions)
Other Provisions	2) Leased land may not continue in Use-Value program during transition period, but soil conservation plan still required	(Same as 5 year)	(Same as 5 year)
	3) The leasing program could be most efficiently monitored through requirement of a temporary (5 year) deed restriction, recorded in the County Land records.	8 year deed restriction	16 year deed restriction
Proposed Starting Date	January 1, 1985		January 1, 1985

b. Conservation Easement Sale or Donation:

In addition to the County leasing short-term conservation easements from landowners who choose to participate, rural landowners should have the additional options of either selling or donating permanent conservation easements through the County's Density Transfer Program. If such permanent easements are established on rural agricultural or forestal land, the County should adopt a policy of continuing the Use-Value Taxation program for lands under permanent easement, regardless of whether Use-Value is provided to other properties.

It is, therefore, the recommendation of this plan that the following conservation leasing program package be put into effect immediately:

Program/Option	Effective Reduction in Property Tax Bill to Land Under Lease	Method
Use-Value Taxation	75-80% (approx.)	Tax deferred under existing State program
5-Year Lease	80%	Conservation Easement Lease
8-Year Lease	85%	Conservation Easement Lease
16-Year Lease	90%	Conservation Easement Lease

(Only one of these program options shall be available for any single parcel of land at any given time.)

To encourage easements on larger tracts, it is recommended that land with an easement restriction on 100 contiguous acres or greater would be eligible to receive an annual lease payment of a viable percentage, with a minimum of 20% of the tax paid on purely agricultural buildings being used for farming.

The conservation easement lease would be made to the landowner from the County so as to compensate the landowner on an annual basis to the extent of reimbursing 80% to 90% of his local property tax bill on the land under easement in return for his commitment to keep the land open and undivided for a period of 5, 8 or 16 years.

5. Right to Farm Recommendation

The Virginia Agricultural and Forestal Districts Act contains language which prevents localities from enforcing nuisance ordinances against farmers within an Ag-district. In addition, the State General Assembly in 1981 passed the Right-to-Farm Act which offers some additional measure of protection to farmers.

It is, therefore, the recommendation of this Plan, that the County carry out the following policies and actions:

- Amend the Subdivision Ordinance to provide that all new subdivision plats for land within agricultural districts, agricultural conservation areas and A-3 zoning districts contain a statement on the plat that specifies that agricultural and forestal uses are the preferred land use activity in those areas.

- Actively enforce any ordinances which prohibit actions that disrupt farming activities, such as leash laws, trespass laws, etc.

- Support the concept that as long as Best Management Practices and accepted farming procedures are used in agricultural activities, the farm operator shall be protected from nuisance complaints.

- Support the provisions of the Virginia Right-to-Farm Act.

6. Agricultural Industry Development Recommendations

Many of the problems and needs of the local agricultural community involve elements which do not solely consist of land use concerns per se. Tasks and responsibilities which need to be carried out include:

a. Further the promotion of agriculture and agri-business as an industry in Loudoun County;

b. Educate the non-farm public about the importance of the agricultural industry;

c. Advise the Board of Supervisors on agricultural policy and State and local legislative needs;

d. Explain, promote and monitor the provisions of the Rural Land Management Plan;

e. Work closely with existing Federal, State and local agricultural agencies;

f. Disseminate pertinent agricultural information;

g. Advise the Agricultural Advisory Committee.

It is, therefore, the recommendation of this plan that Loudoun County initiate a comprehensive agricultural industrial promotion and education effort, including the establishment of a full-time Agricultural Development Officer to act in an educational, promotional and advisory capacity to the local farming community, the public and to the Board of Supervisors.

7. Voluntary Agricultural Zoning Recommendations

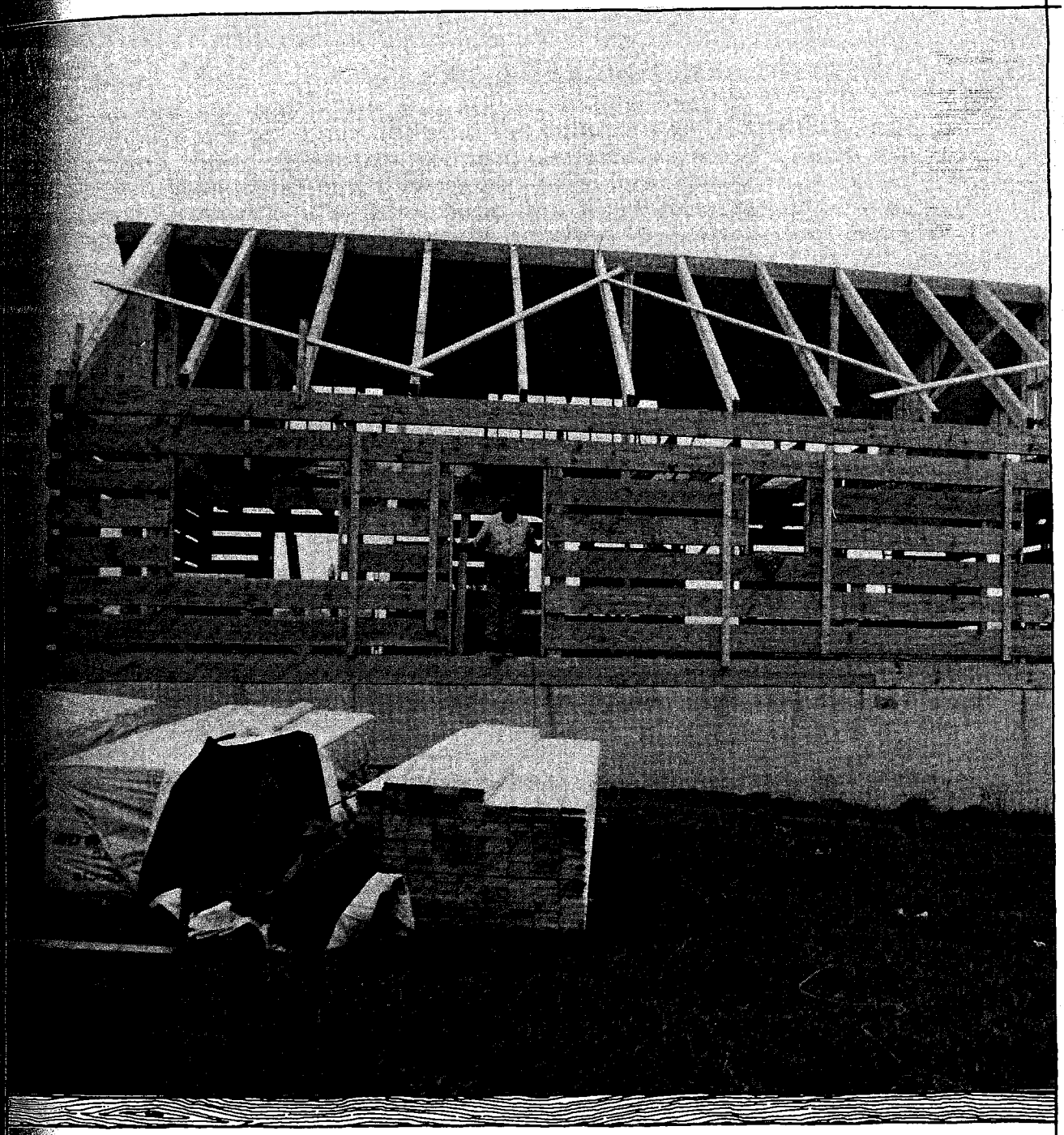
Establish a voluntary A-50 zoning district. This district shall have a minimum lot size of 50 acres and will have fewer permitted uses than the A-3 district. The purpose of the A-50 district will be to encourage agricultural uses and to afford protection from use conflicts for landowners who wish to carry out farming activities and want to have a lower development density for their land. Such a zone may also provide extra protection from nuisance suits against farming activities.

It is, therefore, the recommendation of this plan that the County Zoning Ordinance be modified so as to include an A-50 Agricultural Zone with the general provision of a 50 acre minimum lot size.

D. CONCLUSIONS REGARDING AGRICULTURAL CONSERVATION RECOMMENDATIONS

The preceding policy and program recommendations for conserving agricultural land and promoting the continued viability of the local agricultural industry in Loudoun County are based on the recognition that the County is not willing or able to implement the strongest available conservation measures such as reducing allowable development density or purchasing land, due to concerns about preserving land values

and keeping public expenditures to a minimum. Therefore, the recommendations in this plan are voluntary, optional programs that may provide the rural landowner with additional choices for property management and cash return on investment in addition to the present choice of conventional subdivision. Although these programs cannot be expected to be as powerful, effective or as certain as would stronger regulatory or financial programs, they represent a fair and equitable compromise which should be capable of producing some reasonable success in achieving the long-term conservation goals of the County's Comprehensive Plan.



RESIDENTIAL

II. RESIDENTIAL RESOURCES

A. BACKGROUND, ANALYSIS AND ISSUES

A critical concern expressed throughout the Rural Plan is the issue of continued economic viability of farming in the County balanced against constant pressure for subdivision of rural properties for residential development. The proximity of farming and adjacent residential subdivisions leads to land use conflicts that should be reduced or avoided. Therefore, the residential section of this plan includes techniques which will protect the farmer and rural landowner's equity yet still allow and encourage Loudoun County's farming industry to coexist with residential development.

The broad purpose of the Rural Plan is to provide the policy basis for future County rural land use decisions. The basic parameters of Residential Policy for the Rural Plan are defined in the adopted Resource Management Plan (RMP). The RMP policy for rural Loudoun County has, in general terms, attempted to balance concerns regarding urbanization in the rural areas (subdivision activity) with the long-term interests of farming (equity value and agricultural activities). The residential section of this Rural Plan provides the detailed land use policies and programs that will encourage residential development in existing towns while still allowing some development in the rural areas in order to maintain the landowners' equity in their land.

The principal emphasis of the Residential Section will be on the Rural Fringe, Rural Village and the Agricultural Conservation Policy Areas (see Figure 3, page 13). Urban Growth Areas will be established in detail by Area Plans which will require further special study by the County through its long range area planning process.

The adopted growth management policy for the County is clearly set forth in the RMP. The RMP states that in areas where community utilities and facilities exist, residential growth will be promoted. Conversely, if areas do not have or are not planned to receive public facilities, growth will be discouraged through zoning, designated utility policies and other regulatory actions. For rural planning purposes the capacity for future residential growth lies within the towns and villages or areas within the immediate influence of the towns and villages. The Rural Plan identifies those areas where utility capacity exists and where substantial growth could occur, as well as less developed areas which do not have utilities and which should be maintained in agricultural uses.

The RMP describes the land use future of the County by defining Resource Management Areas based on sewer capacity (RMP, p. 212). The overall goal is to promote the optimum land use pattern for the entire County which would "...encourage the clustering of residential and employment uses and which (would) conserve valued agricultural

and environmental resources." (RMP, p. 209). The Rural Plan provides the specific land use recommendations that will help implement this goal.

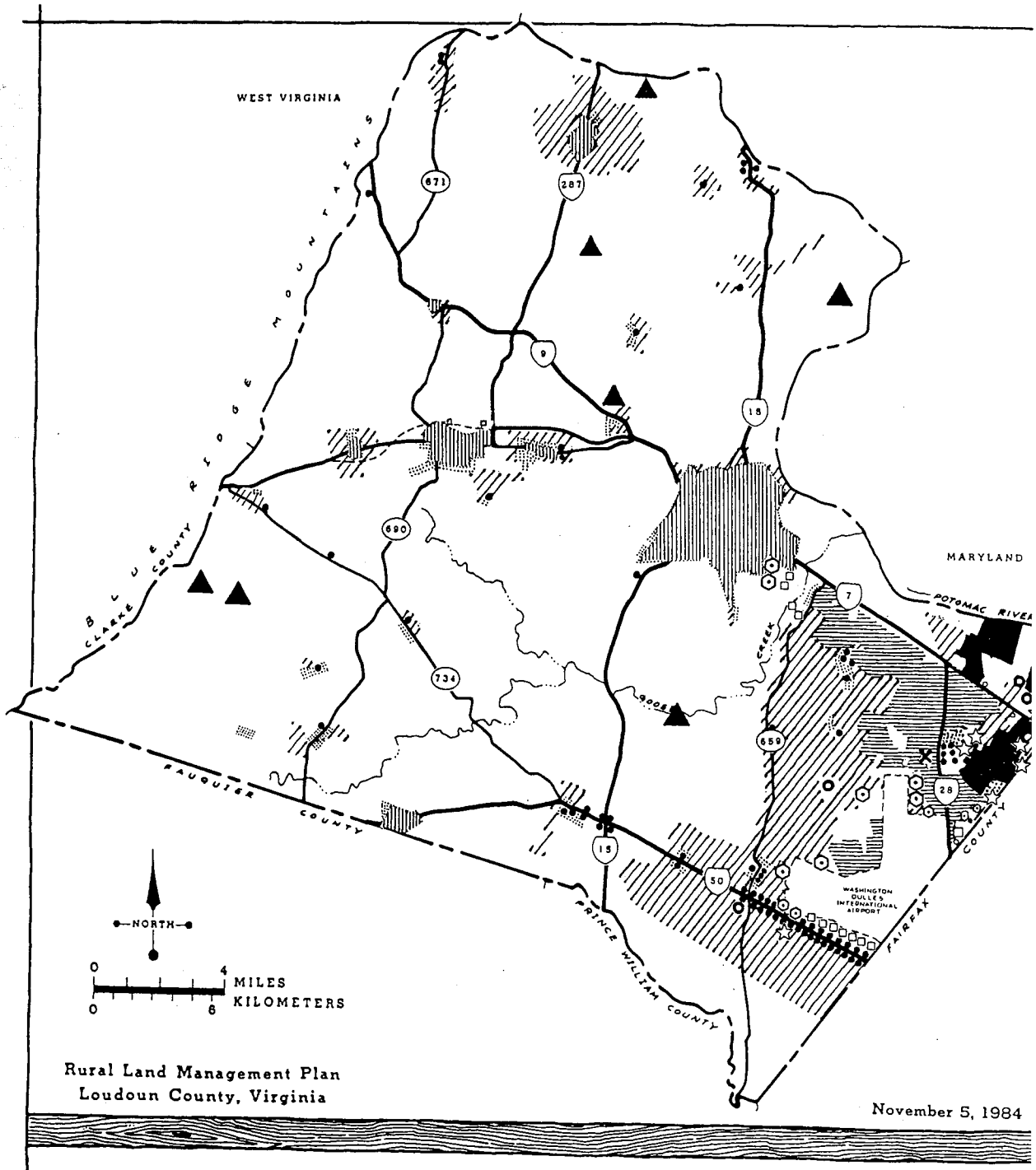
The Resource Management Areas included in the RMP are now seen as the foundation on which the Rural Land Management Plan will base its land use recommendations. Thus, the Land Use Policy Areas of the Rural Plan will augment and refine the definitions of the Resource Management Areas defined in the RMP and will offer specific land use guidelines for future development and conservation of rural land resources in Loudoun County (See Summary of Recommendations, Chapter Three.)

The framework of the Land Use Policy Areas takes into account common or similar natural resources, manmade features, development patterns, opportunities and constraints and local community characteristics.

The implementation of the Rural Land Management Plan will be carried out primarily through the County's land development process of zoning and subdivision review. Zoning practices will follow the articulated guidelines in the adopted policy areas to promote the land use practices that will best accomplish Loudoun County's rural land use goals. In addition, other programs such as Use-Value Taxation, density transfer, transferable development rights and the Six-Year Plan for Secondary Roads will be implemented within the framework of these policy areas. (See Table of Contents for specific page references.)

1. Existing Zoning In The Rural Area

The existing residential zoning pattern in the rural area was established by a comprehensive rezoning in 1972 by the Loudoun County Board of Supervisors and was based generally on the County's 1969 Comprehensive Plan (See Figure 8, page 64.) In 1979 that Plan was superseded by the adoption of the County's current Resource Management Plan (RMP). The existing zoning has not been changed to specifically reflect the policies of the RMP, but in a very general way it reflects the basic premise of the RMP that growth should occur in and around the established towns and villages. The great predominance of residential zoning (approximately 85%) is A-3, with a three acre minimum lot size. The higher densities (R-1, R-2, R-4 districts) are located around the towns and within the village areas. Table 5, page 65 and Table 6, page 66 offer statistical breakdowns of the zoning districts within the County.



ZONING
[Generalized]

- A-3
- A-10
- R-1
- R-2
- R-4
- C-1
- I-1
- PD-GI
- PDH-12
- PDH-24 PDH-30
- PD-IP
- PD-SC
- PD-CH
- PD-OP
- Incorporated Town

Source : LOUDOUN COUNTY DEPARTMENT OF PLANNING, ZONING, AND COMMUNITY DEVELOPMENT

Figure 8

Table 5

APPROXIMATE TOTAL ACREAGE IN EACH ZONING DISTRICT IN RURAL LOUDOUN

(Includes the Ashburn/Arcola/Pleasant Valley Areas)

Zoning District	Major Allowed Use	Total Acreage	Percentage	Approx. Potential Dwelling Units
A-10	Ag-Residential	1,135 a.	.3%	100
A-3	Ag-Residential (3 acres per unit)	256,300 a.	77.6%	60,000
R-1	Residential (1 unit per acre)	30,524 a.	9.2%	17,000
R-2	Residential (2 units per acre	1,378 a.	.4%	1,600
R-4	Residential (4 units per acre)	233 a.	0.07%	500
PDH-24	Residential/Mixed	381 a.	0.1%	400
PDH-30	Residential/Mixed	71 a.	.02%	300
PD-CH	Commercial	73 a.	.02%	NA
C-1	Commercial	933 a.	0.3%	NA
PD-IP	Industrial (Industrial Park)	7,285 a.	2.2%	NA
PD-GI	Industrial (General Indust.)	1,283 a.	0.4%	NA
I-1	Industrial	1,251 a.	0.4%	NA
		300,847 a.	91%	80,000 d.u.

The existing zoning would allow far more growth to occur than is needed to provide flexibility and fair opportunities for landowners. If built out at the maximum theoretical allowable density, the existing zoning in the rural areas as estimated above could absorb an additional 80,000 dwelling units, or approximately 232,000 additional people.*

* Assumes: 30% of land either undevelopable or already developed; 2.9 persons per household.

Table 6

APPROXIMATE R-1 AND R-2 ZONES IN AND ADJACENT TO RURAL VILLAGE AREAS

Area (Village/Town)*	Zone(s)	Approximate Acreage**
Lucketts	R-1	580
	R-4	50
Taylorstown	R-1	75
Point of Rocks	R-1	60
Waterford	R-1	310
Between the Hills	R-1	75
Paeonian Springs	R-1	130
	R-2	100
Hillsboro	R-1	40
Bluemont	R-1	40
	R-2	20
Philomont	R-1	60
	R-2	15
St. Louis	R-1	120
	R-2	80
Unison	R-1	15
	R-2	25
Aldie	R-1	125
	R-2	30
Lenah	R-2	20
Leesburg (South of Town)	R-1	40
	R-2	25
Rural Village Zoning Totals: (approximate)	R-1	1,670
	R-2	315
	R-4	50
Purcellville, Town of	Residential	5,091
Hamilton, Town of	Residential	2,647
Round Hill, Town of	Residential	2,699
Middleburg, Town of	Residential	2,302
Lovettsville, Town of	Residential	3,968

NOTE: A large amount of R-1 zoning exists in the Broad Run and Occoquan watersheds that is not listed in this table because it is in the Rural Fringe Area.

* Does not include zoning within corporate limits, only zoning adjacent to towns.

** Totals may include land lying outside the Village Policy Area and the U.G.A.

The majority of A-3 zoning is located in the rural, unincorporated areas of the County. A small amount of A-3 zoning has existing sewer lines (north of Route 7, to the east of Leesburg) or is projected for sewer (Broad Run watershed and around the three western towns on Route 7). The higher, more suburban densities of R-1, R-2 and R-4 exist mostly in and around the towns and villages, or along highways, but some areas outside the Rural Fringe Area also have higher density zoning designations.

A small amount of A-10 (ten acre minimum lot size) zoning exists in six separate areas throughout the County. This zoning district has rarely been used and was intended to complement open space or agricultural uses. It has, however, been used primarily to develop landlocked parcels without building roads to State standards.

The residential development implication for rural Loudoun County is that many acres exist that are zoned for a higher density than A-3 and could be developed if percolation or sewer were available. Policies and programs are proposed in the Recommendations of this Section which address this development potential.

2. Rural Residential Development Pattern:

Building permit information has been mapped and analyzed since 1977 and the lot sizes recorded. Rural lots are considered to be those which are one mile or more from an incorporated town, under 50 acres in size and not in a village or in eastern Loudoun. Table 7, page 68 shows the geographical distribution of building permits and it is noticeable that the percentage of rural permits is equal to and often higher than the percentages for the incorporated towns.

From 1977-1984 close to 20% of the lots developed in Loudoun County were in the rural area. The most popular size was the 10 - 19.9 acre lots with the average each year being over nine and under 12 acres. A total of 8,071 acres of rural land was developed over this period. Table 8, page 69 shows the number and percentage of lots in each size category of rural lots.

Table 7

RESIDENTIAL BUILDING PERMIT SUMMARY

1977 - 1984

JURISDICTION	YEAR							
	1977	1978	1979	1980	1981	1982	1983	1984
TOTAL PERMITS	901	738	465	341	383	705	1,172	1,373
EASTERN LOUDOUN	577	344	186	119	226	586	864	966
TOWNS								
Leesburg	112	177	110	91	52	27	135	210
Hamilton		2	5			1	3	5
Purcellville	1	1	2	2	2		2	14
Lovettsville	5	4			7		13	3
Middleburg	1	5	1	1			10	6
Round Hill	2	1		1				1
SUBTOTAL	120	190	117	95	61	28	163	239
DULLES NORTH								2
ADJACENT TO TOWNS								
Leesburg	3	15	12	6	7	6	2	1
Hamilton	19	22	16	9	1	10	7	20
Purcellville	5	1	2					
Lovettsville	2							1
Middleburg	1	5	1		5		2	1
Round Hill	1		1				1	
SUBTOTAL	31	43	32	15	13	16	12	23
VILLAGES	3	1	0	0	0	2	3	1
RURAL LOTS	160	150	113	93	76	63	114	131
FARMS OVER 50 ACRES	10	10	17	19	8	10	16	10
DISTRIBUTION								
E. Loudoun	64.03%	46.61%	40.00%	34.50%	59.00%	83.12%	73.72%	70.35%
Towns	13.31%	25.74%	25.20%	27.77%	16.00%	3.97%	13.91%	17.40%
Adjacent	3.44%	5.82%	6.90%	4.38%	3.00%	2.26%	1.02%	1.67%
Rural	17.75%	20.32%	24.30%	27.48%	20.00%	8.93%	9.81%	9.61%
Farms	1.10%	1.35%	3.60%	5.55%	2.00%	1.41%	1.28%	.72%
Villages	.33%	.13%	0	0	0	.28%	.25%	.25%

Table 8

RURAL LOT SIZE: 1977-1984

Lot Size	1977	1978	1979	1980	1981	1982	1983	1984
0-9.9 ac.	73 (45.6%)	62 (41.3%)	43 (38.1%)	43 (45.7%)	27 (35.5%)	27 (42.9%)	56 (48.7%)	52
10-19.9 ac.	77 (47.5%)	75 (50%)	54 (47.8%)	38 (40.4%)	37 (48.7%)	28 (44.4%)	47 (40.9%)	59
20-29.9 ac.	5 (3.1%)	11 (7.3%)	8 (7.1%)	8 (8.5%)	8 (10.5%)	6 (9.5%)	8 (6.9%)	15
30-49.9 ac.	5 (3.1%)	2 (1.3%)	8 (7.1%)	4 (4.3%)	4 (5.3%)	2 (3.2%)	4 (3.5%)	6
Over 50 ac.	10	10	17	19	8	10	16	10
Acreage in Rural Lots	1,537	1,560	1,320	931	850	705	1,168	1,485
(Total: 8,071)								
Total Rural Lots	160	150	113	93	76	63	131	132
(Average)	(9.6ac.)	(10.4 ac.)	(11.68 ac.)	(9.9ac.)	(11.18 ac)	(11.19ac)	(10.06ac)	(11.25ac)

Potential rural development was estimated in 1981 to be 2,450 available lots with approved septic fields.* The average annual number of rural lots developed from 1977 through 1984 has been 112. Therefore, the rural lot supply represents approximately 20 years of building activity in the rural area. In 1982, 408 ten-acre, or greater, lots were processed by the Zoning Administrator for access easements. Many others were, no doubt, divided on paper. The County had no very accurate way of estimating their number if they had sufficient road frontage.** Furthermore, they may have been divided on paper, but not tested for percolation and will not be recorded until such time as the owner wishes to sell them.

* Draft Residential Development Activity Report and research done in the Loudoun County Department of Environmental Health, 1981

** With the adoption of the new Subdivision and Land Development Ordinance in November 1984, numbers of new rural lots can be more accurately determined.

It has been evident for the past two decades that eastern Loudoun is the focal point of residential growth. However, analysis of building permits reveals that rural development is not only geographically scattered, but represents a significant proportion of the County's growth (See Figure 9, page 71.) The areas adjacent to the towns have not been growth areas, in contrast to County policies. While it may at first appear that people would prefer proximity to a town with its urban conveniences, the popularity of the 10 acre lot is clearly evident.

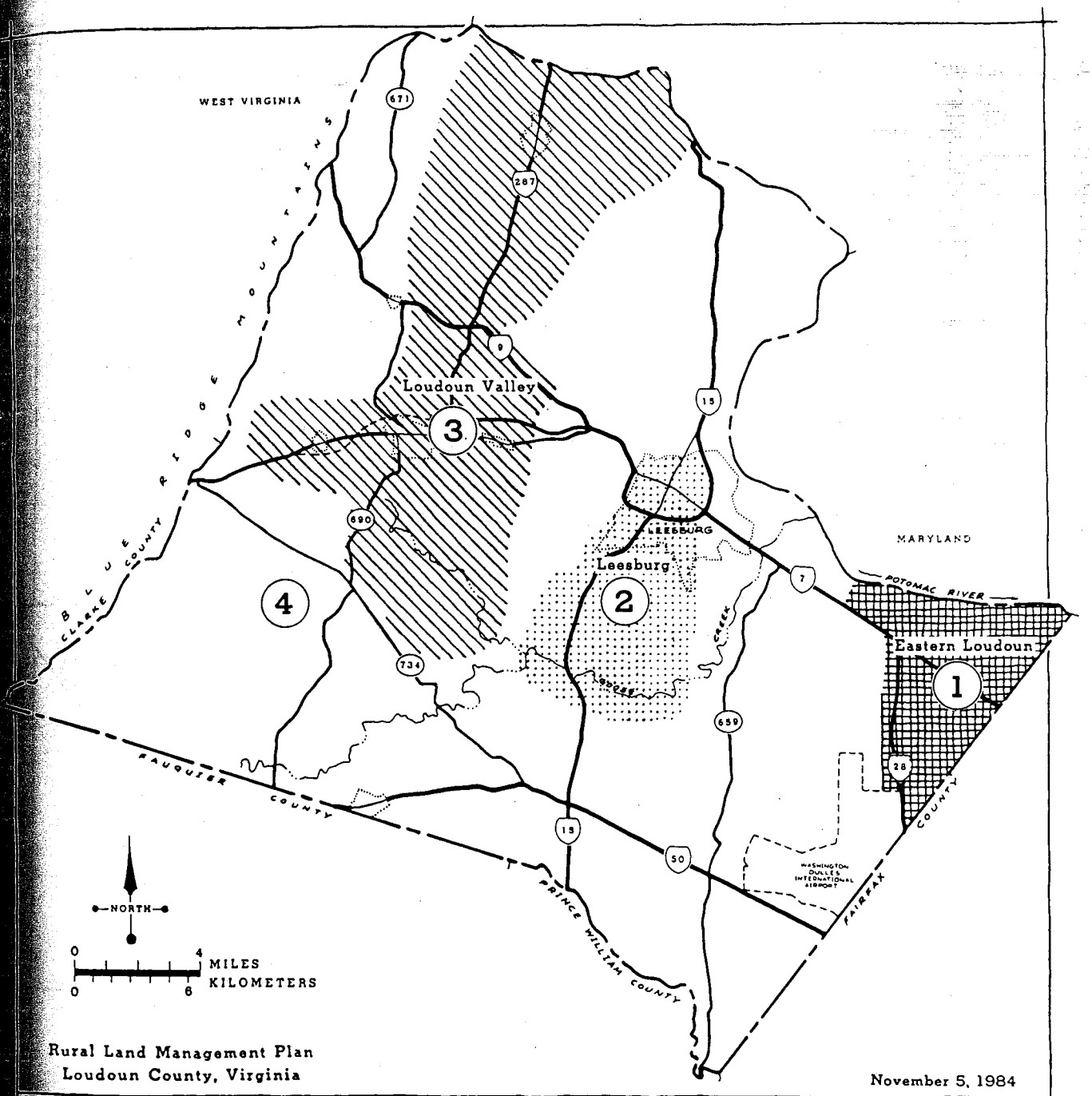
The only towns which have had a significant amount of development close by are Leesburg and Hamilton. Leesburg offers both sewer and water; of Hamilton's major adjacent subdivisions, Hamilton Acres, a three-acre lot subdivision has town water only but Hamilton Terrace and Hamilton Knolls have both town water and sewer. The 10 acre lot is the most popular rural lot size, probably because it is the easiest division for the farmer in terms of regulations and review.

3. Rural Population:

In 1980, Loudoun County's total population was 57,427 people, made up of 18,653 separate households and approximately 19,742 separate dwelling units. Approximately one-third of the County's total population was located in the rural portions of the County, as defined in this Plan. (See Figure 10, page 72.)

The County's population is projected to grow at a rate of between 4.2% and 3.5% annually during the 1980's, bringing the total population to 82,944 by 1990. Approximately one-third of this 1990 population is expected to locate in the rural areas, bringing the rural population up to over 27,000 people.

The projection shown in Table 9, page 33 indicates that Loudoun County will grow at an average annual rate of approximately 2,609 people and reach a population of 82,944 by January 1, 1990. Following this "Trend" projection formula the County's population will double by the year 2002. The table can also be used to indicate the average number of new houses which would need to be built to accommodate this increase in population. The per household population of the County as a whole was shown as 3.08 in the U.S. Census Local Official Review List (part 1) of July 22, 1980. In the following projections, the figure 2.95 was used for new households, assuming that the national household figures continue to decline. New households formed in Loudoun are generally larger than old ones. A nominal vacancy rate just above 3% has also been used in the following projections.



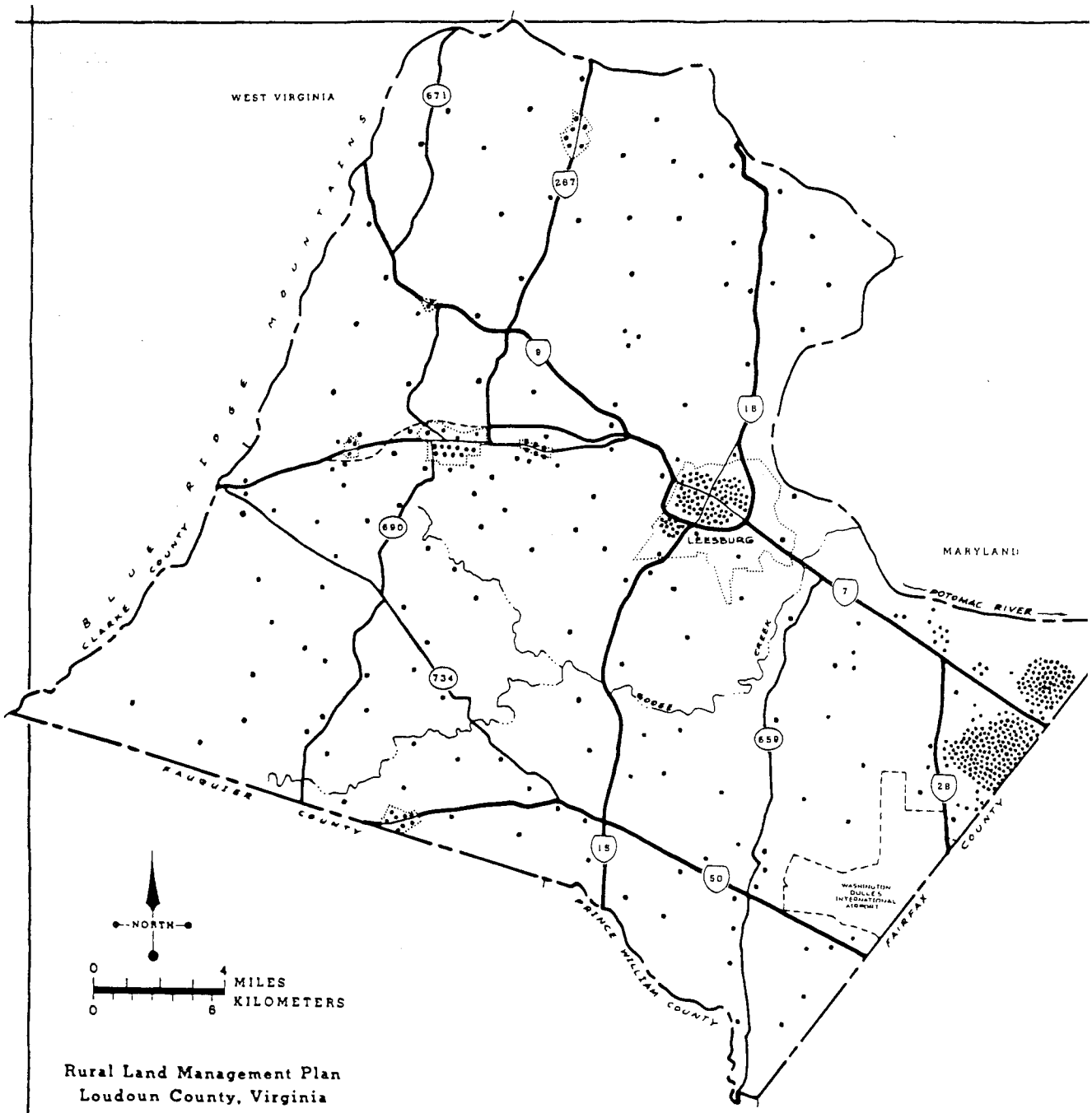
TREND GROWTH AREA LOCATIONS

Major Concentrations of Residential Building Permits
1979 - 1982

1	60%
2	15%
3	12%
4	13%

Source :
LOUDOUN COUNTY DEPARTMENT OF PLANNING, ZONING, AND COMMUNITY DEVELOPMENT

Figure 9



POPULATION DISTRIBUTION 1980

[Generalized]

1 Dot = 100 People

Figure 10

Table 9

LOUDOUN COUNTY

POPULATION GROWTH: 1980-1990
PROJECTION BASED ON TREND*

Year (Jan. 1)	Population	Growth Rate	Additional Population
1980	56,852**	4.2%	2,388
1981	59,240	4.2%	2,488
1982	61,728	4.2%	2,592
1983	64,320	4.2%	2,702
1984	67,022	4.2%	2,815
1985	69,837	3.5%	2,444
1986	72,281	3.5%	2,530
1987	74,811	3.5%	2,619
1988	77,430	3.5%	2,710
1989	80,140	3.5%	2,804
1990	82,944	-	-

*Based on Virginia Department of Planning and Budget projections and the 1980 Census.

**The April 1, 1980, Census total of 57,427 was back dated to January 1, 1980, by a rate of one-quarter of a year's growth or 1%.

It is possible that economic conditions may improve markedly in the 1980's and that County population growth may be higher than anticipated by the State's Department of Planning and Budget. Table 10 below constructs a population growth based on growth rates of 5.1% per year in 1980 to 1985 and 4.4% from 1985 to 1990. Growth would average approximately 3,357 people per year and would double by 1997.

Table 10

LOUDOUN COUNTY

ABOVE TREND PROJECTION

Year (Jan. 1)	Population	Growth Rate	Additional Population
1980	56,852*	5.1%	2,899
1981	59,751	5.1%	3,048
1982	62,799	5.1%	3,203
1983	66,002	5.1%	3,366
1984	69,368	5.1%	3,537
1985	72,905	4.4%	3,208
1986	76,113	4.4%	3,349
1987	79,462	4.4%	3,496
1988	82,958	4.4%	3,651
1989	86,609	4.4%	3,810
1990	90,419	-	-

*The April 1, 1980, Census total of 57,427 was back dated to January 1, 1980, by a rate of one-quarter of one year's growth or 1%.

Table 11 is based on less favorable economic conditions leading to a lower growth rate than that anticipated by the Department of Planning and Budget and is the basis for the "Below Trend" estimates According to this projection formula, population in the County would double by the year 2008.

Table 11

LOUDOUN COUNTY

BELOW TREND PROJECTION

Year (Jan. 1)	Population	Growth Rate	Additional Population
1980	56,852*	3.4%	1,933
1981	58,785	3.4%	1,999
1982	60,784	3.4%	2,066
1983	62,850	3.4%	2,137
1984	64,987	3.4%	2,210
1985	67,197	2.8%	1,881
1986	69,078	2.8%	1,934
1987	71,012	2.8%	1,989
1988	73,001	2.8%	2,044
1989	75,045	2.8%	2,101
1990	77,146	-	-

*The April 1, 1980, Census total of 57,427 was back dated to January 1, 1980, by a rate of one-quarter of one year's growth or 1%.

4. Incorporated Towns Analysis:

Demographic data for the County's incorporated towns is shown in Table 12:

Table 12

DEMOGRAPHIC DATA FOR TOWNS IN LOUDOUN COUNTY

Town	1980 Population	Est. 1983 Population	1980 Number of Households	Average Persons Per Household
Leesburg	8,357	8,778	3,214	2.60
Purcellville	1,567	1,609	595	2.63
Middleburg	619	631	270	2.29
Lovettsville	613	639	212	2.89
Hamilton	598	613	224	2.67
Round Hill	510	522	170	3.00
Hillsboro	115	-	41	2.80

The five largest western towns have varying degrees of growth potential based on existing public sewer and water availability, zoning, roads and other public facilities. The principal determinant of additional residential growth is public sewer and water. Without those essential services, none of the towns can expand to any significant extent.

Purcellville, Round Hill and Hamilton all have water system problems while Lovettsville has difficulties with its sewer system. Hillsboro* has no sewer system. Middleburg is the only town without significant utility constraints. Other major factors that should be examined in more detailed area plans for each town are the need for road improvements, existing and future school demand and appropriateness of existing zoning.

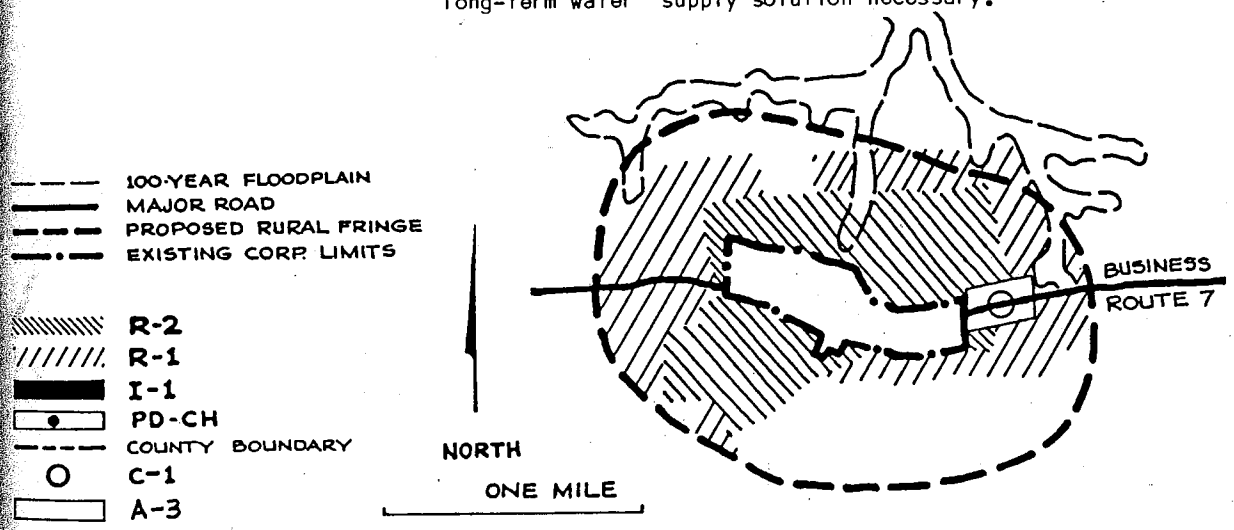
Following are summaries of the basic land use features of each of the towns. (Note that all of the data are approximate in terms of land area and utility flows.)

* Hillsboro, although it is an incorporated town, is treated as a village where the policies and programs of the plan apply, due to its small size and inherent physical constraints on future growth.

Hamilton

Size:	152 acres
1980 Population:	598
1983 Population: (estimated)	613
Number Dwelling Units: (1980)	221
Existing Zoning (acres): (in Rural Fringe)	
Residential:	2,647 acres (mostly R-1 outside of corporate limits)
Nonresidential:	26 acres
Floodplain:	300 acres
Public Utilities:	
	Sewer - .08 MGD* total capacity; .034 MGD available capacity, 224 available connections, 1,181 estimated total population based on total capacity.
	Water - .2 MGD total capacity; .096 MGD available capacity, 523 available connections, 1,959 estimated total population based on total capacity.
Size of Rural Fringe Area: (estimated)	1. Gross - 2,973 acres (4.64 square miles)
	2. Developable (less developed land and floodplains) - 1,853 acres

Key Development Issue - Problems with reliable well yields; long-term water supply solution necessary.



The area within the Hamilton town limits is very small (152 acres) but the Rural Fringe adjacent to the town could allow for significant development of the surrounding area if water capacity were improved. Otherwise, only a limited number of residential dwelling units could be approved. Any zoning changes will require water capacity improvements.

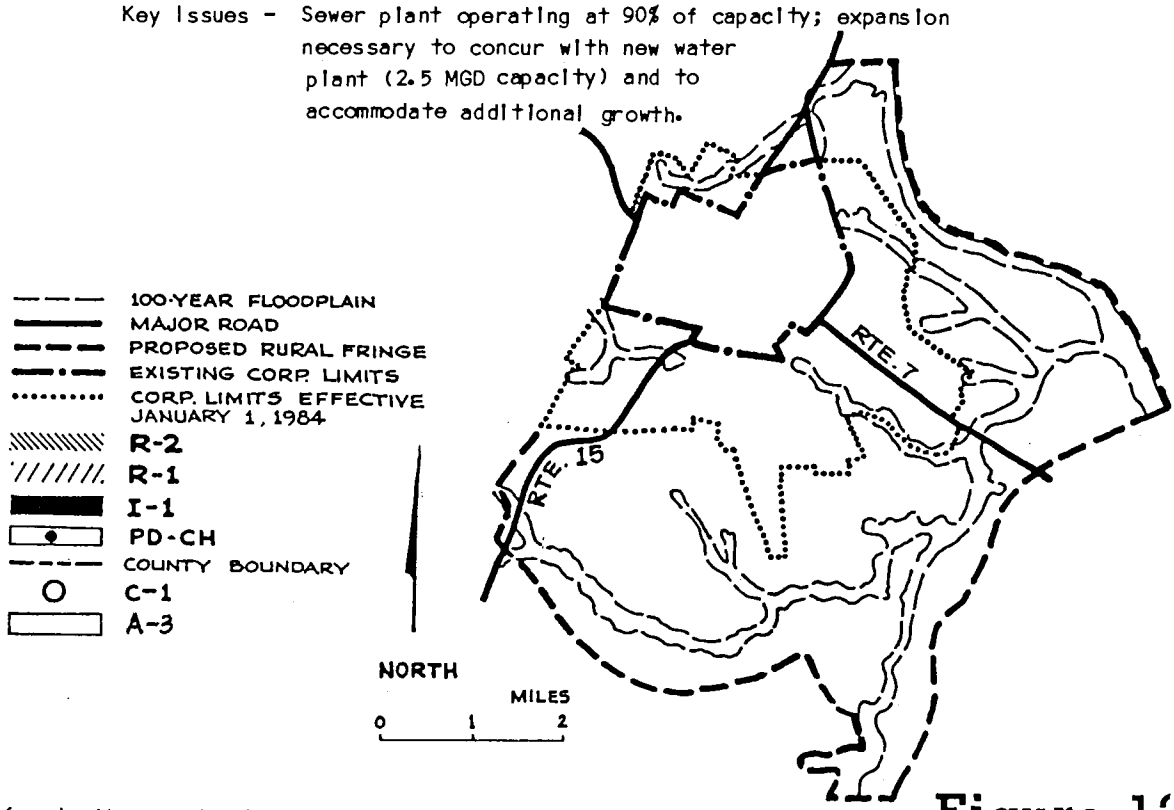
* MGD is "Million Gallons per Day"

Figure 11

Leesburg

Size:	2,621 acres (7,101 as of January 1, 1984)
1980 Population:	8,357
1983 Population: (estimated)	8,778
Number Dwelling Units: (1980)	3,210
Existing Zoning (acres): (In Rural Fringe)	
Residential:	9,081 acres (mostly R-1 outside of corporate limits)
Nonresidential:	669 acres
Floodplain:	3,471 acres
Public Utilities:	Sewer - 1.3 MGD total capacity; .16 MGD (1.36 MGD with proposed expansion) available capacity, 10,240 total population (21,212 with proposed expansion). Water - 2.5 MGD total capacity; 1.37 MGD available capacity, 22,368 total population.
Size of Rural Fringe Area: (estimated)	1. Gross - 13,221 acres (20.66 square miles) 2. Developable (less developed land and floodplain) - 9,262 acres

Key Issues - Sewer plant operating at 90% of capacity; expansion necessary to concur with new water plant (2.5 MGD capacity) and to accommodate additional growth.

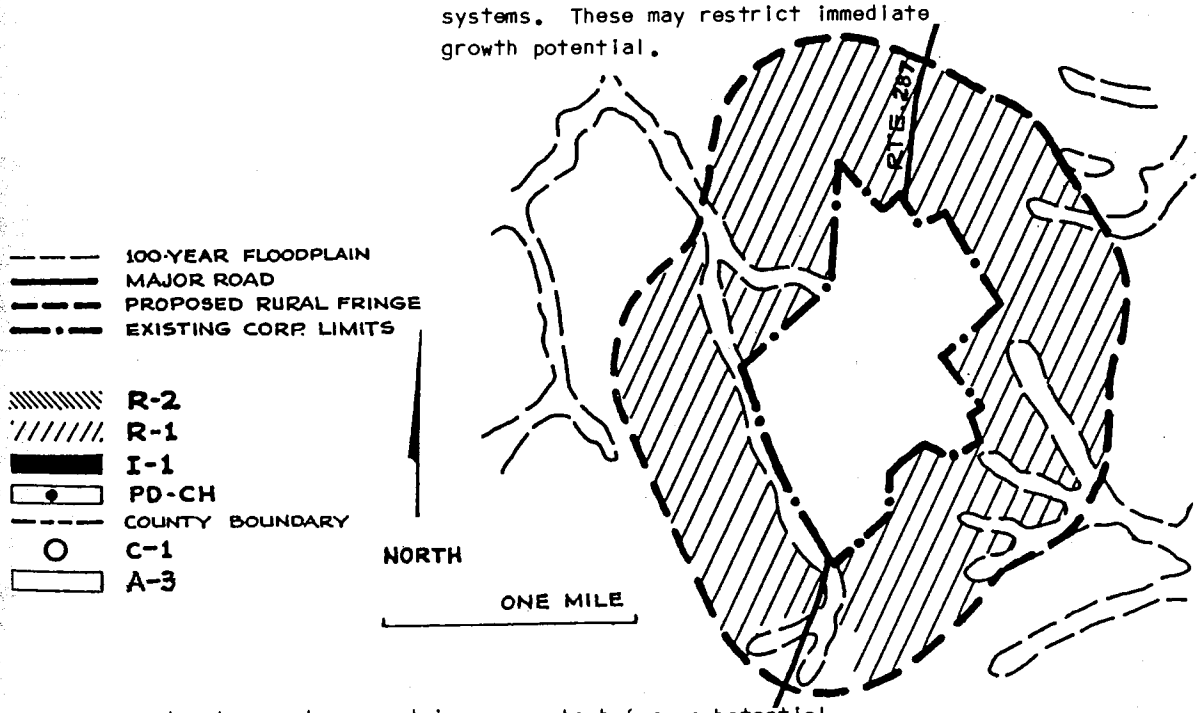


Refer to the adopted Leesburg Area Management Plan for recommendations.

Figure 12

Lovettsville

Size:	536 acres
1980 Population:	613
1983 Population: (estimated)	639
Number Dwelling Units: (1980)	213
Existing Zoning (acres): (in Rural Fringe)	
Residential:	3,968 acres (mostly R-1 outside of corporate limits)
Nonresidential:	0 acres
Floodplain:	555 acres
Public Utilities:	Sewer - 0.92 MGD total capacity; .052 MGD available capacity, 255 available connections, 1,318 estimated total population based on total capacity. Water - .14 MGD total capacity; .109 MGD available capacity, 602 available connections , 2,277 estimated total population based on total capacity.
Size of Rural Fringe Area: (estimated)	1. Gross - 4,523 acres (7.07 square miles) 2. Developable (less developed land and floodplains) - 3,274 acres
Key Development Issue -	Possible problems with sewer and water systems. These may restrict immediate growth potential.



Sewer and water systems need improvements before substantial additional growth can be anticipated. The amount of R-1 zoning is extensive around the town limits and the Rural Fringe would not include this entire area. Until the sewer system is upgraded, no upzoning of these R-1 districts is recommended.

Figure 13

Middleburg

Size:	368	acres
1980 Population:	619	
1983 Population: (estimated)	631	
Number Dwelling Units: (1980)	278	
Existing Zoning (acres):		
Residential:	2,302	acres (mostly R-2 outside of corporate limits)
Nonresidential:	0	acres
Floodplain:	213	acres

Public Utilities:

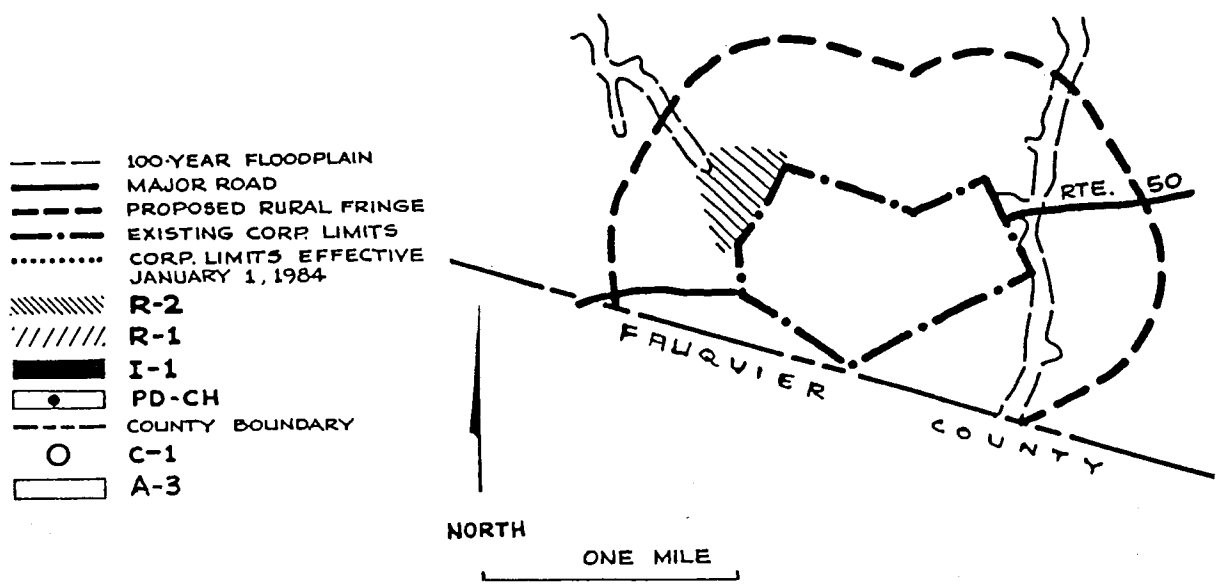
Sewer - .135 MGD total capacity; .034 MGD available capacity, 118 available connections, 811 estimated total population based on total capacity

Water - . 12 MGD total capacity; .021 MGD available capacity, 70 available connections, 783 estimated total population based on total capacity

Size of Rural Fringe Area: (estimated)

1. Gross - 2,515 acres (3.93 square miles)
2. Developable (less developed area and floodplain) - 1,995 acres

Key Issue - Existing utilities sufficient for moderate growth; water system upgrading necessary if significant additional growth to occur.



A harmonious mix of residential and agricultural areas should be encouraged in the fringe area by encouraging clustering, and a "greenbelt" between the future Urban Limit Line and the Fringe.

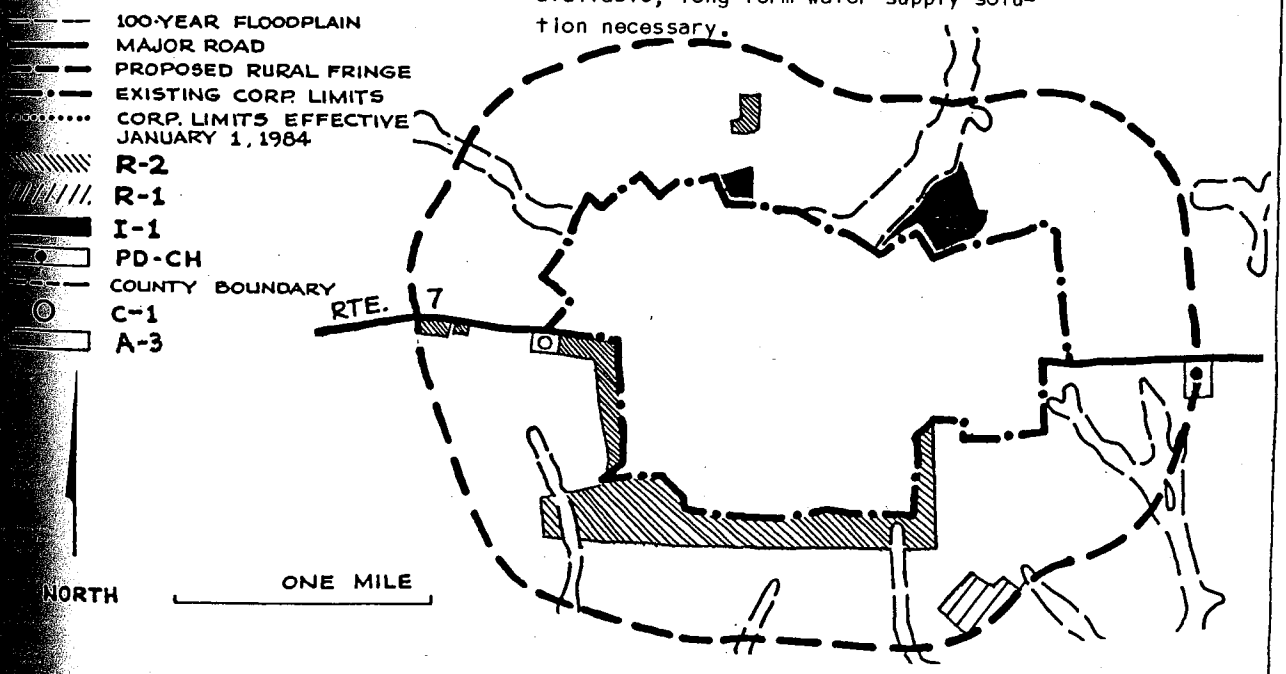
Figure 14

Purcellville

Size: 1,220 acres
1980 Population: 1,567
1983 Population: 1,609
(estimated)
Number Dwelling Units: 591
(1980)
Existing Zoning (acres):
(in Rural Fringe)
Residential: 5,091 acres (mostly R-2 outside of corporate limits)
Nonresidential: 136 acres
Floodplain: 533 acres
Public Utilities:
Sewer - .5 MGD total capacity; .247 MGD available capacity, 664 available connections, 3,256 estimated total population based on total capacity
Water - Unknown, 132 available connections, 2,236 estimated total population based on total capacity

Size of Rural Fringe Area: (estimated)
1. Gross - 5,760 acres (9 square miles)
2. Developable (less developed land and floodplains) - 4,675 acres

Key Development Issue - Minimal amount of water connections available; long-term water supply solution necessary.



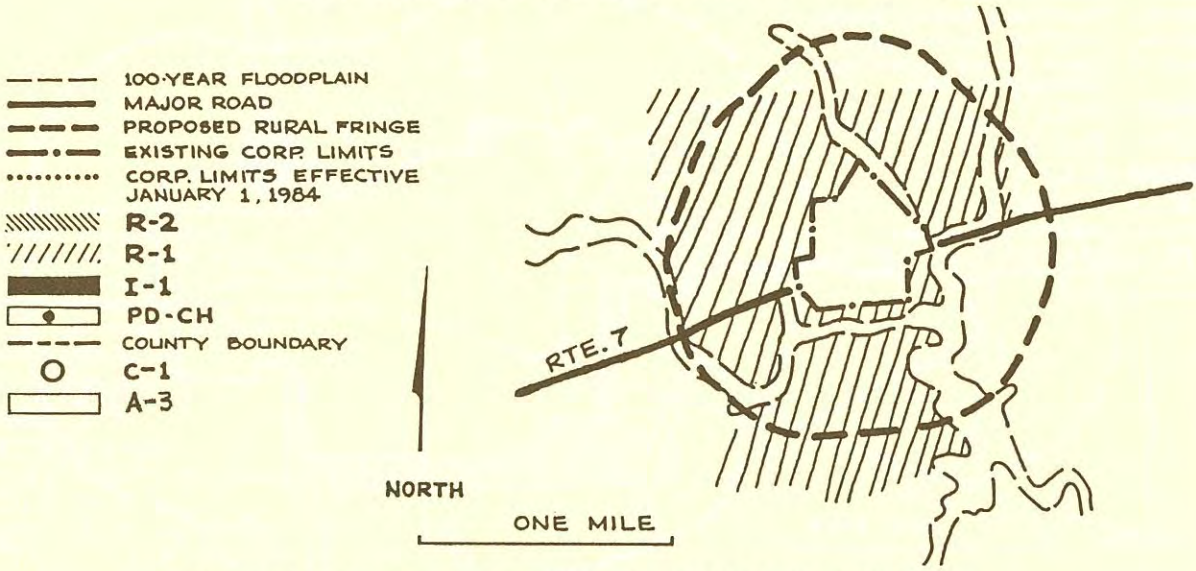
Purcellville has large acreages of R-1 and R-2 zoning with a very large amount of A-3 zoning in the Fringe area. Increased density could be allowed, dependent on the sewer and water capacity. Water improvements are critical.

Figure 15

Round Hill

Size:	139 acres
1980 Population:	510
1983 Population: (estimated)	522
Number Dwelling Units: (1980)	183
Existing Zoning (acres): (in Rural Fringe)	
Residential	2,699 acres (mostly R-1 outside of corporate limits)
Nonresidential:	0 acres
Floodplain:	423 acres
Public Utilities:	Sewer - .2 MGD total capacity; .14 MGD available capacity , 606 connections , 2,133 estimated total population based on total capacity Water - Unknown, no available connections, 510 total population (800, including area outside town limits) based on total capacity
Size of Rural Fringe Area: (estimated)	1. Gross - 3,122 acres (4.88 square miles) 2. Developable (less developed land and floodplains) - 2,434 acres

Key Issue - No water connections available; severe problems with water quantity and quality and distribution system.



The sewer capacity and available developable land around the town could absorb substantial growth. However, the severe water supply limitations must be resolved in order to support any new growth. New development should take place incrementally and be located and designed so as to be compatible with the existing historic character of the town. (A detailed area plan for the Round Hill Area is in progress.)

Figure 16

5. Rural Village Analysis

There are many small communities of clustered residences, religious, educational and commercial facilities which form vital social groups and which exist outside of Loudoun's incorporated towns as crossroad hamlets or villages that were developed around a railroad depot, a railroad resort, or were associated with a church, store or a once important mill. These small hamlets and villages frequently exert a geographical place name influence well beyond their physical boundaries and are considered to offer many positive social, aesthetic and practical benefits.

Current County policies favor a moderate growth trend for villages if the overall goals of farmland preservation, minimized capital improvements, and cost effective public services can still be achieved. Specifically, the RMP favors the "sensitive development" of villages which would respect "environmental village patterns" (RMP pages 225 and 226). The Plan furthermore suggests that "commercial uses of a small scale personal service and convenience character are encouraged" although both residential and commercial development "should further the County's commitment to the preservation of its historic sites and structures" (RMP, page 226). While the RMP would encourage the location of such "small scale community services as elementary schools, community centers or fire/rescue stations" in the villages, the Plan recognizes that capital expenditures should be planned on a County-wide basis (RMP, page 227). The RMP, furthermore, commits the County to alleviating transportation safety hazards, discourages the creation of highways near the villages and allows the development of small package wastewater treatment plants if they are environmentally compatible and located where they are necessary to meet health standards (RMP page 226).

A preliminary inventory of major villages suggests that some could sustain moderate growth which would not project the County into major new capital improvements nor excessive operating costs. Several of the villages and hamlets contain a nucleus of public facilities and demonstrate considerable new signs of a vital social life. On the other hand, these same communities typically lack one or more important public facilities, such as an assured water supply or waste water disposal system. While some villages might be expanded without generating unusual public service costs, substantial expansion may run counter to the community goals of the villages themselves, and of this Rural Plan and the RMP itself. The actual ability of villages to accommodate growth should be determined in future "mini" area plans.

Following are sketches of certain villages which may be capable of accommodating expansion.

Hillsboro

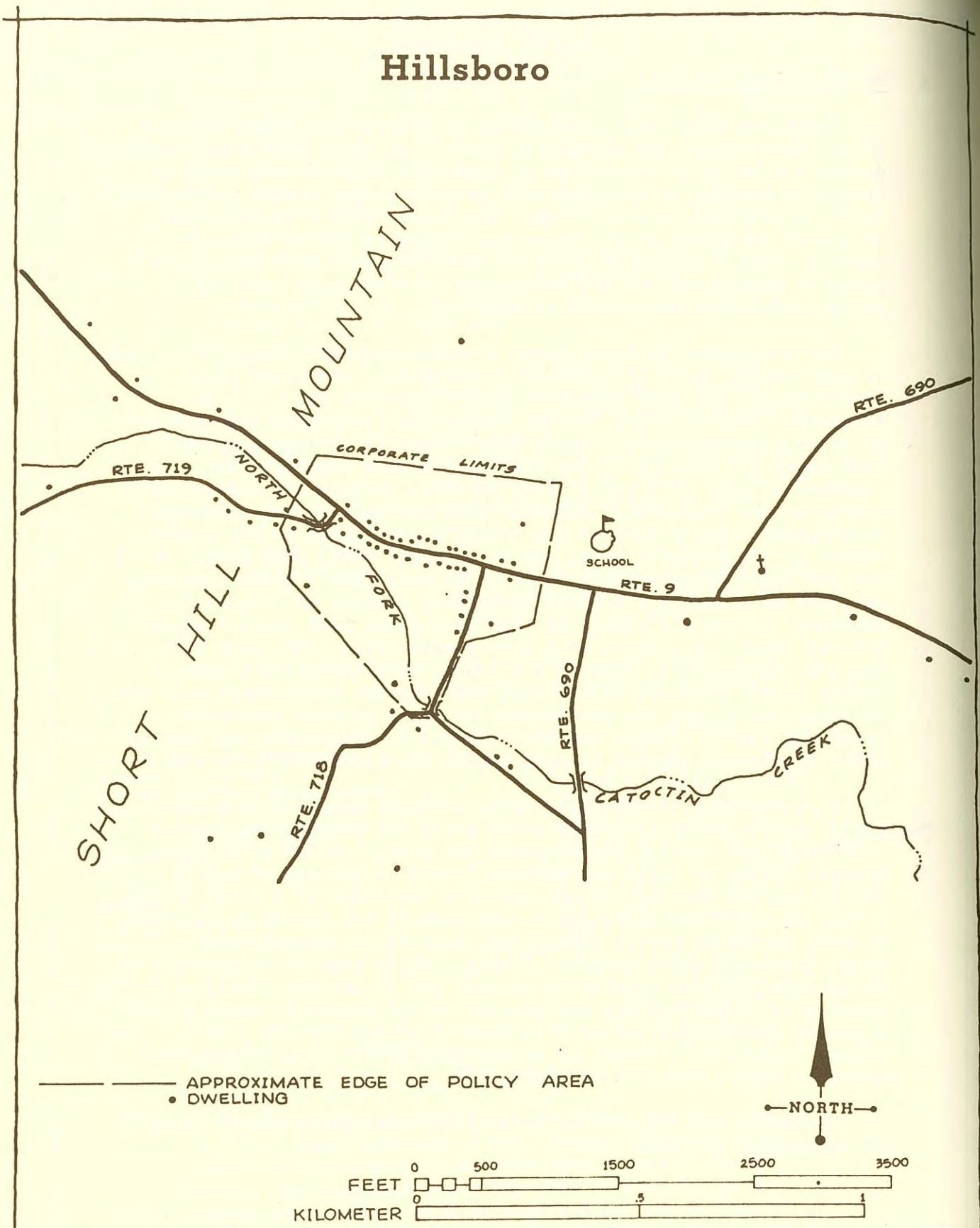


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Figure 17

Hillsboro:

Hillsboro is an incorporated town of 41 dwellings, a post office, church and elementary school and some 120 people but with many of the characteristics of a rural village. It is a Historic District, listed on the State and National Registers. The town has a public water system which may need considerable upgrading, but each dwelling must rely on private septic percolation fields for wastewater disposal. This is difficult because the community shares a gap of the Short Hill range with the North Fork of the Catoctin Creek with its associated wet soils and floodplain. Route 9, an arterial road, bisects the town and is an important commuter link between West Virginia and the Tysons/Washington, D. C., employment centers. Increasing commuter traffic flows and close proximity of the dwellings to Route 9 will make appropriate adjustments to the road very difficult.

The Town of Hillsboro in part functions more like a village than a town since it is so small in area and population.

Route 9 may be the greatest challenge Hillsboro will face in the future. Floodplain to the south and steep slopes to the north of the Town would preclude growth in those directions. Future mini-area or expansion plans will need close Town/County cooperation regarding development to the east or west. The layout of such new development will need to be sensitive to Hillsboro's historic character.

Size:	60 acres
1980 Population:	115
1983 Population: (estimated)	117
Number Dwelling Units: (1980)	41
Existing Zoning (acres):	
Residential:	R-1 62 acres
Nonresidential:	None
Community Facilities:	Elementary School, Churches, Post Office, Convenience Shopping.

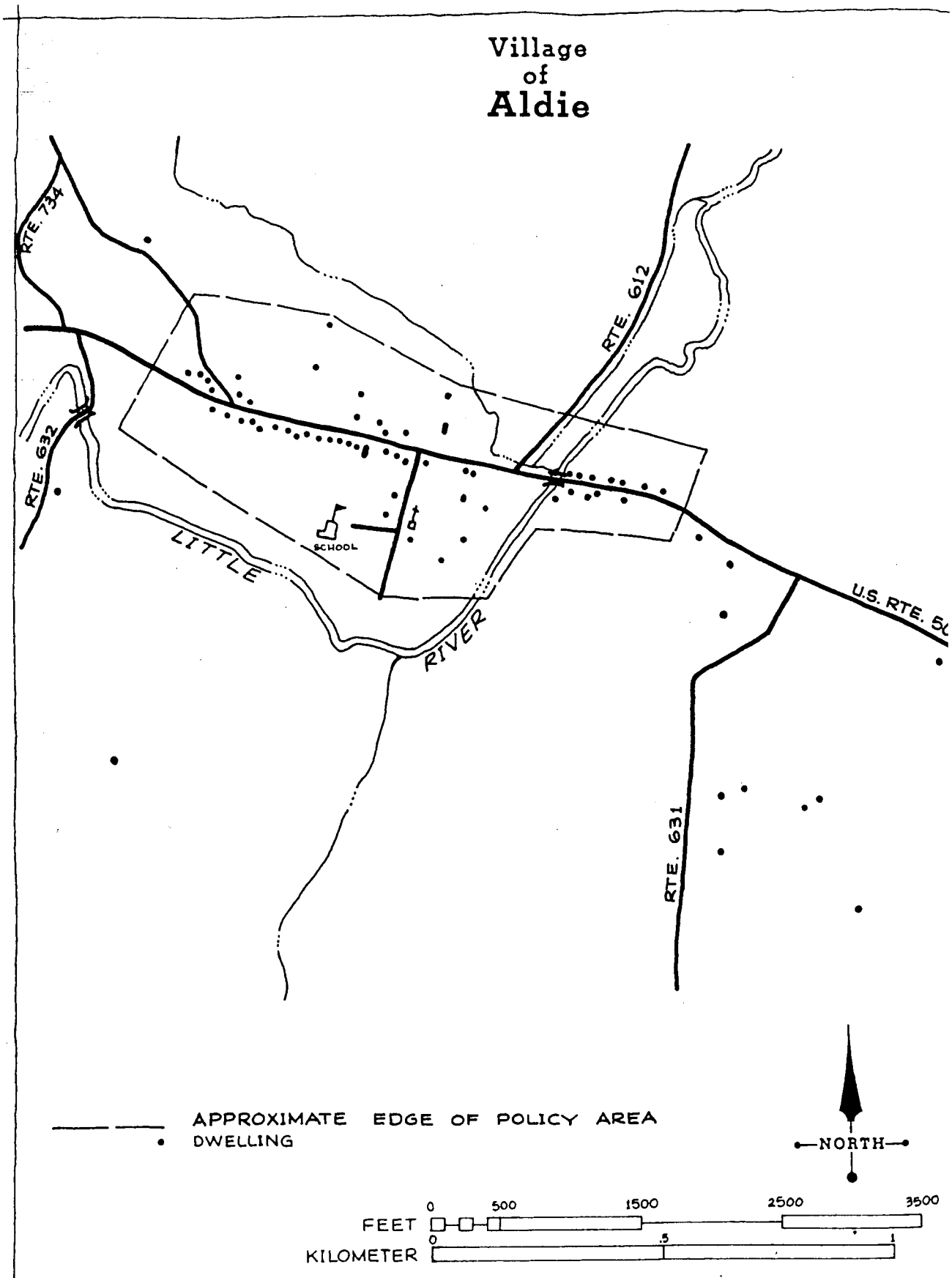

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Figure

b. Aldie:

Aldie is a village with some 40 dwellings and 120 residents which is located on Route 50, an arterial road. It is a County-designated Historic Cultural and Conservation District listed on the State and National Registers. The community is served by a small water utility but soil conditions may preclude future individual wastewater disposal by means of septic fields. The village grew up around an early 19th century mill and has become very conscious of historic preservation design considerations. The community possesses a basic complement of schools, ballfields, a volunteer fire station, shopping, a post office and several churches.

The County zoning in and around Aldie would allow approximately 200 R-1 single-family houses, and 60 acres of R-2 single-family dwellings. The approximately 22 acres of C-1 zoning is largely undeveloped in that use. In Aldie, as in most villages, a portion of these lands could not be developed due to floodplains or steep slopes.

With the advent of I-66, traffic increases on Route 50 will necessitate the eventual creation of the Aldie - Middleburg Bypass. The location of such a major land use determinant should be designed to protect the historic character of the village, assist flow on Route 50 and serve any new developments in and around the village. Additional residential development will probably require both the expansion of the existing public water system and a package wastewater treatment plant, and this may require residential development at a greater density than the existing R-1 zoning. Cluster development may also be appropriate, especially if the tourism function could be maintained and enhanced with green buffers. The existing C-1 zoning could be developed as a mixed use project of shops and residences to promote the historic village character.

1983 Population: (estimated)	120	
Number Dwelling Units:	40	
Existing Zoning (acres):		
Residential:	R-1	200 acres
	R-2	60 acres
Nonresidential:	C-1	22 acres
Public Utilities Available:	Water - privately owned system, .014 MGD capacity, 38 connections capacity, available for 15 - 20 additional connections	
Community Facilities:	School, fire station, post office, churches, shopping, ballfields	

Aldie Mountain

[Stewartown - Bowmantown]

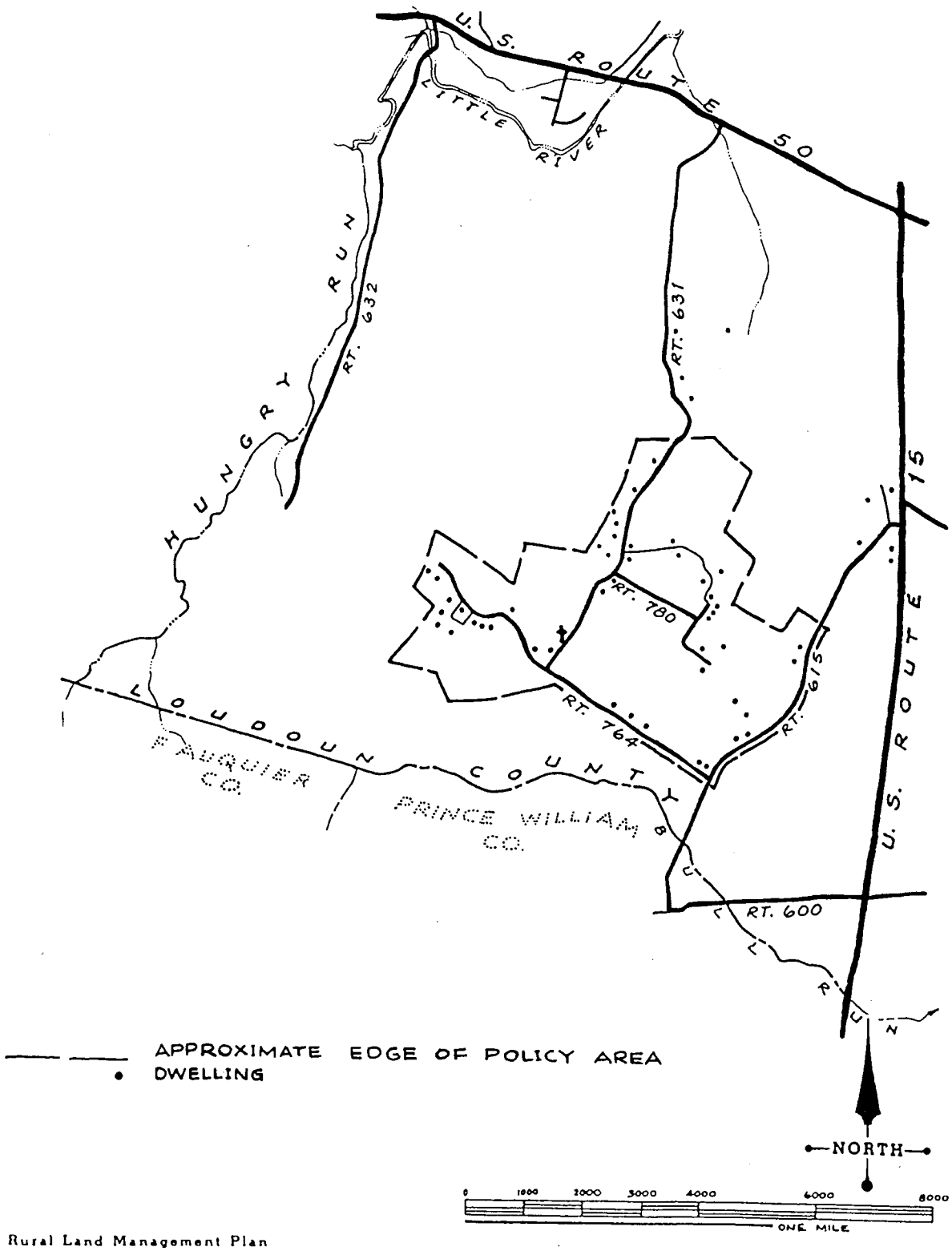

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Figure 19

c. Aldie Mountain:

Aldie Mountain is a community of some 50 dwellings and 150 residents. The community is located on Routes 631, newly rebuilt 764 and 780 which are gravel surfaced. The community nestles in a small topographic saddle of the Bull Run Mountain range. This is in marked contrast with the generally flat and unwooded countryside both east and west along Route 50. Aldie Mountain is an older rural community that has been the focus of housing rehabilitation programs. It is very closely knit and is also very self-sufficient. Thin soils underlain by rock and consequent high groundwater tables render it very difficult to identify sanitary percolation fields. Zoning in Aldie Mountain is A-3. A moderate amount of residential development can be anticipated where the soil conditions allow.

The small village of Aldie Mountain should continue to be a focus of housing rehabilitation assistance. The County anticipates that some additional percolation fields may be found in the area and that the community will expand. No change in the existing A-3 zoning is recommended, though A-3 clustering may assist some families to remain in the community.

1983 Population: (estimated)	150
Number Dwelling Units: (estimated)	50
Existing Zoning (acres)	A-3
Capital Facilities:	None

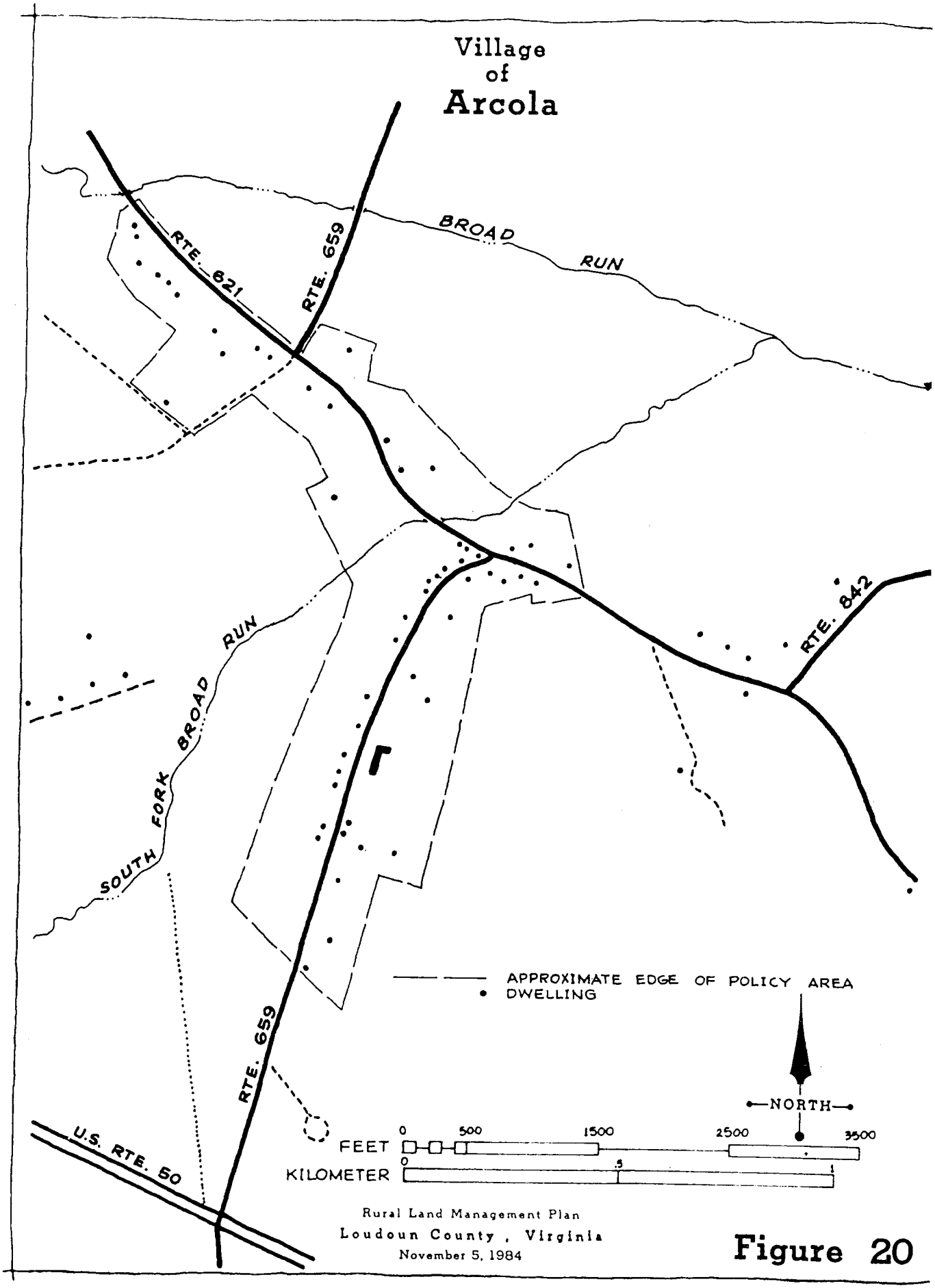

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Figure 20

d. Arcola

Arcola is a rural village located just west of Dulles Airport and just north of Route 50, in southeastern Loudoun. It has approximately 40 houses and about 120 people.

The village has a community center, a post office, fire and rescue facilities, a general store, at least one church and a number of vernacular victorian residential structures.

The projected noise zones for Dulles Airport overlay the village and constitute a major issue in terms of future residential development in the village.

In general, the soil has poor percolation characteristics which limits new development on septic fields. The area does not have central sewer, and although it is in the upper Broad Run watershed, the existing sewer line is about 4 1/2 miles from the village.

The zoning in and around the village is predominantly R-1, although there are approximately 25 acres of C-1 (general commercial) and about 58 acres of R-2 (Residential at 2 units per acre).

1983 population (estimated):	120	
Dwelling Units:	40	
Existing zoning (estimated):		
Nonresidential:	C-1	25 acres
Residential:	R-2	58 acres
	R-1	Remainder
Public Utilities Available:	Sewer - not at present, central facilities not in close proximity.	
	Water - not at present, central facilities not in close proximity.	
Community Facilities:	Community Center, Post Office, Fire and Rescue, Shopping, Church.	

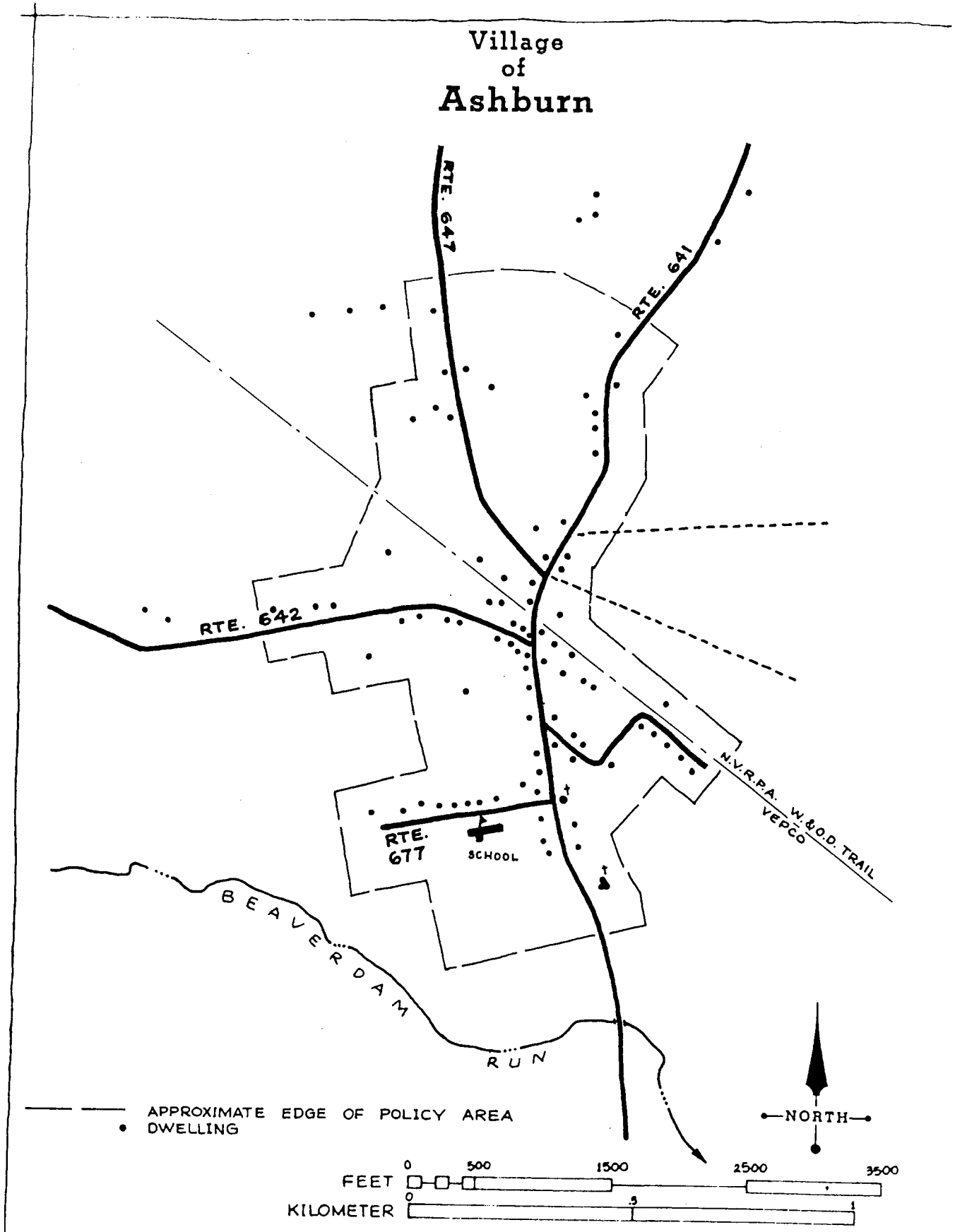

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Figure 21

e. Ashburn:

Ashburn is a turn-of-the-century village which grew around a rail stop of the W&OD railway. It is a relatively well-preserved example of a rural victorian village and has many of its original structures. It has a range of commercial and institutional uses which support approximately 60 houses and about 180 people.

Ashburn is in relatively close proximity to Route 7, eastern Loudoun and the sewer trunk line which runs to Dulles Airport. It is therefore in the direct path of projected future urban growth. A major issue facing Ashburn is its architectural and cultural future and preservation in light of the expected modern planned developments that will likely be built around it.

1983 population (estimated):	180	
Dwelling Units:	60	
Existing Zoning (Approximate):		
	C-1	36 acres
	PD-IP	60 acres
	R-2	250 acres
	R-1	Remainder
Public Utilities:	Sewer: None at present, central facilities in relatively close proximity.	
	Water: None at present, central facilities in relatively close proximity.	
Community Facilities:	Elementary school, post office, fire station, shopping, other commercial, churches, W&OD regional linear park.	

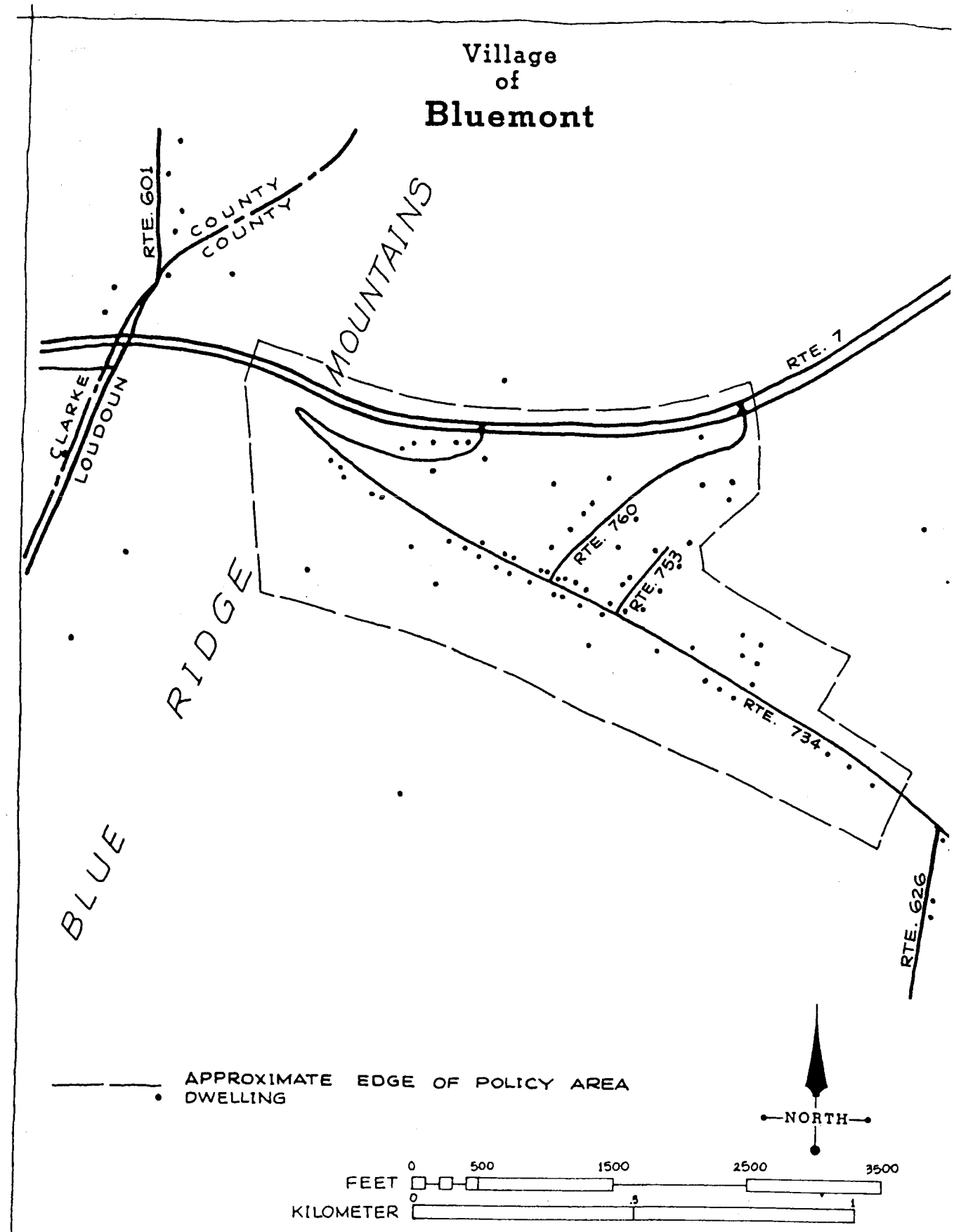

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Figure 22

f. Bluemont:

Bluemont is Loudoun's westernmost community and a former railroad resort village of about 50 houses and 150 residents. The community is located a short distance from Route 7 to which it is connected by paved secondary roads, Routes 734 and 760. Septic field failures are common in the area.

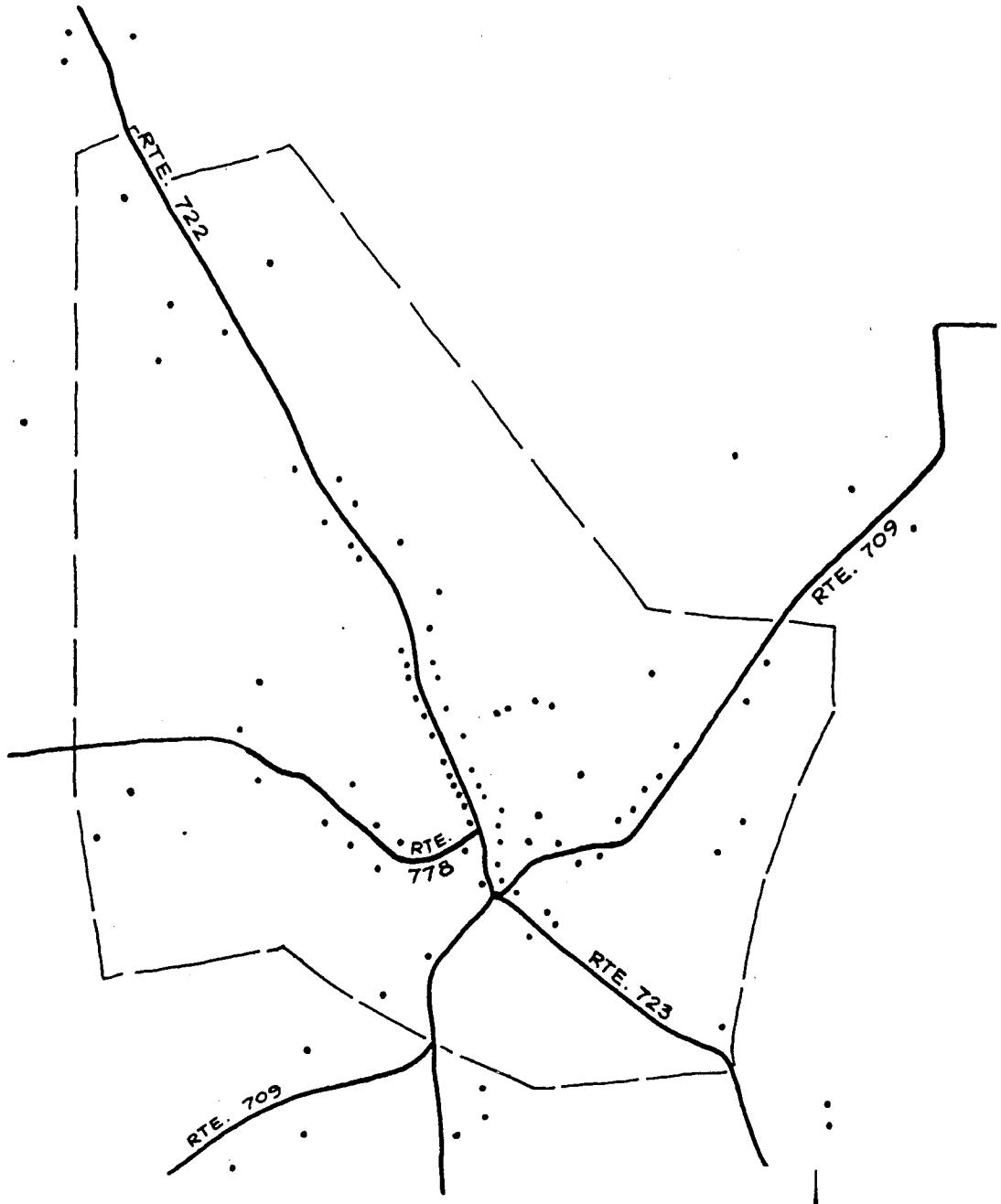
The village possesses a community center, some playing fields, shopping and a post office. The community and surrounding residents have hosted a cultural festival for a number of years and have recently expanded cultural events to Leesburg and eastern Loudoun. It was recently listed on the State Register of Historic Landmarks.

Current zoning in and around Bluemont includes nearly 100 acres of R-1 land and 10 acres of R-2. The approximately 14 acres of C-1 zoning is largely undeveloped in that use.

Major population expansion in Bluemont will probably require a package wastewater treatment plant with a possible wastewater discharge into Butchers Branch of the Catoctin Creek. The County anticipates that, were a package wastewater treatment facility authorized, capacity for the existing residences with failing septic fields would be included in the plant design. If central sewer and water were available, then the zoning density might be increased. Otherwise, the existing R-1 and R-2 zoning should remain. Bluemont's vital cultural music and arts festival may grow in the future and may need additional facilities. The County should seriously consider the value of such a tourist investment in terms of its overall financial commitments. The existing C-1 zoning in Bluemont might be developed as a mixed use of residential and commercial functions if this would enhance the historic character of the village.

1983 Population: (estimated)	150	
Number Dwelling Units:	50	
Existing Zoning (acres):		
Residential:	R-1	100 acres
	R-2	10 acres
Nonresidential:	C-1	14 acres
Public Utilities Available:	None	
Community Facilities:	Community center, ballfields post office, shopping.	

Village of Lincoln



APPROXIMATE EDGE OF POLICY AREA
DWELLING

NORTH

FEET 0 500 1500 2500 3500

KILOMETER 0 .5 1

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Figure 23

g. Lincoln:

Lincoln is a small village with historic Quaker roots and with nearly 60 dwellings and 170 residents. It is included in the Goose Creek Historic Cultural and Conservation District. The community is closely associated with both Purcellville and Hamilton by Routes 722 and 709. The village possesses an elementary school and ballfields, several religious buildings, convenience retail and postal facilities. Soils in the area are generally good for septic field installation and for wells. There are nearly 390 acres of R-1 zoning in and around Lincoln, about seven acres of R-2 and three and one-half acres of commercially zoned land.

1983 Population: (estimated)	170	
Number Dwelling Units:	60	
Existing Zoning (acres):		
Residential:	R-1	390 acres
	R-2	7 acres
Nonresidential:	C-1	3.5 acres
Public Utilities Available:	None	
Community Facilities:	Elementary school, ballfields, post office, churches, convenience shopping	

Existing zoning corridors of R-1 and R-2 extend from Hamilton and Purcellville to Lincoln. As a consequence, mini-area planning efforts should be directed to encouraging clustered residential development away from Routes 722 and 709 and camouflaging new development from the road with intervening year-round vegetative screens, berms and the like.

Given the relatively well-drained soils in and around Lincoln, the County should anticipate that the existing R-1 and R-2 zoning districts will eventually be developed. (See page 120 for relevant recommendations.)

Traffic movements through Lincoln on Route 722 may increase with growth in the Mt. Gilead/North Fork area. Road and sidewalk improvements should respect the special qualities of the village.

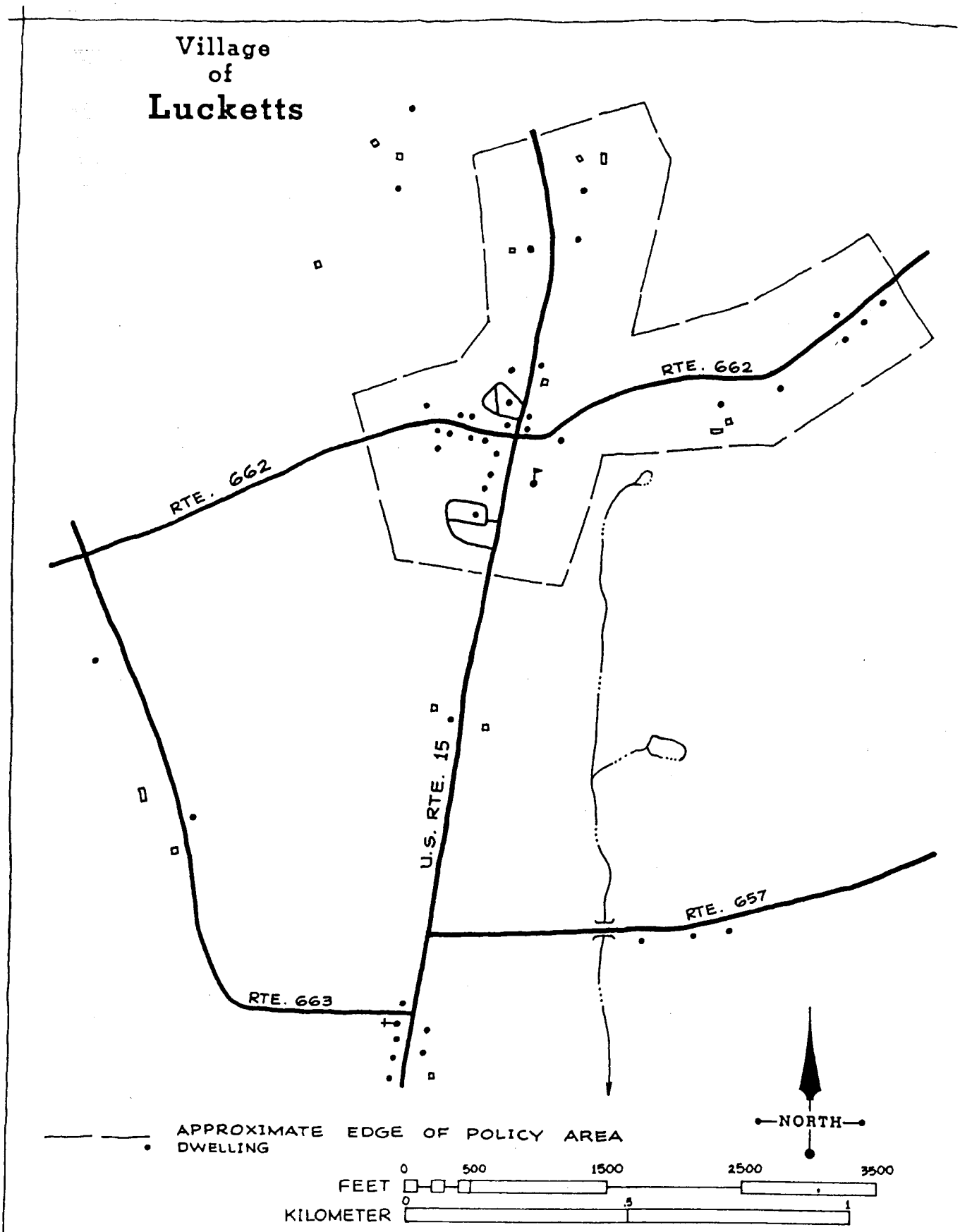

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Figure 24

h. Lucketts:

Lucketts is a community located on arterial Route 15 with perhaps two dozen dwellings and two "grandfathered" mobile home parks with more than 50 mobile homes. Each of the mobile home parks uses its own package waste water treatment facility because of higher density and poor percolation characteristics of the soil.

The village possesses a modern elementary school and an adjacent community center (the former school building). The community supports a volunteer fire station and convenience shopping.

Much of the 580 acres of R-1 zoned land in and adjacent to Lucketts is undeveloped as is the nearly 70 acres of R-4 land. The village possesses about three and one-half acres of C-1 zoned land which is also largely undeveloped.

The existing R-1 zoning along Route 662 northeast of Lucketts is not in character with the carrying capacity of the soils or the character of the land. The existing R-4 zoning district in Lucketts may not be congruent with the carrying capacity of the land and could not be developed with private percolation fields.

In fact, subsoil limestone necessitates major caution in the design of any expansion to Lucketts. The operation of the two existing package sewage treatment plants in Lucketts would need to be considered in relation to any proposal to build a possible third, as would connections to them from existing area dwellings with failing drainfields and health problems. Route 15 is an interstate roadway and has considerable traveling activity. Consequently, plans and/or proposals to develop residential or commercial uses in and around Lucketts should avoid multiple access points and unnecessary vehicle movement friction on Route 15. Expansion of Route 15's carrying capacity should be coordinated with a thorough study of safe vehicular and pedestrian movements to and from the school, community center and local convenience shopping.

1983 Population (estimated)	210	
Number Dwelling Units:	74 (50 trailers)	
Existing Zoning (acres):		
Residential:	R-4	70 acres
	R-1	580 acres
Nonresidential:	C-1	3.5 acres
Public Utilities Available:	None (two private package sewer plants exist)	
Community Facilities:	Elementary school, community center, fire station, convenience shopping	

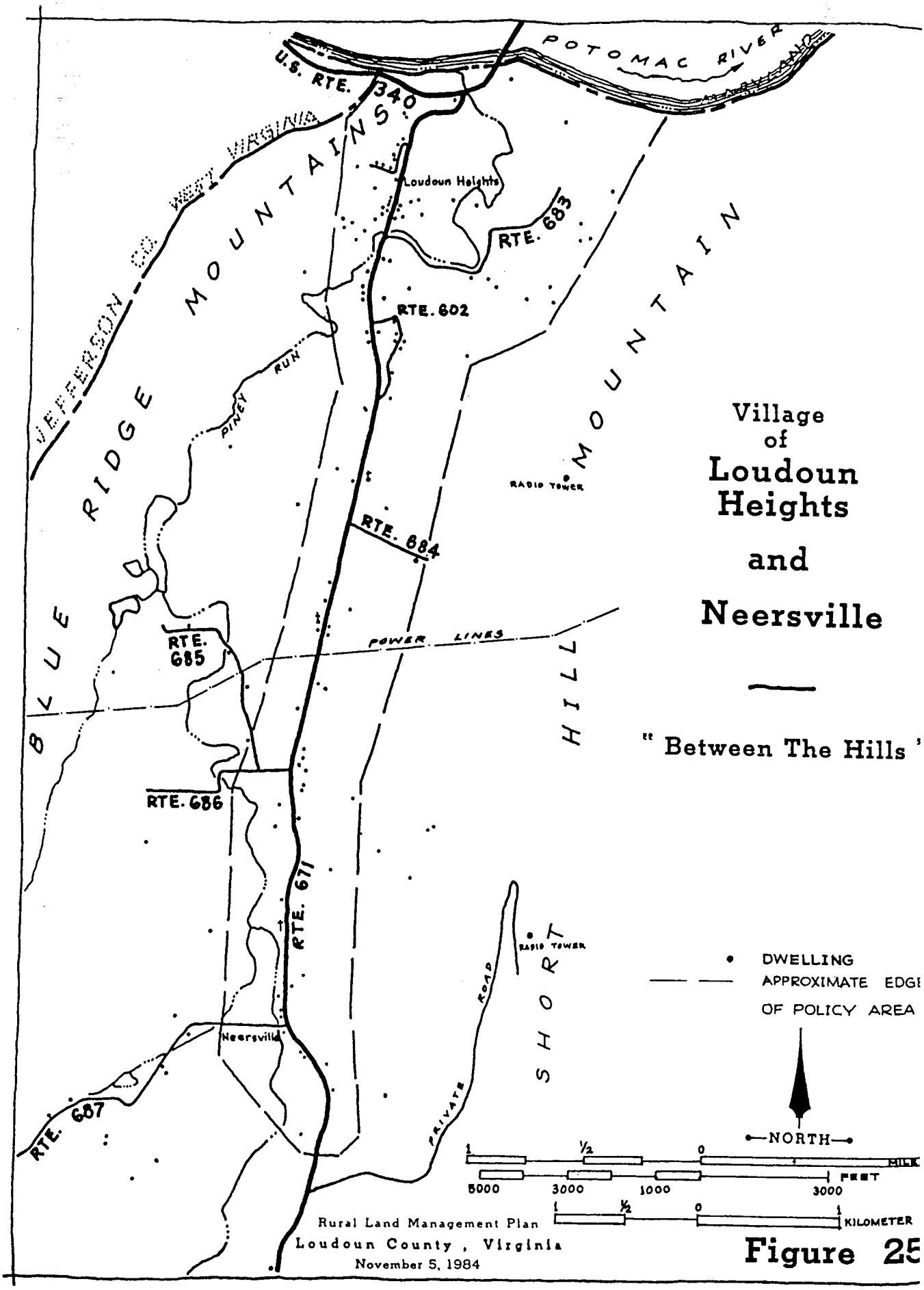
POTOMAC RIVER
MARYLAND
U.S. RTE. 340
WEST VIRGINIA
JEFFERSON CO.
BLUE RIDGE MOUNTAINS
Loudoun Heights
RTE. 683
RTE. 602
PINEY RUN
RADIO TOWER
RTE. 684
POWER LINES
RTE. 685
RTE. 686
RTE. 671
Neersville
RTE. 687
PRIVATE ROAD
RADIO TOWER
SHORT HILL MOUNTAIN
Village of Loudoun Heights and Neersville
" Between The Hills "
DWELLING
APPROXIMATE EDGE OF POLICY AREA
NORTH
MILES
FEET
5000 3000 1000 3000
KILOMETER
Rural Land Management Plan
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Figure 25

i. Neersville/Loudoun Heights:

This area is a linear community of about 70 dwelling units and 210 people which has developed in a spread out pattern along a paved secondary road, Route 671. The community is relatively isolated from the remainder of the County and this appears to have stimulated the growth of social institutions such as a volunteer fire-emergency rescue service, a community center with day care functions and ballfields. Convenience shopping functions have located not in the Neersville area itself but rather at the northern and southern ends of the valley near Routes 340 and 9. Zoning in Neersville is all A-3, while zoning near Route 340 includes 170 acres of R-1 and 18 acres of C-1 land, mostly undeveloped.

Route 671 which links Route 9 with Route 340 is the essential public facility of this linear rural agricultural community. The County anticipates that no major rezonings or other public utilities will be developed in the present A-3 zoned valley yet single-family residential growth will continue. Future growth should take care not to impede traffic flows on Route 671 and could be set back from the road for visual reasons. This may be best accomplished by combining dwelling access points on common access easements. Existing R-1 zoning in and around Loudoun Heights may need to be developed at a lower density which would be controlled by the percolation characteristics of the soil.

1983 Population: (estimated)	210
Number Dwelling Units:	70
Existing Zoning (acres):	
Residential:	A-3
Nonresidential:	None
Public Utilities Available:	None
Community Facilities:	Fire station, ballfields, community center, convenience shopping

Village of Paeonian Springs

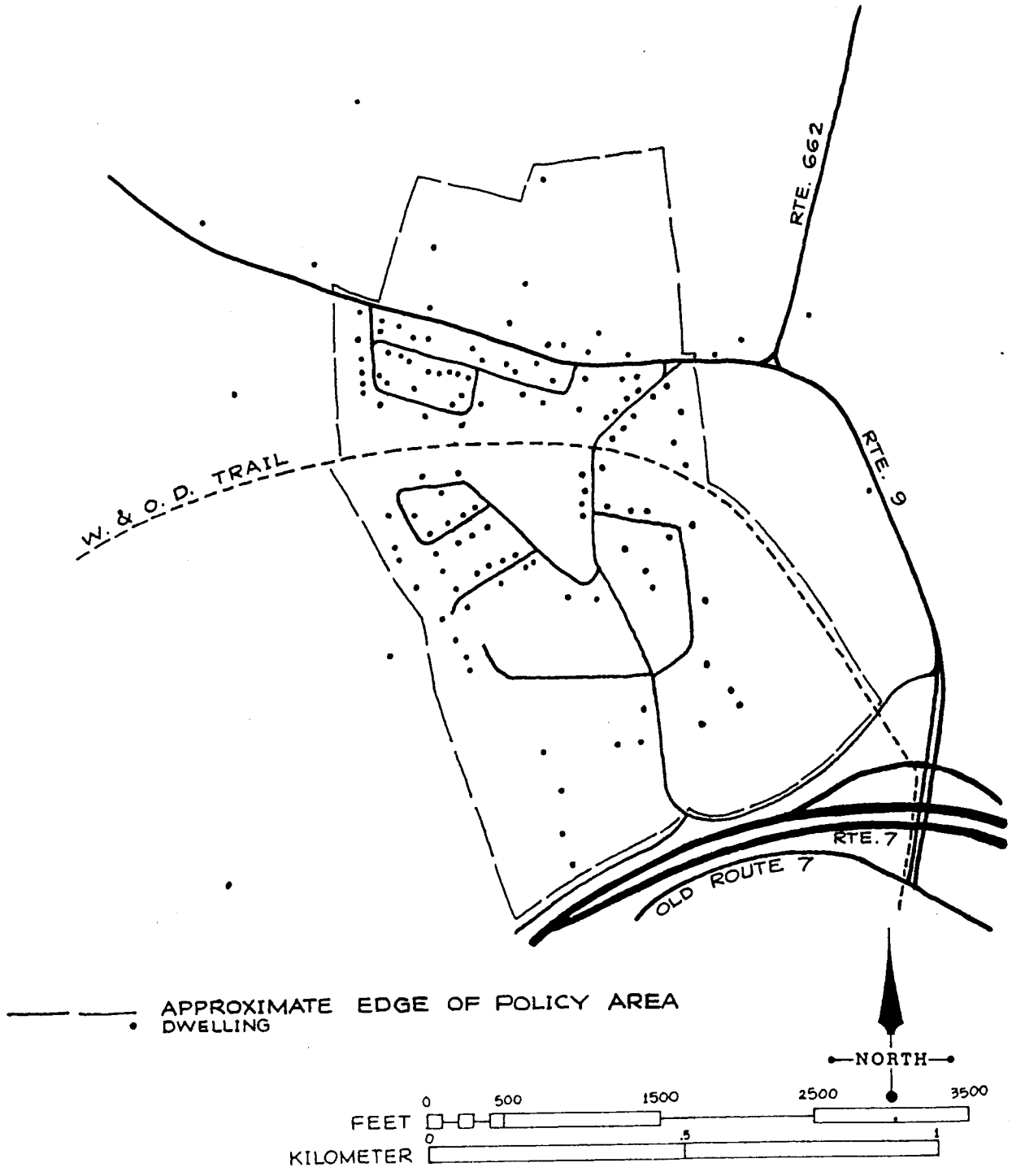

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Figure 2

j. Paeonian Springs:

Paeonian Springs is a former railroad vacation village with some 80 dwellings and 230 residents. The community is located between Routes 7 and 9 just west of Clarke's Gap. The village has serious water and wastewater disposal difficulties due to its topographical location and the age and construction of its individual home wells and percolation systems. The village possesses playing fields and postal facilities. Much of Paeonian Springs 200 acres of R-1 zoned land and 75 acres of R-2 zoned land is undeveloped while the village also has some seven acres of currently unused C-1 zoned land where there once was some minor commercial activity.

Paeonian Springs may need a small package treatment plant to solve its existing wastewater problems. The community was subdivided into small lots many years ago and many of its roads are not up to highway standards while others were never built. Solving the wastewater and road deficiencies, perhaps with a public/private partnership, may provide Loudoun with a number of lower cost, smaller building lots.

1983 Population: (estimated)	230	
Number Dwelling Units:	80	
Existing Zoning (acres):		
Residential:	R-1	200 acres
	R-2	75 acres
Nonresidential:	C-1	7 acres
Public Utilities Available:	None	
Community Facilities:	Ballfields, post office	

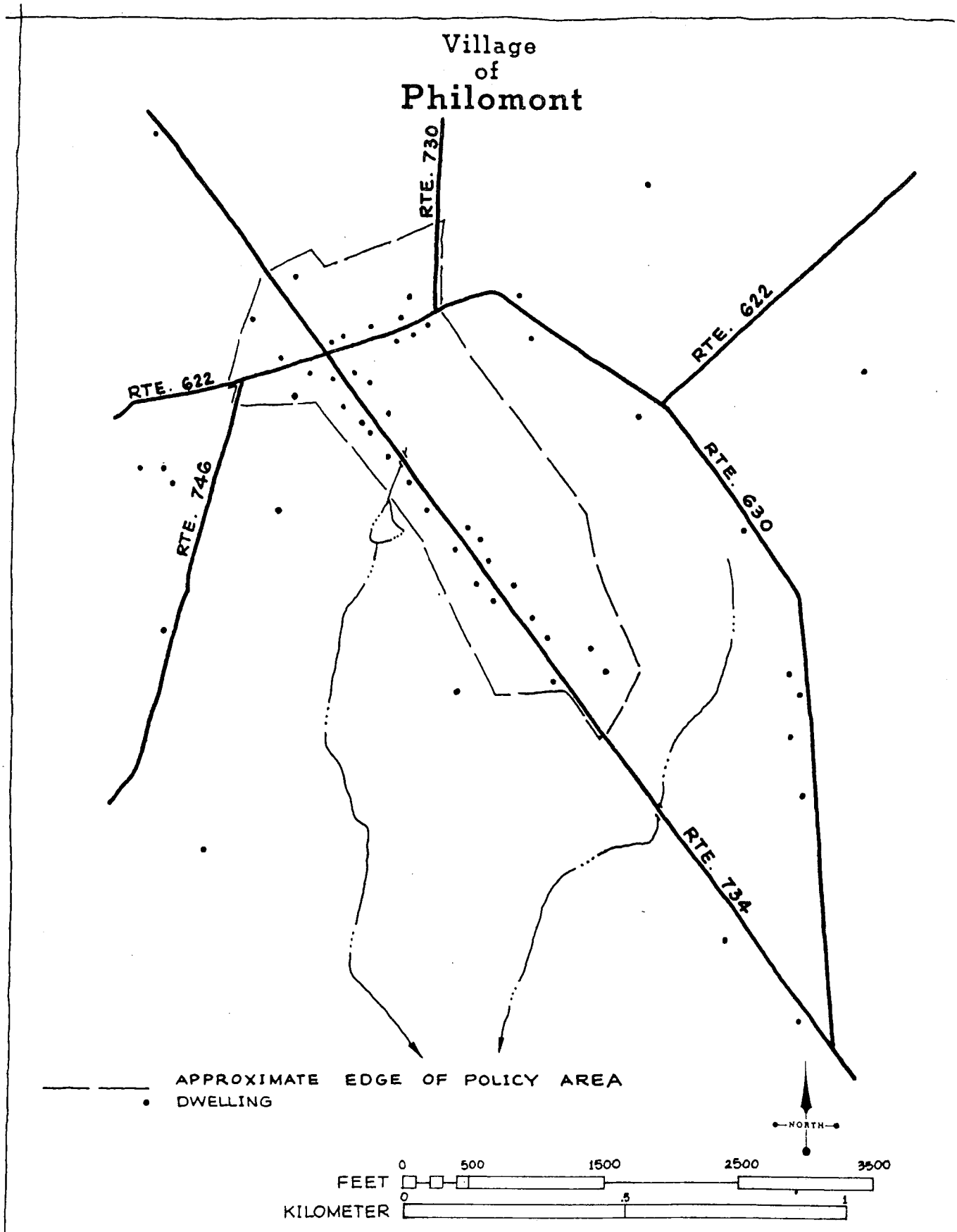

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Figure 27

k. Philomont:

Philomont is a community with nearly 50 dwellings and 150 residents which is spread out along Routes 630, 730 and 734 in the heart of the southern Loudoun Valley. The community has experienced some growth despite the six to eight miles distance to Route 7 and Route 50 along paved Routes 690, 611 and 734.

The soils in the area will permit lower density (three to seven acres per lot) on individual septic systems; however, underlying rock formations have raised concerns about water quantity. The community possesses local convenience shopping functions as well as postal service. Philomont's location and soils have precluded development at current zoning which includes over 90 acres of R-1 zoned land, 20 acres of R-2 and 6.5 acres of C-1 zoned land.

Philomont is a growing village in the Loudoun Valley. It has a volunteer fire company which is a benefit to the local and rural community. Continued growth on private well and septic percolation fields should avoid adding traffic flow frictions to Route 734 by clustering entrances where appropriate. Continued growth along Route 734 may require eventual improvement to this road and new houses should be set back from it to avoid future traffic complications. There may also be a need for additional recreation facilities for the village and surrounding residents.

1983 Population: (estimated)	150	
Number Dwelling Units:	50	
Existing Zoning (acres):		
Residential:	R-1	90 acres
	R-2	20 acres
Nonresidential:	C-1	6.5 acres
Public Utilities Available:	None	
Community Facilities:	Post office, fire company, local convenience shopping	

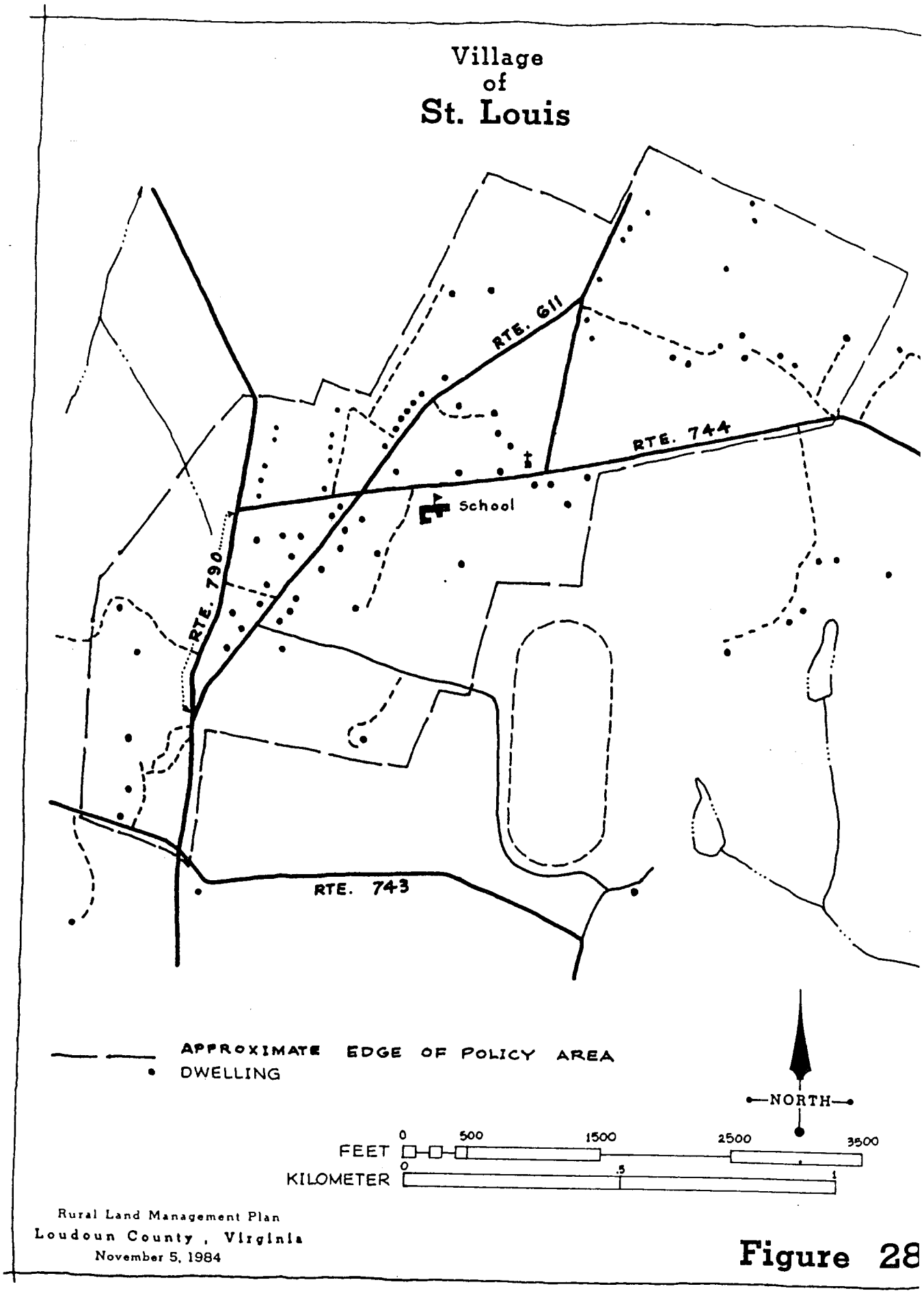

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Figure 28

St. Louis:

St. Louis is a village of about 50 dwellings and 150 residents and is connected to Route 50 by means of paved Route 611 near Middleburg. Soils in the area are unsuitable for septic drainfield percolation and the community possesses a new central wastewater treatment plant operated by the Loudoun County Sanitation Authority. There is a concern about well water quantity because of subsoil rock formations below the area. The village possesses an elementary school with its associated playing fields, and a church.

St. Louis has some 290 acres of R-1 zoned land, much of which is outside the sewer service area of the Sanitation Authority's plant. The village has nearly 100 acres of R-2 zoned land and 20 acres of C-1 zoned land which are largely unused in terms of development potential.

The St. Louis community has a wastewater treatment facility capable of supporting a population several times larger than the existing 150 residents but private sources of fresh water are unreliable. The community could expand six-fold if a secure water supply were available. This expansion might considerably alter the social and economic situation of the village. There are large areas of R-1 and R-2 zoning districts within the sewer service area which could be developed as clusters with greenbelt buffers on the periphery of the A-3 zoning districts.

1982 Population: (estimated)	150	
Number Dwelling Units:	60	
Existing Zoning (acres):		
Residential:	R-1	290 acres
	R-2	100 acres
Nonresidential:	C-1	20 acres
Public Utilities Available:	Sewer - .086 MGD, capacity of 375 total units, 938 total population, no central water plant	
Community Facilities:	Elementary School, ballfields, church	

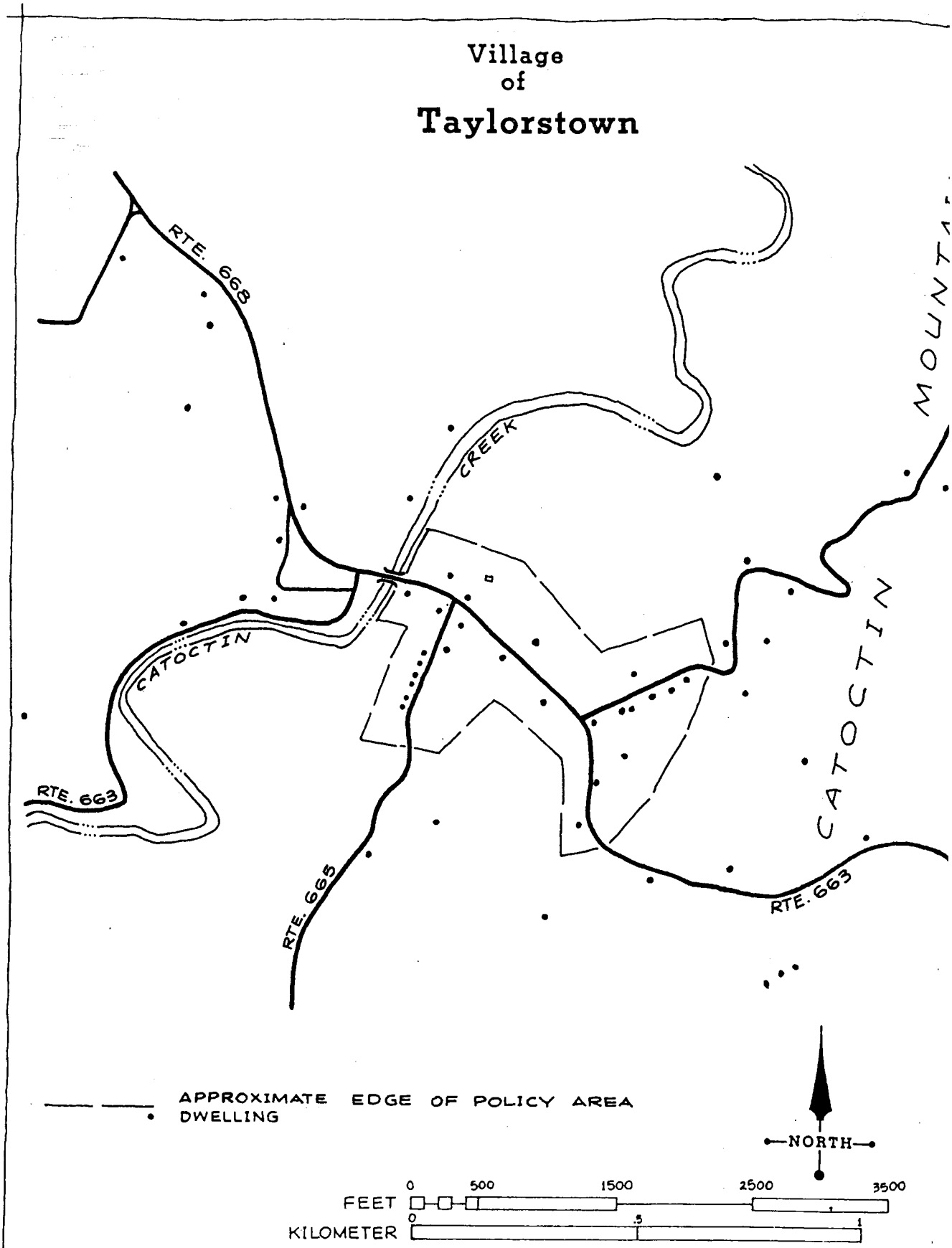

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Figure 29

m. Taylorstown:

Taylorstown is a crossroads village which is a County designated Historic Cultural and Conservation District also listed on the State and National Registers and which grew up around an early 19th century grain mill. Located at the intersection of Routes 665 and 663, the community relates geographically to Point of Rocks and Frederick, Maryland. The village is situated between the Catoctin Ridge and Catoctin Creek. Poor percolation of soils exists in this area. The community of some 30 dwellings and 90 residents has a country store but the 150 acres of R-1 zoned land and four acres of C-1 land have not been much developed.

Continued residential development on private well and septic percolation fields could continue. Development in the R-1 zoning districts in and around the village should be clustered if possible to promote a sense of place. The present pattern of communal private access easements up the Catoctin Ridge slopes reduces the number of entrances onto Routes 663 and 665 though the maximum permitted slopes of these easements may need to be established. The curve alignment on Routes 663 and 665 may need be reviewed and modified in any mini-area plan.

1983 Population: (estimated)	90	
Number Dwelling Units: (1980)	30	
Existing Zoning (acres):		
Residential:	R-1	150 acres
Nonresidential:	C-1	4 acres
Floodplain:		
Community Facilities:	General Store	

Village of Waterford

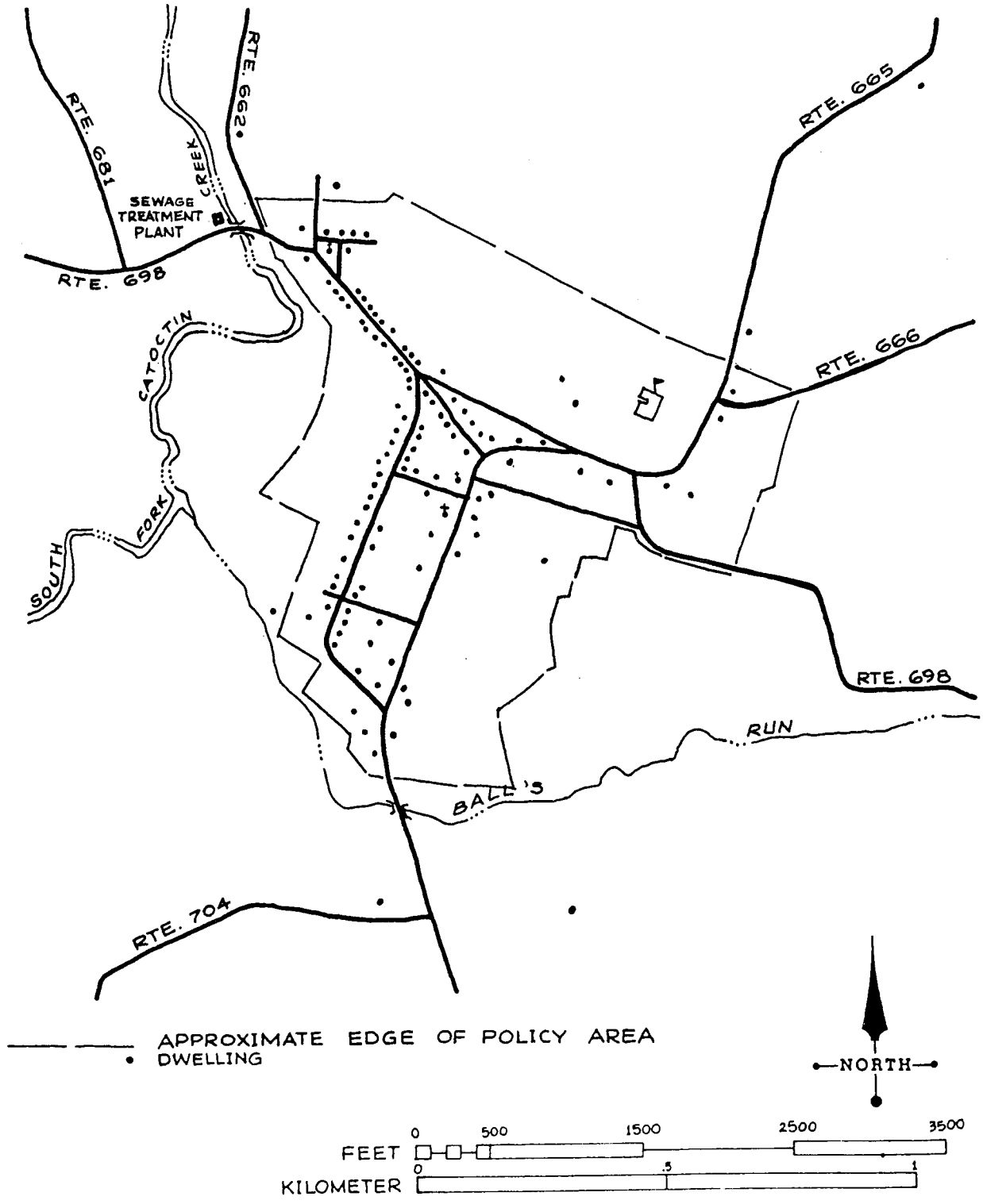

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Figure 30

n. Waterford:

Waterford is a village of 91 dwellings and approximately 210 residents. It is one of a handful of villages in the United States which has been designated a National Historic Landmark. It is also on the Virginia Register of Historic Landmarks as well as being listed on the National Register of Historic Places, and is a Loudoun County Historic and Cultural Conservation District. It is in the Center of the Catoctin Agricultural District, and the land up to the very edge of the village is actively farmed.

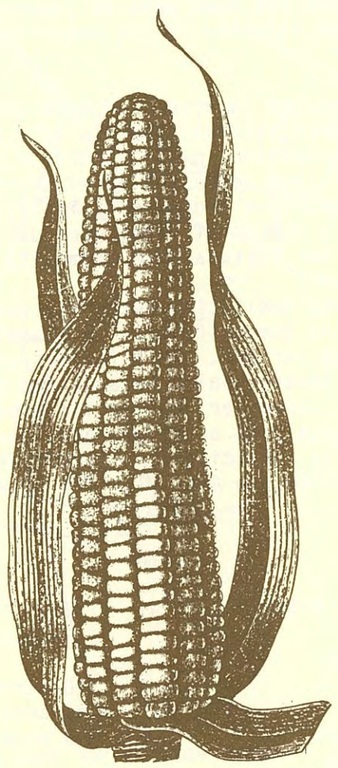
Waterford has a long history of demonstrated concern for historic preservation by the residents and by the Waterford Foundation, a nonprofit corporation organized in 1943 for the preservation of Waterford, to which the great majority of residents belong. Extensive use has been made of preservation easements, both of buildings and farmland in the Waterford National Historic Landmark District.

Waterford was once an incorporated town and possesses many of the physical and organizational elements of a town, including active citizen participation in the Waterford Citizens' Association. The village possesses an elementary school with playing fields, convenience shopping facilities, a post office, three churches, and a number of structures owned by the Waterford Foundation and used for cultural and community purposes.

The Loudoun County Sanitation Authority operates a wastewater treatment plant in the community with an unused capacity of approximately 40,000 gallons per day. This facility was opened in 1978 strictly to correct severe health hazards and to serve existing lots. Waterford is largely zoned for residential uses. Within the village are approximately 41 acres of land zoned R-2 and three and one-half acres of C-1. Immediately adjacent are approximately 310 acres of land zoned R-1. (An Area Plan for Waterford is currently in progress.)

1982 Population: (estimated)	210	
Number Dwelling Units: (1980)	91	
Existing Zoning:		
Residential:	R-1	310 acres
	R-2	41 acres
Nonresidential:	C-1	3.9 acres
Public Utilities Available:	Sewer - .058 MGD, 195 total units, 459 total population, water - none	
Community Facilities:	School, ballfields, churches, convenience shopping, civic association, Waterford Foundation, annual fair	

Figure 31, page 113, summarizes in a comparative fashion, the public facilities of each village showing those which are more capable of supporting new growth and those which are less capable. This figure should be continually updated in order to provide the basis upon which to evaluate the appropriateness of future rezoning and development proposals for any land within or adjacent to any of the villages.



SUMMARY OF EXISTING VILLAGE FACILITIES

Figure 31

	Aldie	Aldie Mountain	Airmont	Arcola	Ashburn	Bluemont	Lincoln	Lucketts	Neersville	Paeonian Springs	Philomont	St. Louis	Taylorstown	Unison	Waterford	Hillsboro
COMMERCIAL/ SHOPPING			o		o	o	o	o			o		o	o	o	o
POST OFFICE	●			●	●	●	●			●	●				●	●
RESCUE				●					●							
FIRE	●			X	●			●	●		●					
HISTORIC SIGNIFICANCE	●	●			●	●	●						●		●	●
BOOKMOBILE	●			●	●	●	●	●	●		●		●		●	●
BALLFIELDS	●			●	●	●	●	●	●	●		●			●	●
COMMUNITY CENTER				●		●		●	●						●	
SCHOOLS	●				●		●	●				●			●	●
WATER	o	o	o	o	o	o	o	X	o	X	X	X	o	X	X	o
SEWAGE DISPOSAL*	X	X	o	X	X	X	o	o	o	X	o	●**	X	X	●**	o
ROADS	●	X	o	o	o	o	X	●	o	●	o	o	o	X	o	●

QUALITY AND QUANTITY

KEY:

● GOOD
o SATISFACTORY
X MARGINAL

* Septic unless noted.
** Treatment Plant

6. Residential Issues

a. Rural Residential Issues:

i. Location and Pattern of Development:

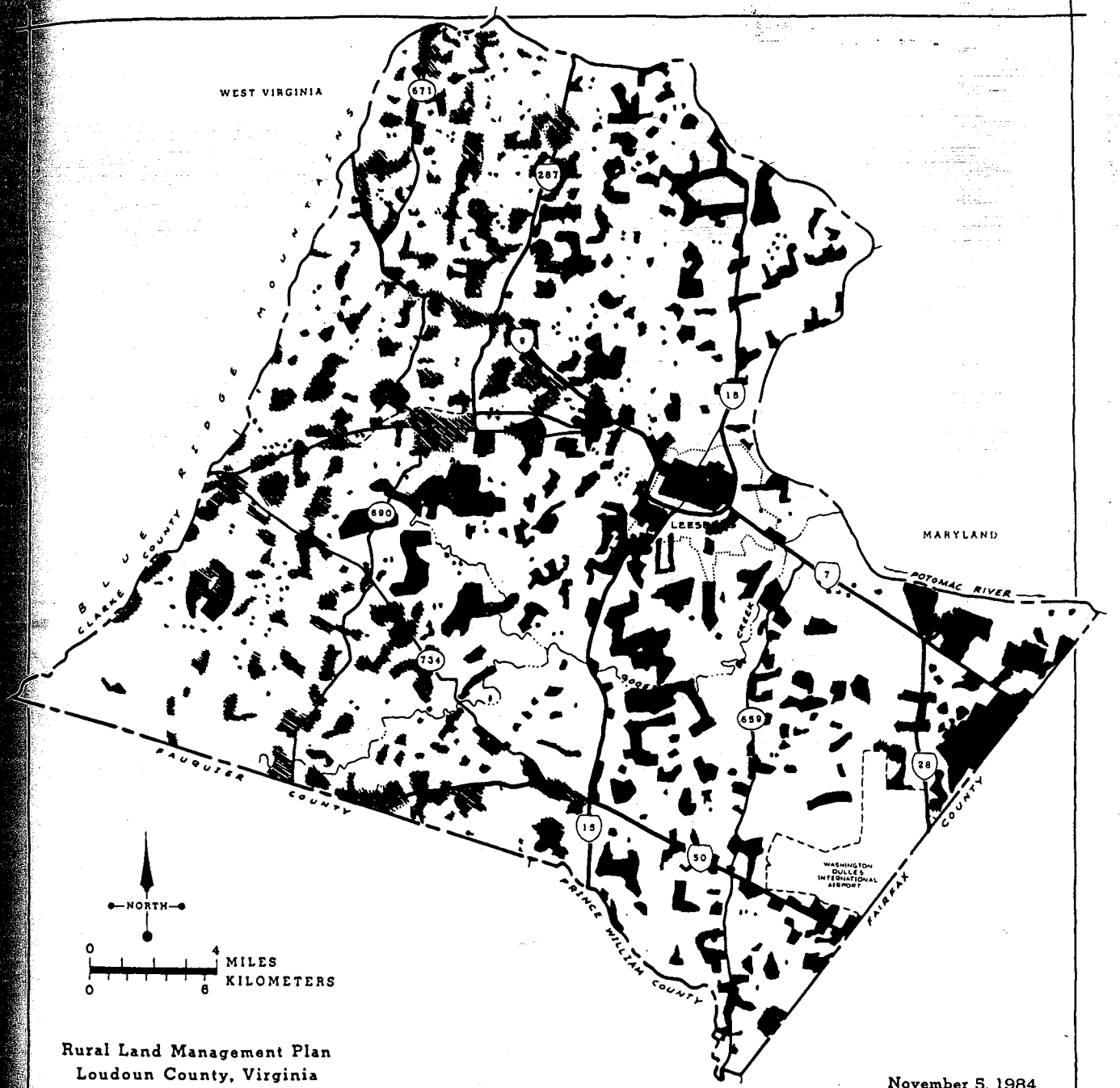
The trend in Loudoun County is for rural residential development to occur in a haphazard, scattered pattern on large (3 - 15 acres) lots which have soils that can support on-site sewage disposal systems (septic field systems). (See Figures 32 and 33, pages 115 and 116 .) This scattered development pattern tends to convert more land than is needed for residential use, to create use conflicts between existing agricultural activities and residential activities and to cause a more dispersed settlement pattern which can be more costly to provide with public services. Use conflicts can be a major source of disturbance to farmers and can raise the level of uncertainty on the part of the farmer and increase the pressure to restrict, move or cease farming operations.

ii. On-Site Waste Disposal and Groundwater Supply:

Rural Residential development takes place without the benefit of central utilities, thus requiring the use of septic drainfields for sewage disposal, and on-site wells to tap subsurface drinking water reserves. As rural dwelling units proliferate, the risk of groundwater contamination from failed drainfields increases, particularly in areas with limestone conglomerate geologic formations. Reduced well yields are also a possible result of increased rural development levels. The County Health Department is currently undertaking an ongoing compilation of well-drilling data, for purposes of monitoring the County's groundwater supplies.

iii. Rural Roads:

As rural residential development continues, the rural secondary road system is subjected to increased levels of traffic. In many cases, only a relatively few new houses on a rural road can increase the traffic volumes beyond design capacity and substantially reduce the level of service that those roads provide to local residents. State funds for Highway improvements are in short supply, and therefore, increased rural residential development can be expected to cause reductions in the future level of service on many rural roads.



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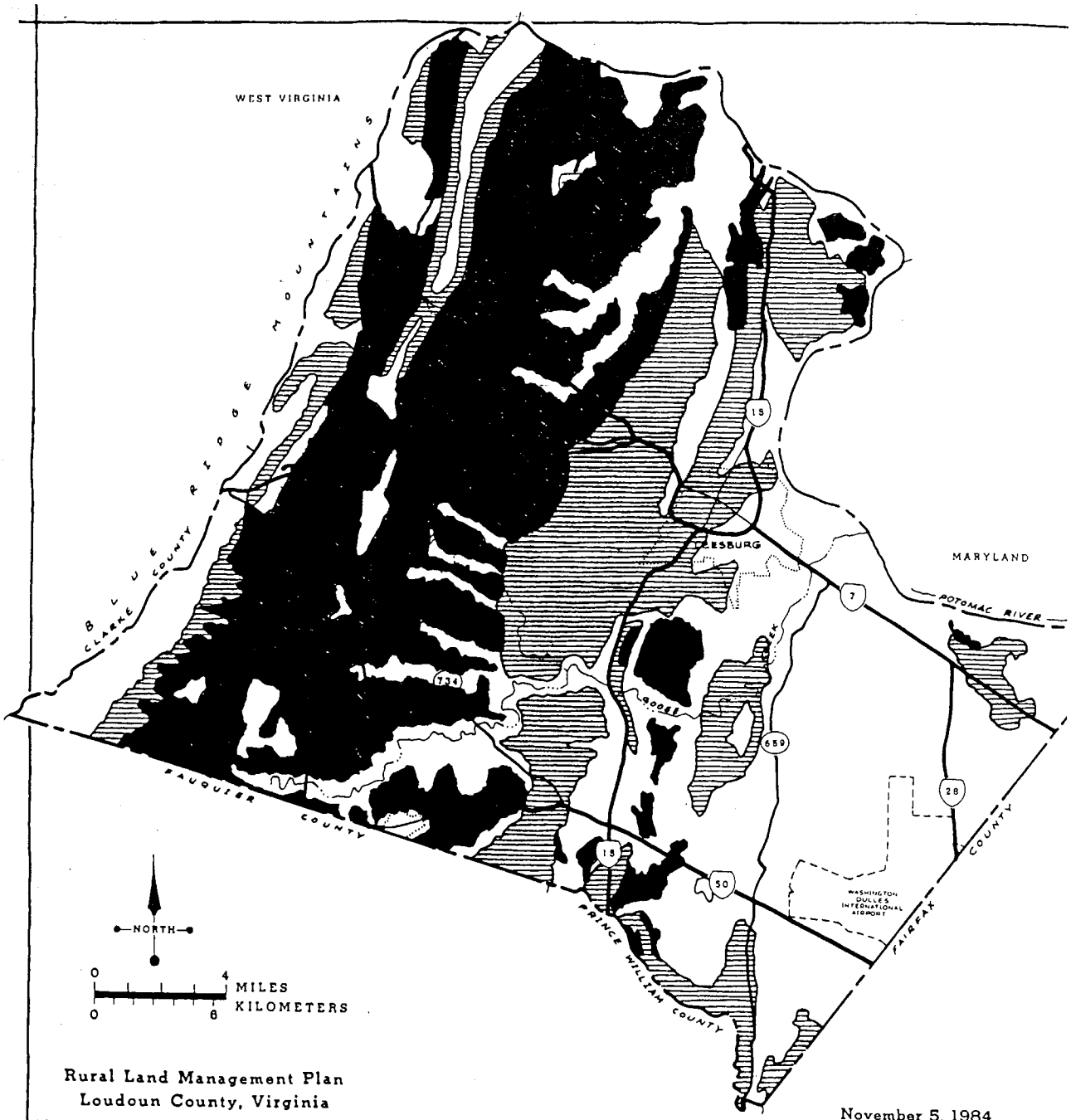
PARCELS OF FIFTEEN ACRES OR LESS

[Generalized]

Source :
LOUDOUN COUNTY DEPARTMENT OF PLANNING, ZONING, AND COMMUNITY DEVELOPMENT

Figure 32



DRAINFIELD POTENTIAL

[Generalized]

- Good
- Fair / Poor
- Very Poor / Poor

Figure 33

iv. Development Value of Rural Land:

Rural land in Loudoun County that has adequate road frontage and permeable soils has potential for conversion from farming or forestal uses to residential uses. At least one-half of the market value of such land is due to its development potential. Therefore, if regulatory, environmental or facility constraints limit development potential on a given unit of land, the market value of that land could be reduced. Such reductions, if any, would be dependent on the particular characteristics of a given parcel, but it could be assumed that most owners of large tracts of land would not want to see any reduction in the value of their land. (It should be noted that some regulations and other constraints can cause an increase in market value due to the benefits of protection such constraints may bring.)

v. Desire for a Rural Lifestyle:

It appears that much of the growth pressure that bears on Loudoun's rural land is due to the local and regional demand for rural building lots and a "country" lifestyle. That market demand is not expected to greatly diminish in the future, although the continued increase in rural residential development may possibly reduce the quality which has brought new rural residents to the area in the first place.

b. Town Residential Issues:

i. Town Development Goals and Desires:

It is current County policy, as set forth in the RMP, to encourage new development to take place in and around existing towns and urban settlements. This policy is subject, however, to the policies adopted in future detailed area plans, with comment from the towns themselves.

ii. Town Utilities:

With the exception of Leesburg, all of Loudoun County's incorporated towns have at least some constraints on new development due to limited water supplies or sewage treatment capacities. Regardless of any desire to grow, these utility constraints must be removed in order for any substantial amount of new development to occur.

c. Village Development Issues:

The RMP thesis that village development throughout the County would preserve farmland and reduce public capital

improvement and operational costs cannot be accepted on an unqualified basis from the point of view of road improvement costs or of water treatment installation costs. It is also questionable that village growth would necessarily reduce development pressure on surrounding farmland conversion since the two housing markets are distinctly different. Furthermore, it is possible that improved transportation from village nodes to the arterial roads and improved shopping and community facilities in the villages themselves might actually stimulate farmland conversion in the area surrounding the village.

Given this analysis it would appear that the most prudent course of action is to examine each village expansion proposal on a case by case basis, identifying road and capital facility and operational cost impacts. Taking the RMP overall policy of citizen-responsive government with the reality of limited staff, the challenge of encouraging each village to generate "a land use management plan which will set specific guidelines for the future" would necessarily have to be done on a limited basis and probably would be best developed for those villages which are the most likely subjects of expansion or where an actual proposal has been made.

Village expansion which requires the expenditure of public funds would necessarily cause the County to compare the cost and public benefits of this expenditure in terms of countywide goals and comparable outlays. It is possible that in some circumstances an otherwise worthwhile project might not receive County encouragement and/or funding given Loudoun's limited fiscal means. By the same token, it might be that other County goals and policies would encourage the expenditure of such funds, e.g., refurbishing the community centers of Bluemont or Lucketts in order to enhance their festivals and cultural programs. Of course it would remain a private sector option to proffer roads and such facilities as fresh and wastewater plants or other facilities at the time of a village expansion proposal.

d. Rural Residential Cluster Issues:

There are several issues associated with rural cluster development. These are:

i. Potential Land Use Conflicts:

Concentrations of tightly grouped houses in the midst of a farming area may increase the land use conflicts between residential and agricultural activities due to farm machinery noise, spraying of chemicals, vandalism, dogs, etc.

ii. On-Site Sewage Treatment:

Modified or clustered septic systems and/or package treatment plants may be necessary on some sites in order to achieve a compact cluster of houses on small lots. The maintenance and repair of these systems, as well as the risk of ground and/or surface water pollution, is a potential problem of rural cluster development.

iii. Rural Growth Rate and Pattern:

Cluster developments may allow a greater gross density, and more intensive development on land that currently has very little or no road frontage, and may allow lower development costs due to reduced road costs and smaller lots, and therefore could become a stimulus of rural growth, which would be contrary to the goals and policies of both the RMP and the Rural Plan.

iv. Impact on Public Roads and Other Facilities:

An increase in population would require the construction or significant improvement of such public facilities as roads and schools. However, since the density of this population would always be very low, the cost effectiveness of such improvements would be lower than in a densely populated area such as in and around the towns.

v. Private Roads:

The maintenance and repair of private roads by homeowners associations of only 8 to 20 owners could create funding and administrative difficulties.

vi. Interaction with TDR Program:

If clustering is a more attractive option than selling TDR's or transferring densities it may interfere with or reduce the effectiveness of the TDR/Density Transfer program.

The above analysis identifies the fundamental pros and cons of rural cluster zoning. While there are several potential problems associated with rural clusters, they would nevertheless offer the opportunity to guarantee relatively large blocks of permanent open space in rural areas.

B. RESIDENTIAL GOALS

1. Manage rural residential development so as to achieve a growth pattern that will be compatible with the County's agricultural base, natural integrity and visual order.

2. Residential development should take place in close proximity to existing towns and villages where transportation, water and waste problems can be efficiently handled rather than on important agricultural lands or on environmentally sensitive land such as steep slopes, potential water impoundment sites and floodplains.

3. Preserve the attractive rural character and unique quality of life of Loudoun County by the use of aesthetically pleasing, efficient and environmentally sound design for new residential development.

4. Promote the environmental integrity of Loudoun County to ensure that the unique features of the County are preserved, including open space and air and water sheds surrounding concentrated residential development.

5. Housing opportunities should be available to all segments of the County's population.

C. RESIDENTIAL IMPLEMENTATION RECOMMENDATIONS

1. Zoning and Subdivision Regulation Recommendations

Based upon the preceding goals and analysis, it is the recommendation of this plan that the following modifications and additions be made to the County's land development ordinances:*

a. Change the definition of subdivision of land to include all divisions of property, so that all such divisions are subject to public review and minimum standards. This will help ensure that all building lots meet the standards that are necessary for good planning and protection of the public health, safety and welfare.

b. Amend the Subdivision Ordinance so that private access easements are no longer allowed except for clustered developments, family subdivisions and historic sites.

c. Establish an A-50 zoning district which will be available on a voluntary basis (refer to Agricultural Recommendations, page 59).

d. Establish a rural residential cluster provision for the A-3 and A-10 zoning districts. The cluster provision is described in detail on page 122.

* Some of the following provisions have been incorporated in the new Subdivision and Land Development Ordinance.

e. Rezone to the A-10 zoning classification land which has been divided into lots of 10 to 15 acres in size as part of a major division of a tract that was greater than 50 acres prior to that division.

f. Refine the subdivision and/or zoning requirements and standards for three-acre lot subdivisions in order to better ensure that such residential developments are more compatible with agricultural land uses.

g. Allow the combining of existing lots in towns and villages for the purpose of acquiring access to existing sewer facilities. This policy shall apply only to lots created prior to 1972.

h. Refine the Historic District Overlay section of the Zoning Ordinance to ensure adequate property inspection and code enforcement, and to amend the boundaries of the County's Historical Cultural and Conservation Districts to coincide with the State's corresponding Historic Districts. Landowners within the new expanded boundaries should be allowed to be excluded from the district if they so choose.

i. Establish a countywide method of determining the housing density of a residential development, designed to allow the density of a development to be accurately and consistently measured, and for the densities of different developments to be fairly and objectively compared.

The County's method of determining and defining residential development is a variation on the concept of "net" density, and follows a specific formula for calculating the density of any residential or mixed-use development, as follows:

1) Total Tract Area

less: a) 100 Year Floodplain
b) Proposed Commercial and Office Areas
c) Industrial Areas
d) Slopes 25% or Greater

equals: Net Residential Land Area

2) Total Residential Units, as Proposed

÷ Net Residential Land Area

= Proposed Residential Density of Project (Development Density)

j. Require all subdivision plats in the A-3, A-10 and A-50 zones to include a statement to the effect that agricultural land uses are the preferred uses in these zoning districts. (See Agricultural Recommendations, page 42 for more detail.)

2. Rural Cluster Development Recommendations

If new rural residential development is designed so as to cluster the houses together on small lots on a corner of the site, rather than scattering them over the entire site on 10 to 15 acre lots as is usually done, larger blocks of contiguous residual open land could be saved during the rural development process. This residual land would be put under a permanent open space easement and be available for continued agricultural uses.

Clustered development could be encouraged as an additional development option for farmers and rural land owners. It would likely produce a land use pattern that would contain more large blocks of farmland or other open space that could be sold or leased to a farmer, thereby creating permanent opportunities for various kinds of agricultural activities; however, the residual tracts of open space would likely tend to be about 50 acres in size, which is smaller than the typical farm parcel of 100 or more acres that exists now. While there are many issues regarding rural clustering that must be resolved (refer to page 118) the following principles are offered as rural cluster recommendations:

In order to give rural landowners the cluster development option, while still protecting the County from the negative impacts of rural cluster development, it is the recommendation of the Rural Plan that clusters be allowed for the following purposes and under the following conditions:

a. Purposes:

i. Rural Fringe/Rural Villages:

In the Rural Fringe and Rural Village Areas, the purposes of a Cluster Development provision are:

- To preserve the look or scenic quality of rural Loudoun as farmland is converted to residential land uses.

- To channel rural residential lot purchases into certain portions of the County adjacent to towns, thus relieving the conversion pressure in other areas of longer term agricultural activity potential.

- To preserve some larger blocks of land (e.g., 50 acres minimum) which would be suitable for some types of intensive farming or institutional uses.

- To assist the development of rural parcels which are currently not readily developable due to limited road frontage.

- To reduce the development costs and uncertainties of converting farmland to residential uses and thus to achieve the greatest economic return from farmland conversion.

- To discourage conventional grid divisions in R-1 and R-2 zones.

ii. Agricultural Conservation Areas:

In the agricultural conservation areas, the purposes of a cluster development provision are:

- To preserve the core of a farm operation in those cases of estate settlement or financial reversal in which a farm's assets (potential house lots, farmland, farmhouse, barns) must be equitably divided among creditors and/or heirs.

- To assist a farmer in financing a farm project, e.g., irrigation, greenhouse, with the sale of only a small portion of the farm.

- To establish a permanent low density residential pattern in the County's agricultural areas, with large blocks of contiguous open land under easement that can continue to be farmed.

b. Locations:

Cluster developments will be allowed throughout the rural areas; however, certain provisions will vary according to which policy area the cluster is located in.

i. Rural Fringe and Rural Village:

- Density: ten acres per unit with full subdivision review or three acres per unit using TDR/Density Transfer in Rural Fringe only.

- Review and Approval: Subdivision process.

- Package Treatment Plants: Permitted by Special Exception. Must be privately financed.

- Initial Tract Size: Minimum of 50 acres.

- Water Line Extensions: Clusters may be served by water lines extended from incorporated towns, by Special Exception and Commission Permit.

- Clusters must be within an existing village or within the Rural Fringe. In Rural Village Areas, clusters shall be within the existing villages, as designated in this Plan, yet such development shall be sensitive to the integrity of designated historic areas.

- Private, "Class III" roads are allowed, but must be owned and maintained by homeowners.

ii. Agricultural Conservation Areas:

In the Agricultural Conservation Areas, cluster developments must adhere to the following requirements:

- Density: 25 acres per unit
- Review and Approval: Subdivision
- Package Plants: Prohibited
- Initial Tract Size: 50 acres minimum
- No Central Water or Sewer
- "Class III Roads," owned and maintained by Homeowners

c. Density:

In the rural fringe and rural village areas, density may be a maximum of ten acres per unit, but may be up to three acres per unit in the Fringe Areas only if TDRs are used.

In the Agricultural Conservation Area, the maximum allowed density for cluster development is twenty-five acres per unit.

d. Lot Size/Site Coverage:

In the Rural Fringe and Rural Village Areas, minimum lot size is 40,000 square feet (one acre) and maximum site coverage of lots and roads is 25% for 10-acre density, and 50% for three-acre density.

In the Agricultural Conservation Areas, the minimum lot size is 40,000 square feet (one acre) and the maximum site coverage for lots and roads is 10% for 25-acre density.

e. Review and Approval Process:

In the Rural Fringe, Rural Village Areas, and Agricultural Conservation Areas, cluster development applications must go through the full subdivision review process.

f. Residual Land/Easements:

Residual land must be a contiguous block in a single parcel and must be placed under a permanent easement which restricts uses to agricultural and/or open space uses. The County shall hold the easement.

g. Parcel Size:

The minimum original parcel size required in order to qualify for a cluster development is 50 contiguous acres in a single legally recorded property parcel.

h. On-Site Waste Disposal:

In the Rural Fringe and Village Areas, package wastewater treatment plants will be allowed by Special Exception. Such plants will not be permitted in the Agricultural Conservation Area.

Septic systems will be subject to Health Department requirements, review and approval.

i. Roads:

A minimum of 600 feet of existing state road frontage on the original tract will be required in order to carry out a cluster development in the Rural Fringe and Rural Village Areas; and 50 feet will be required with Agricultural Conservation Areas.

Only one road access to the existing state highway will be allowed for every 100 acres of the cluster development site.

All internal roads may be privately owned and maintained through a Trust Fund agreement by the homeowners, but must meet the minimum standards equivalent to a Class III road.

3. <u>Development Pattern Recommendations</u>

a. Rural Growth Policy:

The County will encourage a growth and land use pattern that will conserve farmland by promoting residential and commercial/industrial growth to locate around those towns in Loudoun County that have necessary public facilities, rather than locating in the rural agricultural areas.

b. Rural Development Guidelines:

- Allow farmers to maintain equity in property, by providing additional land use options.
- Promote higher density development in towns with adequate public facilities and utilities.
- Promote rural, low density residential development in rural fringe areas.
- Encourage clustering at a density of one unit per three acres in existing R-1 Zoning Districts.

c. Transferable Development Rights/Density Transfer:

Initiate a program that reflects Loudoun County's need to protect agriculture with incentives to transfer development rights. Rural Residential development should be seen first as a function of the TDR/Density Transfer program with defined sending and receiving areas. (See page 48 for detailed recommendations.)

d. Distinct Identity of Existing Towns/Villages:

Maintain the existing visual identity of towns and villages by preserving green, open space areas between them. Establish a permanent "Greenbelt" area of parkland or other preserved open space as a visual buffer between Purcellville and Hamilton, Purcellville and Round Hill and Purcellville and Lincoln in order to protect the individual identities of the three towns and the village of Lincoln. Such buffers are a high priority in these areas and may be accomplished by easement purchase, donation, transfer of density credits within a given tract, Density Transfer from the rural areas, TDR or residential or institutional cluster.

4. Rural Village Recommendations

The RMP policies regarding village growth should be modified in such a way that the County would allow appropriate expansion in and around existing villages so long as such growth did not project the public sector into costly expenditures or conflict with other basic County Planning goals. It is thus the County's policy to:

Allow a moderate amount of new, harmonious residential development and rehabilitation within and in close proximity to existing villages where transportation, water and waste problems can be efficiently and effectively handled without causing the County to make major investments for new public facilities.

To this end the County will need to create a village development review and plan amendment procedure in which to analyze these communities and their growth options in an open manner with community representatives. This analysis of expansion proposals would evaluate them in terms of a number of factors which would include:

a. Public facility adequacy and improvement costs/benefits. (A summary such as that shown in Figure 31, page 113, should provide the basis for such evaluation.)

b. Harmony with the physical, historical and social conditions of the village. (The visual and cultural identity of villages should be preserved.)

c. The environmental constraints and opportunities of the area.

d. Other County goals and policies as set forth in the Comprehensive Plan.

The basic recommendation of this plan regarding future development in and around rural villages is that villages are the County's third priority location for growth, following the Urban Growth Areas and Rural Fringe Areas. The County recognizes that some villages are more capable of supporting new development than are others. In addition, the County would prefer to see moderate amounts of compatible development in village areas than in the Agricultural Conservation Areas. All rezonings or major development proposals will be evaluated in terms of the location, public facilities, compatibility of scale and design, environmental constraints and County goals. Villages which have a full complement of public faciilities, services and infrastructures will generally be considered the most suitable for new development.

Major rezonings and/or special permits will be approved or granted only if it can be shown that such development will not require major public expenditures for new facilities, that the transportation system can safely handle any projected traffic increases caused by the new development, that the scale and design of the project is compatible with the existing architectural fabric and that the impact on the local agricultural industry will be minimal. A user study should be undertaken prior to approval of any new central utility plant within a village to ensure that there is a need for the plant and that all existing and new potential users will connect upon completion of construction of the plant/system.

Dwelling unit types, designs and site plans should relate to the existing character of the village. Single-family attached and detached duplex and multi-family units will be allowed. The important development criterion is to maintain the historic development pattern and identity of the villages while achieving a mix of housing types. An important priority for the rural villages will be to rehabilitate substandard structures to promote the historic character of the area. County housing objectives will be met if existing low and moderate income housing is rehabilitated to provide housing options for many existing County residents.

5. Rural Residential Development and/or Rural Land Conversion Recommendations

For owners of rural land who wish to convert all or a portion of their landholdings into cash, or who wish to obtain the maximum financial benefit and lowest carrying costs on the land prior to liquidation, the County offers several options in addition to existing ones. While each option is acceptable, the County would prefer some options over others. The County's priorities for rural land liquidation/conversion options on the part of the landowner are expressed in order of preference as follows:

a. First Preference: Sell or Donate Conservation Easements or TDRs

The County would prefer that Landowners donate or sell permanent easements on their rural land as part of the Density Transfer or TDR program recommended in this plan. Because easement/TDR sales will depend somewhat on the demand for them in the development market, it is possible that not all landowners who qualify and wish to sell their easements will be able to do so at any given moment. However, the County would urge that owners sell their easements/ TDRs whenever a buyer can be found. For those owners who can benefit by donating their easements, the County would strongly encourage that option as well.

b. Second Preference: Lease Conservation Easements to the County

Owners of qualifying rural land may lease short-term conservation easements to the County in return for a reduced tax bill. This would provide the owner with a greater financial benefit than Use-Value Taxation provides, but would not require permanent liquidation.

c. Third Preference: Sell to Long-Term Agricultural Buyer

The County would prefer the landowner to sell to a buyer who intends to keep the land open and/or in agricultural use in the future.

d. Fourth Preference: Rural Cluster Development

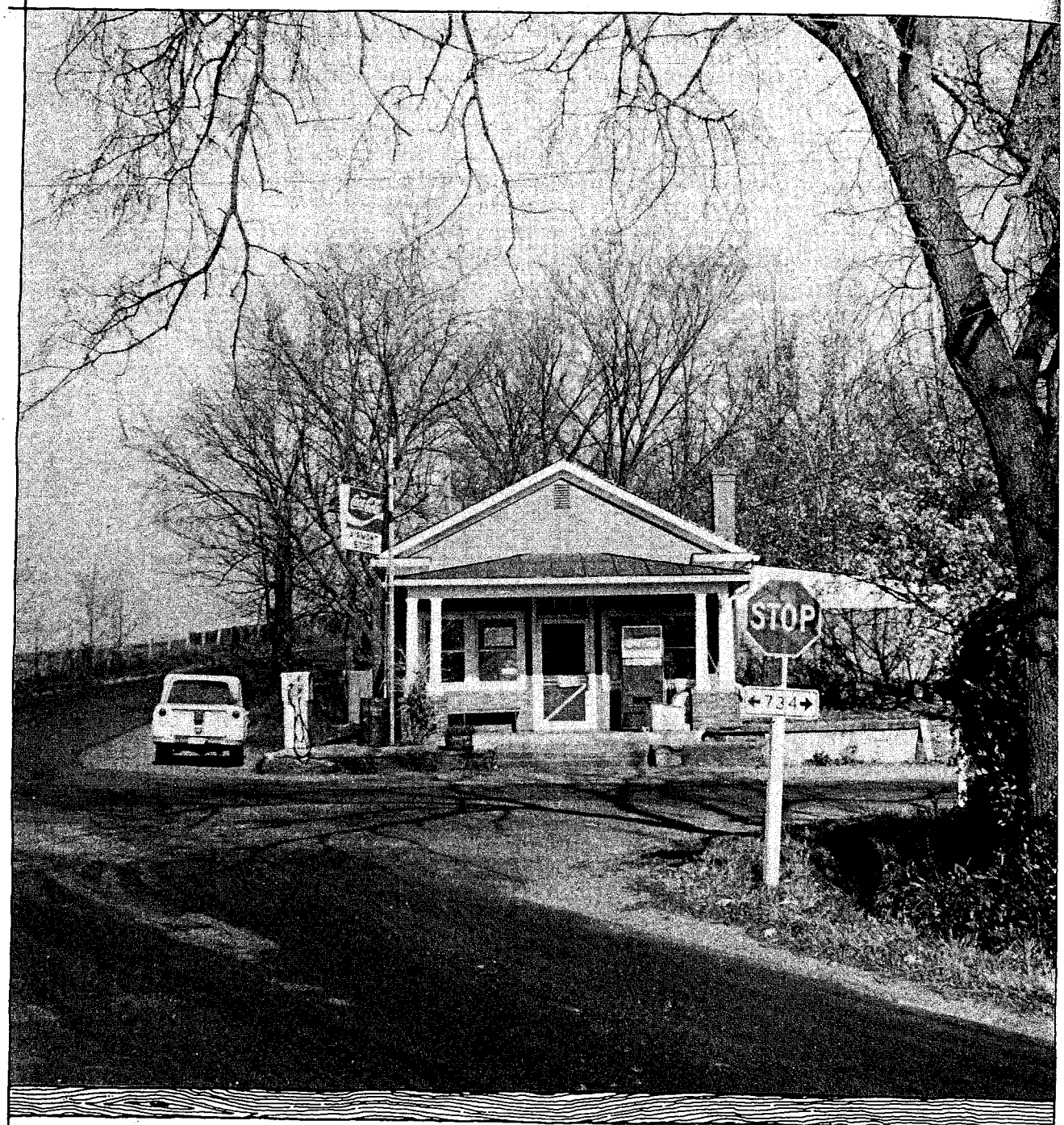
If the landowner chooses not to exercise the easement options, or sell to an agricultural buyer, the next preferable option would be to develop a rural clustered development. A compatible institutional use would be preferable to a residential use. If a residential cluster is developed outside the rural fringe area, a maximum density of one unit per 25 acres is recommended, with a minimum lot size of 40,000 square feet, with 90% of the original tract remaining in permanent open space use.

e. Fifth Preference: Ten-Acre Lot Division

Ten acre lot division is an option which the County prefers would not occur at all, but which is often desired or otherwise selected by the owner as his best option. Ten acre and larger lots tend to use inordinate amounts of land and cause other negative impacts. They do, however, preserve a relatively low overall density in the rural areas.

f. Sixth Preference: Subdivide into Three-Acre Lots

The least preferred option would be for the landowner to divide his property into three acre lots. While this option still preserves a relatively low density, it causes increased disruption to the farming industry, landscape and traffic pattern, and preserves the least amount of rural land over the long-term.



COMMERCIAL

III. COMMERCIAL RESOURCES

A. BACKGROUND, ANALYSIS AND ISSUES

1. Current Land Use Pattern

The rural portions of Loudoun County, including the unincorporated villages, do not have extensive commercial development. Existing uses fall into three categories: general stores, automobile service stations/garage facilities and motels. A general survey of land uses and business records found 14 general store/grocery and seven automobile service or garage facilities in the planning area outside the incorporated towns. There are also three motels. Most of the general stores, such as Partlow's Grocery in Aldie, are located in villages. The automobile service uses are often located in conjunction with the general stores. Exceptions to this generally desirable pattern of local service and automobile/commercial uses in villages are the Waterford Texaco/general store commercial uses on Route 9 outside Paeonian Springs, the Sweet Spring Country Store on Route 9 near the West Virginia line and the Lineberry Store at Route 9 and Route 671. In addition, the access roads to Harpers Ferry, Routes 671, 340 and 15 south of Point of Rocks bridge (Myersville) have multiple commercial uses such as auto body and general stores.

A survey of business license records and County Assessor's files found no other retail commercial uses in the rural unincorporated areas outside of villages except for the Hill High Orchard operation adjacent to Round Hill, Carlyle and Anderson west of Hamilton, and used car dealers immediately east of Hamilton. Waterford also contains several seasonal commercial craft sales stores and antique shops, as well as a hardware store and grocery store. Aldie has several antique and craft shops and a general store/gas station. The Little Rock Motel near Lucketts and Weona Villa near Round Hill are examples of legal nonconforming uses which cannot be expanded.

The current commercial land use pattern in rural Loudoun very closely approximates the growth management policy of the Resource Management Plan (RMP) which states that Rural Residential Areas (as well as Agricultural and Environmental Resource Management Areas) "are not proper locations for employment land uses, and that personal service and convenience retail centers to serve rural residential areas will be located in Village Centers."

2. Current Zoning Pattern

While the County's growth management policy would encourage most commercial uses to locate in the incorporated

towns, a review of the zoning records indicates that many village areas have ample land zoned for additional commercial uses. However, the developed and undeveloped commercial areas in the villages are zoned C-1 (General Commercial), the County's least restrictive retail zone. Table 13, a summary of commercially zoned property, when compared to an estimate of developed areas, indicates a 12-fold potential for additional commercial expansion although some of the C-1 zoned land cannot be developed because of soil percolation problems.

Table 13

RURAL LOUDOUN LAND ZONED AND DEVELOPED FOR COMMERCIAL USES

Area	Acres Zoned C-1	Estimate of Acres Developed or Used
Taylorstown	5.0	0.25
Waterford	3.9	3.9*
Loudoun Heights	18.0	1.50
Gilberts Corner	25.0	0.50
Unison	1.0	0.00
St. Louis	21.0	0.00
Airmont	1.0	0.30
Philomont	6.5	0.50
Bluemont	14.0	0.25
Aldie	22.0	0.50
Lincoln	3.5	0.25
Lucketts	3.5	0.25
Myersville	27.0	1.00
Total	151.4	8.80

3. Special Commercial Uses

The Loudoun County Zoning Ordinance permits many commercial land uses by Special Exception in the Agricultural Districts. These uses include commercial stables, kennels, guest farms and ranches, plant nurseries and a broad range of commercial recreational uses. Such uses are distributed across the rural portions of the County.

* Only 3.0 acres in actual Commercial use, .9 acres are in residential uses.

4. Current Policy

The RMP states that Rural Residential and Agricultural Resource Management Areas "are not proper locations for employment land uses and that personal service and convenience retail centers for some rural residential areas will be located in the Village Centers." (p. 224, RMP) The RMP also states that "the County will encourage the development of sufficient retail space to serve the existing and projected residential population of the County and adjoining service areas. These new commercial/retail centers should be designed to function as service facilities located away from major primary roads in order to ensure the free flow of traffic, without numerous traffic signals and congestion." (p. 209, RMP) This policy should be retained.

The Zoning Ordinance also spells out locational criteria for such uses, which emphasize land use compatibility with surrounding uses and preservation of agriculture. Following the policies of this Plan, such uses should be located in the Urban Growth Areas or within or adjacent to villages whenever possible, in lieu of in the Agricultural Conservation Areas.

5. Commercial Issues

The current commercial land use pattern generally approximates the pattern recommended by the RMP. However, a very large area of C-1 zoned land is potentially developable in the village areas and near crossroads such as Gilberts Corner. Therefore, the County's rural commercial policies and programs must address issues such as the capacity for expansion of existing commercial uses in existing commercial zones and the necessity or desirability of creating new commercial use locations as well as the need to modify the current C-1 zoning regulations to reflect the need for compatibility of commercial with other uses in rural and village areas.

a. In most villages and crossroads in the planning area, the vacant C-1 zoned property is many times more extensive than the C-1 developed property. In most cases, the existing C-1 zoned property would allow for a two to ten-fold expansion of commercial uses, assuming drainfield capacity is available (package treatment plants in rural areas are discouraged except to correct health hazards.) In some cases substantial increases in the use of this commercially zoned property could aid in the development of a more clearly defined village center, while in other cases such commercial development could result in land use conflicts with residential property

and strip or ribbon development along highways.

How should such commercially zoned land be managed? Should C-1 regulations be amended to prevent such potential traffic problems and use conflicts? Should the County grant requests for additional C-1 zoning in light of the current surplus?

b. The current C-1 zone may not be an appropriate district to foster the coordinated development of rural village commercial uses. The wide range of uses permitted and lack of site planning requirements may be both unnecessary and undesirable in rural Loudoun. Most of the existing C-1 zoned property could be rezoned to a new rural or village commercial district which could require greater setbacks and more lenient parking requirements and coordinated highway entrances than now permitted or required by the C-1 zone. In addition, uses such as general stores and gas pumps could be authorized as part of the district, perhaps in conjunction with adjacent or overhead residential use.

Should these or similar amendments be made to the C-1 zoning regulations?

c. The C-1 District permits private airports, auto body shops, natural resource extraction, borrow pits and motor freight terminals. These uses, if located in village centers, could produce serious land use conflicts with existing residential uses.

Should such uses be allowed in rural commercial zoning districts?

B. COMMERCIAL GOALS

1. Commercial uses should take place in close proximity to existing towns, villages, airports and other urban areas and in coordination with proposed residential development.

2. Commercial uses in the rural areas should be compatible with the County's agricultural base and visual order while providing employment opportunities for the County's citizens.

C. COMMERCIAL IMPLEMENTATION RECOMMENDATIONS

Loudoun County's growth management policies encourage the location of most rural commercial uses in the towns and villages. Adequate zoned land exists in the rural village and crossroads areas to accommodate foreseeable local commercial needs.

1. New Commercial Areas Recommendations

a. New commercial zones should be established or existing zones extended only under the following conditions:

i. A clear need exists for additional local commercial services and the existing commercially zoned property is not suitable for development due to access, topographic soil conditions or character of nearby land uses.

ii. The new commercial zoning would promote the development of a more clearly defined community center for the village area.

iii. Commercial density is transferred into the Village area from an existing commercially zoned site in an Agricultural Conservation Area or Village Area.

iv. Generally, special permit uses should be focused in Urban Growth Areas adjacent to towns and villages, not in Agricultural Conservation Areas.

v. No further new C-1 zoning should be granted. In order to expand C-1 zoning on a given site, the allowed commercial density of another site must be transferred to the new site through Density Transfer or TDR rather than granting additional general commercial zoning. Only sites located within or adjacent to existing rural villages or towns may receive such transferred zoning density.

vi. The County will establish a new rural commercial zone with more specific and restrictive use criteria to ensure compatibility with adjacent existing uses. Such a zone shall be located only in or adjacent to existing villages and towns as a proven need arises.

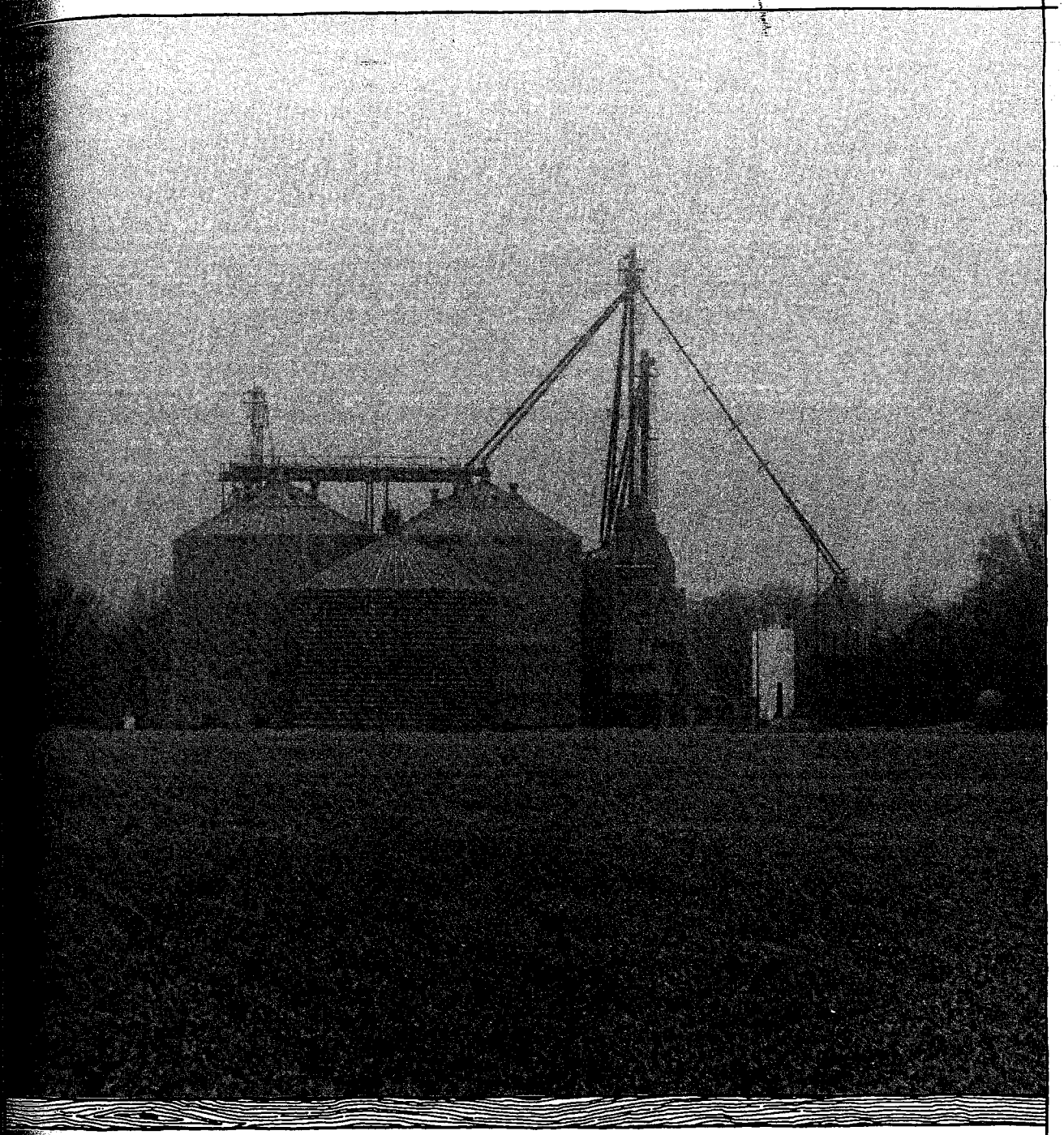
vii. The County will encourage the transfer of density from existing C-1 zoned land in scattered rural agricultural areas to village areas. These TDRs shall become the new rural commercial zone upon transfer into the Village.

2. New Commercial Zoning District Recommendations

As indicated in Section 1.vi above, a new zoning district should be developed specifically for rural village commercial uses. In addition, specific uses such as general stores, automobile service uses, and other retail personal services should be permitted in that zone, while many

Special Exception uses now allowed in C-1 should be deleted. Such a district could also waive the paved parking lot requirement for uses requiring less than 15-20 spaces. For example, provision of a site plan could be required only for structures over 5,000 sq. ft. or involving more than 15-20 parking spaces.

The new rural commercial zone must contain criteria to test potential land use conflicts with adjacent existing or planned uses. New commercial uses in the Agricultural Conservation Areas must be directly agriculturally related and will be allowed only by Special Exception in the A-3 zone with no actual rezoning to commercial. The A-3 zone should be modified to allow agriculturally supportive commercial uses, such as ethanol fuel distillation, grain mills, farm produce markets, food processing, and farm equipment storage and repair, all by Special Exception.



INDUSTRIAL

IV. INDUSTRIAL RESOURCES

A. BACKGROUND, ANALYSIS AND ISSUES

1. Existing and Potential Industrial Uses in Rural Loudoun

Aside from many agricultural activities which have characteristics that are similar to general industrial uses, rural Loudoun is not highly developed with nonfarm industries. The majority of Loudoun's industries have located in urban areas where central utilities exist and which have good road access. Some have located in rural areas, however. Examples of these include rock quarries, furniture and cabinet manufacturers, saw mills, grain mills, regional utility facilities and construction companies, including equipment storage and warehousing. There are also a number of rural home occupation uses, but these are generally small scale and of a lighter nature, such as technical consultants, graphic artists and machinery repair services, and are not considered to be true industrial uses in terms of zoning requirements and potential land use impacts.

Loudoun County has approximately 14,000 acres of industrially zoned land, which is sufficient for expected industrial growth well into the next century. However, a good deal of this zoned land is located in urban or urbanizing areas, rather than in long-term rural areas. Many of the industrial uses which are now located in the rural areas are best suited for location in much less populated areas because of the environmental impacts that they produce, or because, in cases such as mineral extraction, the use must be on a site which contains the natural resource that is being tapped. It is important, therefore, that the County institute policies and mechanisms whereby industrial uses that are best suited for location in rural areas with low population densities can, in fact, do so. However, it is essential that new or expanded industrial uses occurring in the rural areas should be located, designed and buffered so as to prevent undue conflicts with existing or projected adjacent agricultural and residential uses (refer also to Natural Resource Recommendations, page 208)

2. Industrial Issues

There are several key issues associated with future industrial uses in the County's rural area:

a. Location:

New industrial uses should be located in areas which offer the best opportunity to avoid conflicts with existing or planned residential, agricultural and institutional uses.

How can this objective best be achieved?

b. Use Conflicts:

Many of the industries which locate away from population centers do so in order to avoid use conflicts with non-industrial uses. Loudoun's rural areas, however, have significant amounts of residential development and are projected to absorb more in the future, thereby presenting the prospect of increases in use conflicts as industrial uses move into the rural areas.

How can these conflicts, be prevented and/or mitigated?

c. Environmental Impacts:

Many of the rural industries produce impacts that disrupt the natural environment and which can cause harm to the health, safety and welfare of nearby residents. An example is noise and vibration from mineral extraction activities.

How can these negative impacts be prevented?

d. Traffic Impacts:

Some industries require movement of heavy vehicles and machinery. These kinds of traffic loads can interfere with the movement of automobiles to and from rural residences.

How can safe and efficient traffic patterns and movements be assured?

e. Zoning Changes and Permits:

There is not a great deal of industrially zoned land in the County's rural areas except that adjacent to eastern Loudoun and the Route 28 corridor.

Should the County encourage or allow the establishment of more industrially zoned land in the rural areas?

B. INDUSTRIAL GOALS

1. Industrial uses should take place in close proximity to existing towns, villages, airports and other urban areas and in coordination with existing and proposed residential development.

2. Industrial uses in the rural areas should be compatible with the County's agricultural base and visual order, while providing employment opportunities for the County's citizens.

C. INDUSTRIAL IMPLEMENTATION RECOMMENDATIONS

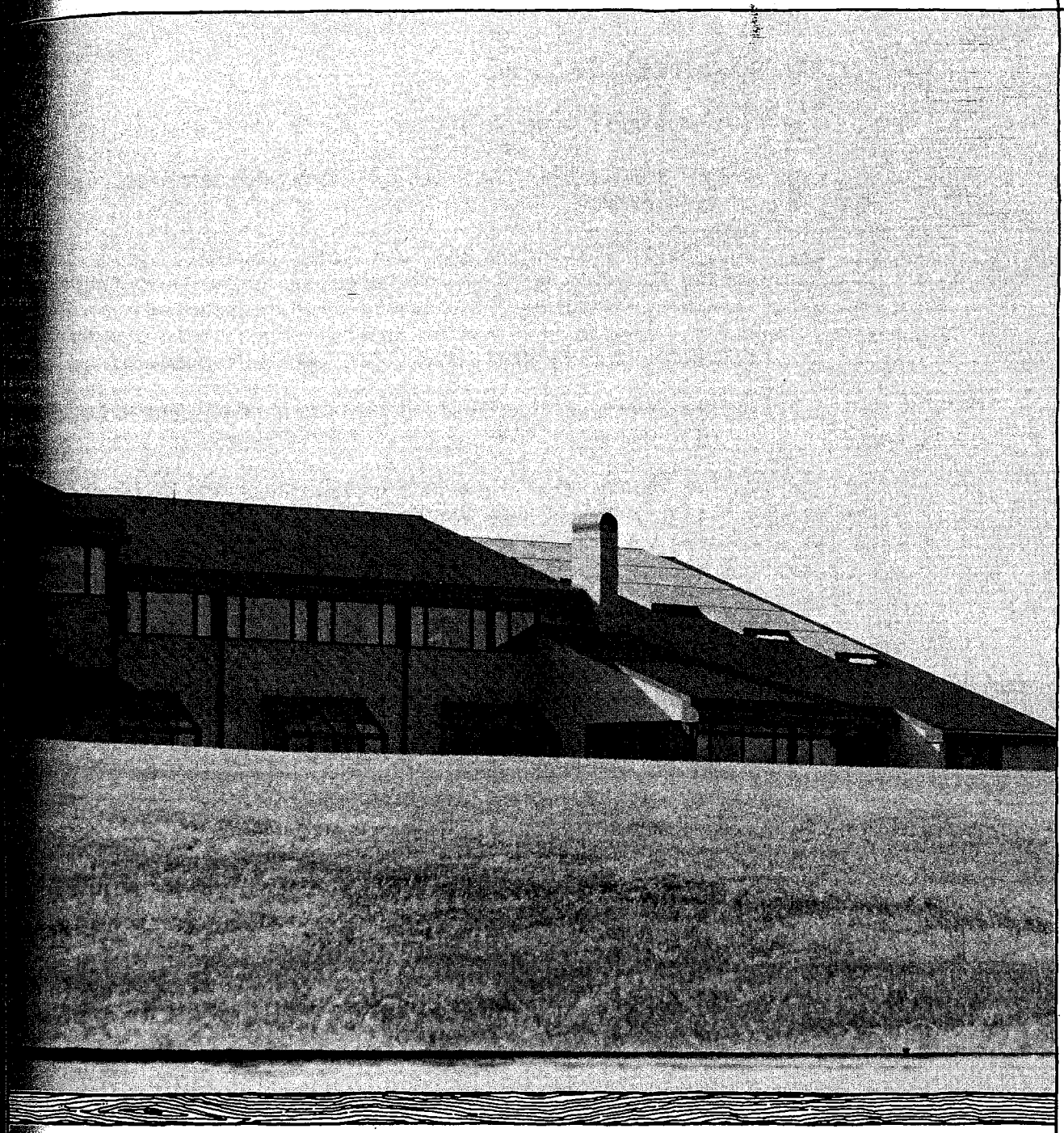
1. The County will encourage new industrial uses to locate on land which is already zoned for such uses.

2. The County will allow the expansion or establishment in the rural areas of only those industrial uses that are or can be made compatible with existing adjacent agricultural and residential uses, and those that are designated for the future in the County's Comprehensive Plan.

3. The County will establish a Natural Resource Extraction Overlay Zoning District in order to prevent conflicts between extraction activities and residential uses. (Refer to Natural Resource recommendations, page 211)

4. The County shall prohibit uranium extraction activities and any similar activities which present a serious and uncertain risk to the public health, safety and welfare. (Refer to Natural Resource recommendations, page 211)

5. In order for a new industry to locate in the rural area, it must be given a zoning change, or a special permit if it is not a "by-right" use in the A-3 zone. Policies for granting such permits must be adopted.



INSTITUTIONAL

V. INSTITUTIONAL RESOURCES

A. BACKGROUND, ANALYSIS AND ISSUES

A wide range of institutional uses are located across the rural Loudoun landscape. These uses include private schools, cemeteries, community centers, churches and similar specialized uses. All community centers are appropriately located in or near villages and towns. Most churches are also located in the Urban Growth Areas or villages. In general, these special institutional uses should continue to locate in the Urban Growth Areas or villages in the future in order to take advantage of better access, population concentration and to generally reduce land use conflicts with agricultural and low density residential uses.

Exceptions to the general rule of institutional use concentration in villages and towns are the several private schools, academies and recreational camps. Notre Dame Academy and Foxcroft School, private boarding schools, are located northeast and north of Middleburg, respectively, on Routes 626 and 611. These are well established and maintained schools and are very compatible with the surrounding areas. Other institutional uses of this nature include Camp Potomac Woods on Route 662 in the Lost Corner area east of Lucketts, the Glaydin School and Camp between Routes 663 and 673 south of Taylorstown and Camp High Road on Route 763 on Goose Creek. The private camps and schools are generally appropriate low intensity uses in the very low density areas of the Potomac Shore, Catoctin Mountain and Goose Creek, respectively.

A new type of institutional use is represented by the Vocational Industrial Clubs of America (VICA) Center north of Lucketts. This type of national association conference center seems to be a compatible land use and employment center for areas near village centers and towns in Urban Growth Areas. Such conference and training centers require good road access, coupled with a relatively secluded locale.

The major issues involving institutional uses in the rural areas are:

1. What kind and size of institutional uses are compatible with other existing and projected rural land uses?

2. Where should new compatible institutional uses be located within the rural area?

3. What level of access is necessary or should be required to serve new institutional uses?

4. Should package sewage treatment plants be permitted to serve new or expanded institutional uses? If so, under what conditions?

B. INSTITUTIONAL GOALS

1. Institutional uses should be located in close proximity to existing towns, villages, airports and other urban areas and in coordination with proposed residential development.

2. Institutional uses in the rural areas should be compatible with the County's agricultural base and visual order, while providing employment opportunities for the County's citizens.

C. INSTITUTIONAL IMPLEMENTATION RECOMMENDATIONS

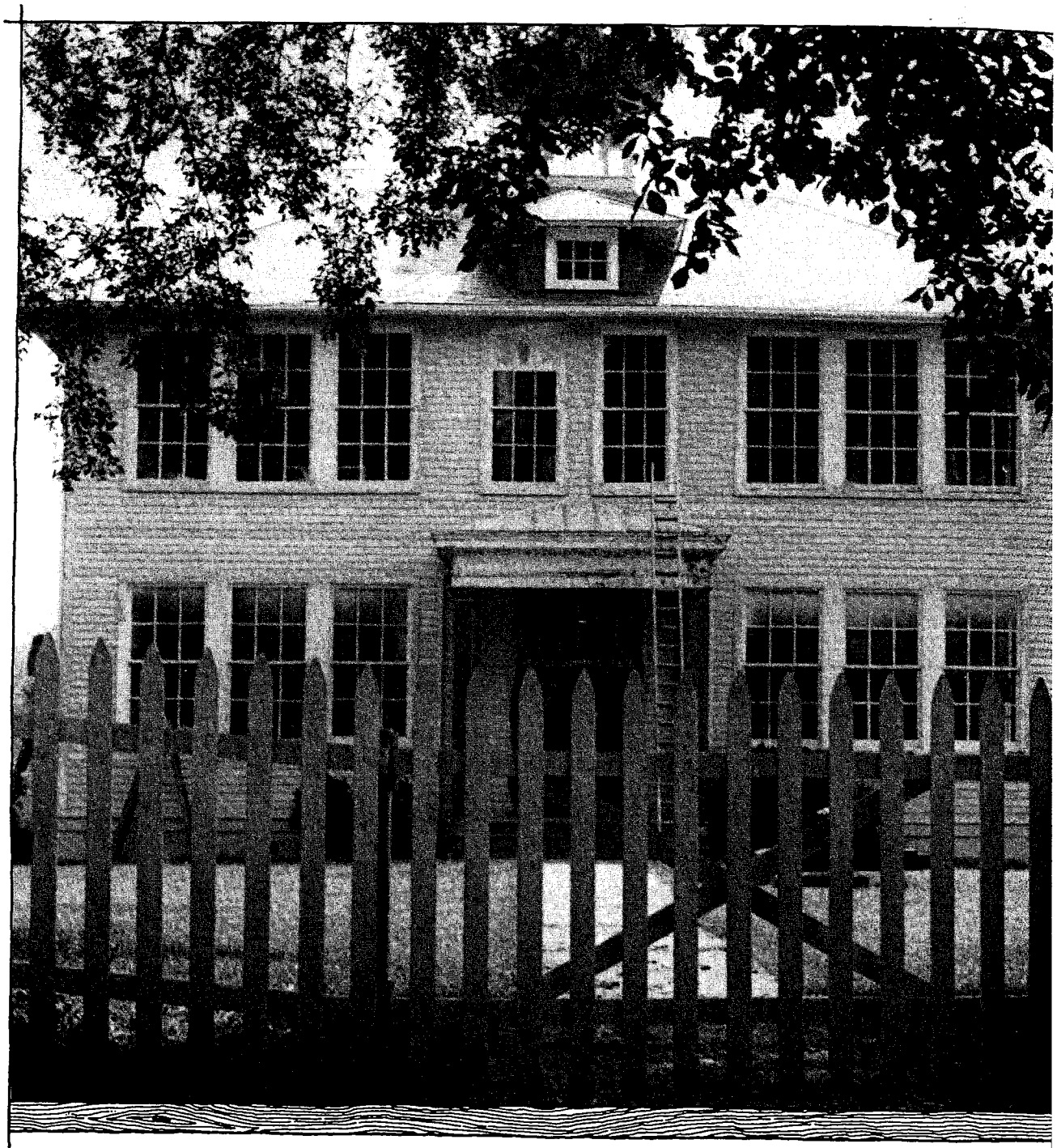
1. New institutional and commercial uses (by Special Exception) in the Agricultural Conservation Areas must be of a nature and scale that is compatible with the applicable agricultural conservation goals of this Plan and the RMP.

   Such uses would include moderately sized private schools or similar educational or research facilities such as those now existing in the rural areas, private recreational camps, small conference centers, and religious facilities including churches and camps. No institutional uses should be significantly larger than those now existing unless they are located on major arterial roads such as Route 15 and Route 7, and then only with adequate set-backs, buffers and limited access. Uses which present the risk of serious environmental impacts, traffic problems, or other safety or public health hazards shall not be permitted.

2. New institutional uses (and expansions) should be located on sites which have good, safe access to State roads, with larger scaled institutions limited to major arterials. New uses should also be located on those soils which have lower potential for agricultural productivity as defined by the County.* The preferred location for institutional uses in the rural areas is the Rural Fringe Policy Area.

3. Package sewage treatment plants for institutional uses should be allowed only by Special Exception, and should be sized to serve only the needs of the institutional use itself.

* Interpretive Guide to Soils and Geology for Planning in Loudoun County, Virginia, Richard Weber, 1979.



PUBLIC FACILITIES

VI. PUBLIC FACILITIES AND UTILITIES

A. BACKGROUND, ANALYSIS AND ISSUES

Adequate quantities and qualities of public facilities and utilities are necessary to support medium to high density development (greater than one dwelling unit per acre) and therefore may be used to encourage and guide development to occur in those locations which would best meet the County's land use goals and policies. Generally, very few public facilities and utilities are actually located within the rural areas. For purposes of economy and practicality, most are located in towns and unincorporated urban areas where the population density is great enough to economically support the installation, maintenance and expansion/extension of such facilities.

One of the County's most important planning policies is to encourage new public facilities and utilities to continue to be located in existing communities in order to help achieve the broad growth management goal of a compact growth pattern. The major public facilities and utilities which are central to the County's land use planning and growth management effort and which are addressed in this section of the Rural Plan are: wastewater treatment, water supply, schools and recreation. Transportation facilities are addressed in a separate section on page 162.

Although the County's rural areas have very few public facilities, the Rural Plan must address the issues involving facilities and utilities in order to generally determine where new ones should and should not be located so as to help reinforce the County's broad land use and fiscal goals.

1. Wastewater Treatment and Water Supply

The following major issues and problems regarding water treatment and supply in the towns, villages and rural areas have been identified:

a. Wastewater Treatment:

i. Public systems owned by the Towns and County are generally in good condition and have adequate capacity to serve additional growth.

ii. Several rural villages and communities have problems with failing septic systems which could present a potential public health hazard. These include Bluemont, Hillsboro, Aldie and Paeonian Springs.

b. Water Supply:

i. Severe problems, such as insufficient quantity, poor quality and outmoded, failing distribution systems exist in the Towns of Purcellville, Round Hill, Hamilton, Lovettsville and Hillsboro.

ii. The County has ample supplies of clean surface water to solve the Town's problems. Principal issues are capital cost and institutional control.

c. Analysis of Town Sewer and Water:

In order to accomplish the County's goal of encouraging growth in and around Towns and villages and to ensure residents of good quality water in sufficient quantities, it is imperative that the water supply problem be solved, particularly for the three Route 7 Towns of Hamilton, Purcellville and Round Hill. Following is a list of all towns and villages with either central sewer or water systems, a brief summary of their individual problems and an estimate of the additional growth that each system can support:

Hamilton:

i. Sewer - Sufficient capacity to approximately double existing population (1,181 total).

ii. Water - Rated capacity* could theoretically almost triple existing population (to 1,959 total). This may not be the case, however, due to the frequency of well repairs and unreliability of flows.

Purcellville:

i. Sewer - Sufficient capacity to increase population by about one and half times (to 3,256 total including hookups outside Town limits).

ii. Water - Rated capacity for 132 additional connections (to 2,236 total). The yield of the springs is extremely variable and actual capacity has not been determined.

* "Rated Capacity" refers to current capacity limit established by the State Health Department.

Round Hill:

i. Sewer - Sufficient capacity to increase population approximately two and one-half times (to 2,133 including hookups outside Town limits).

ii. Water - No additional connections available (800 existing population including hookups outside Town). Problems include water rationing during dry years because of poor yields of springs and outmoded distribution system with small lines that often freeze, inoperable valves and poor quality due to age of pipes.

Lovettsville:

i. Sewer - Capacity exists to double present population (to 1,318 total). Possible problems with system infiltration.

ii. Water - Rated capacity to increase current population three and one-half times (to 2,277 total). Information concerning current well yields is not available and there are problems with sediment in the lines.

Middleburg:

i. Sewer - Available capacity to increase existing population by about thirty percent (to 811 total).

ii. Water - Well systems have sufficient yield to add 25% to present population (to 783 total).

Leesburg:

i. Sewer - Projected expansion to 2.5 MGD will allow for an approximate doubling of existing population (to 21,212 total).

ii. Water - Same as for sewer.

d. Summary of Water and Sewer Issues:

i. Growth Management Policies

In order to achieve a balanced and compact growth pattern, the County seeks to encourage new development to occur in and around existing communities, particularly incorporated towns and other urban

areas which have central utilities. However, except for Leesburg, the towns have various deficiencies in their public utilities which preclude or restrict the potential for new growth.

ii. Location and Scales of Utilities

The expansion or extension of central utilities could have positive and/or negative impacts on surrounding rural lands, depending upon the location and size of such improvements. Decisions regarding location of new plants or lines should be made so as to reinforce the goals and policies of the RMP and this plan.

iii. Financing and Ownership

Who should fund, own and operate new expanded utilities? (See page 157 for Water and Sewer recommendations)

2. Rural Community Elementary Schools

The rural community school has been an integral feature of agrarian America and in Loudoun these schools were once within walking distance of every farmhouse. The rural school often served as a village or community center as well as the vehicle for transmitting a cultural legacy from one generation to the next. While new and large 720+ student elementary schools may feature specialized instructors and equipment, the small rural school has the ability to treat each child as an individual both in terms of his family and as a member of the immediate rural or village community.

The influx of non-rural residents in western Loudoun is due in part to the appeal of rural society's personal way of life. The rural school forms part of this culture and offers the possibility of drawing new residents into contact with their farming neighbors, thereby leading to greater understanding and identification with the local community.

It is, however, more costly to operate small schools and this is especially true if the small schools attempt to duplicate the specialized instructional program and staffing patterns of a consolidated facility. In addition, current demographic patterns of older farmers with grown children and the immigration of older, established families with high school or college age children have resulted in sharp reductions of elementary school children in the rural areas.

The Loudoun County School Board has attempted to cut these higher - mainly personnel - costs by flexible consolidation of teaching and administrative positions, the use of school children's parents to teach arts, crafts and/or music and by investigating further elementary school consolidation.

Figure 34, page 150, shows the community elementary schools and their location, and Table 14 shows the aggregate size and occupancy characteristics.

Table 14 studies the effects of continued growth in the Rural areas in terms of elementary school seat demands. The calculation assumes that existing dwellings will stabilize in terms of current student generation while new homes will generate slightly higher rates of elementary school children. The two elementary school generation rates of .22 and .33 students per household are decidedly lower than the .55 which the 1980 School Census found in the more urbanized areas.

Table 14

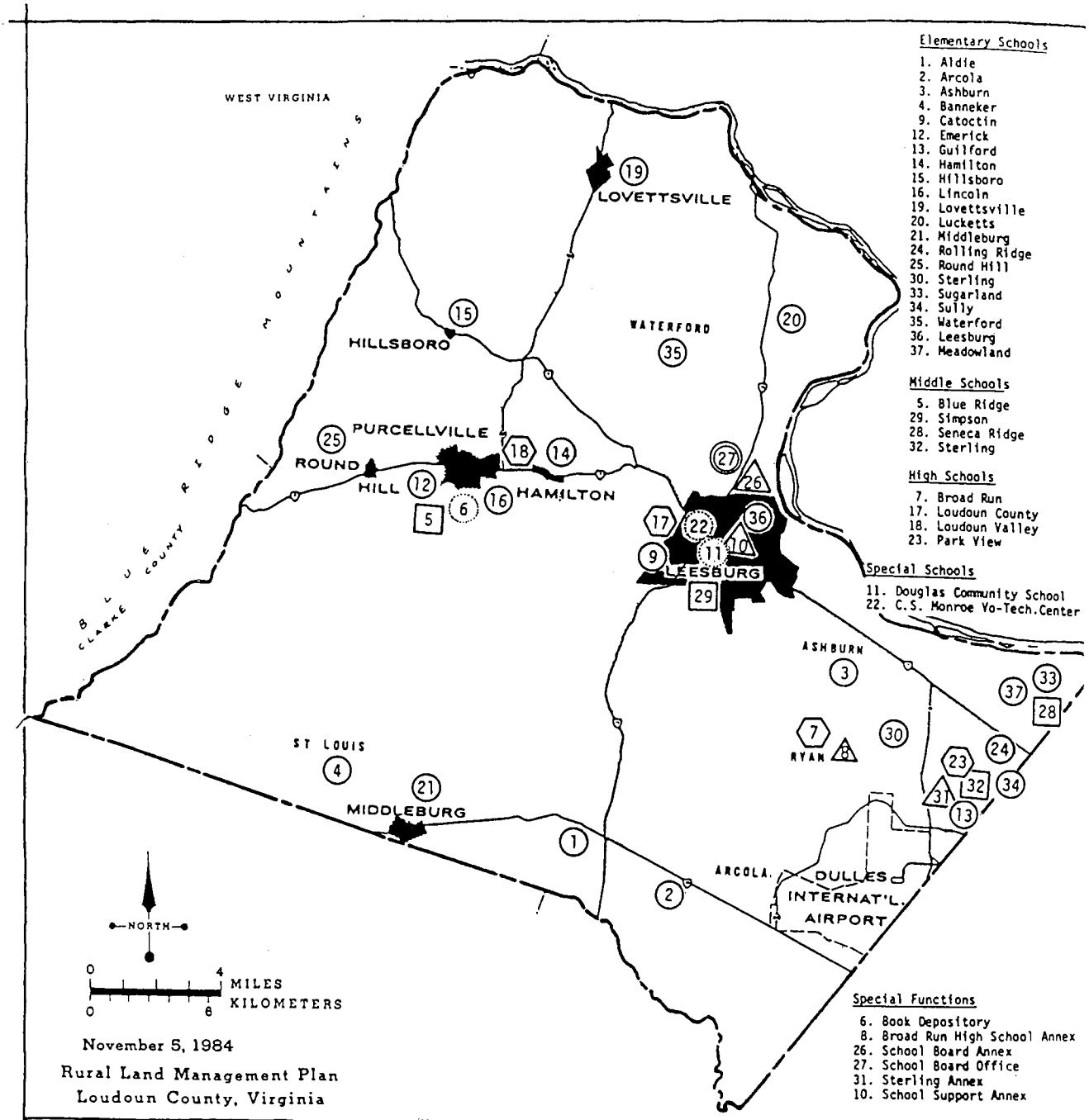
WESTERN LOUDOUN ELEMENTARY SCHOOL SEAT DEMAND

IN 1995 WITH TREND GROWTH

	Households	Elementary School Seat Demand	Elementary* School Seat Supply	Excess Seats
1980	6,710	1,476	2,738	1,261
1980-95(New)	3,500	1,153	2,738	--
1995	10,210	2,629	2,738	109

Table 14 suggests that Loudoun County will not need to build additional elementary schools for the forseeable future if growth continues at the present rate and if elementary school children generation rates do not increase dramatically.

* Arcola, which will fall within the purview of the Dulles South Plan is excluded from the calculation.



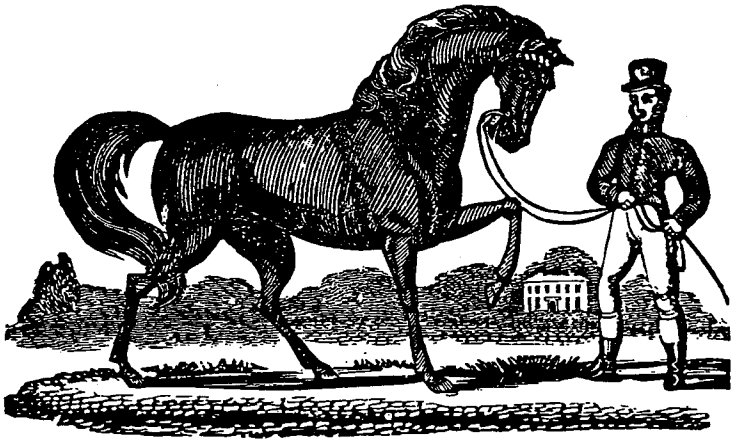
RURAL SCHOOLS

- ⬡ High School
- □ Middle School
- ○ Elementary School
- △ Annex

Figure 34

The issues surrounding the rural community schools thus center on the question of higher unit costs, individual student attention and community focus versus institutional specialization.

A further question involves the elementary school child generation rate which might be associated with new - possibly clustered - housing in the western portion of the County. Would such homes generate mostly high school students as do the farmettes or would they produce a wider age spectrum of youngsters? Another question involves the issue of the community school as a village focal point. Would retention of the community school assist the County in its promotion of concentrated new development and thereby pay for itself in terms of non-educational community benefits and lowered County service costs?



3. Recreation:

a. Active Facilities:

The County's Department of Parks and Recreation manages many active recreation facilities in the towns and villages through-out rural Loudoun. The following table summarizes those active recreation facilities which are publicly available to the citizens of rural Loudoun:

Table 15*

ACTIVE RECREATION FACILITIES

School Recreation Facilities:

School	Total Acreage	School Park Acreage	Facilities
Aldie Elementary	7	1	1 Basketball Court 1 Soccer Field
Arcola Elementary (New)	15	1	1 Softball Field
Ashburn Elementary	23.85	2	1 Softball 1 Basketball
Banneker Elementary	19 1/2	1	1 Softball 1 Basketball
Blue Ridge Middle	35.9	3	2 Soccer Field 1 Basketball 1 Softball
Broad Run High	40.0	2	1 Baseball Field 1 Softball
Emerick Elementary	11.7	1	1 Soccer
Hamilton Elementary	11.3	3	1 Baseball 1 Tennis Court 1 Softball 2 Soccer 1 Basketball
Hillsboro Elementary	5.9599	1	1 Softball 1 Basketball

* Source: Loudoun County Department of Parks and Recreation.

School Recreation Facilities: (Cont'd.)

TABLE 15* (Cont'd.)

ACTIVE RECREATION FACILITIES

School	Total Acreage	School Park Acreage	Facilities
Lincoln Elementary	9.6	2	1 Soccer 1 Tennis 1 Baseball
Loudoun Valley High	36.3	5	4 Tennis 1 Softball 1 Baseball
Lovettsville Elementary	15	3	1 Baseball 1 Softball 2 Soccer
Lucketts Elementary	15.5	1	1 Football 1 Softball
Lucketts Community Center	5	5	1 Baseball
Middleburg Elementary	3.4	.5	1 Softball
Middleburg property	99.5	39	2 Baseball 2 Soccer 2 Tennis
Round Hill Elementary	15.5	5	2 Baseball 2 Soccer 1 Softball 1 Tennis
Waterford Elementary	10.6	2	1 Soccer 1 Softball 1 Tennis

Other Recreation Facilities:

Community Center Facilities

Loudoun Valley Community Center - 5 acres, tennis court, basketball court, playground, baseball field, gym, classrooms.

*Lovettsville Community Center - 8 acres, 2 lighted tennis courts, baseball field, picnic shelters, basketball court, playground, gym, classrooms.

* Source: Loudoun County Department of Parks and Recreation
** Owned by County

TABLE 15 (Cont'd.)

Community Center Facilities (Cont'd.)

*** Middleburg Community Center - six acre park, amphitheatre, softball field, multi-purpose room, classrooms.

* Arcola Community center - twelve acre community park, tennis court, baseball field, basketball court, playground two soccer fields, small gym with classrooms.

** Lucketts Community center - eight acre community park with baseball field, small gym with classrooms.

County Parks

** Mercer Park - largest county operated outdoor facility; thirty-nine acres includes lighted playing field, small fishing pond, large picnic shelter, two tennis courts, little league baseball field.

*** Purcellville Firemans Field - three acre complex with one lighted baseball field.

*** Neersville Rescue Squad Field - three acre complex with one baseball field.

* Hillsboro Community Center - small area containing one tennis court.

An analysis of the adequacy of recreational facilities in the rural areas should logically focus on the Loudoun Valley west of the Catoctin Ridge, because facilities for the areas surrounding Leesburg and Dulles Airport have been or will be studied in more detail as components of the plans for those particular areas.

During the last several years, the western Loudoun Valley has captured about 25% of the County's total residential growth.**** Assuming that this trend will continue during the time frame of this plan, the current and future needs for active recreation can be summarized in very approximate terms as indicated in the following tables 16 and 17, page 155.

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* Owned by County
** Owned by School Board
*** Privately Owned
**** Loudoun County Department of Planning, Zoning and Community Development

Table 16

FACILITIES SUPPLY CRITERIA

Facility	Facility per Population
Athletic Fields	1 per 1,500
Tennis Courts	1 per 2,000
Basketball Courts	1 per 500
Swimming Pools	1 per 10,000
Community Centers	1 per 15,000

Table 17

SUPPLY AND DEMAND FOR
ACTIVE RECREATION FACILITIES IN WESTERN LOUDOUN

Facility	Existing 1984 Facilities	Projected 1990 Needs	Difference: Additional Facilities Needed by 1990
Athletic Fields	35	16	--
Tennis Courts	13	24	11
Basketball Courts	8	48	40
Swimming Pools	0	2	2
Community Centers	4	2	--

If the western valley is analyzed as a whole, current shortages in basketball and tennis courts can be identified, along with an apparent overall surplus of athletic fields.

Based on the trend population projections for the County as a whole, and assuming that western Loudoun will account for 25% of new residents, an increase of approximately 6,523 people can be expected for the western valley. This would mean an increase in the total population of western Loudoun from 17,562 in 1980 to 24,085. That level of population would require approximately 16 athletic fields, 12 tennis courts and 48 basketball courts. As with the present situation, the supply of athletic fields appears adequate, but additional courts would be needed. Any new facility construction should be tailored to the demands of the residents in specific areas

of western Loudoun, however, rather than based on overall supply and demand estimates presented here. Surveys may be a useful device to determine actual demand in specific areas, while the projected needs shown in this plan simply provide a general indication of potential future demand. For example, in a rural area like western Loudoun, the demand may be relatively higher for athletic fields as compared to basketball courts, thereby requiring a customized adjustment of the supply criteria by which adequacy of facilities is measured. Such a situation would mean that supply and demand in western Loudoun is better balanced than these tables would imply.

b. Passive/Low Intensity Facilities:

The passive or low intensity recreational facilities located in the rural areas include:

i. The Washington and Old Dominion Trail, a regional linear park owned and maintained by the Northern Virginia Regional Park Authority. The trail runs along the bed of the abandoned W&OD railroad line. The right-of-way has been acquired by the Park Authority from the County line to Purcellville. The railroad at one time ran to Bluemont, but the right-of-way has been long-abandoned and the potential for recombining it west of Purcellville into a single ownership is uncertain.

ii. The Appalachian Trail, part of the National Park system, runs along the County line at the top of the Blue Ridge.

iii. In addition to these public recreational facilities, there are a few private passive recreational facilities such as Camp High Road on Goose Creek and Camp Potomac Woods north of Lucketts.

c. Issues:

The major issues regarding active and passive recreation in the rural areas are:

i. What will be the future demand by rural residents for active recreational facilities such as ballfields during the time frame of this plan, and should needed facilities expansions be located in the rural areas or in Urban Growth Areas and Villages?

ii. What amount of passive recreational land will be demanded by all County residents during the time frame of this plan, and how shall this land be acquired and managed?

(Refer to page 160 for Recreation recommendations)

(Refer to Natural Resources Section, page 187 for analysis and recommendations for landfills and water impoundments)

B. PUBLIC FACILITIES AND UTILITIES GOALS

1. Manage the location, timing of construction and operation of public facilities and utilities so as to minimize undesirable agricultural, community, environmental, fiscal and social impacts.

2. Maintain a level of public utilities and facilities which ensures not only the health, safety and welfare of the County's population but also maintains the highest community standards obtainable within budget constraints while promoting maximum community benefits.

3. Coordinate planning efforts with existing communities in the provision of public facilities and utilities.

4. Plan public facilities, such as schools, libraries, community centers and parks, in order to make the greatest use of these public investments at the least cost.

C. PUBLIC FACILITIES AND UTILITIES IMPLEMENTATION RECOMMENDATIONS

1. Water and Sewer Recommendations

   a. To reestablish the historic growth pattern, the County will support the location, appropriate timing of construction and operation of public water and sewer utilities in and around designated Urban Growth Areas.

   b. The County shall assume a coordinating function with existing incorporated towns in resolving public sewer and water problems.

   c. The County shall establish a committee of primary policy officials to discuss water and sewer questions with the western towns with the view of providing a cost effective solution to current deficiencies.

d. In those areas where a group health hazard cannot be solved by the individual homeowners involved, the Sanitation Authority will assume a technical advisory role in determining an appropriate solution; the financial responsibility for the new systems' construction and operation will be borne by the users involved.

e. Communal water and wastewater systems such as package treatment plants and communal massed drainfields shall meet State Water Control Board and Health Department standards. Package plants shall be owned and operated by the Sanitation Authority with costs of the program borne by the developer and users. Common septic systems may be owned by homeowners associations. Approval shall be based upon the following County standards designed to protect residential investments and to avoid unnecessary public expenses:

   i. System shall be designed for minimal long-term chances of failure.

   ii. System shall be capable of absorbing unexpected user abuse with minimal rehabilitative turn around time and cost.

   iii. System shall have an expected life of at least 40 years.

   iv. Expected 40-year reconstruction shall be user-financed through a sinking fund or other appropriate mechanism established at the time of system approval.

   v. System operations and maintenance shall be lot-owner financed. In the case of new residential clusters, the financial/operational aspects shall be fully explained to potential lot purchasers prior to purchase commitment.

   vi. Package plants shall be owned by the Sanitation Authority.

   vii. A service area shall be designated for package plants and common drainfields prior to approval.

   viii. Package Treatment Plants shall be allowed only in Rural Fringe and Rural Village Policy Areas. Communal or massed septic fields shall be allowed in all policy areas. Both systems are subject to Health Department approval and the standards set forth in this plan.

f. New water and wastewater treatment plants shall be constructed only within designated Urban Growth Areas and shall sell water only to residents within the approved service area.

g. Improved water supply service to the three western towns on Route 7 could be provided by several possible methods. The feasibility, practicality and impact of the various alternatives must be studied in detail before a final choice is made. However, all of the options must be evaluated against general and specific criteria and should satisfactorily meet these standards in order to merit approval. Any approved option should be:

i. Consistent with the County's Comprehensive Plan, particularly the Resource Management Plan, the Rural Land Management Plan and any other specific area or functional plans that may be applicable;

ii. A solution that encourages or provides for new growth in and/or immediately adjacent to the three incorporated western towns;

iii. A solution which does not cause any direct increase in growth pressure on rural land areas which lie outside the urban growth areas.

iv. A solution for the towns' water supply problems which is the most fiscally economical for both the western towns and the County.

v. A long-term solution which will serve the towns adequately well into the next century.

2. School Recommendations

"School size is not a significant factor in the quality of an elementary school education."* The small school cannot, however, operate in identical fashion as a large school with specialized teachers and administrative staff. There is a need for flexible teaching functions perhaps including combining grades in art or music classes, sharing support services between schools, closer cooperation with the community, establishing a teaching/principal position and sharing the school building with other County agencies. The need for flexibility, community involvement and participation strongly indicates that the local community should participate closely with its School Board Commissioner and County Supervisors in the creative process of achieving rural community goals.

* "Report of the Small Schools Committee," revised and adopted June 9, 1981, pages 10-11.

Accordingly, fundamental implementation program recommendations are:

a. Establish a rural community school committee composed of parents, educators and School Board members to advise local decision makers on policies and programs for the continued operation of community elementary schools.

b. Continue to monitor new residential development trends in the western portion of the County in order to anticipate elementary educational needs in the area and take necessary action.

3. Recreation Recommendations

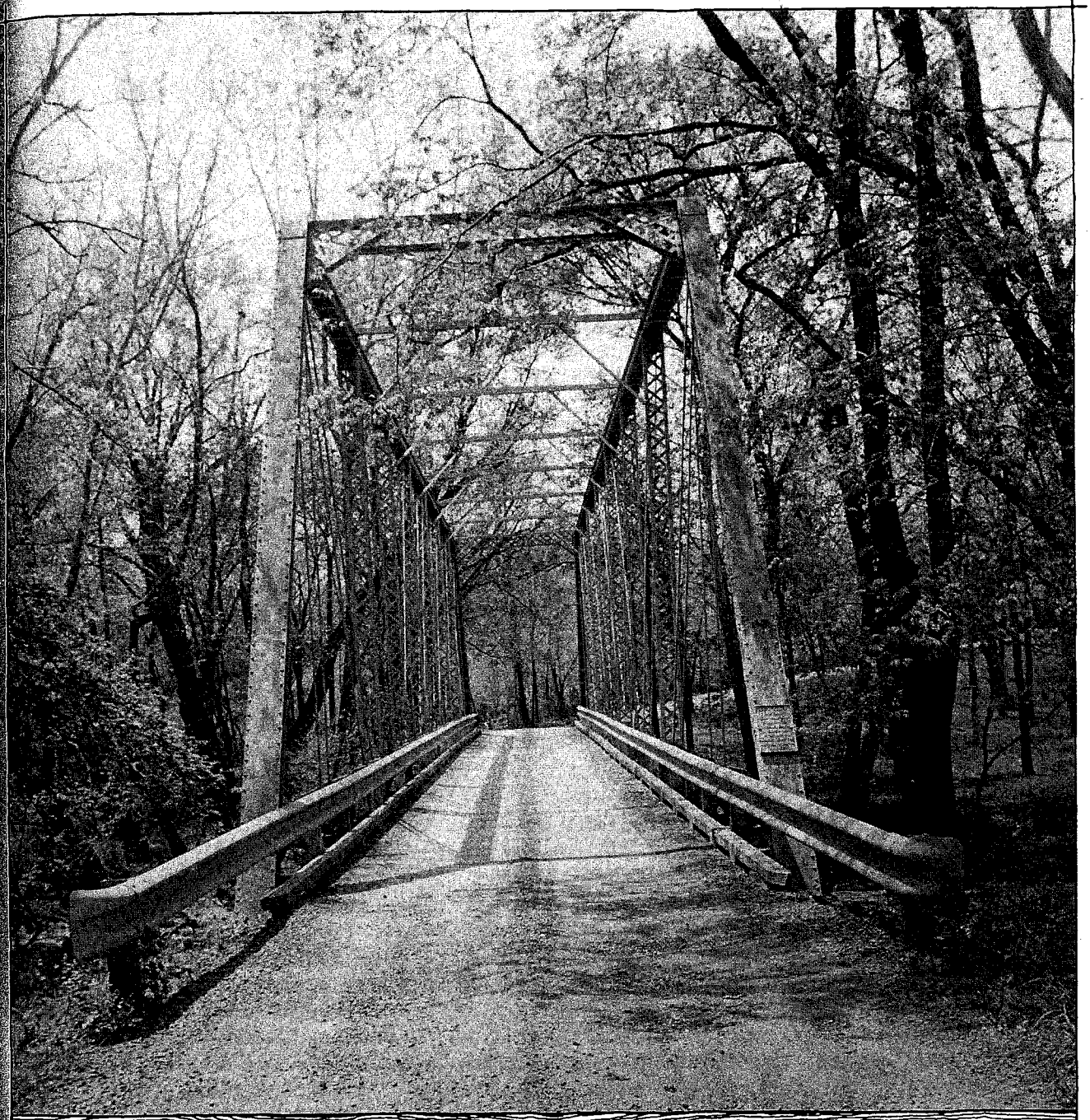
The following proposed recommendations are based on the adopted RMP policies:

a. Public parks with active recreational uses are essential services for residents in the Urban Growth and Rural Fringe Areas and should be provided, through proffers, by new residential developments. These parks, along with new commercial recreational facilities and institutional uses with open space areas, can form the basis for a greenbelt system around each Town.

b. Encourage additional parkland acquisition in the County by public and nonprofit organizations such as the National Park Service, the Nature Conservancy, and the Potomac Appalachian Trail Club.

c. Recognize the Potomac River and its shoreline as a major County resource and encourage public access wherever possible. Proposed uses such as marinas, docks, etc., along the Potomac, Goose Creek and other large watercourses should be designed and built in a manner that maintains the existing natural and scenic character. Implementation of this policy shall be by means of a Watercourse Historic and/or Scenic Overlay District applied to the Potomac River and Goose and Catoctin Creeks. The County shall strongly encourage developers of land adjacent to major creeks and the Potomac River to proffer public access trails along those water courses.

d. Private commercial active recreational uses are permitted only in areas where they are or can be made compatible with adjacent existing and planned land uses in terms of traffic, noise and other impacts.



TRANSPORTATION

VII. TRANSPORTATION RESOURCES

A. BACKGROUND, ANALYSIS AND ISSUES

The overall goal for the transportation system in rural Loudoun County is to provide a safe and efficient road network that meets the travel needs of the users. The roads are needed for several types of trips: agricultural trips including movement of farm machinery and shipment of goods to markets; work trips including commuter; commercial service, recreation, social and schools trips; and the regional needs of tourists and through travelers.

The purpose of this rural transportation plan is to assess the travel demands in rural Loudoun County and propose policies and programs to meet those needs.

Loudoun County's land use policy has long recognized the impact of transportation facilities and needs on residential and nonresidential development. The Resource Management Plan (RMP), states "It (transportation) can also provide incentive for planned growth in undeveloped areas.". (RMP, page 131). A refinement of this RMP statement can be expressed as follows:

> Transportation improvements can help guide rural residential growth to areas that have adequate capacity to receive that growth preferably in and around the towns and existing communities of the County.

Future transportation improvements should reinforce and help implement this fundamental policy of the County's growth management program.

1. Classification Systems For Rural Roads

The road network of rural Loudoun was created over the last two hundred years to sustain a very different social organization of some 1,400 small farms and a few towns and villages. Today, the existing legacy of those agriculturally oriented roads forms the framework of Loudoun's future transportation system. Using them keeps to a minimum the disturbance to existing residential and employment land uses. Furthermore, if the existing roads are incrementally upgraded as funds allow, the acquisition costs of new rights-of-way are minimized and the benefits of new construction are immediately realized. Nevertheless, it may be necessary to create new roads around some historical villages or across certain streams and waterways in order to relieve pressure on other overburdened roads.

For the purposes of comprehensive transportation planning it is useful to analyze a road system in terms of highway functional classifications. The Federal Highway Administration's hierarchy of rural road types includes:

B. INDUSTRIAL GOALS

1. Industrial uses should take place in close proximity to existing towns, villages, airports and other urban areas and in coordination with existing and proposed residential development.

2. Industrial uses in the rural areas should be compatible with the County's agricultural base and visual order, while providing employment opportunities for the County's citizens.

C. INDUSTRIAL IMPLEMENTATION RECOMMENDATIONS

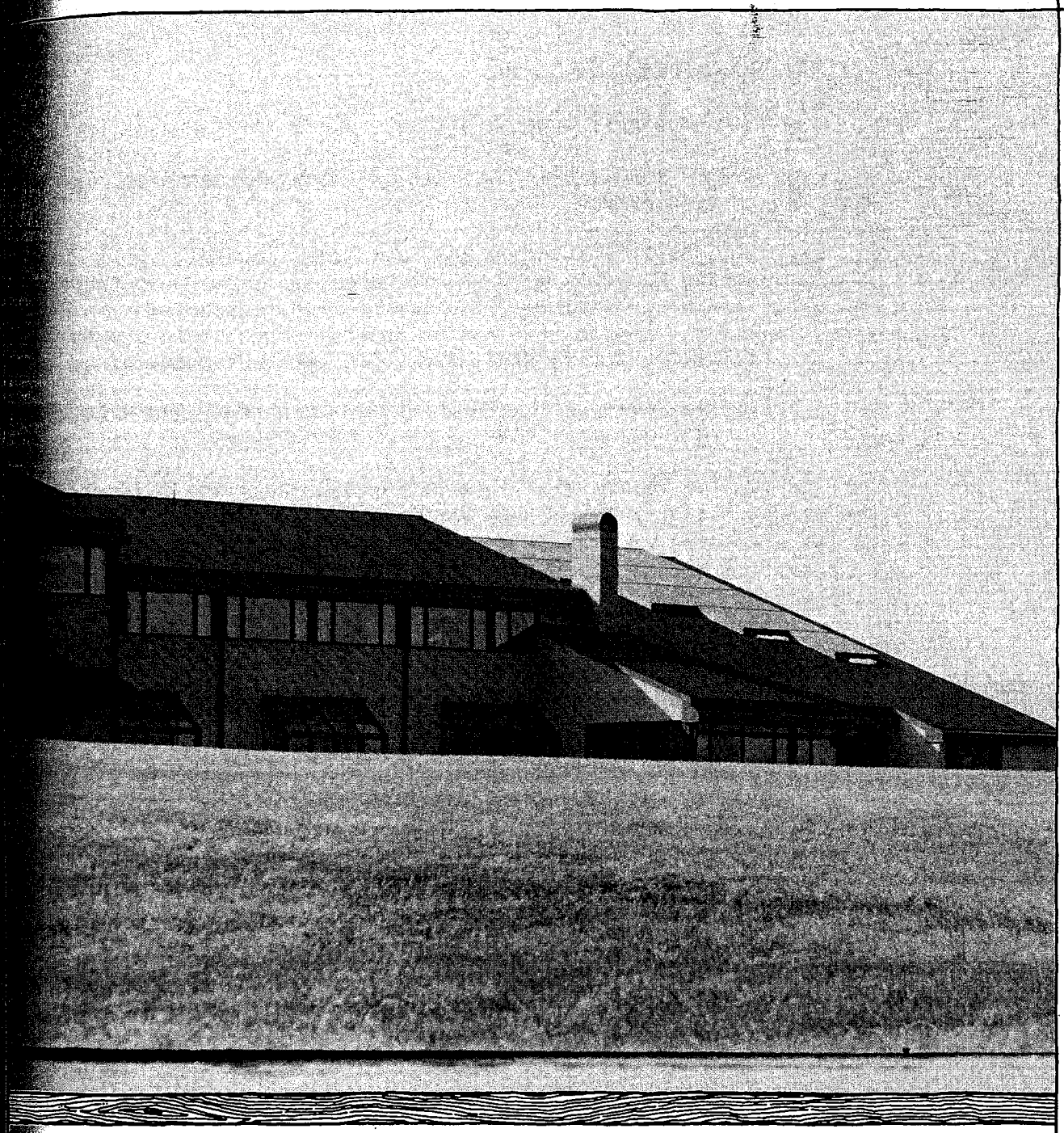
1. The County will encourage new industrial uses to locate on land which is already zoned for such uses.

2. The County will allow the expansion or establishment in the rural areas of only those industrial uses that are or can be made compatible with existing adjacent agricultural and residential uses, and those that are designated for the future in the County's Comprehensive Plan.

3. The County will establish a Natural Resource Extraction Overlay Zoning District in order to prevent conflicts between extraction activities and residential uses. (Refer to Natural Resource recommendations, page 211)

4. The County shall prohibit uranium extraction activities and any similar activities which present a serious and uncertain risk to the public health, safety and welfare. (Refer to Natural Resource recommendations, page 211)

5. In order for a new industry to locate in the rural area, it must be given a zoning change, or a special permit if it is not a "by-right" use in the A-3 zone. Policies for granting such permits must be adopted.



INSTITUTIONAL

V. INSTITUTIONAL RESOURCES

A. BACKGROUND, ANALYSIS AND ISSUES

A wide range of institutional uses are located across the rural Loudoun landscape. These uses include private schools, cemeteries, community centers, churches and similar specialized uses. All community centers are appropriately located in or near villages and towns. Most churches are also located in the Urban Growth Areas or villages. In general, these special institutional uses should continue to locate in the Urban Growth Areas or villages in the future in order to take advantage of better access, population concentration and to generally reduce land use conflicts with agricultural and low density residential uses.

Exceptions to the general rule of institutional use concentration in villages and towns are the several private schools, academies and recreational camps. Notre Dame Academy and Foxcroft School, private boarding schools, are located northeast and north of Middleburg, respectively, on Routes 626 and 611. These are well established and maintained schools and are very compatible with the surrounding areas. Other institutional uses of this nature include Camp Potomac Woods on Route 662 in the Lost Corner area east of Lucketts, the Glaydin School and Camp between Routes 663 and 673 south of Taylorstown and Camp High Road on Route 763 on Goose Creek. The private camps and schools are generally appropriate low intensity uses in the very low density areas of the Potomac Shore, Catoctin Mountain and Goose Creek, respectively.

A new type of institutional use is represented by the Vocational Industrial Clubs of America (VICA) Center north of Lucketts. This type of national association conference center seems to be a compatible land use and employment center for areas near village centers and towns in Urban Growth Areas. Such conference and training centers require good road access, coupled with a relatively secluded locale.

The major issues involving institutional uses in the rural areas are:

1. What kind and size of institutional uses are compatible with other existing and projected rural land uses?

2. Where should new compatible institutional uses be located within the rural area?

3. What level of access is necessary or should be required to serve new institutional uses?

4. Should package sewage treatment plants be permitted to serve new or expanded institutional uses? If so, under what conditions?

B. INSTITUTIONAL GOALS

1. Institutional uses should be located in close proximity to existing towns, villages, airports and other urban areas and in coordination with proposed residential development.

2. Institutional uses in the rural areas should be compatible with the County's agricultural base and visual order, while providing employment opportunities for the County's citizens.

C. INSTITUTIONAL IMPLEMENTATION RECOMMENDATIONS

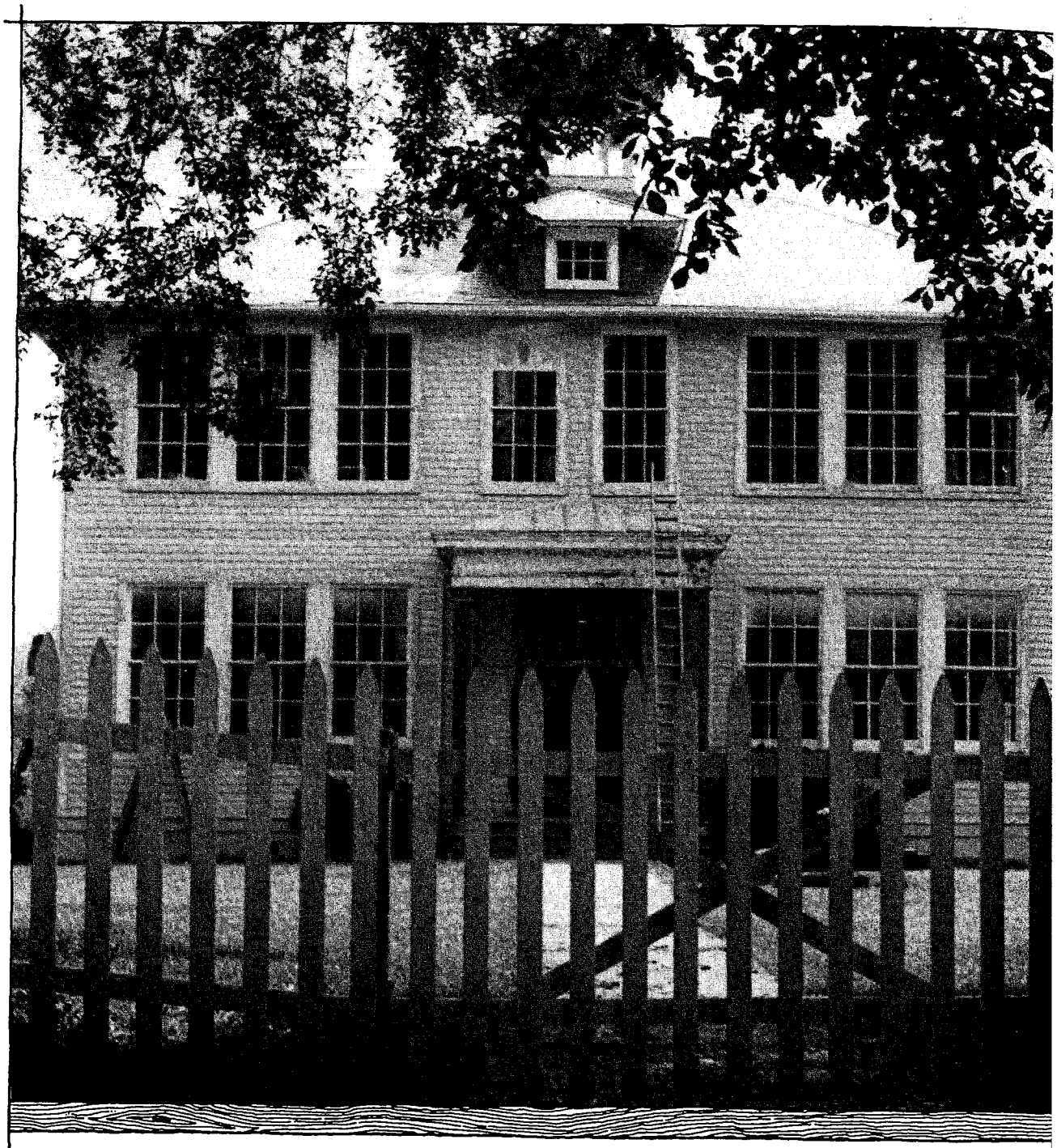
1. New institutional and commercial uses (by Special Exception) in the Agricultural Conservation Areas must be of a nature and scale that is compatible with the applicable agricultural conservation goals of this Plan and the RMP.

   Such uses would include moderately sized private schools or similar educational or research facilities such as those now existing in the rural areas, private recreational camps, small conference centers, and religious facilities including churches and camps. No institutional uses should be significantly larger than those now existing unless they are located on major arterial roads such as Route 15 and Route 7, and then only with adequate set-backs, buffers and limited access. Uses which present the risk of serious environmental impacts, traffic problems, or other safety or public health hazards shall not be permitted.

2. New institutional uses (and expansions) should be located on sites which have good, safe access to State roads, with larger scaled institutions limited to major arterials. New uses should also be located on those soils which have lower potential for agricultural productivity as defined by the County.* The preferred location for institutional uses in the rural areas is the Rural Fringe Policy Area.

3. Package sewage treatment plants for institutional uses should be allowed only by Special Exception, and should be sized to serve only the needs of the institutional use itself.

* Interpretive Guide to Soils and Geology for Planning in Loudoun County, Virginia, Richard Weber, 1979.



PUBLIC FACILITIES

VI. PUBLIC FACILITIES AND UTILITIES

A. BACKGROUND, ANALYSIS AND ISSUES

Adequate quantities and qualities of public facilities and utilities are necessary to support medium to high density development (greater than one dwelling unit per acre) and therefore may be used to encourage and guide development to occur in those locations which would best meet the County's land use goals and policies. Generally, very few public facilities and utilities are actually located within the rural areas. For purposes of economy and practicality, most are located in towns and unincorporated urban areas where the population density is great enough to economically support the installation, maintenance and expansion/extension of such facilities.

One of the County's most important planning policies is to encourage new public facilities and utilities to continue to be located in existing communities in order to help achieve the broad growth management goal of a compact growth pattern. The major public facilities and utilities which are central to the County's land use planning and growth management effort and which are addressed in this section of the Rural Plan are: wastewater treatment, water supply, schools and recreation. Transportation facilities are addressed in a separate section on page 162.

Although the County's rural areas have very few public facilities, the Rural Plan must address the issues involving facilities and utilities in order to generally determine where new ones should and should not be located so as to help reinforce the County's broad land use and fiscal goals.

1. Wastewater Treatment and Water Supply

The following major issues and problems regarding water treatment and supply in the towns, villages and rural areas have been identified:

a. Wastewater Treatment:

i. Public systems owned by the Towns and County are generally in good condition and have adequate capacity to serve additional growth.

ii. Several rural villages and communities have problems with failing septic systems which could present a potential public health hazard. These include Bluemont, Hillsboro, Aldie and Paeonian Springs.

b. Water Supply:

i. Severe problems, such as insufficient quantity, poor quality and outmoded, failing distribution systems exist in the Towns of Purcellville, Round Hill, Hamilton, Lovettsville and Hillsboro.

ii. The County has ample supplies of clean surface water to solve the Town's problems. Principal issues are capital cost and institutional control.

c. Analysis of Town Sewer and Water:

In order to accomplish the County's goal of encouraging growth in and around Towns and villages and to ensure residents of good quality water in sufficient quantities, it is imperative that the water supply problem be solved, particularly for the three Route 7 Towns of Hamilton, Purcellville and Round Hill. Following is a list of all towns and villages with either central sewer or water systems, a brief summary of their individual problems and an estimate of the additional growth that each system can support:

Hamilton:

i. Sewer - Sufficient capacity to approximately double existing population (1,181 total).

ii. Water - Rated capacity* could theoretically almost triple existing population (to 1,959 total). This may not be the case, however, due to the frequency of well repairs and unreliability of flows.

Purcellville:

i. Sewer - Sufficient capacity to increase population by about one and half times (to 3,256 total including hookups outside Town limits).

ii. Water - Rated capacity for 132 additional connections (to 2,236 total). The yield of the springs is extremely variable and actual capacity has not been determined.

* "Rated Capacity" refers to current capacity limit established by the State Health Department.

Round Hill:

i. Sewer - Sufficient capacity to increase population approximately two and one-half times (to 2,133 including hookups outside Town limits).

ii. Water - No additional connections available (800 existing population including hookups outside Town). Problems include water rationing during dry years because of poor yields of springs and outmoded distribution system with small lines that often freeze, inoperable valves and poor quality due to age of pipes.

Lovettsville:

i. Sewer - Capacity exists to double present population (to 1,318 total). Possible problems with system infiltration.

ii. Water - Rated capacity to increase current population three and one-half times (to 2,277 total). Information concerning current well yields is not available and there are problems with sediment in the lines.

Middleburg:

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ii. Water - Well systems have sufficient yield to add 25% to present population (to 783 total).

Leesburg:

i. Sewer - Projected expansion to 2.5 MGD will allow for an approximate doubling of existing population (to 21,212 total).

ii. Water - Same as for sewer.

d. Summary of Water and Sewer Issues:

i. Growth Management Policies

In order to achieve a balanced and compact growth pattern, the County seeks to encourage new development to occur in and around existing communities, particularly incorporated towns and other urban

areas which have central utilities. However, except for Leesburg, the towns have various deficiencies in their public utilities which preclude or restrict the potential for new growth.

ii. Location and Scales of Utilities

The expansion or extension of central utilities could have positive and/or negative impacts on surrounding rural lands, depending upon the location and size of such improvements. Decisions regarding location of new plants or lines should be made so as to reinforce the goals and policies of the RMP and this plan.

iii. Financing and Ownership

Who should fund, own and operate new expanded utilities? (See page 157 for Water and Sewer recommendations)

2. Rural Community Elementary Schools

The rural community school has been an integral feature of agrarian America and in Loudoun these schools were once within walking distance of every farmhouse. The rural school often served as a village or community center as well as the vehicle for transmitting a cultural legacy from one generation to the next. While new and large 720+ student elementary schools may feature specialized instructors and equipment, the small rural school has the ability to treat each child as an individual both in terms of his family and as a member of the immediate rural or village community.

The influx of non-rural residents in western Loudoun is due in part to the appeal of rural society's personal way of life. The rural school forms part of this culture and offers the possibility of drawing new residents into contact with their farming neighbors, thereby leading to greater understanding and identification with the local community.

It is, however, more costly to operate small schools and this is especially true if the small schools attempt to duplicate the specialized instructional program and staffing patterns of a consolidated facility. In addition, current demographic patterns of older farmers with grown children and the immigration of older, established families with high school or college age children have resulted in sharp reductions of elementary school children in the rural areas.

The Loudoun County School Board has attempted to cut these higher - mainly personnel - costs by flexible consolidation of teaching and administrative positions, the use of school children's parents to teach arts, crafts and/or music and by investigating further elementary school consolidation.

Figure 34, page 150, shows the community elementary schools and their location, and Table 14 shows the aggregate size and occupancy characteristics.

Table 14 studies the effects of continued growth in the Rural areas in terms of elementary school seat demands. The calculation assumes that existing dwellings will stabilize in terms of current student generation while new homes will generate slightly higher rates of elementary school children. The two elementary school generation rates of .22 and .33 students per household are decidedly lower than the .55 which the 1980 School Census found in the more urbanized areas.

Table 14

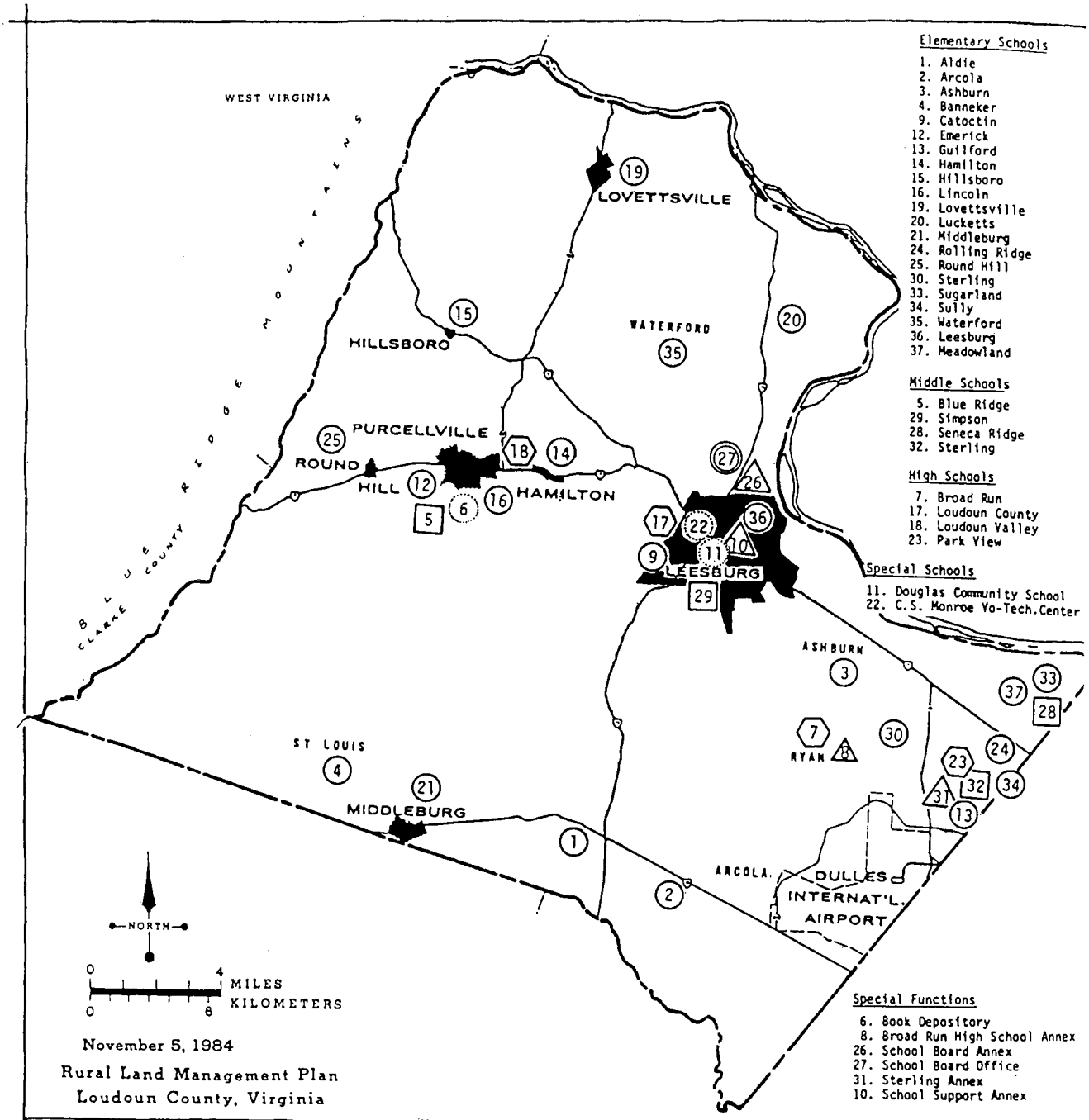
WESTERN LOUDOUN ELEMENTARY SCHOOL SEAT DEMAND

IN 1995 WITH TREND GROWTH

	Households	Elementary School Seat Demand	Elementary* School Seat Supply	Excess Seats
1980	6,710	1,476	2,738	1,261
1980-95(New)	3,500	1,153	2,738	--
1995	10,210	2,629	2,738	109

Table 14 suggests that Loudoun County will not need to build additional elementary schools for the forseeable future if growth continues at the present rate and if elementary school children generation rates do not increase dramatically.

* Arcola, which will fall within the purview of the Dulles South Plan is excluded from the calculation.



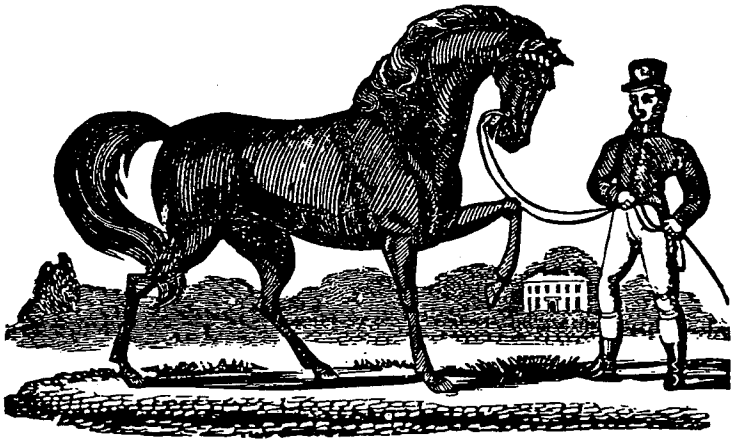
RURAL SCHOOLS

- ⬡ High School
- □ Middle School
- ○ Elementary School
- △ Annex

Figure 34

The issues surrounding the rural community schools thus center on the question of higher unit costs, individual student attention and community focus versus institutional specialization.

A further question involves the elementary school child generation rate which might be associated with new - possibly clustered - housing in the western portion of the County. Would such homes generate mostly high school students as do the farmettes or would they produce a wider age spectrum of youngsters? Another question involves the issue of the community school as a village focal point. Would retention of the community school assist the County in its promotion of concentrated new development and thereby pay for itself in terms of non-educational community benefits and lowered County service costs?



3. Recreation:

a. Active Facilities:

The County's Department of Parks and Recreation manages many active recreation facilities in the towns and villages through-out rural Loudoun. The following table summarizes those active recreation facilities which are publicly available to the citizens of rural Loudoun:

Table 15*

ACTIVE RECREATION FACILITIES

School Recreation Facilities:

School	Total Acreage	School Park Acreage	Facilities
Aldie Elementary	7	1	1 Basketball Court 1 Soccer Field
Arcola Elementary (New)	15	1	1 Softball Field
Ashburn Elementary	23.85	2	1 Softball 1 Basketball
Banneker Elementary	19 1/2	1	1 Softball 1 Basketball
Blue Ridge Middle	35.9	3	2 Soccer Field 1 Basketball 1 Softball
Broad Run High	40.0	2	1 Baseball Field 1 Softball
Emerick Elementary	11.7	1	1 Soccer
Hamilton Elementary	11.3	3	1 Baseball 1 Tennis Court 1 Softball 2 Soccer 1 Basketball
Hillsboro Elementary	5.9599	1	1 Softball 1 Basketball

* Source: Loudoun County Department of Parks and Recreation.

School Recreation Facilities: (Cont'd.)

TABLE 15* (Cont'd.)

ACTIVE RECREATION FACILITIES

School	Total Acreage	School Park Acreage	Facilities
Lincoln Elementary	9.6	2	1 Soccer 1 Tennis 1 Baseball
Loudoun Valley High	36.3	5	4 Tennis 1 Softball 1 Baseball
Lovettsville Elementary	15	3	1 Baseball 1 Softball 2 Soccer
Lucketts Elementary	15.5	1	1 Football 1 Softball
Lucketts Community Center	5	5	1 Baseball
Middleburg Elementary	3.4	.5	1 Softball
Middleburg property	99.5	39	2 Baseball 2 Soccer 2 Tennis
Round Hill Elementary	15.5	5	2 Baseball 2 Soccer 1 Softball 1 Tennis
Waterford Elementary	10.6	2	1 Soccer 1 Softball 1 Tennis

Other Recreation Facilities:

Community Center Facilities

Loudoun Valley Community Center - 5 acres, tennis court, basketball court, playground, baseball field, gym, classrooms.

*Lovettsville Community Center - 8 acres, 2 lighted tennis courts, baseball field, picnic shelters, basketball court, playground, gym, classrooms.

* Source: Loudoun County Department of Parks and Recreation
** Owned by County

TABLE 15 (Cont'd.)

Community Center Facilities (Cont'd.)

*** Middleburg Community Center - six acre park, amphitheatre, softball field, multi-purpose room, classrooms.

* Arcola Community center - twelve acre community park, tennis court, baseball field, basketball court, playground two soccer fields, small gym with classrooms.

** Lucketts Community center - eight acre community park with baseball field, small gym with classrooms.

County Parks

** Mercer Park - largest county operated outdoor facility; thirty-nine acres includes lighted playing field, small fishing pond, large picnic shelter, two tennis courts, little league baseball field.

*** Purcellville Firemans Field - three acre complex with one lighted baseball field.

*** Neersville Rescue Squad Field - three acre complex with one baseball field.

* Hillsboro Community Center - small area containing one tennis court.

An analysis of the adequacy of recreational facilities in the rural areas should logically focus on the Loudoun Valley west of the Catoctin Ridge, because facilities for the areas surrounding Leesburg and Dulles Airport have been or will be studied in more detail as components of the plans for those particular areas.

During the last several years, the western Loudoun Valley has captured about 25% of the County's total residential growth.**** Assuming that this trend will continue during the time frame of this plan, the current and future needs for active recreation can be summarized in very approximate terms as indicated in the following tables 16 and 17, page 155.

---

* Owned by County
** Owned by School Board
*** Privately Owned
**** Loudoun County Department of Planning, Zoning and Community Development

Table 16

FACILITIES SUPPLY CRITERIA

Facility	Facility per Population
Athletic Fields	1 per 1,500
Tennis Courts	1 per 2,000
Basketball Courts	1 per 500
Swimming Pools	1 per 10,000
Community Centers	1 per 15,000

Table 17

SUPPLY AND DEMAND FOR
ACTIVE RECREATION FACILITIES IN WESTERN LOUDOUN

Facility	Existing 1984 Facilities	Projected 1990 Needs	Difference: Additional Facilities Needed by 1990
Athletic Fields	35	16	--
Tennis Courts	13	24	11
Basketball Courts	8	48	40
Swimming Pools	0	2	2
Community Centers	4	2	--

If the western valley is analyzed as a whole, current shortages in basketball and tennis courts can be identified, along with an apparent overall surplus of athletic fields.

Based on the trend population projections for the County as a whole, and assuming that western Loudoun will account for 25% of new residents, an increase of approximately 6,523 people can be expected for the western valley. This would mean an increase in the total population of western Loudoun from 17,562 in 1980 to 24,085. That level of population would require approximately 16 athletic fields, 12 tennis courts and 48 basketball courts. As with the present situation, the supply of athletic fields appears adequate, but additional courts would be needed. Any new facility construction should be tailored to the demands of the residents in specific areas

of western Loudoun, however, rather than based on overall supply and demand estimates presented here. Surveys may be a useful device to determine actual demand in specific areas, while the projected needs shown in this plan simply provide a general indication of potential future demand. For example, in a rural area like western Loudoun, the demand may be relatively higher for athletic fields as compared to basketball courts, thereby requiring a customized adjustment of the supply criteria by which adequacy of facilities is measured. Such a situation would mean that supply and demand in western Loudoun is better balanced than these tables would imply.

b. Passive/Low Intensity Facilities:

The passive or low intensity recreational facilities located in the rural areas include:

i. The Washington and Old Dominion Trail, a regional linear park owned and maintained by the Northern Virginia Regional Park Authority. The trail runs along the bed of the abandoned W&OD railroad line. The right-of-way has been acquired by the Park Authority from the County line to Purcellville. The railroad at one time ran to Bluemont, but the right-of-way has been long-abandoned and the potential for recombining it west of Purcellville into a single ownership is uncertain.

ii. The Appalachian Trail, part of the National Park system, runs along the County line at the top of the Blue Ridge.

iii. In addition to these public recreational facilities, there are a few private passive recreational facilities such as Camp High Road on Goose Creek and Camp Potomac Woods north of Lucketts.

c. Issues:

The major issues regarding active and passive recreation in the rural areas are:

i. What will be the future demand by rural residents for active recreational facilities such as ballfields during the time frame of this plan, and should needed facilities expansions be located in the rural areas or in Urban Growth Areas and Villages?

ii. What amount of passive recreational land will be demanded by all County residents during the time frame of this plan, and how shall this land be acquired and managed?

(Refer to page 160 for Recreation recommendations)

(Refer to Natural Resources Section, page 187 for analysis and recommendations for landfills and water impoundments)

B. PUBLIC FACILITIES AND UTILITIES GOALS

1. Manage the location, timing of construction and operation of public facilities and utilities so as to minimize undesirable agricultural, community, environmental, fiscal and social impacts.

2. Maintain a level of public utilities and facilities which ensures not only the health, safety and welfare of the County's population but also maintains the highest community standards obtainable within budget constraints while promoting maximum community benefits.

3. Coordinate planning efforts with existing communities in the provision of public facilities and utilities.

4. Plan public facilities, such as schools, libraries, community centers and parks, in order to make the greatest use of these public investments at the least cost.

C. PUBLIC FACILITIES AND UTILITIES IMPLEMENTATION RECOMMENDATIONS

1. Water and Sewer Recommendations

   a. To reestablish the historic growth pattern, the County will support the location, appropriate timing of construction and operation of public water and sewer utilities in and around designated Urban Growth Areas.

   b. The County shall assume a coordinating function with existing incorporated towns in resolving public sewer and water problems.

   c. The County shall establish a committee of primary policy officials to discuss water and sewer questions with the western towns with the view of providing a cost effective solution to current deficiencies.

d. In those areas where a group health hazard cannot be solved by the individual homeowners involved, the Sanitation Authority will assume a technical advisory role in determining an appropriate solution; the financial responsibility for the new systems' construction and operation will be borne by the users involved.

e. Communal water and wastewater systems such as package treatment plants and communal massed drainfields shall meet State Water Control Board and Health Department standards. Package plants shall be owned and operated by the Sanitation Authority with costs of the program borne by the developer and users. Common septic systems may be owned by homeowners associations. Approval shall be based upon the following County standards designed to protect residential investments and to avoid unnecessary public expenses:

   i. System shall be designed for minimal long-term chances of failure.

   ii. System shall be capable of absorbing unexpected user abuse with minimal rehabilitative turn around time and cost.

   iii. System shall have an expected life of at least 40 years.

   iv. Expected 40-year reconstruction shall be user-financed through a sinking fund or other appropriate mechanism established at the time of system approval.

   v. System operations and maintenance shall be lot-owner financed. In the case of new residential clusters, the financial/operational aspects shall be fully explained to potential lot purchasers prior to purchase commitment.

   vi. Package plants shall be owned by the Sanitation Authority.

   vii. A service area shall be designated for package plants and common drainfields prior to approval.

   viii. Package Treatment Plants shall be allowed only in Rural Fringe and Rural Village Policy Areas. Communal or massed septic fields shall be allowed in all policy areas. Both systems are subject to Health Department approval and the standards set forth in this plan.

f. New water and wastewater treatment plants shall be constructed only within designated Urban Growth Areas and shall sell water only to residents within the approved service area.

g. Improved water supply service to the three western towns on Route 7 could be provided by several possible methods. The feasibility, practicality and impact of the various alternatives must be studied in detail before a final choice is made. However, all of the options must be evaluated against general and specific criteria and should satisfactorily meet these standards in order to merit approval. Any approved option should be:

i. Consistent with the County's Comprehensive Plan, particularly the Resource Management Plan, the Rural Land Management Plan and any other specific area or functional plans that may be applicable;

ii. A solution that encourages or provides for new growth in and/or immediately adjacent to the three incorporated western towns;

iii. A solution which does not cause any direct increase in growth pressure on rural land areas which lie outside the urban growth areas.

iv. A solution for the towns' water supply problems which is the most fiscally economical for both the western towns and the County.

v. A long-term solution which will serve the towns adequately well into the next century.

2. School Recommendations

"School size is not a significant factor in the quality of an elementary school education."* The small school cannot, however, operate in identical fashion as a large school with specialized teachers and administrative staff. There is a need for flexible teaching functions perhaps including combining grades in art or music classes, sharing support services between schools, closer cooperation with the community, establishing a teaching/principal position and sharing the school building with other County agencies. The need for flexibility, community involvement and participation strongly indicates that the local community should participate closely with its School Board Commissioner and County Supervisors in the creative process of achieving rural community goals.

* "Report of the Small Schools Committee," revised and adopted June 9, 1981, pages 10-11.

Accordingly, fundamental implementation program recommendations are:

a. Establish a rural community school committee composed of parents, educators and School Board members to advise local decision makers on policies and programs for the continued operation of community elementary schools.

b. Continue to monitor new residential development trends in the western portion of the County in order to anticipate elementary educational needs in the area and take necessary action.

3. Recreation Recommendations

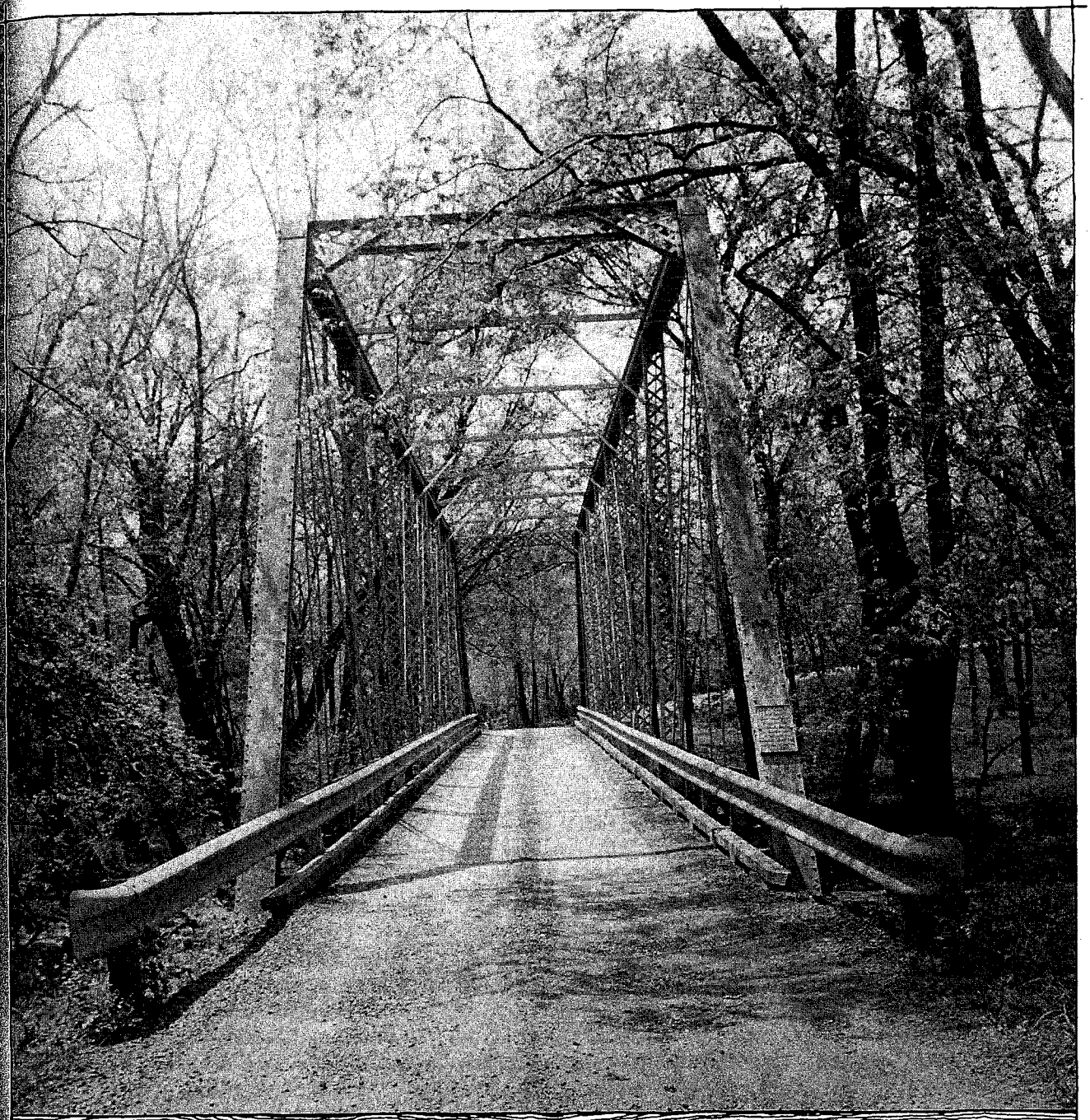
The following proposed recommendations are based on the adopted RMP policies:

a. Public parks with active recreational uses are essential services for residents in the Urban Growth and Rural Fringe Areas and should be provided, through proffers, by new residential developments. These parks, along with new commercial recreational facilities and institutional uses with open space areas, can form the basis for a greenbelt system around each Town.

b. Encourage additional parkland acquisition in the County by public and nonprofit organizations such as the National Park Service, the Nature Conservancy, and the Potomac Appalachian Trail Club.

c. Recognize the Potomac River and its shoreline as a major County resource and encourage public access wherever possible. Proposed uses such as marinas, docks, etc., along the Potomac, Goose Creek and other large watercourses should be designed and built in a manner that maintains the existing natural and scenic character. Implementation of this policy shall be by means of a Watercourse Historic and/or Scenic Overlay District applied to the Potomac River and Goose and Catoctin Creeks. The County shall strongly encourage developers of land adjacent to major creeks and the Potomac River to proffer public access trails along those water courses.

d. Private commercial active recreational uses are permitted only in areas where they are or can be made compatible with adjacent existing and planned land uses in terms of traffic, noise and other impacts.



TRANSPORTATION

VII. TRANSPORTATION RESOURCES

A. BACKGROUND, ANALYSIS AND ISSUES

The overall goal for the transportation system in rural Loudoun County is to provide a safe and efficient road network that meets the travel needs of the users. The roads are needed for several types of trips: agricultural trips including movement of farm machinery and shipment of goods to markets; work trips including commuter; commercial service, recreation, social and schools trips; and the regional needs of tourists and through travelers.

The purpose of this rural transportation plan is to assess the travel demands in rural Loudoun County and propose policies and programs to meet those needs.

Loudoun County's land use policy has long recognized the impact of transportation facilities and needs on residential and nonresidential development. The Resource Management Plan (RMP), states "It (transportation) can also provide incentive for planned growth in undeveloped areas.". (RMP, page 131). A refinement of this RMP statement can be expressed as follows:

> Transportation improvements can help guide rural residential growth to areas that have adequate capacity to receive that growth preferably in and around the towns and existing communities of the County.

Future transportation improvements should reinforce and help implement this fundamental policy of the County's growth management program.

1. Classification Systems For Rural Roads

The road network of rural Loudoun was created over the last two hundred years to sustain a very different social organization of some 1,400 small farms and a few towns and villages. Today, the existing legacy of those agriculturally oriented roads forms the framework of Loudoun's future transportation system. Using them keeps to a minimum the disturbance to existing residential and employment land uses. Furthermore, if the existing roads are incrementally upgraded as funds allow, the acquisition costs of new rights-of-way are minimized and the benefits of new construction are immediately realized. Nevertheless, it may be necessary to create new roads around some historical villages or across certain streams and waterways in order to relieve pressure on other overburdened roads.

For the purposes of comprehensive transportation planning it is useful to analyze a road system in terms of highway functional classifications. The Federal Highway Administration's hierarchy of rural road types includes:

a. Principal Arterials (including Interstates)
b. Minor Arterials
c. Major Collector Roads
d. Minor Collector Roads
e. Local Rural Roads

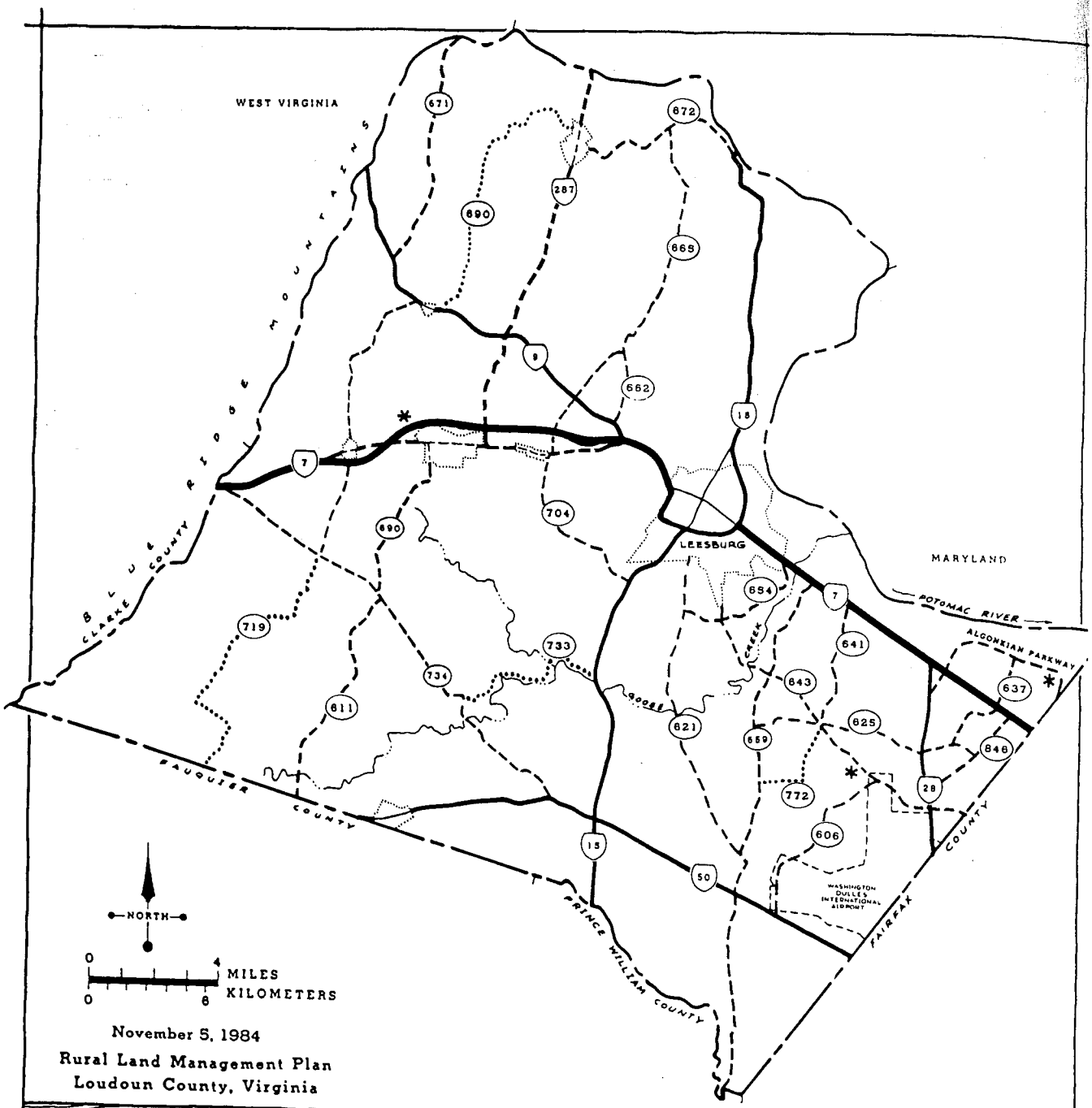
Official FHA definitions of the functional road classifications are included in this plan as Appendix A. Typically, a rural road system will have the following distribution of facility types: arterials 8% - 16%, collectors 20% - 15%, local rural roads 65% - 75%.

Classifications are useful because roads can be designed to carry many vehicles at high speeds between distant points, or they can be designed for direct access to individual tracts of land. Arterial roads serve as the principal system of higher speed vehicle movement, while local roads serve as access points to individual properties. An arterial road's safe speed and carrying capacity, however, can be severely reduced by frequent intersections or by direct access to individual lots. The collector road is an intermediate facility below the level of the arterial road but above the local road. The collector road serves to gather traffic from the local roads, major residential developments, community shopping centers and schools and to connect these uses to the arterial network.

The Loudoun County Board of Supervisors approved an updating of the Functional Roadway Classification System for rural areas of the County in May, 1984, based on recommendations from VDH&T. (Figure 35,page 164, shows the adopted Functional Classification System for rural areas of Loudoun County.) In general, a road's functional classification will determine its status in the Federal-aid Highway Systems and the Virginia Primary and Secondary Road Systems. The following shows the normal correspondences between a road's position on the various systems.

Functional Classification	Federal Aid	State Primary/ Secondary
Rural Arterial	Federal Aid Primary	Primary Road
Rural Collector	Federal Aid Secondary	Secondary Road
Rural Local Road	-----	Secondary Road

In cases where the normal correspondences are not synchronized the priority and funding of a specific road improvement could be adversely affected. As part of its preparation of area plans, the staff is continually reviewing the functional Classification system and will recommend any appropriate changes to VDH&T. Coordination between recommended road improvements in the area plans and the Transportation Improvement Program (TIP) and the functional system is also important.



November 5, 1984
Rural Land Management Plan
Loudoun County, Virginia

FUNCTIONAL ROAD CLASSIFICATIONS

- Major Arterial
- Minor Arterial
- Major Collector
- Minor Collector
- * Section Not Constructed

Source :
LOUDOUN COUNTY DEPARTMENT OF PLANNING, ZONING, AND COMMUNITY DEVELOPMENT

Figure 35

2. Road System Characteristics

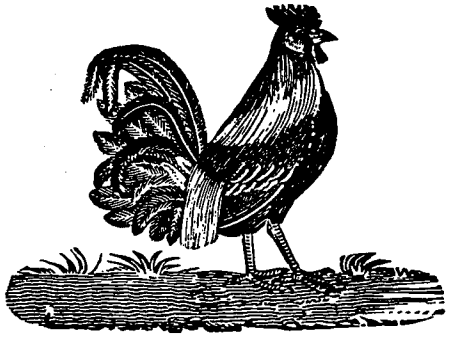
Table 18 following is a breakdown of Loudoun County's road system in early 1983 using the primary and secondary road classifications:

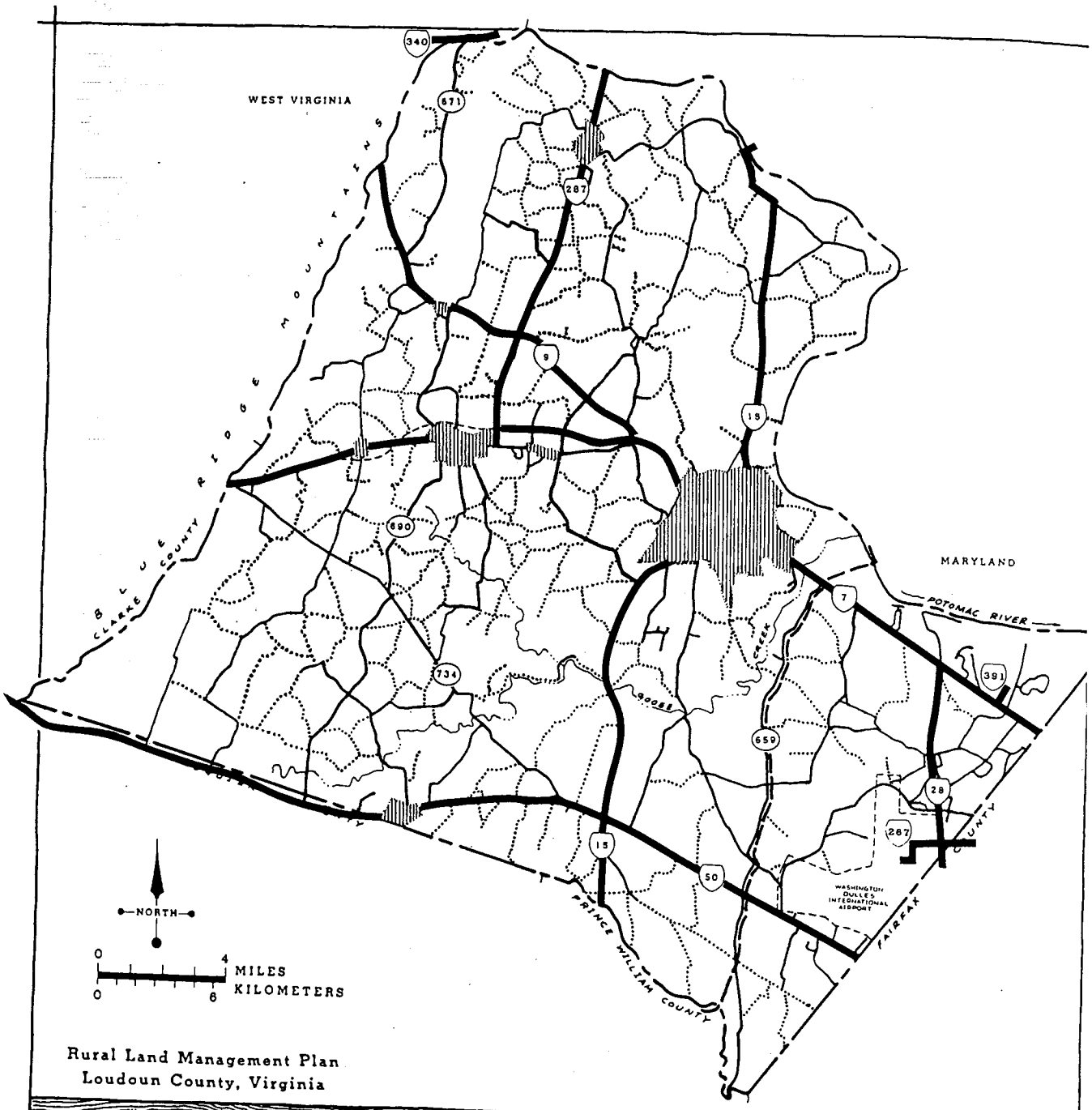
Table 18

LOUDOUN COUNTY ROAD SYSTEM SUMMARY
(Early 1983)

Classification	Miles	Percentage of County Total
Interstate	0	0%
Primary	119	14.2%
Secondary:		
Paved	357	42.7%
Unpaved	361	43.1%
Subtotal	719	85.8%
TOTALS	837	100%

Figure 36, page 166, shows the location of primary and secondary roads in Loudoun County's rural areas.





PRIMARY AND SECONDARY ROAD SYSTEM

- Primary Road , paved
- Secondary Road , paved
- Secondary Road , unpaved
- Incorporated Town
- V.D.H&T. Rural Area Study Boundary

Figure 36

Table 19 shows 24 hour daily traffic volumes (ADT) for key segments of the County's primary road system (including major and minor arterials).

Table 19

AVERAGE DAILY TRAFFIC COUNTS
LOUDOUN COUNTY PRIMARY ROADS

Primary Road Segment		Number of Lanes	ADT (1982)
Rt. 7:	East of Leesburg	4	13,970
Rt. 7:	East of Rt. 662	4	12,740
Rt. 7:	Between Rts. 611/719	2	5,310
Rt. 7:	West of Rt. 719	2	5,230
Rt. 15:	North of Leesburg	2	2,050
Rt. 15:	South of Leesburg	2	6,500
Rt. 15:	South of Rt. 50	2	6,160
Rt. 50:	East of Rt. 15	4	7,640
Rt. 50:	East of Middleburg	4	7,470
Rt. 9:	East of Rt. 287	2	3,600
Rt. 9:	West of Rt. 287	2	4,320
Rt. 287:	North of Rt. 9	2	2,040
Rt. 287:	North of Rt. 7	2	1,550

(Source: VDH&T Counts, 1982)

Table 20, indicates the growth in traffic demand over an eight year period from 1974 to 1982 on selected secondary roads. These figures were taken from the VDH&T Secondary Traffic Tabulation. The counts were taken in the summer months (May to August) and are only average 24-hour counts for a general location on the road. Actual counts of specific intersections may be higher.

Percentage change from the previous year's count is indicated beneath each count. Generally, traffic growth or decline can be explained by several factors. Large increases are most likely to be due to adjacent development or to improvements to that particular road or others connecting to it. A large decline in travel on some roads may be the result of improvement to nearby roads.

Table 20

AVERAGE DAILY TRAFFIC COUNTS

SELECTED LOUDOUN COUNTY SECONDARY ROADS

ROUTE #		LOCATION	1974	1976	1978	1980	1982
		LUCKETTS AREA					
673	(Paved)	681 to Lovettsville	N.A.	104	173 (+66%)	204 (+18%)	200 (-2%)
673	(Unpaved)	665 to 681	37	43 (+16%)	39 (-9%)	55 (+41%)	70 (+27%)
665	Paved	662 to 673	274	277 (+1%)	291 (+5%)	299 (+3%)	293 (-2%)
662	Paved	698 to 695	21	30 (+43%)	46 (+53%)	47 (+2%)	87 (+85%)
682	Paved	287 to 678	112	123 (+10%)	131 (+6.5%)	147 (+12%)	250 (+70%)
681	Paved	698 to 694	283	304 (+17%)	418 (+38%)	506 (+21%)	522 (+3%)
		PURCELLVILLE AND LINCOLN AREA					
611	Unpaved	711 to 711	17	172 (+912%)	68 (-60%)	101 (+46%)	136 (+35%)
611	Paved	725 to 725	203	291 (+43%)	395 (+36%)	281 (-29%)	378 (-4%)
725	Unpaved	690 to 735	39	46 (+18%)	109 (+137%)	37 (-66%)	82 (+122%)
728	Paved	731 to 622		70 (+15%)	77 (+10%)	124 (+61%)	117 (-6%)
734	Paved	611 to 690	987	1042 (+6%)	960 (-8%)	1069 (+11%)	1390 (+30%)
		LEESBURG SOUTH AREA					
621	Paved	649 to 653	489	445 (-9%)	559 (+26%)	820 (+47%)	947 (+15%)
650	Unpaved	651 to 1001	146	157 (+8%)	199 (+27%)	145 (-27%)	302 (+108%)
860	Unpaved	617 to 621	N.A.	193	201 (+4%)	188 (-6%)	248 (+32%)
643	Unpaved	648 to 659	42	55 (+31%)	56 (+2%)	31 (-45%)	56 (+81%)
643	Paved	641 to 625	418	546 (+31%)	351 (-36%)	838 (+139%)	822 (-2%)

3. Public Transportation Services

Public transportation services are sparse in rural areas of Loudoun County. A limited amount of intercity bus service is provided by Greyhound along Route 50 between Winchester and Washington, D.C., serving Middleburg. Current schedules are not convenient for commuters. Sterling Commuter Bus Inc. provides express commuter bus service between the Sugarland and Sterling Park residential areas of Loudoun County to the Pentagon and Washington, D.C., but does not serve rural areas of the County.

Residents in the northern Routes 287 and 15 corridors of the County can drive to Point of Rocks or Brunswick and use Chessie System commuter trains to Silver Spring and downtown Washington. It is estimated that Loudoun County residents make up approximately 6% of the total ridership of the service (approximately 2,400 total inbound riders).

The current level of vanpooling and carpooling in the County is uncertain. High Occupancy Vehicle (HOV) requirements on I-66 inside the Washington Beltway may be stimulating additional carpooling. However, the County does not have an organized system of carpool/vanpool parking lots. This situation may become more cumbersome now that the Dulles Airport toll road is open.

There are no public transportation links between Loudoun County and the high growth suburban employment areas of Reston and Tyson's Corner, and this limits access to regional Metrobus service from these areas.

4. Highway Funding Programs

The Virginia Department of Highways and Transportation (VDH&T) is responsible for the construction and maintenance of Loudoun County's primary and secondary roads. Construction funds for primary roads are made available through multi-County Highway Construction Districts, based on a formula set out in Section 33.1-23.2 of the Code of Virginia. The current formula includes: area, population, primary road mileage, vehicle registration and primary mile needs. Within the Highway District, projects are added to a six-year primary construction program and advanced through final construction based on their competitive merits.

Loudoun County is now in the Culpeper Highway Construction District. The State Highway Commission is currently considering whether the County should be included in a new 9th District which would serve Arlington, Fairfax, Prince William and Loudoun County. Inclusion in the 9th District could adversely affect Loudoun's primary funding level and the competitive priorities of its highway projects.*

* Loudoun County was placed in the 9th Highway District as of General Assembly action in the 1985 session.

Primary road construction and maintenance budgets for Loudoun County for the period fiscal year 1983/84 - 1988/89 are summarized in Table 21:

Table 21

HIGHWAY FUNDING

	1983/84	84/85	85/86	86/87	87/88	88/89	Totals
		(In Millions of Dollars)					
Construction	$2.899	$1.771	$1.612	$1.520	$1.554	$0.999 =	$10.355
Maintenance	1.418	1.526	1.613	1.684	1.758	1.836 =	9.835
Total	$4.317	$3.297	$3.225	$3.204	$3.312	$2.835	$20.19

Secondary construction funds are distributed to individual counties based partially on their level of expenditures in 1977 and partially on a supplemental allocation formula. The formulas which establish the split between primary, secondary and urban system highway construction funds and allocate the highway districts or County's share within the primary/secondary programs are proposed to be revised according to recommendations developed by the Joint Legislative Audit and Review Commission (JLARC) of the Virginia General Assembly. Legislative action on these recommendations is uncertain.

The fiscal year 1983 - 1984 budget for maintaining the 720 miles of secondary roads (which have a number designation of over 600) is $2.6 million. The secondary road construction program budget is as follows for period FY 84/85 - FY 89/90:

FY 84-85	$1,496,874
FY 85-86	$1,496,874
FY 86-87	$1,330,411
FY 87-88	$1,227,219
FY 88-89	$1,154,763
FY 89-90	$1,154,763
Total	$7,860,904

The Highway Department also receives funds to improve and pave about three miles of unpaved secondary roads each year. In practice, such improvements are becoming more difficult to achieve as property owners on unpaved roads are reluctant to donate additional right-of-way for the road shoulders, drainage ditches and widening of sharp curves which are required for safe driving at the higher speed a hard surface would permit.

VDH&T is reluctant to pay for such right-of-way because of its limited funds and as a consequence it tends to pave roads where right-of-way donations are 100% complete and not necessarily where the improvement is most needed.

5. Current Highway Construction Programs Priorities

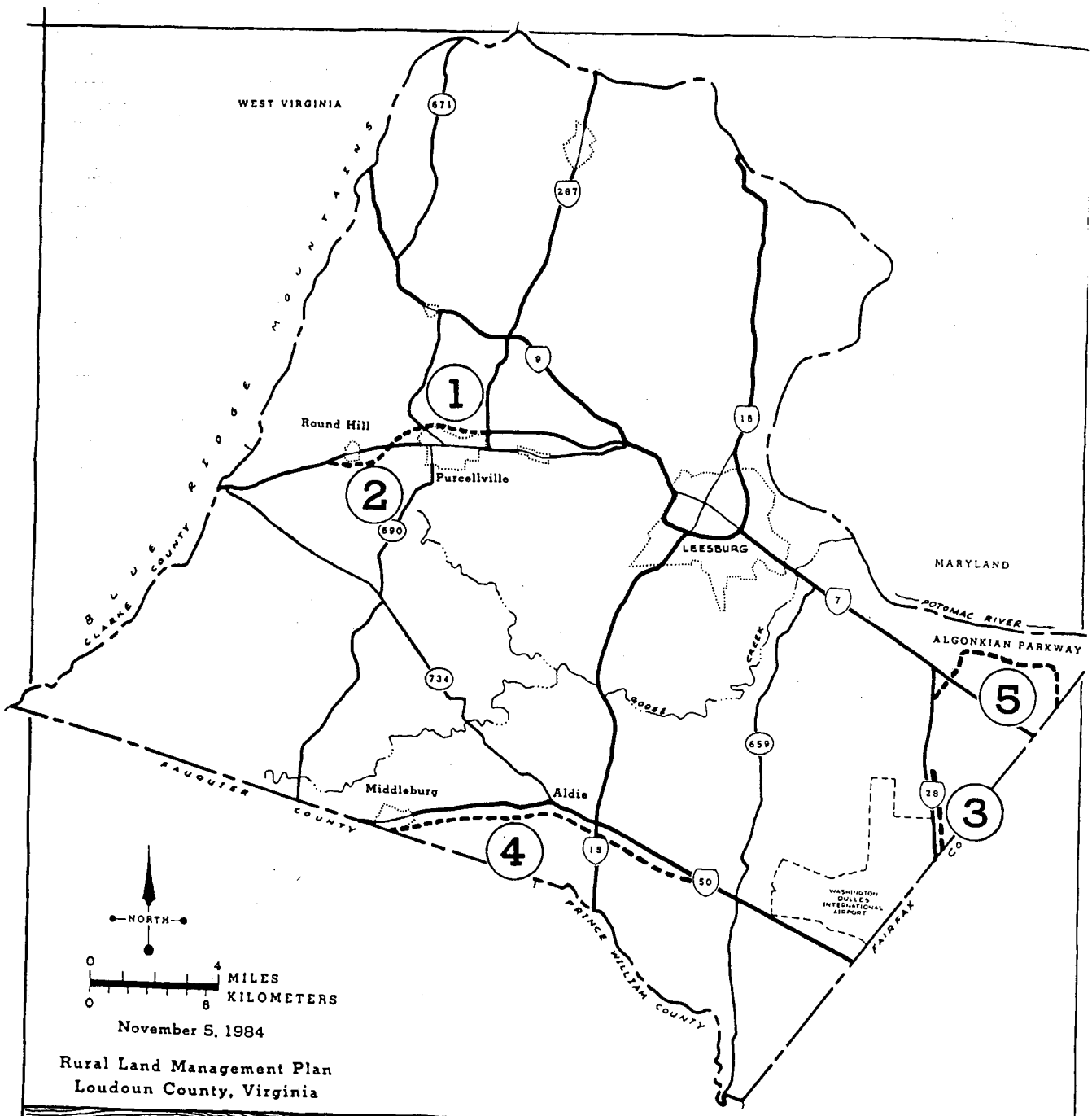
The following highway projects are on the Loudoun County Adopted Priority List for Primary Roads and are also part of the Six-Year VDH&t Primary Improvement Program:

Project	Funding Level FY 1983-84 (In Millions of Dollars)	FY 1984-89
1) Route 7 Purcellville Bypass (to completion of construction)	$2.30	$6.13
2) Route 7 Round Hill Bypass (preliminary engineering only)	0	$0.425

The following projects are on the Loudoun County Adopted Primary List but are not currently part of the Six-Year VDH&T Primary Improvement Program: (see Figure 37, page 172, for the location of priority projects.)

1) Route 28:	Construct four-lane section between Route 7 and the Dulles Toll road. Begin implementation of limited access provisions to make Route 28 a freeway type, limited access, facility.
2) Route 50:	Middleburg Bypass from Lenah (Route 616) to west of Middleburg.
3) Algonkian Parkway:	Construct four-lane segment from Route 28 to Fairfax County Line to connect with the proposed Springfield Bypass.
4) Park-and-Ride Lots:	Construction of a major park-and-ride lot on Route 28 to assist high-occupancy vehicle use of the Dulles Toll Road.

In addition to these projects it seems clear that two additional projects will be added to the Primary Priority List in the near future: widening of Route 28 to four lanes between Routes 7 and 846, and widening of Route 7 to six lanes (from four) on necessary segments between Leesburg and Route 28/Fairfax County line.



CURRENT PRIMARY ROAD PRIORITIES

V.DH&T. SIX YEAR PROGRAM

1. Purcellville Bypass [Rte. 7]
2. Round Hill Bypass [Rte. 7]

LOUDOUN COUNTY PRIORITY LIST Not in VDH&T. SIX YEAR PROGRAM

3. Route 28 widened to 4 Lanes , Implement Limited Access Provision
4. Middleburg Bypass [Rte. 50]
5. Algonkian Parkway

Figure 37

A priority list of 36 secondary road construction projects was prepared by VDH&T and approved by the Loudoun County Board of Supervisors on April 16, 1984. This priority list undergoes revisions every two years and will be scheduled for revision in 1986, 1988, etc. Figure 38, page 174 , shows the location of these improvements.

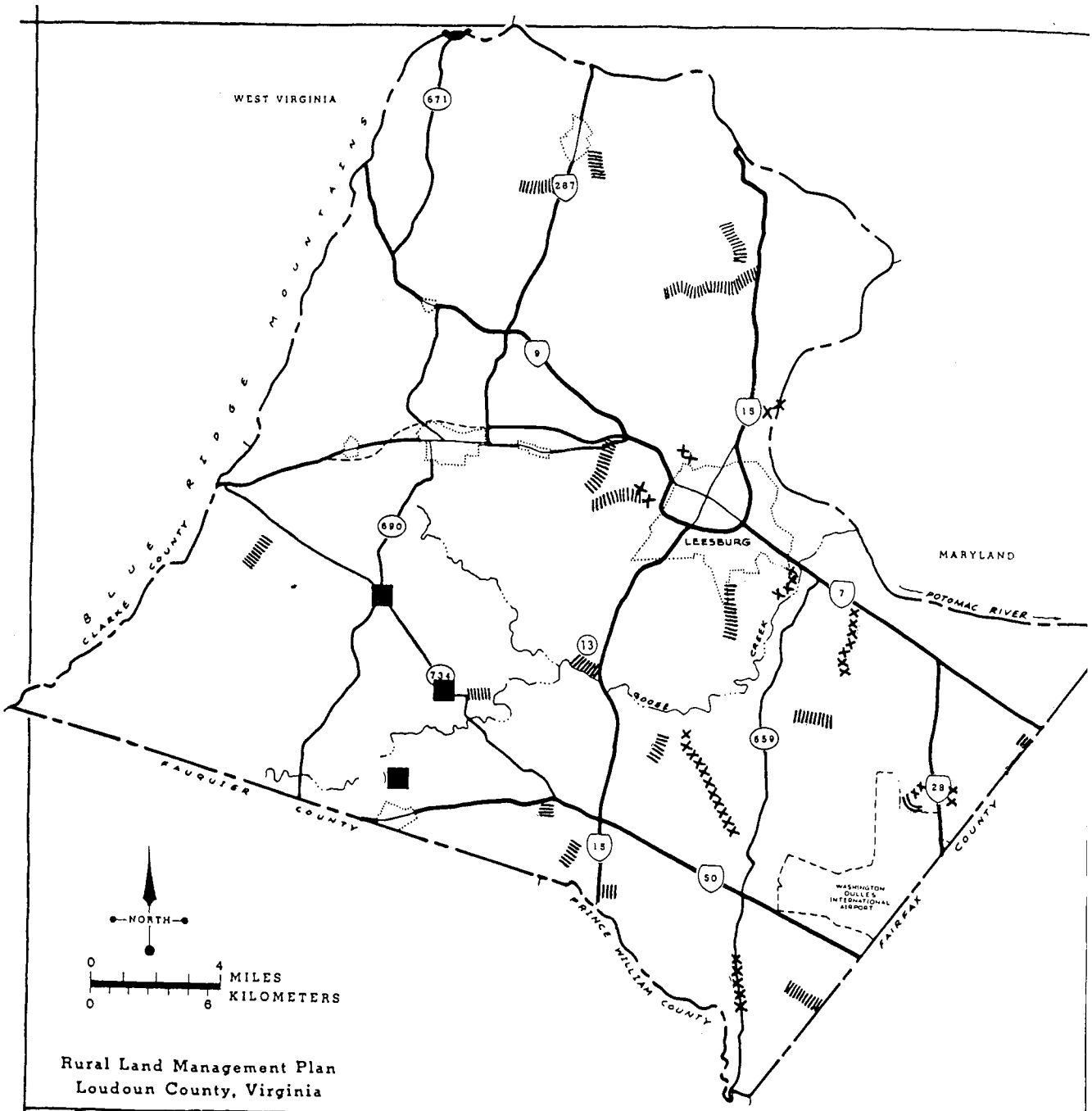
6. Forecasted Future Traffic Demands

VDH&T has, at Loudoun County's request, prepared a study that reviews the existing highway needs and projected improvements in the rural areas of the County (the study area is shown in Figure 35) for the year 2005. The study area consisted of approximately two-thirds of the County's roadways. The northern, western and southern borders of the study area were determined by the County line. The eastern boundary follows a line south from the Potomac River along Goose Creek, Routes 659, 616 and 705 to the Prince William County line. The VDH&T report states: "Rapid growth and increased travel demand are expected in the central and western portions (rural area) of Loudoun County between now and the year 2005.* The findings of the VDH&T report are one basis of the improvement recommendations of this this plan.

The Study determined existing average daily traffic on the functionally classified roads of the County and only addressed these roads. The local roads (i.e., unpaved secondary and paved local access secondary roads) were not addressed in the Study. In general terms, rural Loudoun County secondary roads in the functional system are increasing in average daily traffic (ADT) (see Table 22, page 175 for details). The increase in traffic on local roads depends almost entirely on residential development.

The need for future transportation improvements in the rural portions of the County depends to a great extent on the location and scale of growth. New growth in the rural areas of the County is likely to be predominantly residential with a moderate amount of commercial, industrial or office development. The incorporated towns (especially Leesburg) are expected to grow with a greater proportion of commercial, office and industrial uses than the rural areas. Therefore, the VDH&T method of trip assignments most desired for rural Loudoun County is Option I "Concentrated Growth". The traffic volumes shown in this year 2005 projection show major increases in traffic over the twenty-five year period. The roads listed in Table 22, page 175, were selected to illustrate the potential ranges of increases throughout rural Loudoun County.

* Rural Loudoun County Transportation Study, Virginia Department of Highways and Transportation, June, 1983 , page i.



VDH&T APPROVED SECONDARY SYSTEM CONSTRUCTION PROGRAM

FY 1984 - 85 THROUGH 1989 - 90

TYPE OF IMPROVEMENT

- ■ Realign Intersection
- XXXXX Reconstruct Existing Hard Surface / Spot Improvement
- ||||||||| Grade , Drainage , Stabilize and New Surface Treatment
- ═══ Add Two Lanes

Figure 38

Table 22

TRAFFIC PROJECTION INCREASES 1980-2005
Average Daily Traffic (ADT)

ROADWAY		1980	2005	% CHANGE
PRIMARY ROADS:				
7:	West of Round Hill	5,230	12,100	+131%
7:	Hamilton Bypass	6,020	18,200	+202%
7:	Local, through Hamilton	3,290	10,300	+215%
7:	East of Leesburg	10,190	53,400	+424%
7:	West of Leesburg	12,740	42,300	+232%
9:	West of Mechanicsville (Rt.671)	4,320	5,900	+ 36%
9:	West of Hillsboro	4,320	8,300	+ 92%
9:	West of Clarke's Gap	4,370	19,000	+334%
15:	North of Leesburg	2,050	5,700	+178%
15:	South of Leesburg	6,500	23,000	+254%
15:	South of Rt. 50	6,160	9,600	+ 56%
50:	East of Rt. 15	7,640	32,200	+321%
50:	East of Middleburg	7,470	18,500	+148%
SECONDARY ROADS:				
287:	North of Wheatland	2,040	13,600	+566%
287:	North of Rt. 7	1,550	7,700	+396%
734:	East of Flint Hill (Rt. 611)	580	5,500	+848%
734:	West of Flint Hill (Rt. 611)	550	2,300	+318%
643:	Between Rts. 654 and 653	670	14,400	+2049%
671:	North of Mechanicsville (Rt. 9)	1,150	2,400	+108%
665:	North of Waterford	510	900	+ 76%
621:	Between Rts. 654 and 653	820	3,600	+339%
621:	Between Rts. 653 and 861	510	3,000	+488%
611:	South of Purcellville	240	2,100	+1860%
719:	South of Round Hill	800	1,600	+100%
719:	South of Airmont (Rt. 734)	520	600	+ 15%
690:	North of Rt. 9	330	2,400	+627%
704:	South of Waterford	490	1,000	+104%
665:	South of Taylorstown	510	900	+ 76%
672:	West of Point of Rocks	790	1,300	+ 65%

7. Estimated Funding Needs

The projected traffic increases on Loudoun's County's primary and secondary roads will necessitate substantial funding levels for a necessary and equitable road improvement program. However, there is presently in Virginia a critical divergence between new road construction funding and road construction needs. The Joint Legislative Audit/Review Committee (JLARC) of the General Assembly reported in 1982 that deficiencies in the road system conservatively require the expenditure of some $16 billion over 25 years while current annual allocations of $200 million would add up to less than a third of this. JLARC has shied away from suggesting increased funding, but rather has suggested new formulas for distributing current funds which may reduce Loudoun's annual allocations.

The VDH&T Rural Loudoun County Transportation Study contains estimated costs for identified road improvements in the study area of the County through the year 2005. In the table below, Option 1 represents concentrated growth (i.e., growth should take place in the areas where highway capacity and other urban services and facilities already exist and where future improvements will serve the greatest population concentration). Option 2 represents dispersed growth.

Table 23

ESTIMATED COSTS FOR YEAR 2005
COUNTYWIDE NECESSARY IMPROVEMENT

	Option 1 (Concentrated Growth)	Option 2 (Dispersed Growth)
Future Rural Needs	$ 72,000,000	$ 85,900,000
Future Needs: Eastern Loudoun	10,134,000	10,134,000
Existing Rural Needs	86,942,000	86,942,000
Non-tolerable Local Roads*	70,914,000	70 914,000
TOTALS	$239,990,000	$253,890,000

*(Many of the existing secondary roads in rural areas of Loudoun County are defined as "non-tolerable" by VDH&T as they are not built to a standard that will adequately and safely carry current traffic volumes. Any unpaved road with average daily traffic volumes in excess of 50 vehicles per day is deemed non-tolerable by VDH&T and therefore in need of improvement.)

Funds currently budgeted to address these needs include $10.4 million in the six-year primary construction program and $7.8 million in the six-year secondary program. If these programs continue to be funded at the same approximate levels to 2005, an additional $26 million in primary funds and $18 million in secondary funds can be expected. Thus, the total projected construction fund for the period 1984 - 2005 could be as low as $62 million versus projected needs of over $200 million.

This lack of adequate construction funding could lead to a narrowing of County focus to short-term, rather than long-range planned projects. Realism, however, suggests that the County should review all roads in its network and set priorities according to community development, traffic flow and efficiency criteria in order to obtain the most effective transportation network for every dollar expended.

Methods Of Determining Road Improvement Priorities

A number of factors must be taken into account in the determination of needed roadway improvement and the assignment of equitable priorities to these improvements. These factors include:

1. Safety Hazard Areas (sight distances, curves, width, etc.)

2. Development of an Efficient Unified Network (connector roads that connect villages, towns and activity centers to primary roads).

3. Roadway Capacity Analysis (including existing and projected Levels of Service (LOS) and Design Hourly Volume (DHV)/Service Volume (SV) ratios.

4. Agricultural Use of Roads

5. Channelling of Growth to Existing Population, Industrial and Commercial Concentration Centers.

6. Consistency with the Resource Management Plan and the Adopted Area Plans.

7. Ability to Serve Commuter Work Trips.

8. Ability to Serve Truck/Commercial Trips.

9. Relationship to the County's Economic Growth Development Policies.

10. Preservation of Historical and Scenic Areas.

The County's planning staff is working to weave these factors into a comprehensive evaluation tool as part of the development of an updated Transportation Improvement Program. It is important that the factors be weighed in such a manner as to ensure competitive equity between projects in different sections of the County. For example projected traffic volumes and levels of service would need to be weighed against the other factors in order to determine reasonable priorities for projects.

A second step in the analysis of priorities of road improvements is the determination of key impediments to project implementation. For example, improvements to rural roads are increasingly difficult to make in cases where land owners are reluctant to donate the necessary right-of-way. Such road segments may thus have a high implementation priority when viewed through the multi-factor evaluation process but a low implementation probability.

B. TRANSPORTATION GOALS

A series of transportation goals has been developed for Loudoun County's transportation system based on the principles embodied in the Resource Management Plan. The following are major transportation goals:

GOALS:

1. Development of a transportation system which contributes to meeting the needs of Loudoun County - with particular attention to the movement of agricultural equipment and products.

2. Establishment of a transportation system which encourages community growth in and around existing incorporated towns and within community development areas.

3. Implementation of a transportation system which provides maximum safety and accessibility within budget constraints for all County residents.

4. Promotion of a transportation system which causes the least negative agricultural, community, environmental, fiscal and social impacts.

   Achievement of these goals will require:

   a. Continued development and updating of a Transportation Improvement Program (TIP) for Loudoun County with short and long range elements.

   b. Refinement of a systematic, comprehensive, and equitable system for identifying necessary road, high-occupancy vehicle and public transportation improvements and for placing these improvements in the appropriate element of the TIP and the adopted Area Plans.

   c. Assessment of estimated costs for these improvements and identification of adequate and appropriate funding sources. This procedure must be directly related to the financial situation of the County and anticipated levels of State funding for primary and secondary road improvements and HOV and public transportation support. The ability and necessity for the private sector to pay its reasonable share of these costs is also important.

   d. Working closely with the Virginia Department of Highways and Transportation (VDH&T) and private business and citizen groups to identify and implement program improvements.

   e. Development of detailed transportation implementation recommendations which encourage the achievement of the Area Transportation Plans, including: general policies, specific standards, implementation requirements and roads recommended for improvements.

TRANSPORTATION IMPLEMENTATION RECOMMENDATIONS

The transportation system of western and rural Loudoun performs two functions: assisting the movement of people and products and assisting the direction and structuring of community development. These two functions do not necessarily always coexist. It is the purpose of these policies and programs to encourage the achievement of this Plan's goals by reestablishing the historic community growth patterns to the extent that this is possible while also ensuring the safe and efficient movement of people and goods.

1. General Road Recommendations

a. General Policies:

i. The transportation network should consist of a coordinated and balanced hierarchy of major and minor arterial roads, collector and local roads designed to achieve the safe, efficient and functional movement of people and products within budgetary constraints.

ii. The transportation network should provide for the increased traffic flows resulting from community development by means of greater safe operating speeds, reduced alignment and geometrical inefficiencies and an increased number of traffic lanes. Setback and other development lines should recognize the ultimate traffic loads of a particular road and should allow for ultimate road size.

iii. New transportation improvements should be designed to produce the least disruption of farms, existing communities, existing land uses, historical sites, buildings, and cemeteries, as well as important natural environmental and scenic features.

iv. Road intersections are the locations of many vehicular accidents and are critical elements in the control of highway capacity. Therefore, the design of intersections should allow for the safest and most efficient vehicular flows possible. More specifically:

- Plans for future land acquisition for interchange/intersection improvements.

- Access to the arterial network should primarily be from collector and local roads. Direct vehicular access from individual residential and employment lots should be discourged. Intersections along arterial roads should be kept to a minimum and should be controlled with lights and/or turning lanes or flyovers, as appropriate.

- Access to collector roads should primarily be from local roads. Direct vehicular access from individual lots should be reduced to a minimum.

- Any division of ten lots or more shall not have direct access on an arterial road.

b. Programs:

The following programs will be established to implement the general road policies:

i. The rights-of-way for major transportation corridors (arterial and collector roads) will be established by the Comprehensive Plan in advance of development.

ii. Dedication of road rights-of-way established in the Comprehensive Plan will be a factor in the approval of all rezoning, special exception, commission permit, subdivision, site plan, grading and building permit approvals.

iii. The acquisition of sites for public facilities should include the acquisition of such land as is necessary to implement the comprehensive road plan.

iv. Public facilities not located in designated Urban Growth and Rural Fringe Areas shall be located on arterial or collector roads whenever possible.

v. Improvements of all roads should be related to the defined purpose of each road and should be phased to accommodate increasing traffic loads caused by community development.

vi. The design and construction of rural roadway improvements shall be guided by VDH&T's "Geometric Design Standards for Rural Arterials, Collectors and Local Roads." It is recommended that prudent flexibility be used in the application of these standards in order that an important rural road improvement not be unreasonably deterred. For example, although minimum rights-of-way widths are generally desirable, it may be efficient and safe to construct an improvement within an adjusted right-of-way width. In such cases the improvement should be reasonable with respect to traffic safety, the use of the road, projected traffic volumes, the unique locational features of the road and protection of environmental, scenic and historical resources. Rural road improvements should be constructed in the most efficient feasible manner, consistent with the factors previously mentioned in this section, given the

need for numerous rural road improvements and limited financial resources for their accomplishment.

vii. Where disturbance of existing trees or natural growth is unavoidable, the County and the VDH&T should work with the local community to develop a landscaping plan and develop a public/private landscaping program to restore the road corridor to a visual equivalent of its former condition.

viii. Residential subdivisions developed adjacent to existing or planned arterial or collector roads should be designed with reverse frontage lots and/or vegetative buffers to reduce traffic entrances along the roads and attenuate the visual and acoustic impacts between these two land uses.

ix. The design of roadway improvements should take into account possible future use of the facility by public transportation, vanpools and carpools, including the provision of appropriate commuter park-and-ride lots.

2. Rural Road Recommendations

In the agricultural conservation areas the policies noted below will be established to achieve County goals:

a. A high priority shall be given to providing adequate width and weight capacity on the County's secondary roads and bridges for the movement of agricultural equipment and products.

b. A high priority shall be given to the correction of road hazards with special attention given to school bus routes.

c. Implementation of any but the most essential changes to roads which traverse scenic or historic areas shall be discouraged.

d. A cross county, north/south arterial roadway will be planned for western Loudoun, in order to supplement the function now performed by Route 15.

e. Given the magnitude of the ideal of projected improvements, actual future roadway improvements should be selective to provide the most benefit to the greatest number of users; therefore, secondary road improvements should be allocated on a priority basis with a growth management goal as a primary point of emphasis.

f. Residential Development Guidelines:

i. Provide sufficient right-of-way. Required right-of-way should be provided by developers for unpaved roads at no cost to State or County.

ii. Frontage improvements: Subdivisions over three lots should contribute to the improvement of adjacent secondary roads consistent with VDH&T standards. This contribution could involve the dedication of appropriate land for the secondary road's right-of-way, where required. In addition, the developer would be responsible for constructing frontage improvements along the adjacent secondary road in conjunction with construction of the subdivision, or placing adequate funds for the required improvement into an escrow account, to be used at the time the road would be improved.

3. Specific Transportation Implementation Recommendations

a. Develop and allow typical rural road section designs for paved and unpaved rural secondary roads, consistent with VDH&T standards.

b. Develop minimum setbacks on primary roads. These standards are being developed in conjunction with the comprehensive classification and priority evaluation tasks of the Transportation Improvement Program. These standards can be waived by the Planning Commission based on topography and existing vegetation that would preserve the rural character of the general area.

c. Require minimum setbacks on secondary roads. These setbacks are being developed in conjunction with updating the Transportation Improvement Program.

d. Re-examine cross sections for the rural areas to meet the needs of both local, residential roads that carry few vehicle trips, and the collector roads which carry higher volumes of traffic.

e. Public Facilities:

County capital investment should be located on roads with a maximum of public exposure and accessibility, i.e., Urban Growth Areas or arterial roads.

f. Road Design:

i. All road improvements should enhance the relationship between the road and the immediate community, whenever possible, through the retention of trees and natural growth along the border areas of the right-of-way, minimal disturbance of existing structures and careful design. Where disturbance of existing trees or natural vegetative growth is unavoidable, the County and the VDH&T should implement a landscaping program to restore the road corridor to a comparable appearance and create a visual context similar to the original road condition.

ii. New residential subdivisions developed adjacent to existing or planned arterial or collector roads should be designed with reverse frontage lots and/or vegetative buffers to reduce traffic entrances along the roads and attenuate the visual and acoustical impacts of the new construction.

4. Virginia Byway Recommendations

A Virginia Byway is defined as a road of high aesthetic or cultural value, and is designated by the State Highway Commission in cooperation with the Commission of Outdoor Recreation. Protection of a Byway corridor from obtrusive signage and unsightly development would be encouraged. The natural beauty of the road corridor should be maintained by land-use planning techniques such as easements, buffers, setbacks, sign regulations and zoning classifications.

Virginia Byway designation does not legally preclude widening or other road improvements, and does not in and of itself restrict land uses. The designation would simply recognize and encourage the aesthetic value of the corridor as a tourist, cultural, scenic and recreational asset to the State of Virginia and Loudoun County.

Many roads in the rural areas of Loudoun County comply with the definition of a Virginia Byway which is defined in the State Code as a road designated by the State Highway Commission as "having relatively high aesthetic or cultural value, leading to or within areas of historical, natural or recreational significance."

In light of this definition, the following roads in Loudoun County should be designated as Virginia Byways:

1) Route 734 (Aldie to Bluemont)
2) Route 626 (South of Middleburg)
3) Route 665 (Waterford to Taylorstown)
4) Route 15 (entire length except within the Town of Leesburg)
5) Route 690 (Hillsboro to Lovettsville)
6) Route 719 (Round Hill to Hillsboro)
7) Route 662 (Paeonian Springs to Waterford)
8) Route 797 (Mt. Gilead Road)
9) Route 704 (Hamilton to Rt. 15)
10) Route 698 (Old Waterford Road)

5. Transportation Improvement Program Recommendations

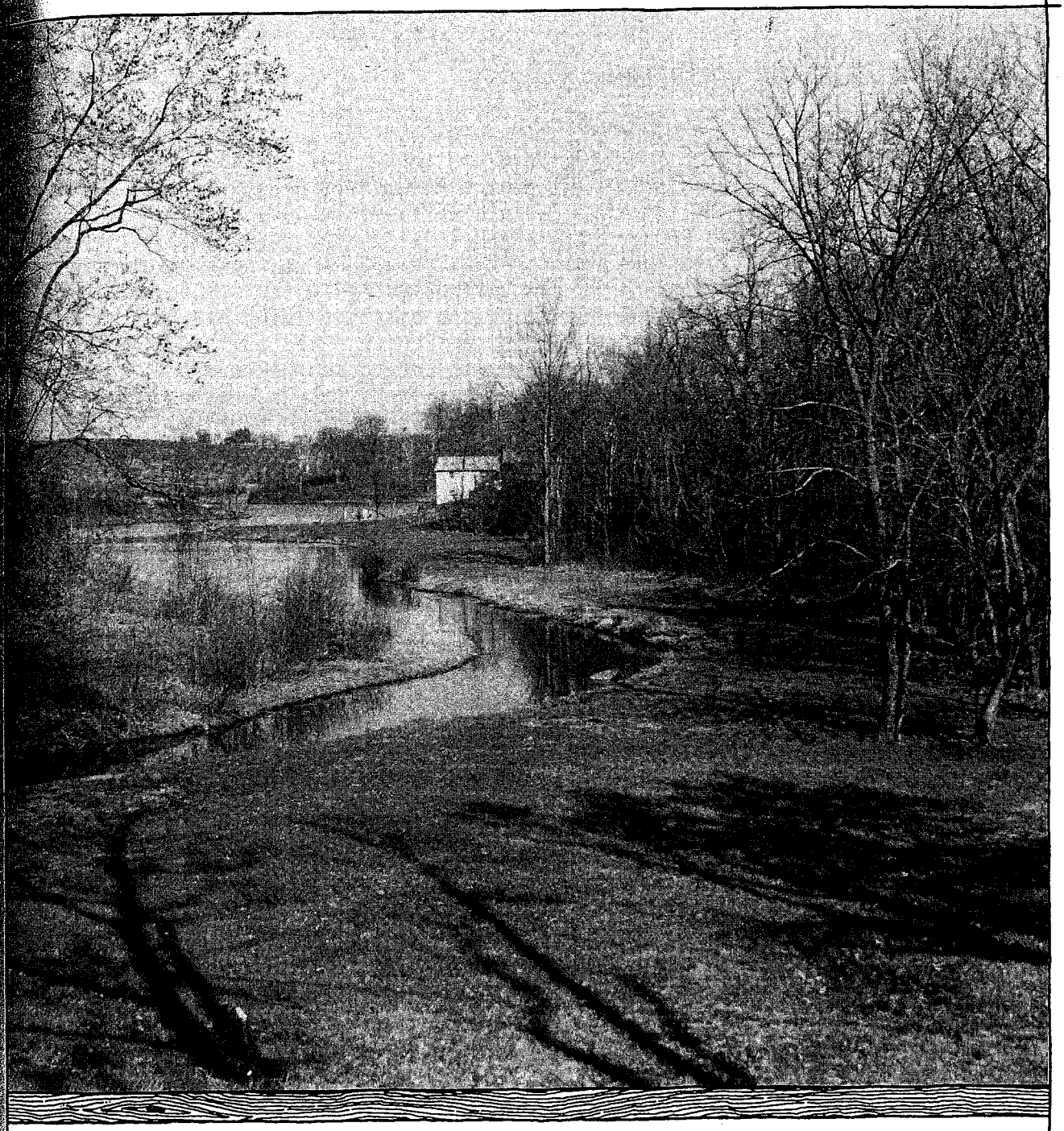
The following recommendations represent short (six years) and long-term (seven to twenty years) transportation improvement projects for rural areas of Loudoun County. Priorities are assigned to short-term projects. Priorities will be assigned to long-term projects through the multi-factor evaluation process previously described (see page 177). As this evaluation proceeds, high-ranking long-term projects will be advanced to the short-term priority list.

Short-Term Priority Projects

1) Complete Purcellville Bypass (Route 7)
2) Complete Round Hill Bypass (Route 7)
3) Begin Construction of the Middleburg Bypass (Route 50)
4) Develop a system of park-and-ride lots at selected sites convenient to Routes 7, 28, 50. Initially these lots would serve carpools, van pools and privately operated commuter express buses.
5) Improve selected non-tolerable roads.

Long-Term Projects

1) Route 15, expand to four lanes, Leesburg Bypass to Route 50,
2) Route 643, develop to rural collector standards, Leesburg Bypass to Route 625,
3) Route 7, expand to six lanes, Leesburg Bypass to Route 28,
4) Route 9, roadway improvements Routes 7/662 to Route 287,
5) Route 287, roadway improvements Route 9 to Potomac River,
6) Route 734, roadway improvements Route 50 to Route 611,
7) Route 611, roadway improvements Route 7 to Route 734,
8) Route 621, roadway improvements Route 15 to Route 860,
9) Expand park-and-ride lots,
10) Encourage carpool matching programs,
11) Expand Fixed Route and Commuter Bus Service along Routes 7 and 50,
12) Implement coordinated special transportation services.
13) Identify and implement necessary intersection improvements, safety improvements, and additional secondary system roadway improvements.



NATURAL RESOURCES

VIII. NATURAL RESOURCES

A. BACKGROUND, ANALYSIS AND ISSUES

Loudoun County's natural environmental resources have played a significant part in the County's settlement and land use pattern for over 200 years. The naturally productive soils, ample rainfall, surface and groundwater resources, subsurface geologic formations, hills and valleys, forests and wildlife have been and will continue to be the basis for many of the County's major industries such as agriculture and tourism. The associated rural lifestyle, with its scenic and historic quality, is one of the primary reasons new residents and businesses are located in Loudoun.

Natural resources should be seriously considered in any stage of the planning and development review effort as they form the basis for our source of water, provide the foundation for our roads and affect the air we breathe and the natural scenery we view. Natural resources are the media through which food and fiber are produced and through which waste products are disposed.

Failure to give due consideration to management and use of natural resources in a developing rural area can lead to costly future public improvements such as extension of public water and/or sewer systems where developments using wells and septic fields were placed on poorly suited soils, high repair costs where roads or public buildings were placed on soils with high water tables or high shrink-swell soils, or where lagoons, reservoirs, or other structures were placed over limestone soils (sinkholes). The desired quality of life can be adversely affected by not managing air quality, forest resources, and wildlife resources. The health, welfare, and safety of the public may be jeopardized by failure to consider floodplains, stormwater management, proper siting of waste disposal facilities, and provision of clean, protected drinking water sources.

1. Geology Background and Analysis

The geology of Loudoun County is very diverse, and includes some of the most complex materials found in any county of Virginia. Generally, it can be split into two groups with the line of demarcation being the Catoctin Ridge, which occurs just to the west of Route 15.

The eastern section (approximately 40%) is underlain by the red beds (siltstones, sandstones, and conglomerates), diabase, basalt, "baked shales" (thermally-altered rocks), and limestone conglomerate. The western part of the County

(approximately 60%) is underlain by granite gneiss, greenstone (metadiabase and metabasalt), phyllite, and quartzite. Generally, the geologic materials in western Loudoun have been sheared and warped to varying degrees, leading to a high degree of variability over short horizontal distances. The geologic materials in eastern Loudoun, while tilted to the west, have been left relatively unsheared. As a result, predictability of subsurface geologic materials is much higher in eastern Loudoun than it is in western Loudoun. Several aspects are of particular importance:

a. Diabase Rock: (See Figure 39, page 188.)

The 24,000 acres of diabase located east of the Catoctin Ridge is an important existing and potential economic resource. Diabase rock (trap rock) is quarried and crushed for multi-purpose aggregate and road base material. Presently there are five operating quarries employing approximately 150 people (See Figure 39, Page 188.)

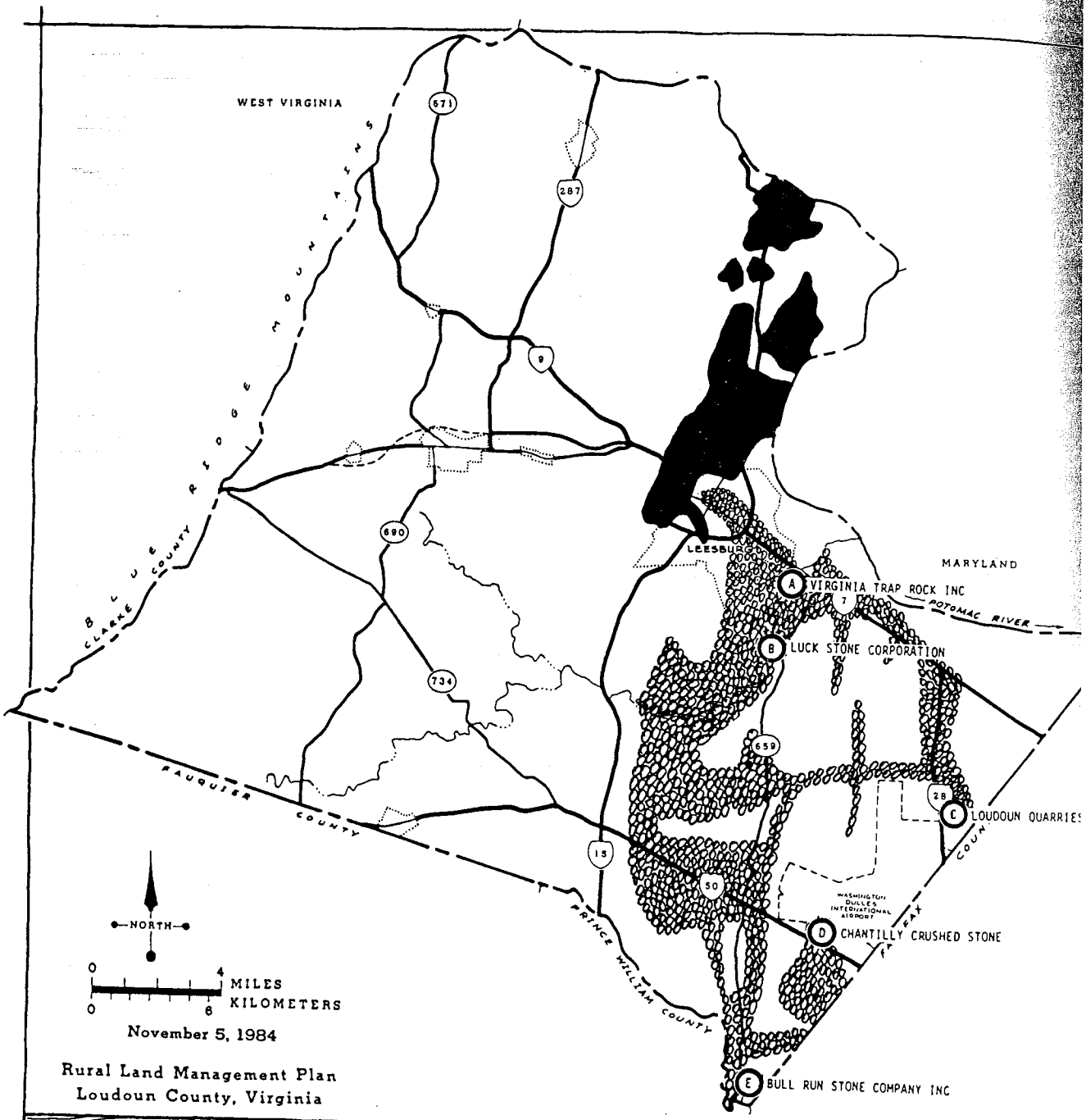
b. Shallow Depth to Rock:

The relatively shallow depth to fractured rock (redbed) areas of eastern Loudoun provides little buffer against pollutants entering the ground water.

c. Limestone: (See Figure 39, page 188.)

The limestone conglomerate formation occupies approximately 6,300 acres north of Leesburg, along Route 15. Due to its water-soluble nature, this area poses a general hazard to building and development, as well as a threat of groundwater contamination of public and private water supplies. Limestone conglomerate outcrops or sinkholes can be direct conduits to the ground water and through these features, surface water with agricultural wastes and pesticides sewage from a sewer line or drainfield, or petroleum products from a leaky fuel tank can easily contaminate large areas of ground water.

Limestone, marble, basalt, and gravel have been quarried in Loudoun County. Gravel deposits are essentially exhausted. Limestone and marble quarrying ceased because then-available pumps could not remove incoming water fast enough from quarry pits and/or because cheaper sources of limestone were available in nearby Clarke County and Frederick County, Maryland. Basalt, locally called "driveway shale", has been extensively quarried along Route 15 from Goose Creek to the Loudoun/Prince William County line for road and driveway sub base. At this time, no such quarries are active; however, there is a demand for materials found in those quarries, and future operation is, therefore, likely.



LIMESTONE AND DIABASE GEOLOGIC FORMATIONS

[Generalized]

Limestone Formation

Diabase Formation

Existing Quarry Operation

Source :
LOUDOUN COUNTY DEPARTMENT OF PLANNING, ZONING, AND COMMUNITY DEVELOPMENT

Figure 39

d. Uranium:

It is not known if there are uranium deposits in Loudoun. The County, however, is located within a similar geologic province to that where private industry has planned to explore for uranium in nearby Culpeper County. Since there are many unresolved problems with uranium mining, the Commonwealth of Virginia extended the moratorium on uranium mining in 1984 pending satisfactory resolution of potential problems and concerns related to proper land use and potential contamination. The potential hazards of uranium mining include ground and surface water contamination, air pollution, and soil degradation from mined products.

e. Oil and Gas:

There may be a potential for oil and gas production in Loudoun County. In addition to the major impact on land use, the environmental concerns of oil and gas exploration and development are potential groundwater and soil pollution.

f. Existing Regulations:

At the present time, the Zoning Ordinance classifies all types of mineral recovery operations as extractive industries. This extractive industry grouping encompasses the removal from a site of sod, rock, soil, gravel, or any mineral. This industry is regulated by Special Exception in the A-10, A-3, R-1, and C-1 Districts and is permitted by right in the I-1 District.

It has been demonstrated in the past that the current regulations do not adequately address environmental concerns and should be revised due to its vague and ambiguous standards. The subsurface instability of limestone conglomerate has not been previously addressed in any regulatory program.

2. Soils Background and Analysis

The general soils map of Loudoun County delineates broad areas with distinctive patterns in types of soils, landscapes, and general geographic appearance. This very general map conveys the major differences among soils and landscapes throughout the County. A typical county contains 5-10 map units, or separations (soil associations) on its soil map. However because of its geologic diversity, Loudoun County has 20 distinctly different soil associations. These soil associations are fairly equally divided between the area east and west of Leesburg and approximately 75% of the soil associations are found within the bounds of the planning area. Each of these soil associations has numerous soil types and detailed soil mapping units.

Approximately 40% (132,000 acres) of the soils in Loudoun have perched and/or high groundwater tables and slow internal drainage. Average depth to rock ranges from two to five feet (steep slopes) to 15-20 feet (undulating uplands) in Western Loudoun and 5-10 feet in eastern Loudoun. Mica schists on the eastern face of Furnace Mountain (Stumptown) and conglomerates near Evergreen Mills are the exception, and range up to 50-100 feet of rock. Three percent of the soils (over limestone conglomerate and mountain colluvium) have potential geomorphic instability (landslides or sinkhole collapse) problems, and approximately 16% (53,000 acres) of the soils are situated on slopes greater than 25% or are very thin soils on slopes from 15-25% along drainageways.

The detailed soil mapping units of Loudoun County have been grouped by their use potentials (potential for certain uses) for three major categories: general development on central water and sewer; conventional on-site sewage disposal systems; and agricultural, horticultural, and forestry practices. These groupings consider major soil and landscape features such as physical properties, slope, depth to rock, depth to water tables, stones and rock outcrops, soil productivity, and landscape relief.

a. On-site Sewage Disposal:

Twenty percent (66,000 acres) of the soils in Loudoun County have good potential for on-site sewage disposal. Fifteen percent (50,000 acres) have limited potential, and 65% (215,000 acres) have essentially no potential for conventional on-site, in-soil disposal of sewage. Soils with similar potential tend to occur together; this results in large blocks of land with little or no potential for individual sewage disposal, particularly east of Leesburg. Generally, single lot, on-site, in-soil conventional sewage disposal is a viable option for most of western Loudoun, but is not an option for most of the eastern half of Loudoun. Other means of sewage disposal will be required east of the Catoctin range such as centralized sewer or experimental technology (where permissible).

b. General Development on Central Sewer and Water:

Twenty-nine percent (96,000 acres) of soils have good potential for general development, with few major problems anticipated; 35% (116,000 acres) of soils have fair to poor potential for general development due to rock, slope, water tables, or shrink-swell clays; and 36% (119,000 acres) of soils have very poor potential due to

high water tables, steep slopes, flood plains, shrink-swell clays, and geomorphic instability. Large blocks of poor-potential soils occur over diabase and hornfel rock materials east of Leesburg and on flat (low relief) landscapes east of Leesburg (Ashburn Basin) and western Loudoun (St. Louis, Lovettsville, and Willisville). (See Figure 33, Page 116, and Figure 40, page 193.) .)

c. Agriculture, Forestry, and Horticulture:

Nineteen percent (63,000 acres) of Loudoun's soils are considered prime agricultural soils (as defined in the Interpretive Guide to the Use of Soil Maps for Loudoun County, Virginia, County of Loudoun, 1982); 7% (23,000 acres) are considered prime orchard soils; 34% (112,000 acres) are considered secondary cropland; 26% (86,000 acres) are considered best suited to grassland; 14% (46,000 acres) are considered best suited to forestry and wildlife; approximately 10-12% (33,000-40,000 acres) of that land is urban land; and less than 2% (7,000 acres) is covered by water bodies.

Better agricultural soils are generally located in western Loudoun, soils east of Leesburg have traditionally been valuable agricultural soils, although not well suited to continuous cultivation. Fifty-five to sixty percent of the County's land, about 190,000 acres (subject to reduction for urbanized land), has potential for rotated cropping systems. Conversion of viable farms to ten-acre lots has removed or seriously limited the use of these properties as productive farmland for large-scale conventional farm operations. (See Figure 32, Page 115)

d. Soil Erosion:

The majority of Loudoun soils have silty surfaces and silty or clayey subsoils. These soils have severe erosion potential when left unprotected, either in agricultural or urban uses. On the average, erosion from farmland produces 500 tons of sediment per square mile per year; development activity yields 10,000 to 100,000 tons of sediment per square mile per year (Water Resources Protection Technology, J. T. Tourbier and R. Westmacott, Urban Land Institute, 1981). Conversion to minimum tillage and no-till farm practice in the late 1960's and early 1970's has provided the farm producers and the rest of the citizens substantial benefits in reducing soil erosion, high surface water quality, and higher productivity. The current trends to intensive tillage soybeans and minimal crop rotation may reverse many of the previously accrued benefits.

e. Solid Waste Disposal: (See Figure 40, Page 193.)

The County has a minimal percentage of land well suited to cost-effective solid waste disposal. Desired soil/geological site criteria for solid waste disposal include:

i. a deep weathered zone (greater than 25'- 30') to rock

ii. Soil which is workable with earth-moving equipment

iii. thick separation from the ground surface to the water table

iv. mostly well drained soils

v. fairly level landscapes (no steep slopes or ravines)

f. Land Application of Sewage Sludge:

The County has a large acreage of soils suited to land application of Class A sewage sludge provided it is applied at agronomic loading rates (not detrimental to agricultural practices) and the application is properly monitored. Loading rates should consider yield potential of crop, metal content of soil and sludge, and soil characteristics such as drainage, pH, residual metal levels, and depth. More than 70% (230,000 acres) of Loudoun County has potential for sludge application at agronomic rates.

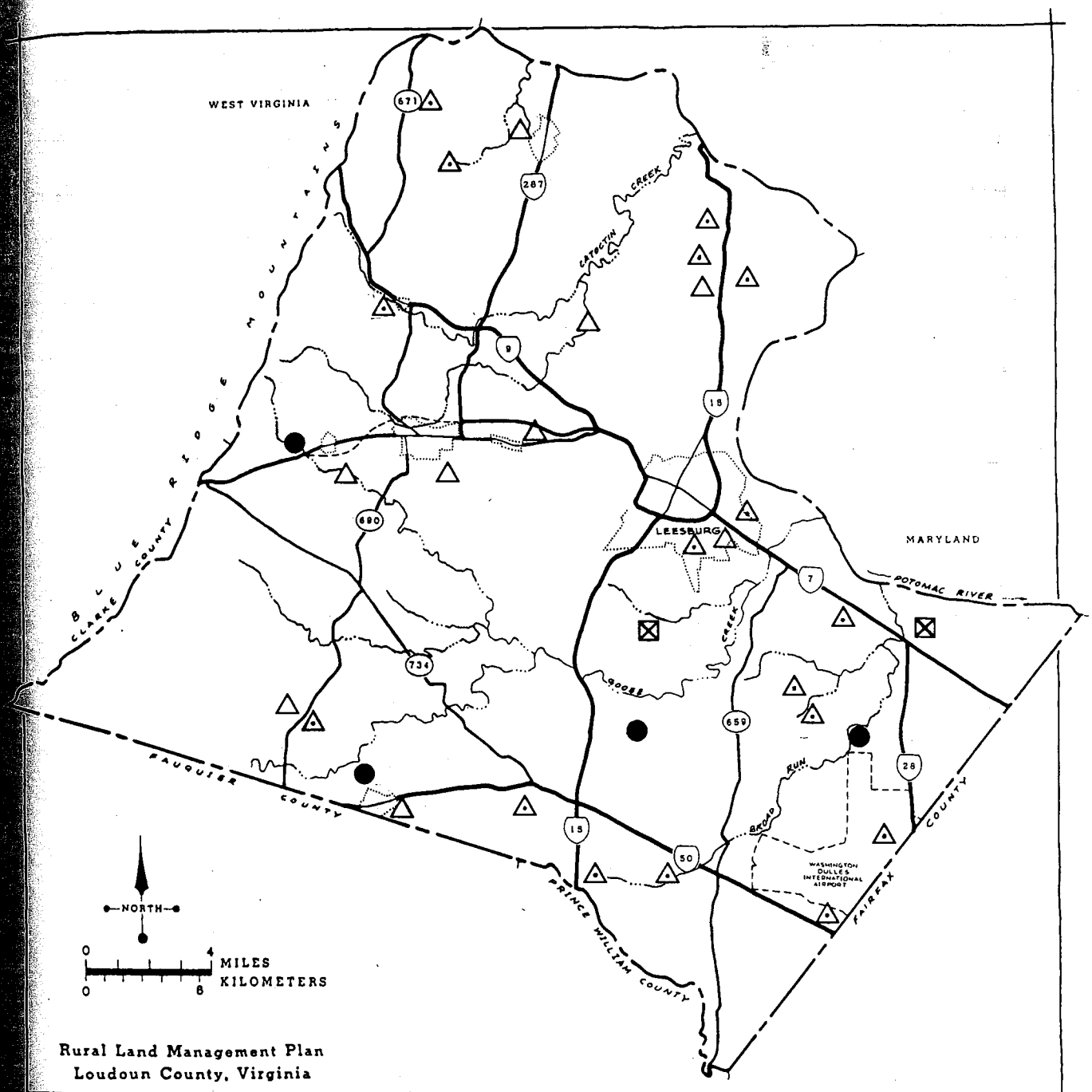
g. Spray Irrigation:

Soils in Loudoun may have some potential for waste disposal via spray irrigation; however, many soils are slowly permeable and have high water tables and a majority of upland well drained soils have silty surfaces which may impact irrigation rates.

h. Existing Programs/Regulations:

i. On-site Sewage Disposal

The on-site disposal of sewage is regulated by the State Department of Health through the Loudoun County Health Department, Division of Environmental Health, using an evaluation, permit, and inspection process. All decisions on site suitability are based on soil characteristics.



Rural Land Management Plan
Loudoun County, Virginia

WASTE DISPOSAL RESOURCES

△ Sewage Treatment Plants greater than 1000 gpd.

△ Sewage Treatment Plants less than 1000 gpd.

⊠ Landfills

● Dumps - closed

Figure 40

The Board of Supervisors in 1976 adopted Chapter 1066 of the County Code, setting forth conditions which in some instances are more restrictive than State Regulations. Most notable is the requirement for a drainfield repair area intended to assure a sewage disposal site for the life of the structure. State Regulations were revised in November, 1982, and Chapter 3.400 of the proposed Loudoun County Facilities Standards Manual* contains proposed technical revisions for Loudoun County. The 1982 State Regulations are nearly identical to regulations enforced in Loudoun County since 1976.

ii. Soils and Geotechnical Review

Currently, land development proposals are generally reviewed by County staff to screen for major soil engineering problems. There are no adopted standards for soils and geotechnical review. Standards for such review have been proposed in the draft Facilities Standards Manual to facilitate County review and engineering design of structures on poor engineering soils.

iii. Use Value Taxation Program

This is a tax deferment program available to owners of agricultural and forestal lands meeting certain conservation and production requirements. This program is further discussed on page 43 in the section on agriculture.

iv. Soil Erosion

All non-farm land-disturbing activities are regulated by the Loudoun County Erosion and Sediment Control Ordinance through an evaluation permit and inspection process. This Ordinance is administered by the Department of Technical Services, in cooperation with the Loudoun County Soil and Water Conservation district.

v. Solid Waste Disposal

Solid waste disposal is regulated by the State Health Department, Division of Solid and hazardous Waste, Culpeper, Virginia, using 1971 regulations. The County, in 1978, recognized that State enforcement was marginally effective and sought in Chapter 1080 of the County Code to provide a better regulatory framework. Under the administration of the

* Adopted, November 1984

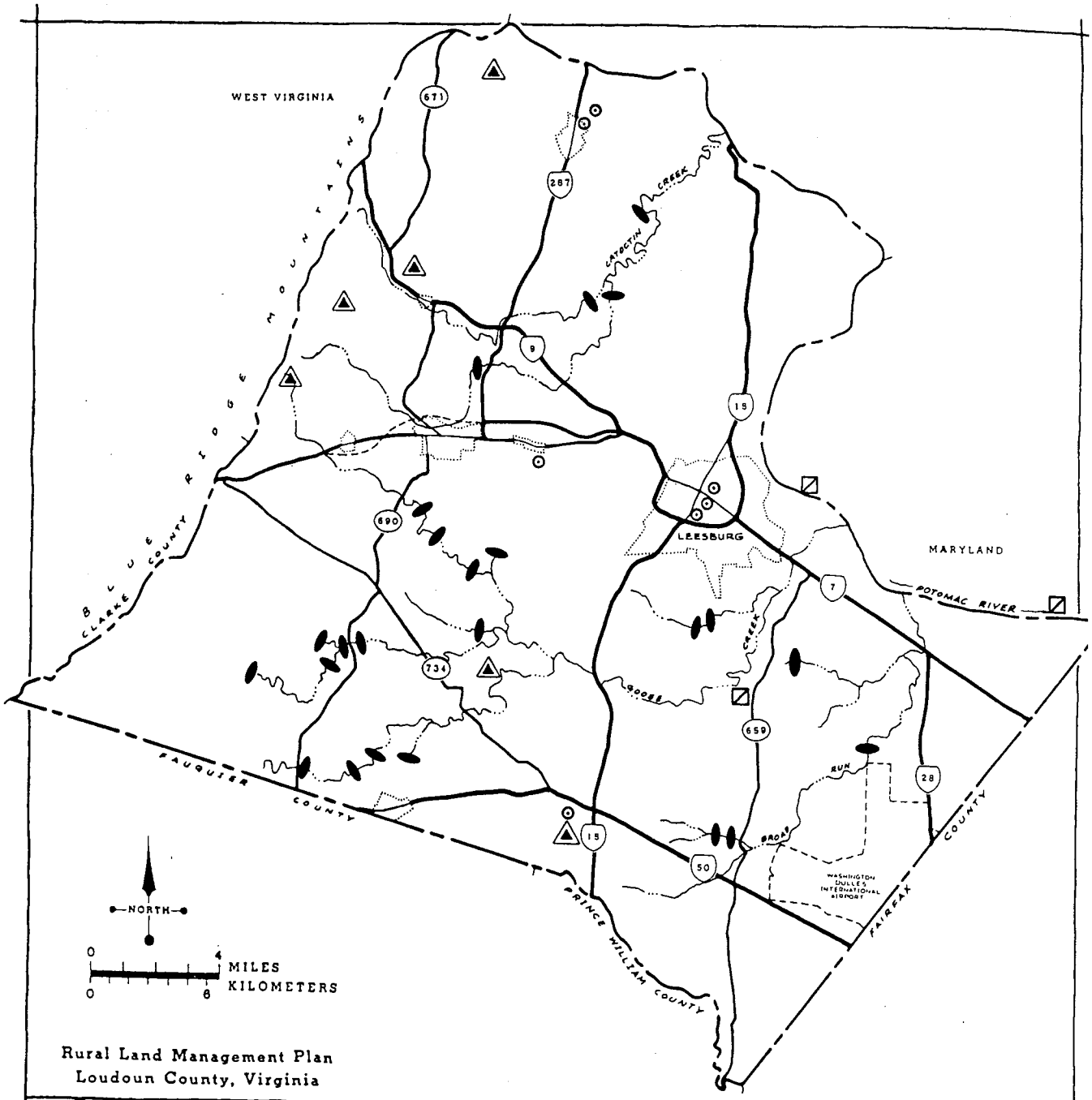
Environmental Health Division, great progress in employing solid waste disposal practices has been realized. Technical guidance in Chapter 1080 has, however, already been antiquated by rapidly changing technologies and update is necessary. A Board-appointed Task Force is studying this issue.

3. Water Resources Background and Analysis

The water resources of Loudoun County include springs and wells (ground water), impoundments (lakes or reservoirs), creeks, and a major river system (surface water). Major drainage systems in the County include Goose Creek, Broad Run, Catoctin Creek, Bull Run, and numerous minor tributaries to the Potomac; all of these drainage areas are part of the Potomac River Basin. Catoctin Creek (from Waterford to the Potomac) and Goose Creek (from the Fauquier/Loudoun Line to the Potomac) have been designated scenic rivers by the Commonwealth of Virginia. (See Figure 41, page 196.)

County residents rely on all four major sources of water identified above for their potable water supply. Currently, 39% of the population obtains its water solely from surface water supplies (Loudoun County Sanitation Authority), 17% from a combination of publicly-operated river and ground water supplies (Town of Leesburg), 4% from publicly-operated spring-fed supplies (Aldie, Hillsboro, Purcellville, Round Hill), 4% solely from publicly-operated wells (Hamilton, Lovettsville, Middleburg), and the remaining 36% from individual well and spring supplies. Several of these sources are not presently developed to the quantity and quality levels necessary for long-term use. Scenic river status, as previously mentioned, may restrict the future use of portions of Catoctin Creek and Goose Creek for impoundment sites. The water source for Brunswick, Maryland, is located west of Lovettsville, and consists of several springs on the slope of North Short Hill Mountain.

Due to minimal impervious surfaces, farming reduces flooding and storm runoff and maintains natural stream flow and recharge of ground water, thus protecting existing and potential surface and groundwater supplies (Urban Hydrology for Small Watersheds, Technical Release No. 55, Enginering Division - Soil Conservation Service, USDA, January 1975, Table 2-2, page 2-5). Some detrimental impacts can, however, be caused by pesticide and fertilizer runoff.



WATER RESOURCES

- Impoundment Sites - Potential
- Wells - Existing
- Springs - Existing
- Water Intakes - Existing

Figure 41

a. Ground Water:

Groundwater is the predominant existing source of individual and public water supplies and is the source for all or most of the potable water supply for 60% of Loudoun County's residents. Well yield varies greatly throughout the County, and is generally influenced by geology (see pages 188 and 196). The general relationship between rock types, water quality, and well yield is known, but better data are needed for water resource planning in the future.

Groundwater supplies can be limited in quantity. Well capacity may not meet anticipated future needs. Already developed wells may deplete the underground aquifer now being used. Large volume withdrawal, on a long-term basis, needs to be compatible with the geologic makeup (water-bearing layers) of the area. This could lead to a water-rich/water-poor situation where the citizens and other users of the water are not located in the areas best suited for use of ground water. The two major groundwater sources are wells and springs.

i. Wells

Wells may be easily contaminated and rendered useless by pollution sources such as improperly functioning septic systems, leaking fuel or heating oil tanks, improper handling of agricultural waste, improper disposal of solid and/or hazardous waste, etc. Sulphur is a potential problem in a very limited number of wells on the east face of the Catoctin Ridge and in extreme northern Loudoun. High calcium (hard water) is a problem in the limestone conglomerate area. The major natural contaminant in wells is iron, which is particularly prevalent in eastern Loudoun and in wells in greenstone in western Loudoun.

ii. Springs

Springs occur as points in the landscape where perched or permanent water tables come to the surface due to dense underlying strata and landscape relief. Thus, most springs are fed by shallow groundwater sources and are subject to frequent contamination. Since these groundwater sources are unpredictable, it becomes progressively more difficult to protect recharge areas from contamination and to ensure bacteria-free potability.

b. Surface Water

Any surface water supply is vulnerable to a variety of influences. Upstream uses such as waste disposal from municipal or industrial sites generally have the greatest impact, but agricultural uses such as feedlots and pesticide application in crop production, can also impact surface water supply. Quantity variability is a major factor directly influenced by the amount of rainfall.

i. River System (Potomac)

Currently Leesburg is the only jurisdiction in the County that has facilities to use this resource for raw water intake. Due to the size of the Potomac Basin, and the fact that the River itself falls totally outside the bounds of the County, the County can do little to influence the quality or quantity of water from this source.

ii. Streams and Impoundments

The County has an abundant surface resource made up of three major stream watersheds and several important subwatersheds or small streams. Some (Goose Creek, Beaverdam Run) are currently being used for public water supplies and a number of streams are used for public wastewater disposal. Loudoun County's surface water resources are currently underutilized. Planning for the location of future wastewater disposal and drinking water facilities is lacking.

iii. Potential Impoundment Sites

A number of potential sites suitable for development as public water supply and/or stormwater management facilities exist in the County. The sites with best potential are generally located on Figure 41, page 196 . Several of these have been lost to subdivision or other housing construction. As the County grows, these sites will take on new importance as sources of needed water.

c. Amenity Value and Social Cost:

The surface water supplies (rivers, streams, and impoundments) have an added benefit of providing important scenic and recreational uses. The incorporation of these values in water supply management can add to the quality of life and benefits to Loudoun citizens.

d. Land-use Changes Affecting the Landowner:

Any surface water system is directly influenced by the watershed characteristics that affect runoff. The most important is its land use. Due to the minimal impervious surface inherent to croplands, farming reduces flooding and maintains natural stream flow and groundwater recharge, thus protecting existing and potential surface/groundwater supplies. Current and future residential buildings, roads, changes in agricultural crops, etc. will all lead to added nonpoint source pollution by sediment and chemicals. Increased flows from impervious and paved areas can increase velocities and accelerate stream bank erosion. All of these factors will have a detrimental long-term effect on both the quality and quantity of surface water use.

e. Regulatory Framework:

i. Ground Water

"Groundwater Used for Drinking", Chapter 1040 of the County Code, regulates all wells constructed for groundwater withdrawal. Enforced by the Division of Environmental Health, these regulations are intended to protect the ground water from surface contamination caused by poor construction practices as well as to protect water quality for consumers. These regulations do not control wells drilled for oil or gas extraction, or for mineral exploration.

ii. Waste Water Treatment

The collection, treatment, and discharge of wastewater (sewage) into Loudoun's streams and rivers is regulated by the 1977 Sewerage Regulations, jointly administered by the State Water Control Board and the State Health Department. Chapter 1066 of the Code provides for local permitting of sewage treatment plants, ensuring local government review. Generally, small treatment plants are regulated by the Division of Environmental Health and larger plants producing 25,000 gallons per day or more are overseen by the State Health Department, Division of Wastewater Engineering.

National Pollution Discharge Elimination System (NPDES) permits are issued by the State Water Control Board based on existing and desired stream water quality. As a rule of thumb, sewage effluent must be at least as clean as the water receiving it prior to discharge.

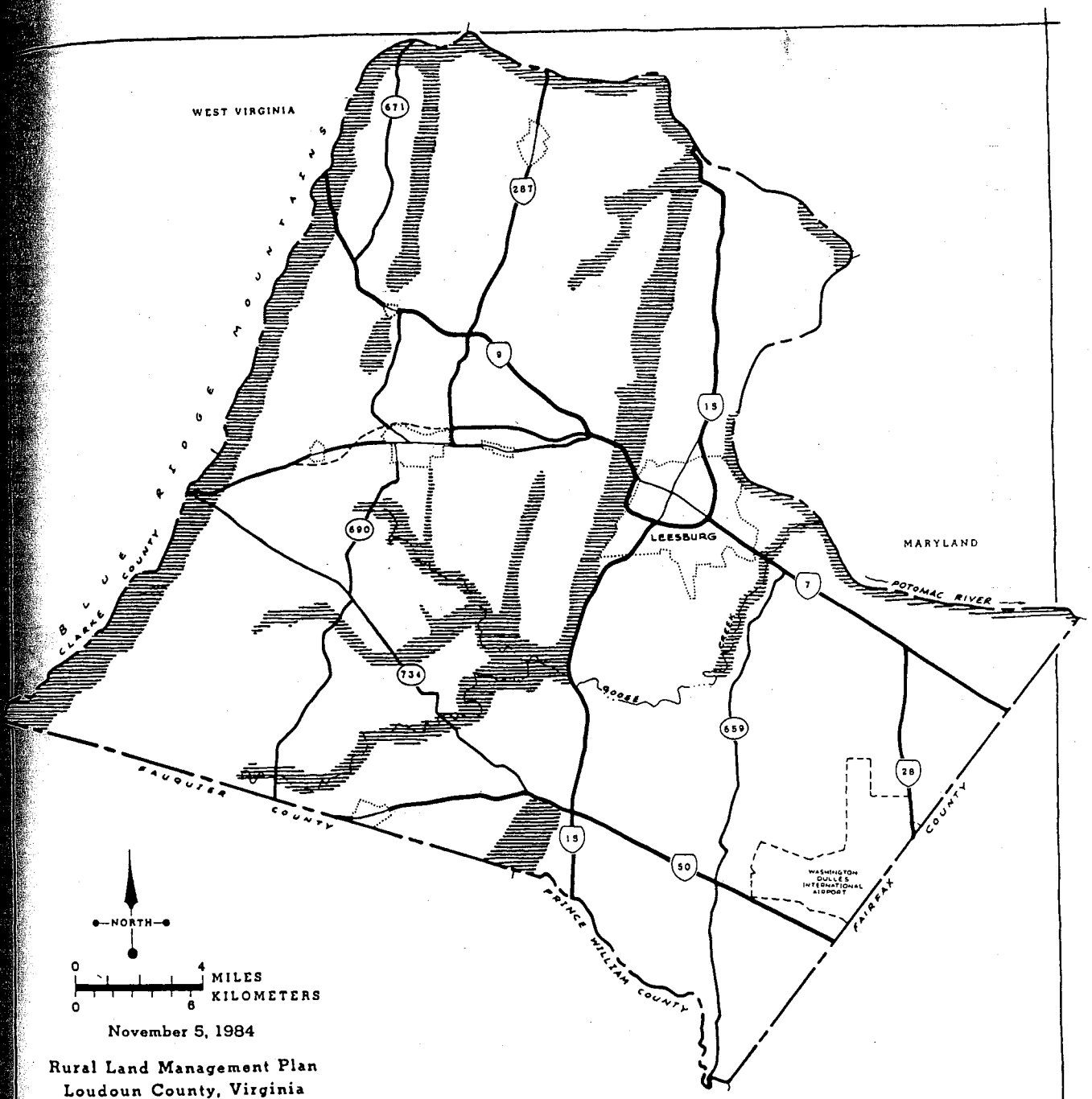
More stringent discharge limitations apply to the Occoquan, and Dulles Area (Loudoun County east of the Catoctin Ridge) watersheds, in order to protect water supply intakes and reservoirs serving eastern Loudoun, Fairfax, and Metropolitan Washington. New sewage treatment discharges are prohibited in these areas unless they are to correct or improve substandard existing discharges or failed on-site sewage disposal systems.

4. Landforms (Geologic Setting/Topography) Background and Analysis

The geologic setting of Loudoun County ranges from broad flats east of the Catoctin range and drainage divides in western Loudoun to highly dissected uplands along major drainageways to mountains. Elevations above mean sea level range from 180-1,900 feet. Two major landforms, steep slopes and floodplains are considered critical environmental areas due to the potential for environmental hazards (e.g., erosion and sedimentation, stormwater damage to roads and structures, and possible pollution of surface water.) Other landforms such as mountainside slopes with colluvial (ancient landslide) deposits and broad upland summits drainage divides) are considered environmentally sensitive areas due to their potential for slippage (new landslides) and inherent drainage (water table) problems which should be considered in any proposal for their use. Mountainsides, particularly the three parallel north-south ridges (Bull Run-Catoctin-Furnace, Blue Ridge, and Short Hill) are a significant County scenic resource and wildlife habitat.

a. Steep slope areas occupy 53,000 acres (16%) of Loudoun County and if improperly used could present potential hazards, including downstream flooding, erosion, building and/or road failure, and environmental pollution. In addition to avoiding environmental hazards, maintenance of steep slope areas in their original undeveloped state can provide prime wildlife habitats. (See Figure 42, page 201.)

b. Hundred-year flood plains occupy 22,000 acres (6.6%) of the County and are generally unsuitable areas for construction or land-grading alteration due to their hazardous nature and use in cost-effective long-term stormwater management. (See Figure 43, page 202.)

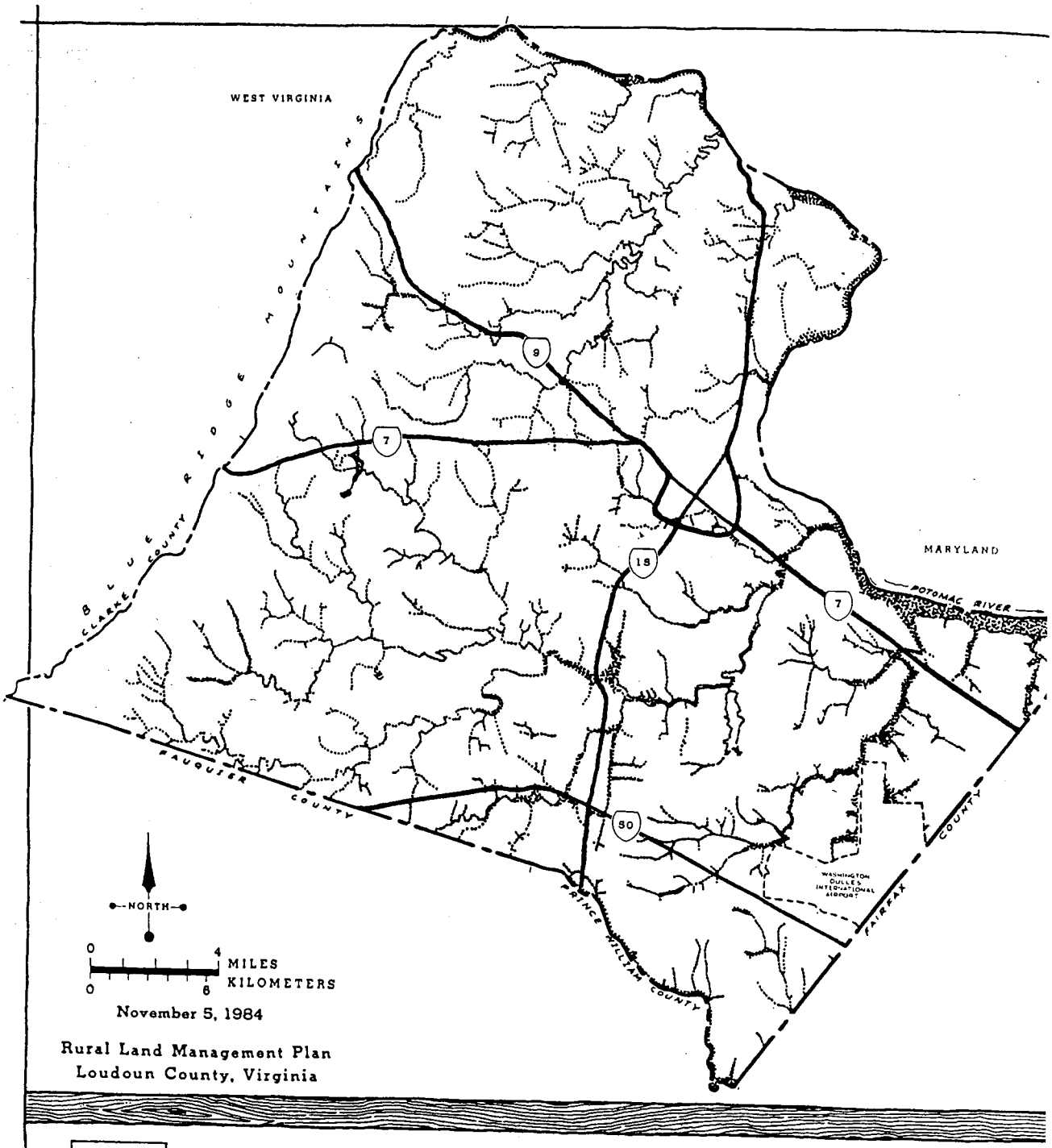


STEEP SLOPES , 15% AND OVER

[Generalized]

Source :
LOUDOUN COUNTY DEPARTMENT OF PLANNING, ZONING, AND COMMUNITY DEVELOPMENT

Figure 42



100 YEAR FLOODPLAIN

[Generalized]

Source :
LOUDOUN COUNTY DEPARTMENT OF PLANNING, ZONING, AND COMMUNITY DEVELOPMENT

Figure 43

c. Existing Programs/Regulation--Loudoun County flood-plain ordinance.

5. Vegetation and Forest Resources Background and Analysis

A total of 99,000 acres (30% of Loudoun County) is in forest cover; of this total, 66,000 acres are in privately owned farms, 26,000 acres are in miscellaneous private ownership, and 7,000 acres are in public ownership. Approximately 300 acres per year are presently being reforested in Loudoun County of which one-third is in Christmas tree plantations. The largest Christmas tree operation in the State is in Loudoun County. Owners of small tracts account for the remaining acreage being reforested in Loudoun with the planting of windbreaks, buffers, noise screens, etc. (See Figure 44, page 204.)

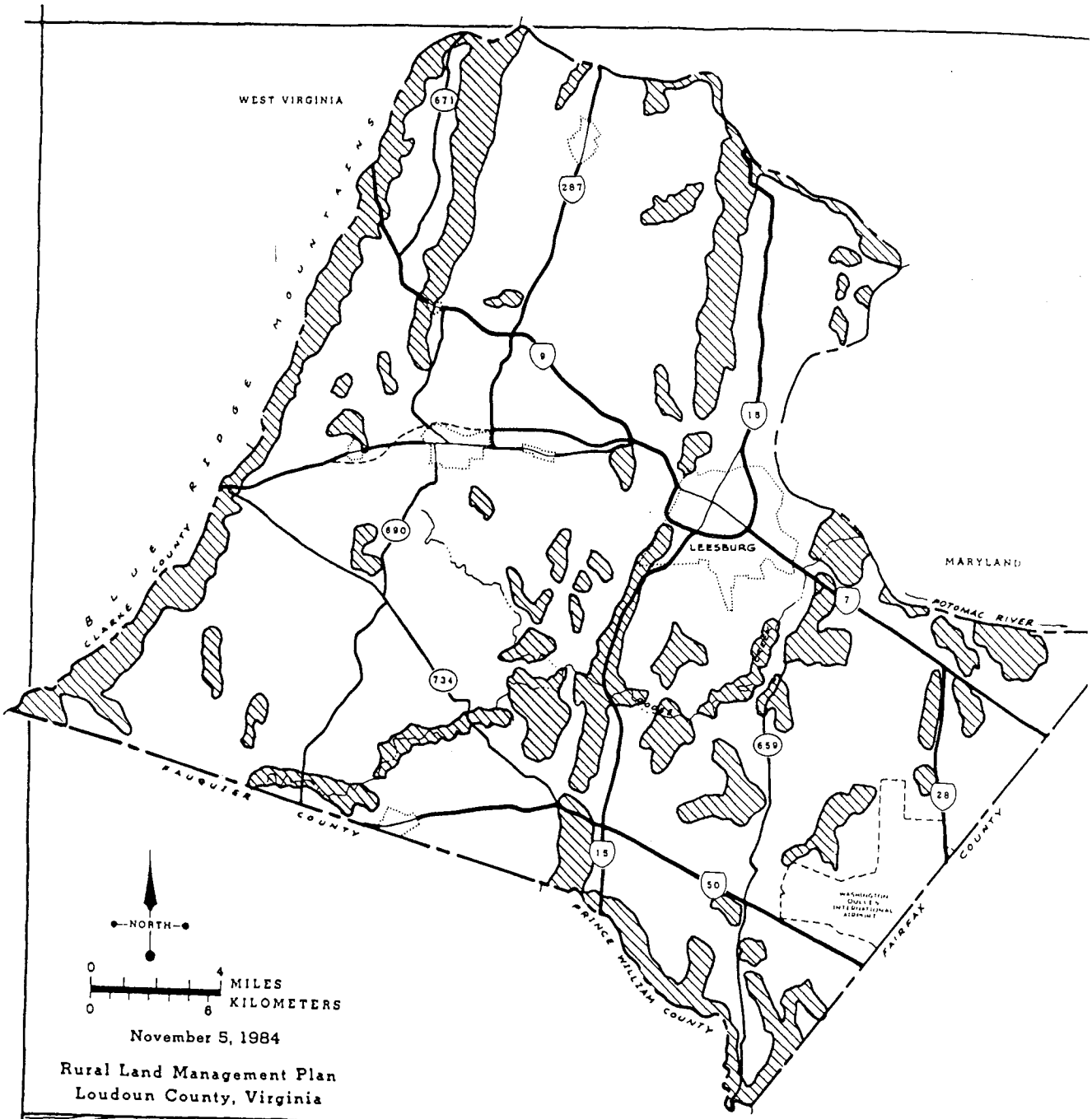
Loudoun County is blessed with some of the finest hardwood soils and subsequent hardwood stands in the State of Virginia. Over one million dollars' worth of hardwood is harvested each year, through the sale of veneer and saw logs as well as firewood to a relatively small-scale commercial industry.

Reforestation of such hardwood stands is on a natural regenerative basis. The greatest management need is for timber stand improvements of overstocked mixed hardwoods. New plantings of hardwoods are not feasible in Loudoun County due to the land values, taxes, and lengthy isolation period needed for hardwood growth.

For many years Loudoun County farmers have been fighting noxious weeds (e.g., thistles, johnsongrass, and multiflora rose) in the pastures and crop fields. The use value assessment program, which is administered by the Commissioner of the Revenue, requires all participants to control their noxious weeds by either chemical or mechanical means. Many landowners have had problems in recent years from weeds on neighboring lands that are not in the use value assessment program. Seeds from those weeds are carried by the wind to controlled fields. Noxious weeds on State-maintained road banks are also a major seed source which contributes to the spread of these weeds on adjacent land.

6. Wildlife Resources Background and Analysis

In urban/suburban areas, wildlife habitats are permanently altered and reduced in size. Loudoun's agricultural areas contain numerous open fields, pasture land, natural water courses, forested areas, and edges between fields and woodlands that provide necessary cover and food for fish and wildlife species, which encourage habitat diversity.



MAJOR WOODED AREAS

[Generalized]

Source :
LOUDOUN COUNTY DEPARTMENT OF PLANNING, ZONING, AND COMMUNITY DEVELOPMENT

Figure 44

a. Loudoun County has little specific information on the numbers or importance of wildlife species, particularly for non-game animals.

b. Game species are a recreational resource for hunting and fishing.

c. Wildlife species are a crucial element in the natural system; they may provide important public benefits to the agricultural industry which should be investigated further.

7. Air Background and Analysis

Air pollution in the County is caused primarily by automobile emissions, aircraft emissions, home heating furnaces, and fireplaces/woodstoves. Air quality in the County is generally considered good.

a. Automobile emissions are caused mostly by engines at idle, since combustion is less complete. Congested areas, therefore, contribute pollutants at a higher rate than do rural areas. Agricultural land use results in less automobile travel, and hence in lesser incidence of this pollution source, than do suburban developments.

b. Aircraft emissions, while minor, contribute pollutants during takeoff.

c. Increased popularity of woodstoves can be expected to produce an adverse impact on the air quality of densely populated areas during cold weather. Research on a National scale is currently underway to assess potential impacts.

d. Commercial coal users such as the PEPCO power plant in Dickerson, Maryland, contribute heavily to Loudoun County's air pollution levels under certain wind and climatic conditions. A second power plant site in Maryland near Point of Rocks is currently under discussion.

e. Open areas, such as Loudoun's farmland, provide an important clean air source which helps to reduce regional air pollution.

Issues

1. How, and to what degree, should resource extraction/mining be regulated at the county government level? How should potential uranium, gas, and oil extraction be regulated in order to protect the environment and public health and safety?

   Extraction and mining activities are not adequately regulated in the County at this time. This plan recommends that a resource recovery overlay zone be established and that the State moratorium on uranium mining be supported until potential impacts can be determined.

2. To what degree should the County manage groundwater resources?

   Groundwater resources are not presently managed to any significant degree in terms of long-range planning. This plan recommends that well data be systematically gathered and monitored and that specific regulations be adopted to reduce the probability of contamination in limestone conglomerate areas.

3. Should the County preserve major impoundment sites for public drinking water supply/stormwater management systems. If so, by what means?

   This plan recommends that potential impoundment sites be identified and mapped, and that easement proffers be encouraged for the adjacent lands in order to protect the future water supply capability.

4. Should development density be granted for flood plains and steep slopes for the purpose of transfer to non-critical areas?

   This plan recommends that flood plains and steep slopes not be granted density credits for transfer purposes, because the inherent development potential of those lands is minimal or negligible.

5. What are the appropriate methods to preserve unique natural and cultural resource areas?

   This plan recommends that incentive programs such as density transfer be used to protect open space and farmland resources, and that regulations combined with incentives be used to protect water quality, forest resources, and the soils base.

6. At what lot or development size should development review standards be imposed?

   Substantial development review efforts should be instituted for developments of all kinds that may have regional or area wide impacts.

7. By what mechanism can or should sewage disposal problems be resolved in rural areas with soils unsuited to sewage disposal?

   Central public sewerage systems should be extended to areas with severe sewage disposal problems only according to the provisions and standards set forth in this and other area plans, particularly regarding timing, location, ownership, and funding.

8. Should conservation of soils be enforced through the use value assessment program? Is present enforcement adequate? How can proper enforcement be better achieved?

   Present enforcement methods through the use value program are only partly successful. The memorandum of agreement between SCS and the Commissioner of The Revenue should be strengthened, promotion of conservation efforts should be expanded, and enforcement rules should be strictly applied to flagrant violators.

9. Should conservation of forest resources be enforced through participation in the use value program?

   As with soil conservation, forest resource conservation should be encouraged through participation in Use-Value.

10. Is agriculture, as practiced in Loudoun, generally compatible with the County goals for natural resource management and conservation?

    Yes. Although agricultural land uses do sometimes produce negative environmental impacts, they are very low intensity land uses and therefore cause relatively less impacts than do other, more urban, land uses and are generally compatible with and supportive of natural systems.

11. Is non-point source (fuel oil tanks, sludge, fertilizers, pesticides) pollution adequately controlled?

    There is a need for an assessment of non-point source pollution to determine whether or not the levels are excessive and threaten the public health and safety.

B. NATURAL RESOURCE / ENVIRONMENTAL GOALS

1. Manage natural resources so as to best protect the health, safety, and welfare of Loudoun County's citizens by keeping potential environmental hazards to a minimum.

   Many environmental features have characteristics which can pose serious health and safety hazards to local citizens if those features are not properly and sufficiently managed. Sinkholes, floodplains, and steep slopes among others, cause or allow damage to buildings and threaten lives and health if the inherent risks and limitations are not adequately considered and addressed during the development process.

2. Consider natural resource constraints in the review of development proposals to minimize the fiscal impact arising from extension of unplanned public utilities, and/or improper design and construction.

   Certain natural features such as floodplains and steep slopes present various constraints on new construction. Those inherent constraints should be taken into account during the planning and development process in order to keep repair and replacement costs to a minimum and to avoid other excessive fiscal impacts that can result from development that is improperly sited or constructed.

3. Manage and conserve natural resources to provide for future public needs.

   The local natural environment provides citizens with many basic and essential needs such as clean air and drinking water, scenic beauty, productive agricultural soils, and firewood for heating, among others. These resources should be carefully managed and protected in order to ensure their long-term quality and availability to local citizens. Proper management will help keep fiscal impacts to a minimum by providing economical sources for water, food, fuel, and other essential products.

C. NATURAL RESOURCE / ENVIRONMENTAL IMPLEMENTATION RECOMMENDATIONS

Conclusions

1. Natural Resources and Agricultural Land Use

   During the formulation of the Rural Plan, it became apparent that Loudoun County stands at a crossroads with respect to managing its natural environment. Rural land uses in the County, specifically agriculture, have achieved a relative balance with that environment over the past 200

years. Most major existing and potential environmental problems in rural areas, such as soil erosion or water pollution, are addressed either by established local institutions such as the Soil and Water Conservation District and Soil Conservation Service, or by Federal, State, and regional programs such as the Clean Water Act and its 208 Water Quality Program. When contrasted with more intensive urban/suburban land uses, agriculture in general has much less impact on natural resources.

2. Impact of Changing Land Use, Growth, and Development on Natural Resources

As Loudoun changes from a predominantly rural, agricultural county to a more developed, suburban community, conservation and management of natural resources will require greater attention. During the next ten to twenty years, erosion control, flooding and stormwater management, vegetation retention, public open space, and construction in poor soils will all become more prominent issues than at present. The existing, essentially benign, method of managing the environment may require modification to a more active and comprehensive approach.

3. Agriculture is Compatible with the Natural Environment

The County's natural resources (soil, water, hillsides, forests) have not yet been altered or damaged to any great extent. This is because agriculture, as generally practiced in Loudoun, is essentially compatible with the natural environment and is, therefore, a preferred land use in rural Loudoun from an environmental perspective.

4. Citizens Should be Protected from Potential Environmental Hazards

The County should continue its efforts to develop environmental policies programs and standards with the purpose of protecting the health, safety, and welfare of its citizens in potentially hazardous areas. One of the more serious issues identified in the Plan is the County's need for a coordinated management approach for the mining and extraction of surface and subsurface deposits, as it is an important existing and potential industry that is incompatible with many other land uses, particularly residential.

5. Incentives Should be Used to Protect Unique Natural and Cultural Areas

Incentive and educational programs are the most appropriate methods for protecting unique natural and cultural areas. These include wildlife habitats of threatened or endangered species, rare landforms, forest or plant communities at range limits, scenic areas, and historic trees.

6. A Comprehensive Environmental Inventory and Data Base is Needed in Loudoun County

As previously stated in the Resource Management Plan the County does not know the exact location of many of the environmentally critical and sensitive areas. The need for a comprehensive environmental inventory with an accompanying management program will become more important in the next five to ten years as the County continues to grow and develop. Actions which should be taken include:

a. determination of the existing condition of the County's environmental resources in order to establish and maintain a useful data base, and

b. development of integrated natural resources/land based information (data base) to provide faster, more accurate information for future land use decisions.

7. A glance at a countywide soil map indicates that many large areas of land are not suitable for on-site sewage disposal. Examples are the Ashburn, Waxpool, and Arcola areas east of the Catoctin range and the Willisville, St. Louis, and southwest Lovettsville areas to the west. The soils in some of these areas are such that even one septic system per 500 acres may not be attainable. In many instances soil conditions preclude development of tenant houses. Even provision of on-farm housing for family members is impossible or extremely difficult at best.

Recommendations

1. Geology Recommendations

a. Natural Resource Extraction

Policies

i. Promote the development and extraction of commercially valuable natural resources in Agricultural Conservation areas while protecting the public from safety and health hazards, minimizing nuisances and environmental degradation.

ii. Prohibit natural resource extraction in urban growth areas, rural fringes, and rural villages.

iii. Support the Commonwealth of Virginia study and moratorium on uranium mining until it can be demonstrated that such extraction can be conducted safely.

iv. Prohibit uranium mining in Loudoun County until its problems are resolved.

v. The exploratory phase of gas and oil extraction is potentially more detrimental to the environment than the actual production phase. All phases of gas and oil extraction should be prohibited until proper safeguards can be developed.

Programs

Develop and adopt an effective resource recovery zone section in the Zoning Ordinance that incorporates the following:

i. Noise and vibration standards and suitable buffer and setback requirements for extraction operations to adequately protect public safety, prevent property damage, and minimize nuisances to incompatible adjacent land uses.

ii. A requirement that all applications for extraction and mining operations contain an engineering and geologic (geotechnical) report that addresses the following:

- Feasibility of the existing formation or deposit for extraction

- Effects of the extraction on nearby existing groundwater supply sources
- Impacts of blasting on nearby structures
- Proposed program to monitor short- and long-term damage to structures and degradation of water supplies
- Effects of required dewatering on groundwater resources and land stability
- Site Reclamation/Dust/Soil Erosion Control

b. Limestone Conglomerate Outcrop Belt

Policies

i. Require geotechnical reports and require engineered solutions to problems for all subdivision proposals with lots less than ten acres in size, proposals for waste disposal sites (including agricultural lagoons), and proposals for large ponds in the limestone outcrop belt.

ii. Require drainfields to be located a minimum of 100' from the low points of sinkholes (50' from their outer edge), and that absorption trench bottoms and sides be at least four feet from the limestone rock.

iii. Require installation of petroleum product tanks above the ground surface, or the use of fiberglass or other corrosion-resistant tanks.

iv. Encourage owners of confined livestock operations without a waste management system to plan a system and to consult with the Loudoun Soil and Water Conservation District for assistance to receive a non-discharge permit from the State Water Control Board.

2. Soils and Soil-related Activities Recommendations

a. Soil Evaluation in Proposed Land Use Change

Policy

Proposed land use changes shall be compatible with existing soil constraints or provide necessary corrective measures to protect the health, safety, and welfare of the public and minimize environmental degradation and the necessity for future publicly-funded improvements.

Program

Require the preparation of a detailed soil and geotechnical study for proposed land use changes and developments in soil types identified as having poor and very poor potential for development. Such reports shall generally evaluate site conditions and recommend design parameters, consistent with County policy.

b. Regulation of Non-point Pollution Sources

Policy

Inventory and monitoring of the existing pollution levels and sources.

Program

Support the State of Virginia's efforts to monitor and limit non-point source pollution.

c. Soil Conservation

Policies

i. Preserve and manage the valuable soil resoures of Loudoun County for agricultural, horticultural, and forestal use to the maximum possible extent.

ii. Continuation of Use Value Taxation Program to encourage conservation of soil resources. Stronger enforcement aimed at flagrant violators should be encouraged as well as promotional efforts to encourage farmers to conserve soils.

iii. Encourage small-scale intensive farming such as Christmas tree and vegetable crop production.

Programs

i. Continue to reduce the negative affects of erosion and sedimentation through the Loudoun County Erosion and Sedimentation Control Ordinance.

ii. Continue support of existing memorandum of understanding between the Loudoun Soil and Water Conservation District and the County Commissioner of the Revenue that requires all applicants for use-value assessment to cooperate with the District in an approved conservation plan to minimize soil erosion. Review that agreement in order to determine if it can or should be strengthened.

d. On-site Sewage Disposal

Policies

i. Permit on-site sewage disposal (septic tanks) only in those areas where site and soil conditions are such that the on-site disposal system can be expected to function satisfactorily for the life of the structure or until public sewer is made available based on plans and projections contained in the Rural Land Management Plan.

ii. Continuously investigate alternate technologies to septic tank drainfields that might some day make individual sewage disposal systems possible in restricted or unsuitable soils.

iii. Encourage the repair or replacement of failed septic tank drainfields in the most cost effective manner.

iv. Educate the public in the necessity for individual sewage disposal maintenance and care in order to promote longevity.

v. Determine a long-term solution to the problem of pump-and-haul septage disposal.

Programs

i. Amend by local ordinance State-mandated sewage disposal programs to meet Loudoun's specific needs.

ii. Require lots to have sufficient repair sites for the life of the structure or provide sewer easements for future use, as appropriate.

iii. Coordinate planning and housing rehabilitation programs to upgrade and correct existing sewage disposal problems.

iv. Monitor, survey, and continuously assess sewage disposal needs and problems countywide.

v. Develop a long-term septage disposal method.

e. Solid Waste Disposal

Policy

Permit solid waste disposal facilities only in suitable locations as outlined; require regular monitoring of surface and groundwater to assess pollution migration.

Program

Revise the County Solid Waste Ordinance to reflect the policy.

f. Soils Data Base

Policy

Improve quality and availability of County Soil Survey for land use planning and development review.

Program

Complete the update of the Soil Survey of Loudoun County and computerize the maps for use in the Natural Resource Data Base.

3. Water Recommendations

a. Ground Water

Policy

Continue regulation of water well installation and use.

Programs

i. Maintain Chapter 1040 of the County Code, and implement the County Facilities Standards Manual.

ii. Maintain a data base on well-drilling activities in order to monitor and predict groundwater quantity and quality.

b. Surface Water

Policies

i. Protect existing supply sources from contamination to minimize costs of water treatment and maintain water quality.

ii. Identify and monitor the condition of potential water supply/stormwater management impoundment sites for future use.

iii. Encourage the proffering of a regional stormwater management facility when land surrounding a targeted impoundment site is developed.

iv. Develop a County stormwater management policy.

Programs

i. Identify and map the 25 largest or most suitable potential water impoundment sites.

ii. Review subdivision/development proposals on all targeted water impoundment sites; use outright purchase or density transfer to acquire sites scheduled for alternate uses; keep the Board of Supervisors advised of status. Formulate a definite plan for future countywide water needs, and select the best sites for long-term water storage, sewage treatment facilities, and fuel storage.

iii. Record (map) known sources of pollution such as dumps, chemical storage, sewage treatment facilities, and fuel storage.

iv. Adequately evaluate the impacts of present and proposed land uses, alterations, and practices on existing and designated potential public water supply sources in rural Loudoun.

v. Ensure that wastewater treatment methods to serve proposed cluster developments shall be compatible with existing soil and water conditions and with policies of the Loudoun County Sanitation Authority and the Loudoun County Health Department, Division of Environmental Health.

vi. Place all centralized wastewater treatment facilities under the management of the Loudoun County Sanitation Authority or other governmental jurisdictions (towns).

vii. In those areas where significant failures of on-site sewage disposal systems cannot be solved by the individual homeowners involved, the Sanitation Authority will assume a technical advisory role in determining an appropriate solution. While the Sanitation Authority will give such assistance as needed to bring about an effective solution, the financial responsibility for the improvement of existing systems or construction of new systems and their operation will be borne by the users involved, although alternative funding sources and strategies should be developed.

4. Landforms Recommendations

a. Floodplains

Policy

One hundred year floodplains, as identified on maps prepared by the Soil Conservation Service and the Federal Insurance Administration, shall be preserved in their natural state except for uses permitted in the County Floodplain Ordinance (agricultural, passive recreation).

i. Maintain existing Floodplain Ordinance.

ii. Do not provide density transfer for flood-prone land.

iii. Develop floodplain overlay maps in the County base map system.

b. Small Drainageways

Policy

Encourage preservation of the natural drainage system of watercourses too small to have designated 100-year floodplains, such as small perennial streams, swales and drainageways.

Program

During the development review process, encourage designers and builders to lay out grading plans in such a way as to preserve small drainageways to the maximum possible extent.

c. Steep Slopes

Policies and Programs

i. Prohibit structures on slopes greater than 25%

ii. Density transfer credits shall not be granted on slopes greater than 25% or slopes 15-25% with shallow soils within 200' of a water course.

iii. Protect the public and environment from damages resulting from improperly building on mountain colluvial soils subject to slippage. Minimize damage to the environment and the public by precluding development on steep slopes.

iv. Provide density transfer to preserve unique landforms (bluffs, scenic vistas, etc.)

5. Vegetation Recommendations

Policies

i. Encourage landowners to manage and maintain their woodland for multiple uses such as timber and firewood production, wildlife habitat, stormwater runoff and soil abatement, recreation, and scenic quality.

ii. Recognize Christmas tree plantations as a viable agricultural resource in years to come. Support the continued planting of trees each year.

iii. Discourage the use of any landfill in the County for the disposal of logs, whole trees, or other wood debris.

Programs

i. Require harvesting plans with best management practices to be approved by the County Forester of the Virginia Division of Forestry before logging operations are to commence on woodlands of greater than 20 acres or 25% slopes.

ii. Require management plans for logging operations on woodlands of greater than 20 acres or 25% slope.

iii. Encourage density transfer from woodlands containing rare or endangered species or such attributes as age, size, or historic association.

iv. Encourage landowners with woodland in the Use Value Taxation Program to carry out timber stand improvement practices with utilization of cull trees as firewood.

v. Continue to require the control of noxious weeds by the landowners participating in the Use Value Taxation Program. Encourage all others to control noxious weeds on land not within the Use Value Taxation Program.

vi. Require noxious weed control through the Commissioner of Revenue as part of land use tax deferment. Tighten deferment. Tighten enforcement and monitoring procedures.

6. Wildlife Recommendations

Policy

Encourage the preservation and protection of endangered or threatened wildlife species.

Program

Continue current wildlife management programs in Loudoun County.

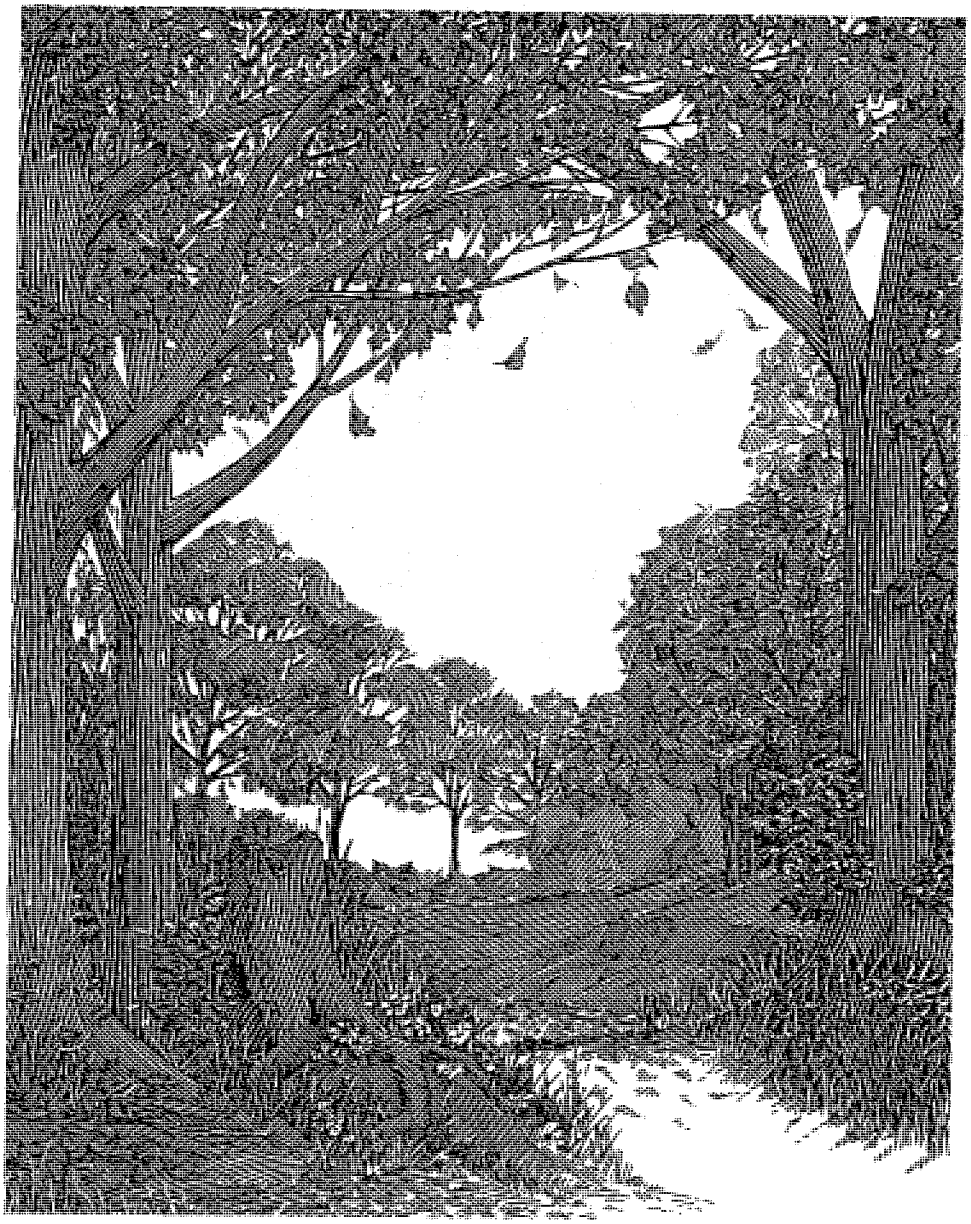
7. Air Recommendations

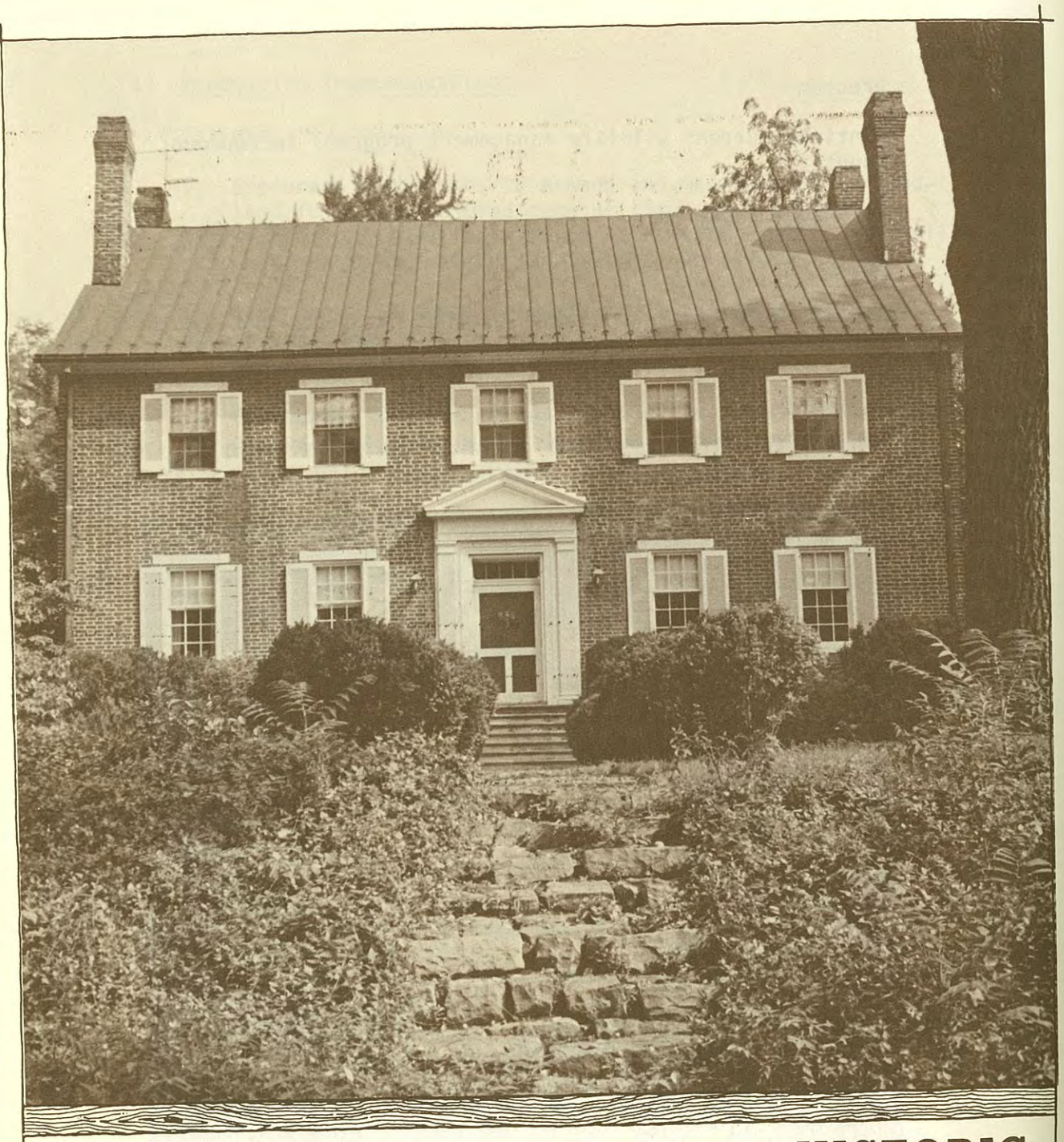
Policy

Air pollution from farm odors are not hazardous and should not be regulated in the agricultural conservation area.

Program

Support the Virginia "right to farm" law which would help to minimize impacts on farms from nuisance suits and complaints.





HISTORIC

IX. HISTORIC RESOURCES

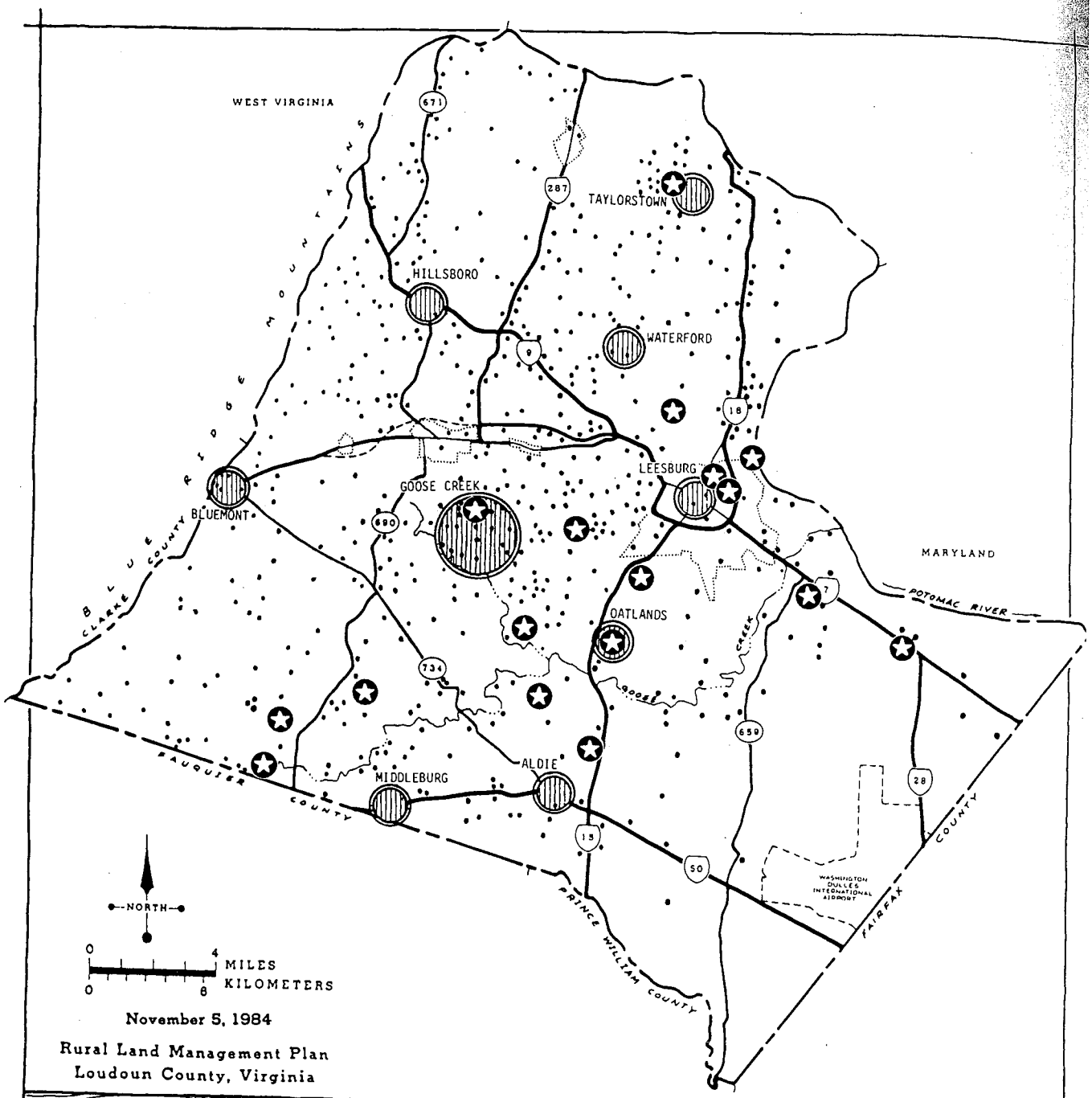
A. BACKGROUND, ANALYSIS AND ISSUES

Loudoun County's rural areas are particularly rich in historic resources. There are five Historic Cultural and Conservation Districts and 19 individual properties on the Virginia Register of Historic Landmarks and National Register of Historic Places. Three incorporated towns have historic districts which are also on the State and National Registers (see page 224). Two properties, Oak Hill and Oatlands and one entire village, Waterford, and the Balls Bluff Battlefield are National Historic Landmarks. Approximately 1,000 structures and sites have been surveyed by the Virginia Historic Landmarks Commission. One of the State's largest Historic Districts, the Goose Creek Historic and Cultural Conservation District, which contains 10,000 acres of farmland and many significant 18th and 19th century farm houses and structures, is under the purview of this plan. Two State designated Scenic Rivers, Goose Creek and Catoctin Creek, flow through the planning area. Loudoun County's resources extend beyond agricultural structures and houses and scenic resources to include numerous ferry sites, bridges, an uncompleted railroad right-of-way (Loudoun branch of the Manassas Gap Railroad) and several Indian archaeological sites. (See Figure 45, page 222.)

The word resource is defined as "1: a reserve source of supply or support; computable wealth; immediate and possible sources of revenue 2: something to which one has recourse in difficulty."* Loudoun County's historic properties are true resources in this sense, besides having academic or aesthetic value. It is estimated that $32,492,000 per year is produced by the tourist industry in the County.** If the visitors spend a night in a hotel or motel, they pay a 2% tax on their lodging. County expenditures made for these visitors are minimal compared to the expenditures required for County residents. The Department of Economic Development, recognizing its potential economic value, allocated $114,000 to tourism in 1981-82. Small amounts relating to services to tourists may also be expended by the Sheriff's Department and other County departments.

* Webster's Seventh New Collegiate Dictionary, G. & C. Merriam Co., Springfield, Massachusetts, 1967.

** U.S. Travel Data Center, 1981 Economic Analysis for Virginia by County.



HISTORIC RESOURCES

- Sites Surveyed By Virginia Historic Landmarks Commission
- Sites Listed On State And National Registers
- County , State And / Or National Historic District [Generalized]

ALDIE	LEESBURG	TAYLORSTOWN
GOOSE CREEK	MIDDLEBURG	WATERFORD
HILLSBORO	OATLANDS	BLUEMONT (STATE ONLY)

Source :
LOUDOUN COUNTY DEPARTMENT OF PLANNING, ZONING, AND COMMUNITY DEVELOPMENT

Figure 45

The County's historic resources are the basis of this tourist industry because they are the primary feature that attracts visitors. In addition, the historic resources are closely linked with the agricultural industry in that many of the County's farms have historic buildings and the geographic pattern of fields, forests and villages is in itself, a reflection of 18th and 19th century settlements.

The value of historic and scenic sites and the atmosphere generated in a County where there are so many, is also evident in a social and cultural sense. People apparently like to live in and identify with a place with a past and with a pleasing visual climate. The traditional town/village/farm organization gives a sense of community identity even to the new homes on rural lots. There is a security in the continuity to be found in this cultural heritage.

The issues regarding the historic resources of the rural area center around the question of how much more needs to be done to continue the work already begun by the public and private sectors in the area of recognizing and preserving the County's historic sites and structures and its natural and scenic resources. What is the value of those resources; is it intrinsic as well as aesthetic? Should preservation be selective? How can a decision be made as to what should be saved and how should its preservation be accomplished?

Loudoun County has not only adopted a policy of preserving its historic resources, but has demonstrated its conviction of the importance of historic preservation by creating Historic Cultural and Conservation Districts and incorporating them into the Zoning Ordinance as zoning overlay districts. The Historic Districts are overseen by the Zoning Administrator. A Historic District Review Committee, composed of citizens who have been appointed by the Board of Supervisors, with a staff liaison, reviews each structural change to buildings within the districts as well as plans for all new structures.

Table 24, page 224, lists the major designated historic resources in Loudoun County.

Table24

DESIGNATED HISTORIC LANDMARKS AND PLACES
LOUDOUN COUNTY, VIRGINIA

- NATIONAL AND STATE REGISTER SITES

Balls Bluff battlefield
Belmont
Benton
Broad Run Bridge (ruins)
Carlheim
Catoctin Creek Bridge
Exeter (destroyed by fire, 1980)
Farmer's Delight
Goose Creek Meeting House Complex
Goose Creek Stone Bridge
The Institute Farm
Morven Park
Oak Hill
Oatlands
Rokeby
Shelburne Glebe
Waverley
Welbourne
Woodburn

Of these, Oak Hill, Oatlands, and the Balls Bluff battlefield are National Historic Landmarks.

- HISTORIC DISTRICTS (Town or County Zoning Designations)

Aldie - State and National Registers
Goose Creek Historic and Cultural Conservation District - State and National Registers
Hillsboro - State and National Registers
Leesburg - State and National Registers
Middleburg - State Register, nominated for National
Oatlands - State and National Registers
Taylorstown - State and National Registers
Waterford - State and National Registers

Of these, Waterford is a National Historic Landmark

Aldie, Goose Creek, Oatlands, Taylorstown and Waterford Districts are administered by the County of Loudoun under its Zoning Ordinance. Hillsboro, Leesburg and Middleburg are administered by those incorporated towns.

- HISTORIC DISTRICT (State designation only)

Bluemont

B. HISTORIC RESOURCE GOALS

The expressed goal of this plan is to encourage the preservation of historic sites and districts, archaeological sites, natural environmental sites, scenic roads, highways and rivers. The County's policies, expressed in the Resource Management Plan, can be summarized as follows:

1. Preserve the County's cultural heritage and scenic character by conservation of historically significant structures, areas and open spaces and by reestablishing the compact area of growth that has occurred during the past 220 years.

2. Establish land uses compatible with historic and open space areas.

C. HISTORIC IMPLEMENTATION RECOMMENDATIONS

In order to further the preservation of Loudoun County's historic resources in the rural areas, provisions should be made for inclusion of those resources in certain of the programs to be recommended in this plan, as follows:

1. Historic, scenic and open space sites that are included in County Historic Districts shall be eligible for transferring density under the Density Transfer Program (refer to pages 46 through 54), as long as they qualify under the provisions of that program as set forth in this plan.

2. Under the TDR program set forth in this plan, development rights may be transferred from any commercially zoned historic building site to another commercially zoned site located in a designated receiving area, thereby allowing greater commercial density to be built on the receiving site. A preservation easement shall be placed on the historic site from which density has been transferred. Such easement shall provide for facade protection as well as open space protection of the historic site.

3. Any subdivision on designated historic, archaeological and scenic sites shall be encouraged to cluster if it will help to preserve the integrity of the original site.

4. Historic, archaeological and scenic properties designated by the Board of Supervisors shall not be designated as receiving areas in any Density Transfer or TDR program.

5. The Historic District Zoning Ordinance should be refined and improved. Successful enforcement of the Ordinance, beyond the granting of the Certificate of Appropriateness, is critical to historic preservation in Loudoun County and should be rigorously carried out. Particularly necessary is a careful inspection procedure for construction both in progress and after completion.

   A zoning overlay zone established by Section 750 of the Loudoun County Zoning Ordinance provides for designation of historic districts and sites and for the issuance of a Certificate of Appropriateness for any alteration, restoration, construction or reconstruction of all structures in the districts. Farm buildings in the Goose Creek District are exempted. A Historic District Review Committee oversees design review of structures and signs. Razing and demolition also require a permit from the Committee. The intent of the ordinance is "to effect and accomplish the protection, enhancement and perpetuation of especially noteworthy examples, or elements of the County's cultural, social, economic, religious, political or architectural history..."*

6. The County shall develop and adopt a restoration building code in order to encourage restoration while still protecting the public health, safety and welfare.

7. The County shall designate Historic Sites as provided for in the Loudoun County Zoning Ordinance, Section 750.1.1. Such sites should be properties listed on the State and National Registers.

8. The boundaries of the County's Historic Cultural and Conservation Districts should be amended or extended to coincide with the boundaries of the State's corresponding Historic Districts.

9. In 1979, the Loudoun County Board of Supervisors established an easement acquisition program and appointed an Easement Acquisition Committee to implement it. The program was not funded, but rather was intended to encourage landowners to voluntarily donate preservation easements to public entities such as the Virginia Outdoors Foundation (V.O.F.). The committee was charged with promoting easement donations, serving as a clearinghouse for information about easements, and acting as a local point of contact between Loudoun citizens and the V.O.F.

* Loudoun County Zoning Ordinance, Section 750.1.2 (as amended February 1978).

This program has been inactive and the committee has been dormant during the last several years, partly due to uncertainties among landowners and the U.S. Internal Revenue Service about the value of easement donations for tax purposes. However, the IRS has now formulated guide-lines for deductions for easement donations and the County's efforts at encourging easement donations should be revived and expanded, with the Easement Acquisition Committee serving as the clearinghouse and coordinator of easement information and transactions. The easement program, based upon voluntary donations, should be implemented through and in conjunction with the TDR program set forth in this plan.

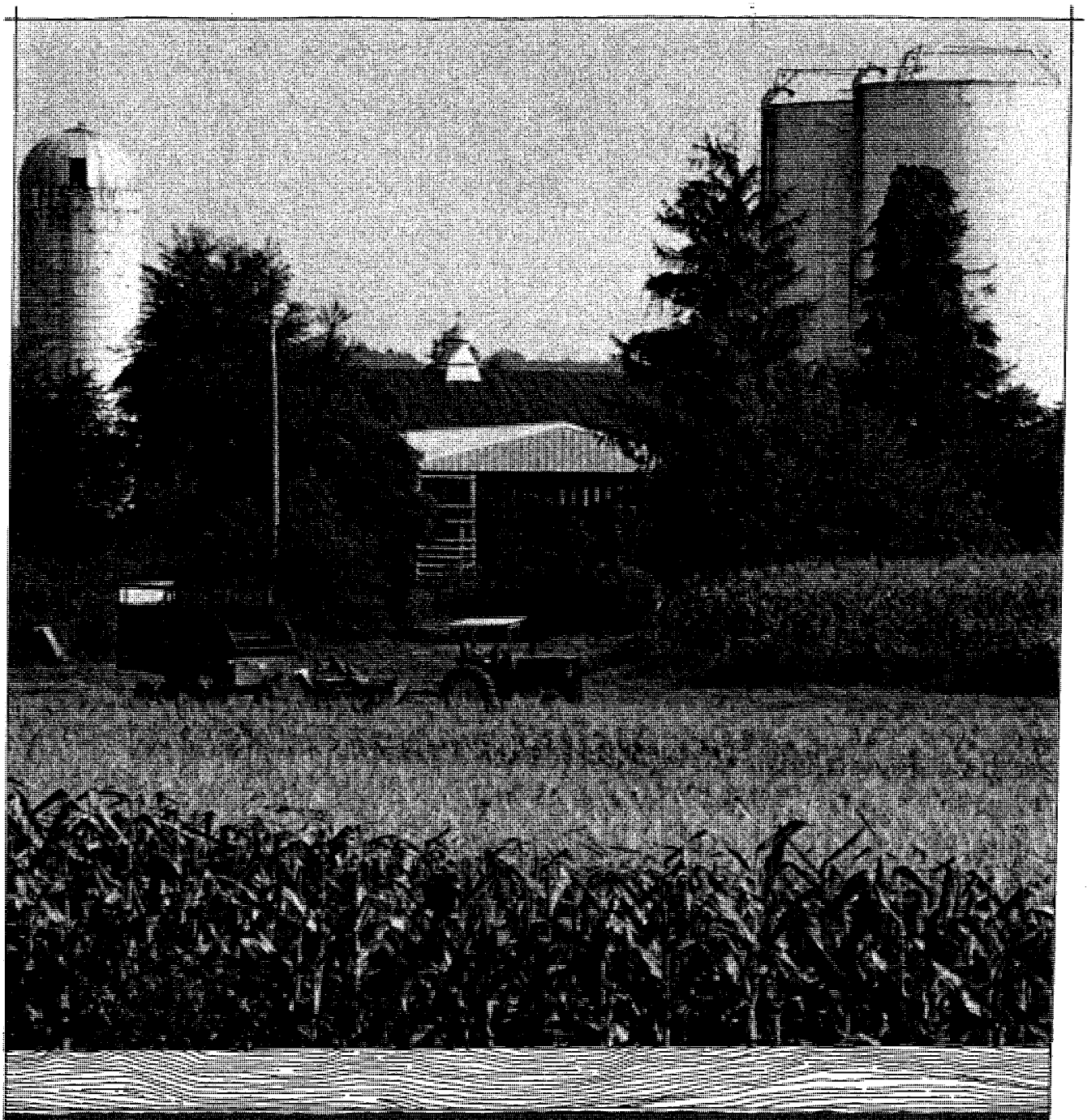
This plan is intended to constitute evidence of clearly delineated governmental policy as required in Section 6 of the Tax Reform Act of 1980 concerning the tax deductibility of contributions of partial interests in property for conservation purposes. Land within the boundaries of the area designated in the plan is hereby identified as worthy of protection for conservation purposes; the granting of perpetual easements on farmland or open space within the area of the plan has been determined to provide a significant public benefit.

10. Encourage owners of significant historic buildings and residents of significant historic communities to apply for inclusion on National and State Historic Registers.

11. Encourage residents of significant historic communities to support the formation of new County Historic Districts.

12. Encourage incorporated towns to establish their own Historic Districts.

13. Encourage restoration, preservation and recordation of cemeteries.



Chapter 3

CHAPTER THREE

SUMMARY OF POLICY AND PROGRAM RECOMMENDATIONS BY GEOGRAPHICALLY DISTINCT LAND USE POLICY AREAS

This Plan establishes five geographically distinct areas to which different land use policies and programs will be applied in order to promote the desired compact growth pattern that will best achieve the goals of this Plan and the RMP. Policies for managing the County's major land uses, resources and public facilities are stated in the following outline. The five Policy Areas are:

I. Urban Growth Areas (UGAs)
(Detailed proposals for these areas will be addressed specifically in urban area plans.)
II. Rural Fringe Areas
III. Rural Village Areas
IV. Agricultural Conservation Areas
V. Environmental Overlay Areas

I. URBAN GROWTH AREAS [UGAs]

These are areas which have existing public utilities such as sewer and water service or are planned for such service within the next 20 years. These areas include the five largest western towns (and possibly some land adjacent to them to be designated in future area plans), Leesburg, eastern Loudoun and portions of the Dulles (Ashburn/Arcola/Pleasant Valley) area. Each UGA shall be specifically determined by its area plan. Area plans shall designate Urban Limit Lines (ULL) which shall be the boundaries of the UGAs (see C. 3a, page 233).

A. LAND USE

1. Growth Pattern

The County will encourage new residential and nonresidential development to occur in these UGAs in order to draw such development away from the rural agricultural areas. Such growth will be encouraged to be of an urban character and density, served with central water and sewer. These areas will be the County's preferred locations for future growth.

2. Agriculture

The County will not discourage agricultural uses from continuing within the UGAs but will not apply new or additional agricultural retention programs to properties

within the UGAs in recognition that these are the areas which are planned for future growth. Use-Value assessment shall continue to be made available to qualifying lands within the UGAs. Agricultural and Forestal Districts shall not be renewed or established within the UGAs. No other agricultural protection programs shall apply to land within the UGAs.

3. Residential Density

The County will encourage a wide range of urban residential densities in the UGAs with existing zoning as the base and will consider increased densities as specified in detailed area plans. Allowed densities shall be calculated by the density formula as defined in this Plan. (See page 121.) To obtain densities at the top of these ranges necessary proffers such as road improvements, public facilities and TDRs or conservation easements must be made. In no case shall maximum densities exceed those set forth in specific area plans. The maximum density recommended in this Plan for UGAs is five units per acre but only if TDRs or density transfers are used in addition to other public facilities proffers such as road improvements, school sites and park sites, as deemed necessary and appropriate by the County.

4. Dwelling Unit Types

The County will encourage a wide range of dwelling types to be located in the UGAs. New planned developments in these areas should provide a variety of housing opportunities while including a variety of dwelling unit types.

5. Housing

The County will encourage the rehabilitation and provision of affordable housing in the UGAs through the implementation of County administered programs such as rental assistance, housing for the elderly and Community Development Block Grant technical assistance. The County will continue to seek Federal and State funding assistance for these efforts.

6. Commercial

a. The County will encourage any new commercial development or major expansions of existing commercial facilities to locate within the UGAs rather than in other policy areas.

b. The County will require that new commercial development and any commercial expansions be compatible with existing and planned development patterns, transportation facilities, market demand and the natural environment as designated in the applicable area plans.

7. Industrial

a. The County will encourage compatible industrial uses to locate in the UGAs. New industrial uses shall be of a type and size that is compatible with existing industrial uses, neighboring residential areas, the local natural environment and the existing or planned local transportation system.

b. The County shall prohibit mining and other mineral extraction activities within UGAs.

8. Institutional and Office

The County will encourage the development and expansion of compatible institutional and office uses within the UGAs as set forth in the applicable area plans.

9. Historic and Scenic

The County shall encourage the preservation of historic structures and sites by promoting the establishment and expansion of County and Town historic districts, donation of facade and open space easements, designation on the State and National Registers of Historic Places, inclusion in the County's inventory of historic sites, private and public restoration and/or adaptive reuse and rehabilitation and other public and private mechanisms.

B. PUBLIC FACILITIES AND UTILITIES

1. Public Facilities

UGAs are the areas of highest priority for the location of new or expanded public facilities such as schools, libraries and active recreation parks.

2. Water and Sewer

a. The County will encourage in the UGAs the provision of water and sewer facilities which will be of sufficient quantity and quality to serve the existing and projected population for the next 20 years.

b. The County will assist the western towns in solving their water supply problems.

c. The County will encourage that new or expanded water and sewer systems which serve the western towns be planned, designed and located in such a way as to provide economical and cost-effective utility service while at the same time reinforcing the land use goals set forth in this Plan and the RMP and contributing to the preservation of the distinct cultural and visual identities of the individual incorporated towns.

d. The County shall prohibit the extension of sewer lines beyond the Urban Limit Lines which define the UGAs as designated in local area plans.

3. Transportation

a. The County will give highest priority to road improvements within the UGAs and to completion of the Route 7 bypass around Round Hill by 1990 at the latest.

b. The County will encourage the majority of secondary road improvements to be located within the UGAs and Rural Fringe Areas, except that roads which serve as primary connectors between towns and villages will also have priority (see Transportation Recommendations, page 182.

c. The County will encourage commuter parking facilities to be established and maintained in the UGAs especially near primary roads.

d. The County will encourage proffers which provide public transportation facilities in the UGAs, e.g., transit shelters and park-and-ride lots.

e. The County will give highest priority to improving arterial and collector roads and to solving critical safety and capacity problems.

f. The County will encourage all landowners to donate the necessary right-of-way for planned road improvements on unpaved roadways. Purchase of right-of-way on unpaved roads will be considered when a single property or a few properties are prohibiting the improvement of a major collector roadway.

C. IMPLEMENTATION

1. Transferable Development Rights (TDR) and Density Transfer

a. This Plan establishes general receiving areas for TDRs and Density Transfers, these being the UGAs and the Rural Fringe Areas. In addition, the County shall establish in detailed area plans, more specific receiving areas within the UGAs and Rural Fringe.

b. The County shall allow rezoning of land to the upper ranges of allowed residential densities designated in area plans only in return for TDRs or density transfers.

c. No TDRs may be sent from within the UGAs (refer to page 46 for details on the TDR program recommendations). Density transfers, however, may be made from within UGAs, although the primary priority shall be to transfer density from outside UGAs.

2. Cluster Development

a. The County will encourage the clustering of residential uses within the UGAs in order to preserve urban open space, environmental and recreational resources, keep negative traffic impacts to a minimum and promote high quality, well-designed communities. Such clusters must be served by central public sewer service, unless the land is zoned A-3 or lower density.

b. In A-3 zones within the UGAs, the County will allow clustering at two acres per unit if TDRs or conservation easements are used to increase density from the existing A-3 density of one unit per three acres. Such clusters in A-3 zoning districts within UGAs may use on-site wastewater treatment facilities.

3. Urban Limit Lines

a. The County shall establish an Urban Limit Line in each specific area plan. These lines shall serve as the boundaries of the UGAs which shall be the primary focus of the County's efforts toward building, improving and expanding public facilities and utilities. The UGAs shall also be the County's preferred location for future residential, industrial and commercial development.

b. Sewer lines shall not be extended beyond the Urban Limit Lines during the time frame of this Rural Plan and the area plans.

4. Rezoning Policy

a. The County shall set forth in specific area plans, detailed standards for granting rezonings to higher densities within the UGAs. This Rural Plan does not propose any general or specific rezonings.

b. Until such specific area plans are adopted, rezoning applications for the properties outside of eastern Loudoun and the incorporated towns shall be within the purview of this Plan and shall be considered to be within the Rural Fringe, Rural Village or Agricultural Conservation Policy Areas, with some portions of any given tract possibly lying within the Environmental Overlay Area as well. (Policies for granting rezonings are therefore addressed in the Rural Fringe, Rural Village and Agricultural Conservation sections of this Chapter.

II. RURAL FRINGE AREAS

These are areas within one-half mile of the current corporate limits of the five largest western towns, as well as additional areas that may be specifically determined in the Dulles (Ashburn/Arcola/Pleasant Valley) Area Plans. (Leesburg's Fringe was defined in the Leesburg Area Management Plan, 1982.) Any land area which lies outside of the western towns' corporate limits and which becomes designated as part of a UGA will be subtracted from the Rural Fringe. Until UGAs are specifically designated, however, all land within one-half mile of the western towns' corporate limits is included in the Rural Fringe. All land which lies within the Dulles (Ashburn/Arcola/Pleasant Valley) area shall be designated as a Rural Fringe Area until such time as that specific area plan is adopted and amends this designation.

A. LAND USE

1. Growth Pattern

The County shall encourage new residential and industrial development of a clearly rural character and density to locate in the Rural Fringe Areas rather than in the Agricultural Conservation Areas. These Rural Fringe areas shall be the County's second priority location for future development, with the UGAs being the top priority.

2. Agricultural

a. The County will encourage the continuation of agricultural uses in the Rural Fringe Areas.

b. All of the County's existing agricultural retention programs, as well as those established in this Rural Plan, shall apply to and be available for use on qualifying lands within the Rural Fringe Areas.

3. Residential Density

a. The County will encourage rural residential densities which are compatible with existing zoning in the Fringe Areas. The preferred maximum gross density for the Fringe Areas is one dwelling unit per three acres, unless TDRs or density transfers are used.

b. The County will discourage development at densities greater than one unit per three acres, unless TDRs or density transfers are used.

c. The County will allow and encourage residential development at higher densities up to one unit per two acres in areas currently zoned A-3 if TDRs (or density transfers) and clustering are used in tandem. In R-1 zones within Fringe Areas, clustering at lower densities will be encouraged but no densities greater than one unit per acre shall be permitted.

d. The County shall prohibit any rezonings to greater residential densities in the Rural Fringe Areas, except as provided for in c. above, or unless designated in another more detailed area plan.

4. Dwelling Unit Types

a. The County will allow single-family detached dwelling units in the Fringe Areas.

b. The County will prohibit multi-family or single-family attached (such as "townhouse") units in the Fringe.

5. Housing

The County will encourage housing rehabilitation in the Rural Fringe Areas.

6. Commercial

a. The County shall discourage new nonagriculturally related commercial uses in the Rural Fringe Areas.

b. The County shall allow expansions of existing commercial uses that are compatible with existing agricultural uses and that serve the immediate local agricultural community.

7. Industrial

a. The County may allow industrial uses in the Rural Fringe which are agriculturally related and which are compatible with existing residential and agricultural uses.

b. The County shall allow new or expanded mining of mineral extraction activities to be located only in areas within Natural Resource Extraction Zoning Districts (refer to page 211 for detailed proposals).

8. Institutional

The Rural Fringe Areas shall be the County's top priority for the location of environmentally compatible institutional uses such as private schools, private camps and parks, and private conference centers/meeting facilities.

9. Historic and Scenic

The County shall encourage the preservation of historic structures and sites by promoting the establishment and expansion of County Historic Districts, donation of facade and open space easements, TDR and Density Transfer from historic agricultural lands, designation on the State and National Registers of Historic Places, inclusion in the County's inventory of historic sites, private and public restoration and/or adaptive reuse and rehabilitation and other public and private mechanisms.

B. PUBLIC FACILITIES AND UTILITIES

1. Public Facilities

The Rural Fringe Areas shall be a low priority for the location of new or expanded public facilities such as schools and libraries. They will, however, be a high priority location for active and passive open space and recreational facilities, especially to create greenbelt corridors and buffers between existing and future population centers.

2. Water and Sewer

a. The County shall prohibit any extension of sewer lines from UGAs into or within the Rural Fringe Areas during the time frame of this Plan, unless a more specific area plan amends this policy.

b. The County shall allow the extension of water lines from UGAs into the Rural Fringe only for the purpose of carrying out rural residential cluster or institutional development which preserves farmland and open space resources and/or solves severe health hazards, and only by special exception. Any such extensions must meet the policy provisions of the Public Facilities Section of this Plan.

c. Package sewage treatment plants shall be permitted only for the development of rural residential clusters or institutional uses designed to achieve farmland and open space preservation and may be permitted only by Special Exception.

d. "Pump and Haul" operations shall be prohibited.

3. Transportation

The Rural Fringe Areas shall be the County's second priority location for road improvements, after the UGAs. The only exception to this policy is the Route 7 bypass which is the top priority road improvement, and possible improvements which may be designated in the upcoming Dulles (Ashburn/Arcola/Pleasant Valley) Area Plan.

C. IMPLEMENTATION

1. Transferable Development Rights (TDR) and Density Transfer

a. The County will encourage TDRs to be sent from land in the Fringe Areas to other land in either the Fringe Areas or the UGAs. However, under this program, no density may be transferred from one portion of a tract to another portion of the same tract. That concept is addressed under the Cluster Development Program. (See page 122.) The Broad Run and Occoquan watersheds shall be specifically excluded from the designated sending areas, however.

b. The County will encourage TDRs to be received by land in the Fringe Areas. If TDRs are purchased and applied to land in the Fringe Areas, the residential development density may be increased to one dwelling unit per two acres, but such development must be clustered.

2. Cluster Development

The County will encourage residential clustering up to a density of two acres per unit by buying TDRs, with subdivision review required. Without TDRs, clustering will be allowed at one unit per ten acres. (Refer to detailed cluster provisions, page 122.)

3. Urban Limit Lines

a. Specific Urban Limit Lines shall be designated in future detailed area plans and shall define the boundaries of the UGAs as generally identified in this Plan.

b. Sewer lines shall not be extended beyond the Urban Limit Lines into the Fringe Areas during the 20-year time frame of this Rural Plan.

c. Water lines shall be extended beyond the Urban Limit Lines only for the purpose of serving clustered developments and institutional uses.

4. Rezoning Policy

a. The County will encourage the voluntary rezoning of farmland and other open land to lower density zoning classifications such as A-10 and A-50.

b. The County will not approve rezonings to higher densities on land in the Fringe Areas during the time frame of this Plan, except that land zoned A-3 may be granted a density of one unit per two acres if TDRs and cluster are used (increased from the allowable 10-acre gross density as otherwise set forth under the cluster provisions of this plan.)

c. Rezonings from A-3 or R-1 zoning classifications to industrial uses will be discouraged.

d. Rezonings from industrially zoned land within the Rural Fringe areas to a residential classification shall not be approved during the time frame of this plan, unless specifically recommended in a more detailed area plan.

e. No rezonings to the C-1 classification shall be approved.

III. RURAL VILLAGE AREAS

These areas include the fourteen villages designated in this Plan, including the town of Hillsboro (pp. 84 - 113). The general boundaries of these areas are established in this plan but may be refined by more detailed Village Area Plans in the future.

A. LAND USE

1. Growth Pattern

a. The County shall allow development to occur in and around those existing villages which have adequate public facilities, zoning, transportation facilities and land resources to accommodate such growth.

b. The County will encourage the retention and reinforcement of the cultural and visual identity of individual villages.

2. Agriculture

The County will encourage existing agricultural uses to continue in Rural Village Areas. All existing and proposed agricultural protection programs shall be applicable to the Village Areas for all land that qualifies under the provisions of a particular program.

3. Residential Density

a. The County will encourage new residential development to be built at gross and net densities which are compatible with the existing development densities and public facilities in the village.

b. The County will discourage development densities of more than two units per acre within or adjacent to villages.

c. Net densities may be approved as high as eight units per acre if compatible with the existing fabric of the village, and if the overall development density of a given site does not exceed two units per acre.

4. Dwelling Unit Types

The County will encourage a diverse range of dwelling unit types in the Village Areas, but will require that the design, size and siting of all new units be done in such a manner as to ensure compatibility with the present scale and character of the existing village.

5. Housing

The Rural Village Areas shall be high priority locations for the County's efforts to promote housing rehabilitation.

6. Commercial

a. The County will strongly discourage large-scale commercial uses in the Rural Village Areas, but will encourage small convenience-size commercial uses which meet strictly local, neighborhood needs.

b. No rezonings to commercial zoning classifications shall be approved, unless TDRs are used to transfer commercial density from commercially zoned land in a sending area. In such a case, the sending parcel must transfer all of its allowed commercial density, whether or not that full amount of density can actually be applied to the receiving site within a village.

7. Industrial

a. The County will allow industrial uses in the Rural Village Areas which are compatible with existing residential and agricultural land uses in and around the village. All new or expanded industrial uses in or near a village must be shown to cause no undue environmental, transportation or public facility impacts.

b. The County shall prohibit mining or extraction activities in or adjacent to Rural Villages and shall not approve any rezonings to the Natural Resource Extraction Zoning District in those areas.

8. Institutional and Office

The County will encourage small-scale institutional and/or office uses to locate within Rural Village Areas. Such uses shall not cause traffic safety hazards, excessive noise, visual or other severe negative impacts on existing land use activities.

9. Historic and Scenic

a. The County shall encourage the preservation of historic structures and sites by promoting the establishment and expansion of County Historic Districts, the donation of facade and open space easements, designation of sites on the State and National Register, TDR, Density Transfer, inclusion in the County's inventory of historic sites, adaptive reuse and rehabilitation and other public and private mechanisms.

b. The County shall expand County-designated Historic Districts to coincide with boundaries of State and Federal Districts where such State and Federal Districts exist.

B. PUBLIC FACILITIES AND UTILITIES

1. Public Facilities

a. The County shall locate new public facilities such as schools and libraries in the UGA, rather than in Rural Village Areas.

b. The County shall locate other public facilities such as fire and rescue stations and community centers in villages only as needed to provide adequate service to the population served by those facilities and to protect the public health and safety.

c. The County will discourage the expansion of public facilities in the Rural Village Areas except for the purpose of providing continued adequate service or protecting the public health and safety.

2. Water and Sewer

a. The County will allow package or central sewage or water treatment plants in or contiguous with Rural Villages only if they are privately financed for both capital and operational costs; that they are compatible in location, size and character with the existing village; that the plant provide only for incremental, phased growth; and that it be granted a Special Exception approval. A service area must be designated prior to approval of any utility system construction. This service area designation shall be binding.

b. "Pump and haul" operations shall be prohibited.

3. Transportation

Rural Villages shall not be the highest priority for road improvements. Correction of safety hazards and the movement of agricultural machinery shall be the main objectives of future road improvements in and around villages.

C. IMPLEMENTATION

1. Transferable Development Rights (TDR) and Density Transfer

a. Rural Village Areas shall not be designated as receiving areas for TDRs, except for commercial uses. Application of Commercial TDRs in village areas shall be limited by Village Area Plans. If no Village Area Plan has been made, any commercial transfer shall be compatible in size with the existing and planned village community.

b. TDRs shall be allocated to land within the Village Areas for sending purposes on the same basis as for land within the Agricultural Conservation Areas.

2. Cluster Development

Clustered residential development will be encouraged within the Rural Village Areas, according to the cluster provisions defined in the Rural Fringe Policies and the Residential Section of this Plan.

3. Urban Limit Lines

Rural Villages which have central water and/or sewer facilities will be encouraged to designate Village Limit Lines in their particular detailed Area Plans, beyond which lines these central utilities will not be extended during the time frame of this Plan.

4. Rezoning Policy

a. The County shall not approve rezonings to higher residential densities unless the purpose is to allow a more compatible design than would otherwise have been possible under the existing zoning. In such rezonings, it must be proffered that the overall development density shall not exceed existing zoning, although net densities on the site may. The purpose is to provide the flexibility needed to construct developments that are visually compatible with the existing villages.

b. Rezonings to industrial uses shall not be approved.

5. Architectural Compatibility

The County shall strongly encourage any new development to be designed, built and sited to be as compatible as possible with the scale, size, historic character and style of buildings in the village. This policy applies to all architectural and landscape elements of any new structures, including proportions and design of facades, building heights, fenestration, materials, massing, structural systems, orientation, siting and yard layouts, relationship to adjacent buildings, landscaping, roof pitch and relationship to the public street.

IV. AGRICULTURAL CONSERVATION AREAS

These are areas which are not included in the previous three policy areas, defined as those lands which lie west of the Broad Run Watershed, more than one-half mile from the corporate limits of the five largest western towns, outside the Leesburg Fringe Area and not within a designated Rural Village. The Agricultural Conservation Area will be the major location of the County's efforts to preserve open space, agricultural land and the agricultural industry.

A. LAND USE

1. Growth Pattern

a. The County will discourage new nonfarm residential development in these areas.

b. The County will encourage the continuation of agricultural and low intensity open space land uses in these areas.

2. Agriculture

a. The County shall strongly encourage the continuation of agricultural uses in the Agricultural Conservation Areas. Agriculture is the preferred use in these areas.

b. All of the County's existing and proposed agricultural preservation and farmland retention programs including all of those set forth in this Plan shall apply to qualified land in the Agricultural Conservation Areas.

c. Right-to-farm legislation shall apply here. Such right-to-farm regulations shall govern all residential uses, including those existing prior to the legislation.

3. Residential Density

a. The County will encourage owners of rural land in the Agricultural Conservation Areas to avail themselves of the conservation program options set forth in this and other area plans rather than carrying out conventional residential subdivisions and development proposals.

b. When development does occur, the County will discourage densities greater than one unit per three acres.

c. The County will encourage landowners to voluntarily rezone their property to lower density zoning cate- such as A-10 and A-50.

d. The County will encourage low density residential clusters, as set forth in the residential section of this plan (page 122).

e. The County shall not approve any rezonings to higher residential densities in these areas during the time frame of this plan.

4. Dwelling Unit Types

The County will allow single-family detached units in these areas, but shall prohibit multi-family and single-family attached (such as "townhouse") units.

5. Housing

The County will encourage housing rehabilitation in these areas, particularly for farm buildings and tenant houses.

6. Commercial

a. The County shall discourage new commercial uses in the Agricultural Conservation Areas, and shall prohibit them in all areas not currently zoned for commercial use.

b. The County shall allow expansion of existing commercial uses only if uses are small-scale, agriculturally-based enterprises, and only by Special Exception.

7. Industrial

a. The County shall allow industrial uses which are compatible with existing agricultural, residential and industrial uses.

b. The County shall require that new or expanded mining or mineral extraction activities be located in a Natural Resource Extraction Overlay Zoning District.

8. Institutional

The County shall allow compatible, small-scale institutional uses in the Agricultural Conservation Areas.

9. Historic and Scenic

The County shall encourage the preservation of historic structures and sites by promoting the establishment and expansion of County Historic Districts, donation of easements, TDR, Density Transfer, designation on the state and National Registers of Historic Places, inclusion in the County's inventory of historic sites, private and public restoration and/or adaptive reuse and rehabilitation and other public and private mechanisms.

B. PUBLIC FACILITIES AND UTILITIES

1. Public Facilities

The County will not locate new public facilities such as schools, libraries and fire/rescue facilities in these areas.

2. Water and Sewer

a. The County shall prohibit the extension of water or sewer lines into these areas.

b. The County shall prohibit the establishment of package treatment plants in these areas. The County may grant by special exception the expansion of existing package treatment plants only for the purpose of serving existing residents or for serving new industrial or institutional uses.

c. Combined septic drainfields will be allowed for cluster development only, and only with approval from the Health Department.

d. "Pump and haul" operations shall be prohibited.

3. Transportation

These areas shall generally be the County's lowest priority for local road improvements. However, priorities for improvements to major arterial and collector roads shall not be limited or defined strictly by Policy Area locations. The movement of agricultural machinery shall be the primary purpose for any improvements to local roads (see Transportation Recommendations, page 181).

C. IMPLEMENTATION

1. Transferable Development Rights (TDR) and Density Transfer

a. This Rural Plan designates the Agricultural Conservation Areas as the highest priority locations for agricultural and farmland preservation efforts.

b. The Agricultural Conservation Areas are hereby designated as sending areas for TDRs.

c. These areas shall not be receiving areas for TDRs (see page 51).

2. Cluster Development

The County shall allow cluster residential developments on combined septic systems (subject to Health Department approval of the septic systems) at an overall density of one unit per twenty-five acres for the purpose of expanding or improving the farmland owners' existing agricultural operations and ensuring a permanent low density development pattern. Such cluster subdivisons shall be given a timely review and approval process (see cluster recommendations, page 122.

3. Rezoning Policy

a. The County will encourage the voluntary rezoning of farmland and other open land to lower density zoning classifications such as A-10 and A-50.

b. The County shall not approve rezonings to higher residential densities on land within the Agricultural Conservation Areas during the time frame of this Plan.

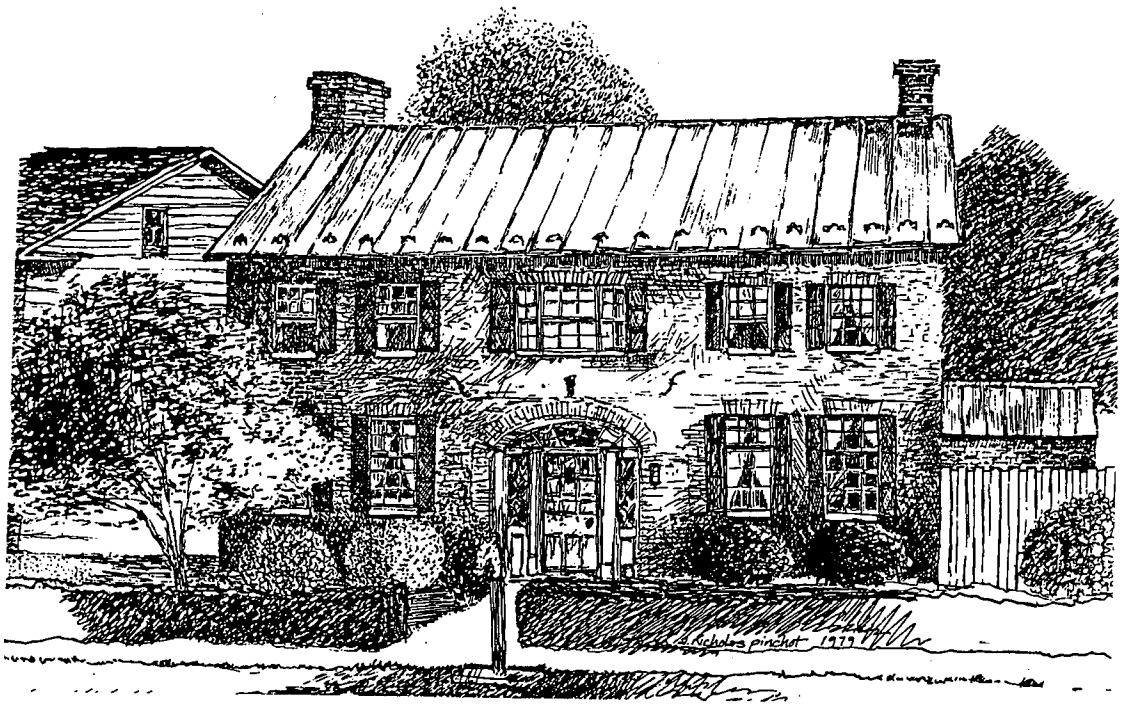
c. The County shall not approve rezonings from A-3 to higher intensity classifications such as commercial or industrial except in the case of industrial uses which can be shown to be compatible with surrounding land uses and that are existing or designated in the County's Comprehensive Plan.

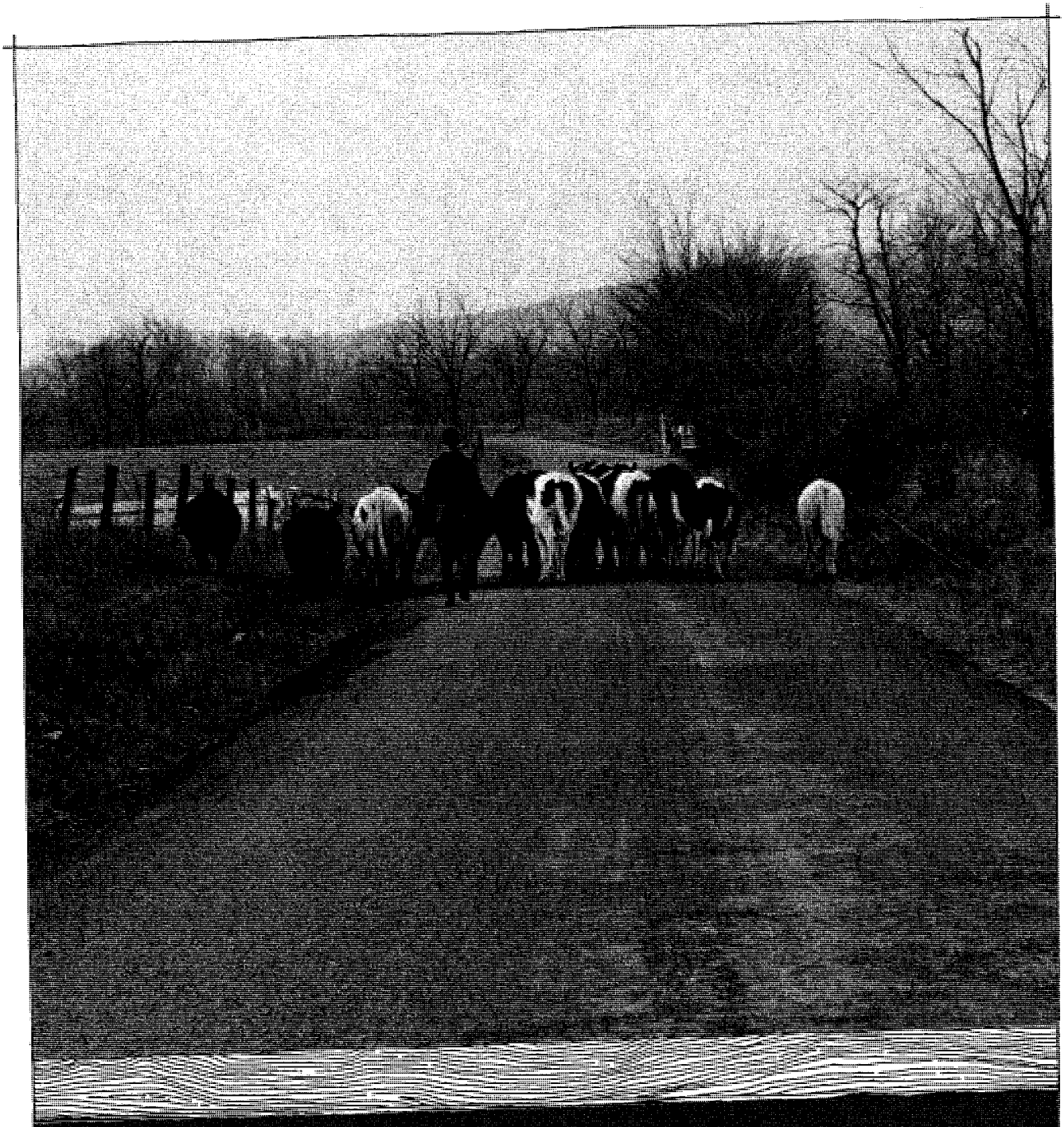
d. The County shall not approve any rezonings to or expansion of C-1 Zoning Districts.

e. The County will change the zoning district classification on lots of 10 to 15 acres in size from the A-3 district to A-10 district.

V. ENVIRONMENTAL OVERLAY AREAS

These are areas of sensitive or critical environmental resources or features, and occur throughout the other four policy areas. Refer to Chapter Two, Section VIII, (Natural Resources) page 186 and program recommendations.





Glossary

GLOSSARY

Adjacent:

Lying near or close to.

Agriculture:

Any land use which produces livestock or plant materials to be used for food or fiber for human or animal consumption. Examples include activities which produce cattle, sheep, hogs, horses or other livestock; activities which produce grains such as wheat, barley and corn; fruit and vegetable production, and tree or timber production.

Aquifer:

A geologic formation or structure that transmits water in sufficient quantity to supply pumping wells or springs.

Area Plans:

The specific detailed land use plans which Loudoun County adopts for various areas of the County. Loudoun has adopted three of these to date, has two more in various stages of completion, and four others scheduled.

Arterial Road:

A publicly owned and maintained road, generally designed with restricted access and primarily intended to carry "through" traffic at 45 to 55 miles per hour.

Best Management Practices:

Methods that are determined by the State to be the most effective and practical means of preventing or reducing the amount of pollution generated by nonpoint sources to a level compatible with established water quality goals.

Buffer:

An undeveloped land area which lies between two areas which contain or may contain conflicting land uses for the purpose of reducing or eliminating harmful conflicts. The buffer also may include tree plantings or other devices to further shield one use from the other. (Transitional development may be used as buffers in some cases.)

"Bundle" of Rights:

The several rights which are associated with the fee simple ownership of land, including mineral rights, access rights, water rights, air rights, development rights, etc.

By-right:

Uses or structures which are allowed under a particular zoning district classification without the need for a special permit.

Capital Improvements Program (C.I.P.):

The County's plan for future capital project expenditures. This plan spells out the capital facilities which the County plans to finance, including schools, libraries, parks, etc.

Class III Road:

A privately owned road designed for direct access to individual lots whose owners are responsible for its maintenance.

Cluster Development (Rural):

Rural residential development consisting of single-family dwelling units built on small lots of approximately one acre, clustered together on one portion of the tract but at much lower overall gross densities, so that most of the site is kept in open space with only a small portion of the site divided into building lots.

Collector Road:

A publicly owned and maintained road, primarily designed to connect traffic from local and Class III roads to an arterial road.

Commercial:

Any wholesale, retail or service business activity established to carry on trade for profit.

Compatible:

Not in conflict with; in harmony with.

Comprehensive Plan:

The general plan for the County. Every County in Virginia must have a Comprehensive Plan which spells out policies for future development in order to ensure orderly growth and the protection of the public health and welfare. The "Comprehensive Plan" may consist of a number of components such as local area plans.

Contiguous:

Touching, abutting, adjoining at the border or immediately across the street.

Conservation Easement:

An interest in land owned by another that entitles its holder to a specific limited control set forth in a deed recorded in the Clerk's Office. Such an easement, as envisioned in this plan would establish certain restrictions as to the use of land as spelled out in this text. (Refer to definition of "perpetual easement" and to the provisions listed on page 51.)

Density:

The average number of dwelling units per acre of land in a residential development. (Refer to page 121 of this plan for a more detailed definition.)

Density Transfer:

The act of allowing additional dwellings to be built on a parcel of land designated for development in return for further limiting the number of dwellings to be built on a different parcel of land designated for conservation. (See page 47 of this plan for a more detailed definition.)

Development:

The act of building or the existence of structures for human habitation or business use including houses, stores, schools, offices, roads, etc.

Diabase:

A fine to medium grained dark colored igneous rock that is a good source for crushed stone for road and building construction.

Dillon Rule:

The rule adopted by the Virginia General Assembly which limits the legislative powers of local government in Virginia to those powers which have been specifically and expressly granted to them by the General Assembly.

Easement:

A right, usually by virtue of the ownership of one parcel of land, to use or enjoy the land of another.

Easement in gross:

A personal right to use or enjoy the land of another which is not dependent upon the existence of ownership of land.

Enabling Legislation:

Legislation which is passed by the Virginia General Assembly and which authorizes a locality or localities in the State to carry out some particular program or which grants certain specific powers to those localities.

Equity:

The net value which a landowner holds in his property, not including the value possessed by a person or institution which holds a lien or mortgage on the property.

Erosion:

The wearing away and removal of materials of the earth's crust by natural means, in this plan refers to transportation of topsoil particles by means of moving water (see stormwater run-off).

Fair Market Value:

The value, expressed in dollars, of property when offered for sale on the open market.

Fee Simple Ownership:

The complete ownership interest in real property; the ownership of the entire "bundle" of rights attached to real property.

Fiscal (adj):

Of or relating to public revenues, public expenditures and public debt; public financial matters.

Floodplain, 100 Year:

Land adjoining a watercourse or other water body that will be inundated to a defined height by water from a flood which has a 1% chance of occurring in any year.

Floor Area Ratio (F.A.R.):

The ratio of the enclosed floor area of buildings on a given site, to the total gross area of the site.

Grandfathered:

a situation in which a land use or structure which existed prior to the adoption of a particular ordinance provision is allowed to continue despite its lack of conformance to that ordinance provision.

Greenbelt:

Any largely undeveloped area of open space uses covered with trees, shrubs and/or grass surrounding a developed urban area, or separating one urban area from another.

Groundwater:

Water beneath the ground surface in a saturated zone. Major source of water supply for local residents.

Historic District:

A zoning district overlaid on an existing zoning district and adding additional architectural and design controls to the regulations of the base district. Referred to in Loudoun County Zoning Ordinance as "Historic Site District/Historic and Cultural Conservation District." There are eight Historic districts in the County; five administered by the County and three by incorporated towns.

Industrial:

Nonresidential and noncommercial employment uses such as mining, milling and manufacturing.

Institutional:

Public or private health, recreational or educational uses such as parks, schools, libraries, and camps.

Intensity:

A measure of the extent to which a tract of land is developed with urban land uses. Residential density in units per acre is a measure of intensity; floor area ratio is also a measure of intensity, as is square feet per acre. Intensity can also be described or measured in terms of impacts such as traffic loading, sewage disposal needs, etc.

Land Trust:

A public and/or private, non-profit organization with the authority to buy, accept donations, hold and/or sell interests in real property for the purpose of land and/or building preservation.

Limestone Conglomerate:

Geologic formation that is highly water soluble and is characterized by numerous underground caves and surface sinkholes; it is a natural groundwater aquifer that is a good water supply source.

Local Road:

A publicly owned and maintained road designed for direct access to individual lots.

MGD:

Million gallons per day (refers to sewage treatment or water supply flows).

National Historic Landmark:

District, site, or structure listed on the National Register and considered to be of unusual importance to American history, architecture, archaeology and/or culture. Under the jurisdiction of the Secretary of the Interior. Designation does not imply control over the properties included. There are four in Loudoun County.

National Register of Historic Places:

A register of districts, sites, buildings, structures and objects, significant in American history, architecture, archaeology and/or culture. The Register is maintained by the Secretary of the Interior and administered by the Keeper of the National Register. Local nominations to the Register are made by the Virginia Historic Landmarks Commission. Designation does not imply control over the properties included. There are eight districts and 19 sites in Loudoun County on the National Register.

Non-Point Source Pollution:

Pollutants carried in stormwater run-off that cannot be traced to a specific source and whose point of entry into a watercourse cannot be defined.

Open Space:

Land which is in a largely natural state with few if any buildings or other structures. Examples include passive parks, farmland and vacant land.

Package Treatment Plant:

A self-contained sewage treatment system designed to serve small scale applications similar to those served by septic systems.

Partial Ownership Interest:

The ownership of only one or more but not all of the entire fee simple "bundle" of rights.

Perpetuity:

A future limitation on property which is not destructible by the persons who at the present time hold an interest in the property subject to future limitation.

Perpetual Easement:

A right to use or enjoy the land of another which is unlimited with respect to time so long as the right is not extinguished. The right may not be extinguished arbitrarily. However, it may be extinguished because of future actions, for example, by a cessation of the purposes for which the easement was created, by an express release or by a change in condition not contemplated at the time of creation.

Primary Road:

A road owned by the Virginia Department of Highways and Transportation whose construction and/or maintenance is funded through the Commonwealth of Virginia Primary Road Account.

Public Facilities:

Public works supplied generally by a government organization. Examples include: public roads, schools, water and sewer facilities, fire stations, and libraries.

Pump-and-Haul:

A procedure in which a sewage holding tank is pumped out on a regular basis and the raw sewage is transported by vehicle to an authorized treatment plant.

Real Property:

Land and any immobile buildings or structures attached to the land.

Reasonable Use:

A use which is fair and suitable under the circumstances, which is compatible with the general purposes of promoting the health, safety and general welfare of the public and which is in furtherance of a legitimate zoning purpose.

Recreation:

Passive recreation facilities include mostly undeveloped, natural areas for hiking, camping, hunting and fishing. Active recreation facilities include developed areas such as ballfields, equestrian facilities, golf courses, tennis courts, and swimming pools.

Residential:

Structures which are built for and occupied by private households, rather than government or businesses. Private dwellings.

Rural:

Land areas which are not served by central water and sewage facilities and which have predominantly low-intensity land uses such as large-lot residential or agricultural uses.

Scenic Highway/Virginia By-way:

1. Scenic Highways: a road located within a protected corridor and having recreational, historic or scenic interest. Designated at time of construction. Only three in the entire State.

2. Virginia By-way: road or part of a road having high aesthetic or cultural value or leading to an area of significant historical, national or recreational interest. Designation by VDH&T on recommendation of the Commission on Outdoor Recreation with approval of local Board of Supervisors. Designation does not imply any particular protection of the roadway from development or structural improvements.

Scenic Rivers: (Sec. 10 -167(b) Code of Virginia)

"Rivers, streams, runs and waterways, including their shores and immediate environs which possess great natural and pastoral beauty." Designated by an Act of General Assembly on recommendation of the Commission on Outdoor Recreation. In Loudoun County there are two scenic Rivers, Catoctin Creek from Waterford to the Potomac and Goose Creek from the Fauquier County line to the Potomac.

Secondary Road:

A road owned by the Virginia Department of Highways and Transportation whose construction and/or maintenance is funded through the Commonwealth of Virginia Secondary Road Account. In Loudoun County, secondary roads are those numbered 600 and above.

Septic System:

Subsurface sewage disposal system that uses the natural absorption of soil to treat wastewater. The common use is to serve one dwelling, but could be designed to serve several homes. Drainfield refers to this soil absorption trench fed by pipes from the dwelling.

Sinkhole:

A vertical opening and closed depression resulting from solution or collapse of underground soluble rock (see limestone conglomerate).

Six-Year Road Plan:

A six-year plan of secondary road construction and improvement expenditures formulated by the Virginia Department of Highways and Transportation, which is updated every two years.

Sludge:

The concentration of solids withdrawn from the combined fluid wastes of the sewage treatment process.

Steep Slopes:

Surface formation with a vertical incline greater than 8.5 degrees or 15%, or greater than 22.5 degreees or 25%, a sufficient steepness to cause problems, such as erosion or increased flooding, when disturbed for land development or other purposes.

Stormwater Run-off:

The portion of the total precipitation that does not sink into the soil, but instead flows across the ground or other surface and eventually reaches a watercourse.

Subdivision Ordinance:

The local ordinance which sets forth the regulations which guide site development standards such as road and grading requirements, utility provision, etc.

Transferable Development Rights (TDR):

The process whereby an owner of designated rural land may sell his "right" to develop habitable structures to a landowner of designated urban land who may then build at a higher density on that urban land. The rural land from which the development rights have been sold is placed under a permanent open space easement.

Transportation Improvement Plan:

A County transportation plan, which includes roads, car pools, public transportation and airport facilities and which is designed to establish policies and priorities regarding County roads, public transportation, car pools, airports and other transportation facilities

Urban:

Land areas which are served by central water and/or sewer facilities and/or which have a relatively high development density. In Loudoun, urban densities generally begin at between one and two units per acre for residential development, and go as high as eight to ten units per acre.

Urban Limit Line:

The boundary which defines the edge of and encloses the Urban Growth Areas beyond which central utilities will not be extended within adopted planning time periods.

Use-Value Taxation:

A program authorized by the State and implemented by localities at their option in which qualifying agricultural and forestal land is taxed at its use-value for agriculture rather than its fair market value for development.

Virginia Landmarks Register:

A register of districts, sites, structures significant in Virginia history and/or culture designated by the Virginia Historic Landmarks Commission and administered by its staff. Designation does not imply control over the properties included. There are nine districts and 18 sites in Loudoun County on the Virginia Register.

Wildlife habitat:

The specific natural environmental conditions, such as plant types, water features, topography and climate that are necessary to sustain and support a particular animal species.

Zoning District:

A classification of land which designates and limits allowed uses, lot sizes, building set-backs and other land development regulations.

Zoning Ordinance:

The local ordinance which defines and implements zoning requirements such as permitted uses, lot sizes, set-backs, etc.

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Loudoun Times Mirror
Loudoun County Department of Planning, Zoning & Community Development
(A. Nicholas Pinchot)