EASTERN LOUDOUN

AREA MANAGEMENT PLAN

Adopted
September 2, 1980
REFORMATTED 1994

Amended May 2, 1983, July 16, 1984, February 19, 1985

DEPARTMENT OF PLANNING
1 HARRISON STREET, 3rd FLOOR
LEESBURG, VA. 20175
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Author: The Eastern Loudoun Area Planning Committee
Loudoun County Planning Commission
Loudoun County Department of Planning

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Abstract:

This document represents the options and proposals for future land development in eastern Loudoun County. The Plan reviews land use management, commercial, industrial, heritage, transportation, energy, zoning and fiscal considerations. The recommendations and implementation sections within each plan offer the planning alternatives for future action. The Plan is a component of the Loudoun County Comprehensive Plan.
ACKNOWLEDGEMENTS

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<table>
<thead>
<tr>
<th>STAFF RESPONSIBILITES</th>
</tr>
</thead>
<tbody>
<tr>
<td>Residential</td>
</tr>
<tr>
<td>Richard Calderon</td>
</tr>
<tr>
<td>William J. Keefe</td>
</tr>
<tr>
<td>Community Design</td>
</tr>
<tr>
<td>Milton J. Herd</td>
</tr>
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</tr>
<tr>
<td>Fiscal</td>
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<td>Lewis R. Sanford</td>
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<tr>
<td>Richard Calderon</td>
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<td>Graphic Design</td>
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<tr>
<td>Milton J. Herd</td>
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<tr>
<td>Richard Calderon</td>
</tr>
</tbody>
</table>

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Regional Location

Eastern Loudoun Management Plan Study Area
# TABLE OF CONTENTS

## PAGE

### PLAN SUMMARY

<table>
<thead>
<tr>
<th>Plan Type</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>Introduction</td>
<td>1</td>
</tr>
</tbody>
</table>

### PLAN SUMMARY

<table>
<thead>
<tr>
<th>Plan Type</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>Eastern Loudoun Area Management Plan</td>
<td>3</td>
</tr>
<tr>
<td>Residential Development</td>
<td>3</td>
</tr>
<tr>
<td>Environmental Plan</td>
<td>5</td>
</tr>
<tr>
<td>Community Design</td>
<td>7</td>
</tr>
<tr>
<td>Commercial and Office Plan</td>
<td>9</td>
</tr>
<tr>
<td>Industrial Plan</td>
<td>10</td>
</tr>
<tr>
<td>Transportation Plan</td>
<td>11</td>
</tr>
<tr>
<td>Community Facilities Plan</td>
<td>12</td>
</tr>
<tr>
<td>Fiscal Plan</td>
<td>13</td>
</tr>
<tr>
<td>Heritage Conservation</td>
<td>15</td>
</tr>
<tr>
<td>Energy Plan</td>
<td>16</td>
</tr>
</tbody>
</table>

### LAND USE PLANS

<table>
<thead>
<tr>
<th>Plan Type</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>Residential Development</td>
<td>20</td>
</tr>
<tr>
<td>Environmental Plan</td>
<td>55</td>
</tr>
<tr>
<td>Community Design</td>
<td>90</td>
</tr>
<tr>
<td>Commercial and Office Development Plan</td>
<td>114</td>
</tr>
<tr>
<td>Industrial and Economic Plan</td>
<td>141</td>
</tr>
<tr>
<td>Transportation Plan</td>
<td>164</td>
</tr>
<tr>
<td>Community Facilities Plan</td>
<td>208</td>
</tr>
<tr>
<td>Fiscal Plan</td>
<td>245</td>
</tr>
<tr>
<td>Heritage Conservation Plan</td>
<td>256</td>
</tr>
<tr>
<td>Energy Plan</td>
<td>277</td>
</tr>
</tbody>
</table>
# LIST OF TABLES

## LAND USE PLANS
- **TABLE 1:** Housing Units by Type, February 1979 - Eastern Loudoun .............. 24
- **TABLE 2:** Household Forecast - Eastern Loudoun Planning Areas .............. 25
- **TABLE 3:** Compatible Land Uses ......................................................... 30

## COMMUNITY DESIGN
- **TABLE 1:** Existing Open Space Element .............................................. 98

## COMMERCIAL AND OFFICE
- **TABLE 1:** Commercial Development in Eastern Loudoun, 1986 ................ 116
- **TABLE 2:** Regional Center: New Development ....................................... 121
- **TABLE 3:** Community Service - New Development ................................. 124

## INDUSTRIAL AND ECONOMIC DEVELOPMENT PLAN
- **TABLE 1:** Estimated Employment in Eastern Loudoun Area 0 1979 .......... 156
- **TABLE 2:** Industrial Fires in Eastern Loudoun ..................................... 157
- **TABLE 3** Existing Industrial Zoned Land ............................................. 160

## TRANSPORTATION PLAN
- **TABLE 1:** Traffic Congestion - Eastern Loudoun .................................. 171
- **TABLE 2:** Criteria for Capacity and Level of Service ............................. 172
- **TABLE 3:** Proportion of Work Trips and Daily Vehicle Trips in 1995 from Sub-areas A&B travelling to the Core and Tyson's Corner Area ........... 173
- **TABLE 4:** 1995 Estimated Transit and Carpool Potential to Regional Core .......... 174
- **TABLE 5:** 1995 Estimated Transit and Carpool Potential to Tyson’s Corner Area ................................................................. 174
- **TABLE 6:** Priority Rating and Highway Improvement Phasing .................. 177

## SCHOOLS
- **TABLE 1:** Existing School Facilities .................................................. 219
- **TABLE 2:** Eastern Loudoun Planning Area - Pupil Forecasts .................. 220
- **TABLE 3:** 1979 New School Construction Criteria .................................. 222
- **TABLE 4:** Existing Recreational Facilities ......................................... 230
- **TABLE 5:** Park Criteria ................................................................. 233
- **TABLE 6:** Park Size Criteria ......................................................... 234
- **TABLE 7:** Recreational Facilities Needed ........................................... 236
LIST OF TABLES
(Concluded)

PAGE

FISCAL PLAN
TABLE 1:   Countywide Local Tax Breakdown for FY1978-1979 .............. 247
TABLE 2:   Loudoun County Estimate Household Cost FY 1979-1980 ......... 248
TABLE 3:   Per Household Capital Costs ........................................ 249

ENERGY PLAN
TABLE 1:   Primary Household Energy Source - 1970 ............. 278
# LIST OF FIGURES

## LAND USE PLANS

<table>
<thead>
<tr>
<th>Figure</th>
<th>Description</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Dwelling Units in the &quot;Pipeline&quot;</td>
<td>21</td>
</tr>
<tr>
<td>2</td>
<td>Existing Zoning (Generalized)</td>
<td>26</td>
</tr>
<tr>
<td>3</td>
<td>Community Concept</td>
<td>29</td>
</tr>
<tr>
<td>4</td>
<td>Cluster Design</td>
<td>31</td>
</tr>
<tr>
<td>5</td>
<td>Proposed Land Use</td>
<td>36</td>
</tr>
<tr>
<td>6</td>
<td>Future Road Network in Oak Grove Area</td>
<td>37</td>
</tr>
<tr>
<td>7</td>
<td>Proposed Land Use Plan - Old Sterling</td>
<td>39</td>
</tr>
<tr>
<td>8</td>
<td>Sterling Small Area Plan</td>
<td>40</td>
</tr>
<tr>
<td>9</td>
<td>Proposed Road Network - Old Sterling</td>
<td>42</td>
</tr>
<tr>
<td>10</td>
<td>Old Sterling Small Area Plan Transportation Matrix</td>
<td>43</td>
</tr>
<tr>
<td>11</td>
<td>Proposed Density, NE Quadrant</td>
<td>48</td>
</tr>
<tr>
<td>12</td>
<td>Proposed Development North Side of Route 7, East of Cedar Drive</td>
<td>51</td>
</tr>
</tbody>
</table>

## ENVIRONMENTAL PLAN

<table>
<thead>
<tr>
<th>Figure</th>
<th>Description</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Physiographic Provinces</td>
<td>59</td>
</tr>
<tr>
<td>2</td>
<td>Drainage Basins</td>
<td>60</td>
</tr>
<tr>
<td>3</td>
<td>Floodplains</td>
<td>68</td>
</tr>
<tr>
<td>4</td>
<td>Stream Hydrograph</td>
<td>70</td>
</tr>
<tr>
<td>5</td>
<td>Steep Slopes</td>
<td>71</td>
</tr>
<tr>
<td>6</td>
<td>Water Problems Associated with Development</td>
<td>74</td>
</tr>
<tr>
<td>7</td>
<td>Noise Impact</td>
<td>82</td>
</tr>
<tr>
<td>8</td>
<td>Dulles International Airport - Noise Exposure Forecast</td>
<td>83</td>
</tr>
</tbody>
</table>

## COMMUNITY DESIGN

<table>
<thead>
<tr>
<th>Figure</th>
<th>Description</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Community Design</td>
<td>91</td>
</tr>
<tr>
<td>2</td>
<td>Architectural Design</td>
<td>92</td>
</tr>
<tr>
<td>3</td>
<td>Trails and Open Space Conceptual Plan</td>
<td>94</td>
</tr>
<tr>
<td>4</td>
<td>Cluster Development Techniques</td>
<td>103</td>
</tr>
<tr>
<td>5</td>
<td>Typical Subdivision</td>
<td>104</td>
</tr>
<tr>
<td>6</td>
<td>Cluster</td>
<td>105</td>
</tr>
<tr>
<td>7</td>
<td>Illustration of Community Design Principles</td>
<td>106</td>
</tr>
<tr>
<td>8</td>
<td>Relationship of Community Design Elements</td>
<td>107</td>
</tr>
<tr>
<td>9</td>
<td>Orientation for Energy Conservation</td>
<td>108</td>
</tr>
<tr>
<td>10</td>
<td>Street &amp; Parking Design</td>
<td>110</td>
</tr>
</tbody>
</table>

## COMMERCIAL AND OFFICE DEVELOPMENT PLAN

<table>
<thead>
<tr>
<th>Figure</th>
<th>Description</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Existing Commercial Development</td>
<td>117</td>
</tr>
<tr>
<td>2</td>
<td>Existing Commercially Zoned Land</td>
<td>119</td>
</tr>
<tr>
<td>3</td>
<td>Large Regional Center</td>
<td>122</td>
</tr>
<tr>
<td>4</td>
<td>Community Services (New Development)</td>
<td>125</td>
</tr>
<tr>
<td>5</td>
<td>Recommended Development Pattern</td>
<td>128</td>
</tr>
</tbody>
</table>
# LIST OF FIGURES

(Concluded)

## INDUSTRIAL AND ECONOMIC DEVELOPMENT PLAN

<table>
<thead>
<tr>
<th>Figure</th>
<th>Description</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Existing Zoning (Generalized)</td>
<td>143</td>
</tr>
<tr>
<td>2</td>
<td>Proposed Areas for Increased F.A.R. (Generalized)</td>
<td>152</td>
</tr>
<tr>
<td>3</td>
<td>Proposed Industrial Zoning (Generalized)</td>
<td>153</td>
</tr>
</tbody>
</table>

## TRANSPORTATION PLAN

<table>
<thead>
<tr>
<th>Figure</th>
<th>Description</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Current Regional Expressways</td>
<td>168</td>
</tr>
<tr>
<td>2</td>
<td>Primary and Secondary Roads</td>
<td>170</td>
</tr>
<tr>
<td>3</td>
<td>Bikeway Classifications</td>
<td>176</td>
</tr>
<tr>
<td>4</td>
<td>Recommended Highway Improvements</td>
<td>179</td>
</tr>
<tr>
<td>5</td>
<td>Proposed Route 28 Alignment</td>
<td>180</td>
</tr>
<tr>
<td></td>
<td>Route 7 Corridor Plan</td>
<td>182</td>
</tr>
<tr>
<td>6A</td>
<td>Proposed Typical Sections - Route 7 Corridor Plan</td>
<td>182</td>
</tr>
<tr>
<td>6B</td>
<td>Proposed ELAMP Road Network</td>
<td>182</td>
</tr>
</tbody>
</table>

## COMMUNITY FACILITIES

<table>
<thead>
<tr>
<th>Figure</th>
<th>Description</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Sewer Service Area</td>
<td>212</td>
</tr>
<tr>
<td>2</td>
<td>Existing and Proposed Sewer Lines</td>
<td>213</td>
</tr>
<tr>
<td>3</td>
<td>Existing and Proposed Water Lines</td>
<td>214</td>
</tr>
<tr>
<td>4</td>
<td>Existing School Sites - 1979</td>
<td>223</td>
</tr>
<tr>
<td>5</td>
<td>Existing Recreational Facilities</td>
<td>231</td>
</tr>
<tr>
<td>6</td>
<td>Fire and Rescue Facilities</td>
<td>242</td>
</tr>
</tbody>
</table>

## HERITAGE RESOURCES

<table>
<thead>
<tr>
<th>Figure</th>
<th>Description</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Primary Historic Sites</td>
<td>271</td>
</tr>
<tr>
<td>2</td>
<td>Primary Scenic Resources</td>
<td>276</td>
</tr>
</tbody>
</table>

## ENERGY PLAN

<table>
<thead>
<tr>
<th>Figure</th>
<th>Description</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Site Considerations for Energy Efficiency</td>
<td>280</td>
</tr>
<tr>
<td>2</td>
<td>Checklist for Energy Efficient Design</td>
<td>281</td>
</tr>
</tbody>
</table>
PLAN SUMMARY
INTRODUCTION

The Eastern Loudoun Area Plan marks both a beginning and an end. It is the first of many area plans that will supplement and implement the adopted Resource Management Plan as integral components of the Loudoun County Comprehensive Plan. Because of the immense growth taking place in eastern Loudoun, the County decided to begin its area plans there. This plan is the end of an extraordinary citizen involvement process that saw a small and diverse group of residents, appointed by their supervisors to represent a cross section of organizations and areas, take the future of eastern Loudoun into their hands to help create a plan that will have significant impact on the future of their community. They met for 25 evenings from March to December '79 to discuss and evaluate each topic. The general consensus of this highly motivated group of 20 people is that eastern Loudoun can be saved from improper development (65% is still undeveloped), and that a genuine sense of community can be created for the area. The specific plans, policies and recommendations included in this plan represent a concerted effort to manage future growth with new tools and programs, and thereby retain the characteristics of eastern Loudoun which motivated its residents to live there.

"THE SPECIFIC INTENT OF THE EASTERN LOUDOUN AREA MANAGEMENT PLAN IS TO PROVIDE THE OVERALL BASIS FOR LAND USE DECISIONS FOR THE COUNTY DECISION MAKERS, SPECIFICALLY THE BOARD OF SUPERVISORS AND THE PLANNING COMMISSION. THE PLAN PROVIDES CRITERIA, ANALYSES AND RECOMMENDATIONS FOR MAKING LAND USE DECISIONS THROUGHOUT THE TEXT OF THE DOCUMENT. ABSENT EXTRAORDINARY CIRCUMSTANCES, NO ONE SECTION OF THE TEXT SHOULD BE DEEMED THE SINGLE DETERMINANT FOR ANY ZONING OR LAND USE RELATED ISSUE. DECISIONS WILL BE MADE BY REVIEWING THE ENTIRE DOCUMENT IN CONCERT WITH THE RESOURCE MANAGEMENT PLAN TO PRODUCE THE BEST POSSIBLE DECISIONS."

The overall purpose of this plan is to supplement and implement the Resource Management Plan. The Area Plan provides the legal basis for a review process that will promote a more comprehensive approach to the land development process. Important concerns for the environment, energy, transportation, heritage, schools, public facilities and fiscal practices are all seen as "valued resources" (RMP, p. ix), worthy of special consideration today and for future generations. The Area Plan’s growth policy is for development to take place in a manner that is "socially humane, environmentally sound, aesthetically pleasing and financially affordable" (page 20, Residential Plan). This plan represents an important step towards this end.

The "community" of eastern Loudoun is at a crossroads in planning its future. Either the County can allow continued sprawl development that is dispersed and costly, or it can commit itself to a managed process of land development decision making. The Resource Management Plan offers growth management in policy terms; this area plan defines a specific path to follow in managing the future of a specific area. The Board of Supervisors and the Planning Commission have committed themselves to a managed growth process for the entire county; this document is designed to put this commitment into action in eastern Loudoun.
The Plan also recognizes the need to work cooperatively with the local and regional planning agencies, including Fairfax County, the Town of Herndon, the Northern Virginia Planning District Commission and the Metropolitan Washington Council of Governments. The goal is to provide a cooperative basis for planning and zoning decisions, including those on highways, water and sewer service and pollution control.
PLAN SUMMARY

EASTERN LOUDOUN AREA MANAGEMENT PLAN

The Eastern Loudoun Area Management Plan offers both general policies and specific recommendations that will form the basis for future land use decisions. The purpose is to guide future development and to prepare the people of eastern Loudoun for the difficult choices and decisions that will be required to maintain the area’s fine environment and make it an even better place to live.

This section is a general summary of the Plan. The reader is asked to refer to the text of the Plan for an explanation of the implementation techniques.

RESIDENTIAL DEVELOPMENT PLAN

ISSUES

Eastern Loudoun County has experienced major development in the last two decades and has grown from a rural farming area to a major suburban community with over 7,500 dwelling units and a population of over 27,000 people. Present trends suggest that residential growth will continue at a rapid pace of some 1,100 dwelling units per year which will double the eastern Loudoun area population by 1987.

This residential growth has created considerable social, environmental and fiscal strains which promise to become more acute as development erodes the informal buffers of open fields and woodland between developments. In some cases, quiet residential roads will become major throughways and residential and non-residential development actually will begin to rub shoulders.

IMPLEMENTATION

Loudoun County is committed to managing the character, extent and timing of this growth in order to create full, diversified communities. The County will furthermore adopt the following residential implementation strategies to achieve these goals.

1. Conditional Zoning:

Future residential zoning applications will require expanded review criteria to include environmental and existing public facility components. The review will also include a complete analysis and study of voluntarily proffered public facilities which would be needed to permit greater use intensities. The County will adopt criteria and procedures for conditional zoning.
2. Phasing of Construction:

   New housing requires a broad range of new or expanded community services. The County will seek to phase new growth through the use of conditional zoning and will seek to coordinate growth with the orderly development of public facilities by means of the Capital Improvements Program.

3. Housing Variety and Costs:

   The County is committed to providing a wide spectrum of housing types and price ranges. The County will seek to encourage such diversity by means of:

   a. Appropriate zoning.

   b. Proffers which will redress shortages of housing options for low and moderate income residents.

   c. Neighborhood and housing rehabilitation programs.

   d. Revision of building ordinances that restrict the rehabilitation of usable older structures.

   e. Revision of the Zoning and Subdivision Ordinances restricting development through unnecessary setbacks, road frontage and other requirements.

   f. Revision of the Zoning and Subdivision Ordinances to create new transitional zoning districts: office/commercial/residential and a zoning district midway between R-2 and R-4 to allow a gross density of three units per acre.

4. Land Development Ordinance:

   The County recognizes that increasing development intensity, requires additional monitoring and review. The County will develop a new Land Development Ordinance embracing both subdivision and site plan applications.

5. Buffering and Clusters:

   Loudoun County wishes to create identifiable neighborhoods and communities and equally wishes to soften the impact of one use abutting on another. Accordingly, the County will strengthen the cluster provisions of the Zoning Ordinance and encourage appropriate cluster design.
ENVIRONMENTAL PLAN

ISSUES

The natural environment of eastern Loudoun will continue to undergo steady and rapid change: If unchecked and unplanned, changes will lead not only to a loss of environmental amenities, but also to the exposure of more and more residents to lowered environmental quality and increasing levels of pollution, to rising costs for public services and corrective programs and to a foreclosure on future community options. The major threats to the environment will probably not be dramatic events which focus the energies of the environmentally conscious. A serious loss of resources in eastern Loudoun is more likely to result from a series of subtle changes to the natural environment.

It is apparent that environmental considerations have been relatively low on the list of priorities for development thus far and need a legitimate point of entry into the land use decision-making process. The advantages and the constraints of environmental features - - natural and man-made -- should be pivotal rather than incidental to the planning and design of new developments. In an area in which many land use decisions may affect the water supplies of northern Virginia, the validity of programs to protect the natural environment from human disruptions is clear. Likewise, in a growing population center such as eastern Loudoun, the County’s responsibility to protect current and future residents from the hazards of the environment is undeniable.

The recommendations discussed at length in the complete Area Plan and highlighted here offer direction and a framework for environmental protection.

IMPLEMENTATION

1. **Critical Areas:**

   Through amendments to the Zoning Ordinance, the County will designate and preserve the critical, undevelopable areas in eastern Loudoun. These include floodplains and severe slopes as discussed in the complete Plan.

2. **Zoning and Subdivision Ordinances:**

   The County will review and amend the Zoning and Subdivision Ordinances to implement the specific goals of the Area Plan including:

   a. Maintenance of critical areas in a undeveloped state.

   b. Exclusion of residential and other noise-sensitive uses from the NEF 40 zones and to the extent possible, the NEF 30 zones adjacent to Dulles Airport.
c. Prevention of erosion and sedimentation problems through site design, as well as erosion control plans required under the Erosion Control Ordinance.

d. Protection of important vegetation, particularly along stream courses, steep slopes and other areas of high erosion potential.

e. Encouragement of development design based on preservation of natural drainage patterns.

3. **Densities:**

   In the use of sliding scale zoning, environmental constraints and opportunities must become guiding factors in the designation of appropriate densities. That is, comparable treatment for comparable properties requires a comparison of soil, topography, hydrology and other environmental characteristics as well as considerations of location and zoning.

4. **New Regulations:**

   A number of new approaches to environmental management are required in eastern Loudoun in part because of the relatively high concentration of population and in part because of the new types of problems presented by rapid suburban growth. The most pressing need is for a Stormwater Management Policy and Ordinance. Other needs to be addressed include a Stream Buffer Ordinance and Vegetation Protection Regulations. Also important, but of lower priority at this time, are Hillside Development Regulations.

5. **Soils Assessments:**

   Interpretive soils information prepared by the County Soil Scientist should be used to identify problem areas. Development in designated poor potential areas must be preceded by special engineering assessments, and land use and design will be dictated by the types of actual problems uncovered.

6. **Inspection and Enforcement:**

   Expansion of county capabilities in inspection and enforcement will be necessary and should be coordinated with the types of regulations enacted.

7. **Environmental Data Base:**

   The County's capabilities for environmental planning should be strengthened by an expanded effort for continuous data collection and monitoring.

8. **Impact Assessment:**

   -6-
An impact assessment procedure, related to the specific goals of the area plan, should be used for review of development proposals. An effective measurement scheme should address cumulative effects as well as those directly attributable to individual development proposals.

9. **Public Acquisition of Special Environmental Resources:**

   Groundwork for future public acquisition programs should begin immediately with information gathering on threatened resources.

### COMMUNITY DESIGN

**ISSUES**

Community design refers to the character of the physical structure and organization of a community, which would include housing, roads and trails, parks, woodlands and stream valleys, and the complex network of relationships between these diverse land uses and natural elements. The primary focus and concern of the community design process is to allow new development to be organized in such a way as to enhance community identity, promote energy conservation and preserve the existing natural amenities as described in the Resource Management Plan.

Sixty-five percent of eastern Loudoun (14,000 acres) is presently undeveloped. Some of the uses within this vast area include parklands, school playgrounds, floodplain, farmland and land held for speculation.

The character of eastern Loudoun’s community design has many positive qualities. However some trends, problems and issues have arisen. Some of the critical ones are:

1. As the Sterling Park and Herndon areas have grown, they have begun to merge, causing a sprawling growth pattern, and loss of their visual identity as separate and district communities.

2. Virtually all development in eastern Loudoun is segregated by use, that is, commercial facilities are separated from residential areas, offices separated from retail stores, etc. Often the only way to get from one use to another, even when they are adjacent, is by auto (example: the Town Center and Sugarland Plaza Shopping Centers).

3. The architectural design and site planning of most residential developments in eastern Loudoun have not adequately taken into consideration or applied such features as proper orientation for energy conservation, road designs which will reduce auto speeds and maintenance costs, adequate trail systems, and proper landscaping and vegetation conservation.
IMPLEMENTATION

1. The County will provide density bonuses for private developers who implement design concepts and policies such as the following:
   a. Mixed-use developments.
   b. Donation of scenic easements.
   c. Functional trail systems.
   d. Energy-efficient building design.
   e. Clustered housing units.

2. The County will develop detailed site planning standards for all residential, commercial and industrial developments. These standards will require the implementation of design principles that will reinforce the County’s community design policies.

3. The county should focus on the acquisition of land for linear parks in environmentally critical and sensitive areas through dedication or purchase. In these areas, the County should give priority to such acquisition rather than to development.

4. Where possible, the County will seek proffers of land or easement dedication, and where necessary, allocate county funds for the acquisition of critical scenic lands and community buffers. The following areas should be considered for such acquisition or dedication by owners:
   a. Land for a trail along the Broad Run floodplain.
   b. Open space buffer along Route 637.
   c. Park site(s) on Pocahontas property.
   d. Remainder of Vestals Gap Road right-of-way.
   e. Open space buffer north of the community of Sugarland Run.

5. The County should designate a 75’ open space buffer on either side of the W&OD Regional Trail to preserve this open space asset from development encroachment.

6. The County will develop detailed open space specifications for public and private open space.

7. The County should obtain easements from property owners to conserve and develop Vestals Gap Road as a hiking trail.

8. The County should designate part of the Sugarland Run and the Broad Run floodplains as linear parks which would eventually be tied into a comprehensive trail system linking the Sterling area and the W&OD with the Sugarland Run area, Broad Run area and the Potomac River.
COMMERCIAL AND OFFICE PLAN

ISSUES

The future development of commercial and office facilities will significantly change the composition of development from predominantly residential to a much more balanced mix with significant employment and shopping opportunities. This new development will affect the appearance and character of eastern Loudoun. The County should strive for quality appearance of new development with attention to appearance from major highways.

The Area Plan establishes a development policy that allows for a regional shopping center while reinforcing the existing commercial areas and allowing new neighborhood commercial areas to function as a focus for future villages or activity centers.

The Plan offers three general locations as acceptable for three regional shopping centers: two on the west side of the Route 28/Route 625 intersection and one south of Route 7 between Route 637 and Route 28.

IMPLEMENTATION

1. Regional Shopping Centers:

There is a need for expansion of retail opportunities in the area, but these must be in character with the County’s support facilities and needs. The Area Plan indicates that the County may approve three regional shopping centers, but the size of the largest should not exceed 1.2 million square feet. One location to the south of Route 7 between Route 637 and Route 28 and two on the west side of Route 28/Route 625 intersection, could be acceptable subject to guidelines found in this plan.

2. Reinforce Existing Centers:

The existing retail centers will be reinforced as village centers by approval of zoning changes that complement the existing commercial property and adjacent land use.

3. Neighborhood Centers:

Retail centers that promote energy efficiency on a neighborhood scale should be included in new planned communities. Eastern Loudoun may accommodate five or six new neighborhood centers in the next decade.

-9-
INDUSTRIAL PLAN

ISSUES

Industrial development and employment in the Eastern Loudoun area have increased during the last decade. However, residential development has grown even faster than local jobs, thus causing the County as a whole, and the eastern area in particular, to become even more of a "bedroom" community for employment centers in Washington and Fairfax County. The eastern trip of the County has some resource characteristics which are very attractive to several kinds of desirable industries. However, competition for industrial growth from neighboring counties, especially Fairfax, is substantial. Industrial growth can be expected to broaden the tax base and, at least in the short term, offset to some extent the net deficit in County revenues incurred by residential development.

Approximately 6,000 acres of land are zoned for industrial use in eastern Loudoun. About 1,000 acres of this land lie within environmentally sensitive areas, and about 1,500 acres are not presently within close proximity of major sewer or water trunk lines. This leaves approximately 3,500 acres of land presently available for economical industrial development.

IMPLEMENTATION

1. The County will focus on encouraging the expansion of existing industrial firms by keeping in close contact with these firms providing them with as much desired information as possible, assisting them with problems such as rezoning for expansion, obtaining adequate utilities and maintaining adequate transportation access.

2. The County will attempt to provide as many incentives as possible for county residents to work within the County, including making residents aware of local employment opportunities, making local employers aware of local work force capability, providing an adequate trails system connecting residential and employment areas, and attracting firms best suited to the local labor force.

3. The County will amend the Zoning Ordinance in order to make it more feasible for developers to create mixed-use developments.

4. The County will investigate the feasibility of increasing the allowable floor area ratio (development density) in those areas of eastern Loudoun which are the most appropriate for expanded industrial development.

5. The amount of land zoned PD-GI (Planned Development - General Industrial) should be increased in order to provide more choices for the kinds of industries that can locate in that zone.
6. A highway overlay zone will be established which puts strict controls on land uses adjacent to primary and secondary roads, including requirements for adequate buffers between the highway and any industrial operation.

TRANSPORTATION PLAN

ISSUES

The movement of people within eastern Loudoun is the largest single issue for the future viability of the area as a community. Projected traffic volumes for Route 7 are estimated at 90,000 vehicle trips per day by 1990 if the approved and pending development is constructed. These traffic figures indicate a projected decrease in level of service from D level to F level which represents congested, stop-and-go traffic. Over eight additional east-west lanes will be required by 1985. That number will increase to 12 new lanes by 1990.

The concluding recommendations for transportation are clear. Additional highway facilities are critically needed, plus increased reliance on car pools and transit use to avoid intolerable traffic congestion.¹ Future recommendations for improvements will be specified in the Final Report of the COG Study due February 1980.

IMPLEMENTATION

1. Implementation of a Transportation Improvement Program involving:

   a. Construction of the Toll Road and a ramp structure to Dulles Access Road at Route 28 at the first opportunity to allow car pool access.

   b. Improvement of Route 7 with additional signals, widening and free flow lanes to increase the safety and service level of the road.

   c. Funding and construction of a park-and-ride facility at Routes 28 and 606.

2. Primary Road Improvements:

   a. Construct Route 28 loop by developer proffer.

   b. Endorse construction of toll road parallel with the Dulles Access Road.

   c. Improve the Route 28 corridor to a freeway-type facility with a four-lane, median-divided cross-section. The road should have grade-separated interchanges

1. At Routes 7 and 28 (realigned to east).
2. Between Routes 638 and 625 (by Broad Run).
3. At Routes 625 and 28.
4. At Routes 846 and 28 (full interchange).
5. At Routes 606 and 28 (full interchange).
6. W&OD right-of-way to be a grade-separated crossing of Route 28.

d. Endorse Springfield Bypass construction.

3. Secondary Road Improvements:
   
a. Improve Routes 604 and 625 to four lane facilities to county line.
   
b. Improve East Frederick Drive to four lanes.
   
c. Improve Route 625 to Route 643 for two lanes of traffic with parking.

4. Industrial Access Funds for:
   
   Route 634.

COMMUNITY FACILITIES PLAN

ISSUES

The social, psychological and fiscal impact of an additional 5,000-7,000 residential units in eastern Loudoun would severely strain the function of the public facilities in that area unless major county expenditures are made. Existing facilities are very near capacity for schools, parks, sewer, libraries and roads. Services such as law enforcement and rescue are strained beyond their ability to provide adequate protection.

Planning Department projections indicate that the number of households will increase from 7,500 in 1979 to over 15,000 by 1990. New people will demand new services; the County's ability to provide a high quality of living that is affordable to all citizens will be challenged.

IMPLEMENTATION

1. Schools:

   Approximately five new school sites, north of Route 7, will be necessary by 1990, given the projected population growth. An unspecified number of new schools south of Route 7 will also be required. The County will be required to increase the school capacity in eastern Loudoun by approximately 40-50% by 1990.
2. Fire and Rescue:

North of Route 7 a new facility for fire and rescue will be required. It should be located off of Route 637 with direct access onto that road.

3. Law Enforcement:

Extra personnel should be hired by the Sheriff's Department specifically to serve eastern Loudoun. An enlarged substation and a magistrate should be located in eastern Loudoun.

4. Parks and Recreation: Population expansion dictates:

a. Expansion of Sterling Community Center for recreational facilities.

b. Provision of new park facilities: priorities for implementation:

   - Multi-purpose ball fields
   - Community Centers
   - Basketball and tennis courts

5. Sewer Capacity:

Additional sewer capacity for residential and non-residential growth may be provided through:

a. Blue Plains expansion and/or
b. Fairfax "pumpdown" and/or
c. Dulles Airport sewer plan

6. Libraries: Population expansion will dictate

a. Expansion of existing Sterling Library
b. New facility north of Route 7.

FISCAL PLAN

ISSUES

The extensive growth planned for eastern Loudoun will have a significant financial impact on all public services. Sewer, water, roads, schools and energy facilities will all be taxed in terms of capacity and design function. The ability of the County to provide the amenities of parks and recreation, fire and rescue service and law enforcement will be severely challenged by a population increase of over 5,000 units by 1985. It will be necessary to set priorities for expenditure of county funds.
Tax dollars will be scarce and the demand for additional services will be high unless the projects are phased over time. This plan offers priorities and alternatives for future needs to allow the County to determine its ability to pay for additional services.

IMPLEMENTATION

1. Priorities:

   The County budget items deemed most significant area:

   a. School Facilities
   b. Law Enforcement
   c. Fire and Rescue
   d. Parks and Recreation
   e. Libraries

2. Trust Funds:

   The County will establish trust funds so that private developers can defray the costs of future investments such as:

   a. Sugarland Bridge Fund
   b. Community Centers
   c. Schools

3. Capital Improvement Recommendations: (CIP)

   a. Sterling Community Center expansion
   b. New elementary schools north of Route 7
   c. High school north of Route 7
   d. Library expansion

4. Developer Proffers:

   The County will use a benefit-detriment analysis to evaluate the cost of new development and offer suggestions for proffers.

5. State and Local Enabling Legislation:

   New state and local legislation is needed to allow greater financial flexibility for the County. Legislation would include special tax district for specific public facilities.
HERITAGE CONSERVATION

ISSUES

The cultural heritage of eastern Loudoun County is rich in historic significance. The eastern portion of the County contains many historic structures and sites which have survived the rapid expansion of suburban growth that has occurred during the past two decades. Examples include the Vestals Gap Road, which George Washington travelled frequently, the Broad Run Bridge (ruins) and its Toll House (a National Register site) and Lowe's Island, one of the most significant archaeological sites in the region. These sites and others like them are the remaining evidence of the eastern area’s cultural heritage and provide the strongest physical and visual connection that citizens of eastern Loudoun have with their past.

IMPLEMENTATION

1. Historic Sites:

   The County will formally designate the remaining significant historic sites as being of local historical significance, thus establishing a county register of historic places.

2. Zoning Overlay:

   The County will, with the approval of the landowners involved, include the following sites in the County’s Historic District Overlay Zone:

   Old Sterling
   Oak Grove

3. Register Property:

   The County will submit application for inclusion on the State and National Registers, of the following sites:

   Old Sterling
   Oak Grove
   Lowes Island
   Vestals Gap Road

4. Density Bonuses:

   The County will provide density bonuses to developers who preserve significant, County-designated historic sites.
5. Tax Incentive Ordinance:

The County will enact an ordinance which would provide tax incentives for the substantial rehabilitation of older properties.

6. Preservation Easements:

The County will actively encourage the acquisition of preservation easements on significant scenic and historic properties.

7. Trails:

The County will require that pedestrian and bicycle trails be a part of all new developments to help produce a quality and character in keeping with that of the traditional communities of eastern Loudoun.

ENERGY PLAN

ISSUES

The energy balance of eastern Loudoun, like that of many other suburban areas, has become very precarious. A high level of demand rests on resources only recently recognized as exhaustible. The community is comprised of a large number of long-distance commuters with little or no transit options, and dependence on the automobile pervades leisure time travel as well. Although some planned, mixed development has been promoted, most residents do not have easy pedestrian access to retail services, businesses, schools, recreation areas and other facilities. A good number of homes in eastern Loudoun are dependent upon the unpredictable supply of oil, and developers' interest in alternative energy sources and passive energy design has been minimal at best. New developments continually replace an abundance of climate-moderating vegetation with energy-oblivious homes and businesses.

The consumption of energy and the vulnerability of the area to a volatile energy situation could only be expected to grow without some attempt at energy planning. This plan attempts to provide a basis for energy efficiency and conservation in the land use planning process of the future. Transportation, housing and street design, solar access and various planning alternatives are recommended for changes in the Plan. This should help to expand the energy options of the eastern area and also to promote a serious and coordinated energy planning effort on a county-wide level.

IMPLEMENTATION

1. County Energy Plan:

Develop a comprehensive County Energy Plan to coordinate and expand the diffused energy-related programs now ongoing. This should include
conservation goals and policies, transportation and land use recommendations, citizen education programs and energy emergency plans. Public and private funding sources should be investigated for planning and implementation.

2. Land Use:

Review the Zoning and Subdivision Ordinances to assure that energy efficient design and solar access in particular is possible within the planning review procedure, and explore the use of incentives and regulations to promote these alternatives. On a larger scale, promote an energy efficient mix of development types to minimize constant dependence upon the automobile.

3. Design Techniques:

Promote a variety of new design approaches including the following:

a. Solar or passive orientation for housing, i.e., planned use of topography, vegetation, water features, etc.

b. Pedestrian trails to activity centers.

c. New road design standards with energy criteria.

d. Building code revisions for energy efficient construction, e.g., upgrading of insulation requirements to R-30 in attics and R-19 in walls.

4. Alternative Energy Sources:

Encourage the use of local energy resources such as wood, corn and solid waste.

5. Fuel Economy in County Government:

Develop energy efficiency guidelines to be considered in new programs and purchases of the County.

6. County Energy Office:

Establish a full-time County Energy Office to handle crisis intervention, energy economy in county programs and problems of energy allocation and distribution.
LAND USE PLANS
RESIDENTIAL DEVELOPMENT PLAN

INTRODUCTION

The eastern portion of Loudoun County has experienced major residential and non-residential development in the last two decades, growing from a rural farming area to a major suburban community with just over 7,500 dwelling units. Current projections for 1990 suggest that new residential building will double the number of existing housing units to 15,000. The planning challenge for the coming decade is to provide a framework for this growth so that new communities will integrate harmoniously with the natural environment and with existing development.

To meet this challenge the Eastern Loudoun Area Plan calls for additional development criteria in the review of new residential development proposals. Zoning density will certainly remain an importance factor in this review which will also include factors such as:

1. Environmental considerations such as floodplains and hydrological systems, steep slopes and topographic features of note, significant vegetation, etc.

2. Transportation including availability, the need and cost of attendant improvements, the feasibility of transit and transport alternatives.

3. The inclusion of usable, quality open space and evidence of good community design.

4. Energy efficiency through appropriate site development, house placement and orientation.

5. The financial impact of this development on County fiscal resources and the substance of development proffers.


Eastern Loudoun has a basic complement of public services: sewer and water, roads and highways, elementary, middle and high schools. Individuals and families have moved into this suburbanizing area of the County not only to take advantage of the nearby open space and lower taxes, but also for a sense of community within close proximity to the Washington Metropolitan Area.

The residential element of the Eastern Loudoun Area Plan opens with a section on the goals and policies designed to give direction to the independent and multiple actions which together will form the basis for future communities in eastern Loudoun. The residential element’s objective is to manage residential development in a manner which is as socially humane, environmentally sound, aesthetically pleasing and financially affordable as possible.
POLICIES

The goals and policies of the residential section are designed to provide overall direction in the design of residential development in a manner more specific than that of the Resource Management Plan. The RMP’s goals and policies have the objective of preserving the unique character of Loudoun County as a whole.

A. Goals

1. Resource Management Plan:

   This plan adopts those County-wide goals included in the Resource Management Plan, in particular those identified on pages 193 through 198 that speak to residential development.

2. Community Identity:

   It is the particular goal of this plan to encourage the development in eastern Loudoun of identifiable communities possessing a full range of affordable housing types with the complete spectrum of community facilities.

3. Growth Management:

   It is furthermore the goal of this plan to manage the location and timing of this residential growth to coincide with the orderly construction of public facilities in order to maximize public use and benefits, to minimize undesirable waste, and to reduce negative social, environmental and fiscal impacts.

B. Policies

To achieve these goals through the next 5-10 years, the County will adopt certain policies and land management techniques. Such policies will include those outlined in the Resource Management Plan particularly those on pages 218 through 231 in the "Community" and "Potential Community" sections. In addition, the County will adopt the following policies:

1. Reasonable Use and Conditional Zoning:

   To establish a reasonable use for a specific property subject to a rezoning application in terms of existing social, environmental and fiscal considerations, and to review this use in the light of significant social, environmental and fiscal proffers volunteered by the applicants.
2. **Housing Type Variety:**

   To encourage the provision of a wide range of housing types within each community and to actively seek the provision of such housing which it deems to be underprovided.

3. **Design:**

   To employ design standards that foster both a physical and social sense of community and that recognize the specific environmental qualities of a site.

4. **Growth Policy:**

   To accept and manage residential development in eastern Loudoun in a manner which is a socially humane, environmentally sound, aesthetically pleasing and financially affordable as possible.

5. **Cooperative Planning:**

   To coordinate planning decisions with Fairfax County and the Town of Herndon in order to promote uniformity of land use decisions and programs.

**EXISTING CONDITIONS**

**A. Existing Planned Residential Development:**

The historic land use pattern in eastern Loudoun County was one of farmland. Prior to 1960, only a few hundred houses had been built in the area, with new units mainly confined to Broad Run Farms, Richland Acres, Old Sterling and Oak Grove.

The construction of Dulles Airport and a major interceptor sewer leading to the Blue Plains Treatment Plant altered the existing situation greatly, permitting the creation of the Sterling Park and Sugarland Run communities and their satellites. (See Figure 1, page 21, for residential developments).

1. **Sterling Park:** Total Units 4,000+ 80% developed

   Sterling park was rezoned and designed in the early 1960’s as a "planned community" comprising single and multi-family residential areas, dedicated school sites, a commercial center, and reserved church locations. The design orients toward the collector road of Sterling Boulevard which terminates at Route 7 on the north and Route 28 to the south. The original design called for the creation of a major commercial center midway along Sterling Boulevard, a concept which has been hampered both by design
Approved Development Dwelling Units*

A. Countryside  2500
B. Sterling Park**  750
C. Sugarland Run  520
D. Oaktree  100
E. Forest Ridge  100
F. Cardinal Glen  185
G. Sugarland West  50
H. Webster  50
I. Woodstone  650
J. Cabin Branch  80
K. Mirror Ridge  300
L. Seneca Ridge  180
M. Environns  385
N. Seneca Hills  540
P. Cascades  2000
Q. Swart  290
R. Seneca Chase  138
S. Nestoria  60

*Approximate numbers
**Sterling Park proper includes several subdivisions

December 1979

Approved dwelling units total some 9138 dwellings, to which one should add the 1050 units of Arrola Glen, Ashburn and Broad Run Meadows which are not shown on this map. Units presently under review:

Proposed

T. Pocahontas (now Cameron Glen)  2500-
T. Pocahontas  3000

Dwelling Units in the "Pipeline"

scale in miles

- 21 -
problems and by subsequent commercial rezonings on Route 7. A valuable feature of the street layout of Sterling Park was the conscious "open ended" design of the roadway system. This permitted additional growth of the community and facilitated cross community movement, particularly important for emergency vehicles.

Lot sizes in Sterling Park range from 8,000 to 13,000 square feet for single family housing and 1,600 to 2,000 square feet for townhouses and multifamily units. Generally, lot sizes for single family units have increased in later additions to the original development. This is reflected in the overall density pattern of three to four units per acre in the older sections and one to three units per acre density in the more recent subdivisions such as Forest Ridge and Spring Grove.

Sterling Park represents a competent example of that type of suburban community development associated first with the firm of Levitt and Sons on Long Island. Major collector roads, school, church, commercial and industrial sites form integral parts of an overall community design. Sterling Park has provided the County with an appreciable range of family housing types from small 3 bedroom 1 1/2 story Cape Codts, to large two story Colonials, small and large semi-detached houses, townhouses and apartments.

Unfortunately Sterling Park is not an unqualified success. The major collector road connection of Sterling Boulevard and Route 7 has proved to be a problem. The traffic difficulties have been compounded by the accretion of satellite communities. Further, the stereotyped design of suburban roads with equally spaced dwellings has created a monotony readily apparent from the Route 7 and Sterling Boulevard entrance. The lack of usable public open space is a real community hardship. This need has generated intense local efforts to find alternative recreational space. However, a balanced evaluation of Sterling Park must rate the development highly in the context of its time. Loudoun lacked sophisticated planning controls and could neither evaluate nor monitor a complex Planned Unit Development. U.S. Steel for its part was a responsible developer and provided those facilities recommended by the "state of the art" at that time. In addition, U.S. Steel faithfully complied with a financial proffer towards the County's capital expenses which has not been equalled in 20 years.

2. **Sugarland Run:**  
   Total Units: 1,875 100% developed

   Designed 10 years after Sterling Park, Sugarland Run attempted to correct some of its predecessor's perceived shortcomings. The design featured a closed loop road, Sugarland Run Drive, bordered by a rich variety of housing types and community facilities. Cul-de-sac roads and shorter loops branch off the Drive and create pleasant neighborhood groupings with an overall density of 4 units per acre. Lot sizes in Sugarland

-22-
range from 8,000 to 11,000 square feet in the single family neighborhoods and 1,600 to 2,000 square feet in the townhouse sections. In contrast with Sterling Park, lot sizes have remained stable in later additions to Sugarland Run such as Seneca Ridge. Actual density, however, has decreased and maintenance of community open space is a result of use of the Zoning Ordinance's cluster provisions.

Sugarland Run must be rated an architectural success for Loudoun. A very large and dense community with a population equal to Leesburg's was created under unified artistic direction, and this harmony is the key to Sugarland Run's success in concealing its actual density. However, the design is not without problems. The policy of self containment has created access problems both into Sugarland Run itself from Route 637 and from the community to the contiguous properties of Freid, Libby, Nestor, Barraezotto and the Seneca Ridge Middle School. The design of tight residential clusters adjacent to other tight clusters has contributed to a lack of recreational opportunities, particularly for the young. This lack of open space buffering is felt most acutely around the commercial/institutional area. Unfortunately, neither the poor access nor the lack of "breathing room" can be adjusted easily at this time.

3. **CountrySide:** Total Units 2,500 0% developed

In the process of settling the CountrySide rezoning, Loudoun County approved in general concept an additional planned community which promises to combine features of both Sterling Park and Sugarland Run. The effectiveness of the transportation design of CountrySide will hinge on the eventual completion of the Route 28 loop road both to the southwest and northeast. In the meantime, the community will depend on a boulevard with access onto Route 7. Interest in the CountrySide scheme lies not so much on the roads, sidewalks, sewers, etc., but on the design's use of swales, streambeds and vegetation clusters to separate small sub-communities of 100 to 200 units. These mini-greenbelts form an overall network and are to function as the pedestrian movement channels through the development to the schools, shopping and community facilities.

B. **Summary of Residential Characteristics:**

1. **Housing Types:**

Sterling Park and Sugarland Run were both designed with significant areas set aside for garden apartments and townhouses and were initially considered prime areas for rental housing. However, regional economic trends have both discouraged the development of rental units and have lead to the conversion of the available rental units to condominium type units. Table 1 shows the pattern of housing types now in place in eastern Loudoun.
TABLE 1
HOUSING UNITS BY TYPE, February 1979
EASTERN LOUDOUN

<table>
<thead>
<tr>
<th></th>
<th>Single Family</th>
<th>Townhouse</th>
<th>Renter/owner Occupied Multi-family</th>
<th>Total Units</th>
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<tbody>
<tr>
<td>Sugarland Run</td>
<td>947</td>
<td>719</td>
<td>193</td>
<td>1,859</td>
</tr>
<tr>
<td>Sterling Park</td>
<td>3,351</td>
<td>749</td>
<td>126</td>
<td>4,226</td>
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<tr>
<td>Richland Acres</td>
<td>51</td>
<td></td>
<td></td>
<td>51</td>
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<tr>
<td>Broad Run Farms</td>
<td>240</td>
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<td></td>
<td>240</td>
</tr>
<tr>
<td>TOTAL</td>
<td>4,589 (72%)</td>
<td>1,468 (23%)</td>
<td>319 (5%)</td>
<td>5,376 (100%)</td>
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These 6,400 units house nearly 40% of the County’s residents.

The recent conversion of 418 multi-family apartment and townhouse units into condominiums has led to a decided shortage of rental housing in eastern Loudoun. Vacancy rates in existing rentals are minimal and monthly rentals are at a premium. Planning efforts will be expended to correct this deficiency.

2. **Housing Costs:**

The need for additional rental units is underscored by the relatively high cost of housing in the area, which currently exceeds $72,400 for the average new single-family detached house and $55,000 for the average new townhouse. Very few sales are made below $40,000 and an increasing number of houses are selling in the $90,000 - $110,000 range. Based on an estimated median family income of approximately $20,000 a majority of Loudoun County’s current residents could not afford to buy any of the new single-family houses now being constructed. Furthermore, households with incomes less than $16,000 - $18,000 per year cannot afford to purchase any housing in Sterling Park or Sugarland Run. In this situation, the condominium conversions, such as Pembrooke, are both an asset and a liability. The conversions permit families with moderate incomes to purchase some housing and gain the tax advantages and inflation hedge which home ownership brings. However, the conversion also reduces the stock of short-term housing accommodation which every community needs for families in transition, newly formed families and the elderly, blue collar workers and county employees. The County will seek to redress any shortage of housing options for moderate income residents both in the rental and home ownership sector.

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1 Rental range: $300 to $450 per month, exclusive of utilities.
3. **Magnitude and Location of Proposed Residential Development:**

The County in recent years has approved rezoning applications which will permit the addition of 8,000 - 9,000 residential units to the area and which will more than double the current population. Figure 1, page 23 illustrates developed and proposed areas of eastern Loudoun. Table 2 shows the magnitude of growth which would be permitted by existing zoning patterns in eastern Loudoun. By 1985, the planning area could have over 6,000 additional units and 18,000 more people. Further development of land such as the Pocahontas property, could push the unit count well over 15,000 by 1990, resulting in a population of approximately 50,000. Table 2 indicates the potential development magnitude afforded by the existing zoning and subdivision approvals. These figures are entirely dependent upon the economy and its ability to promote new residential construction.

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</tr>
</thead>
<tbody>
<tr>
<td>North of Route 7</td>
<td>2,041</td>
<td>2,555</td>
<td>3,021</td>
<td>3,684</td>
<td>4,687</td>
<td>5,431</td>
<td>6,026</td>
<td>6,564</td>
<td>8,251</td>
</tr>
<tr>
<td>South of Route 7</td>
<td>4,226</td>
<td>4,802</td>
<td>5,159</td>
<td>5,429</td>
<td>5,699</td>
<td>5,879</td>
<td>5,879</td>
<td>5,879</td>
<td>6,269</td>
</tr>
<tr>
<td>Route 28 Corridor Sub-total</td>
<td>144</td>
<td>144</td>
<td>144</td>
<td>192</td>
<td>240</td>
<td>288</td>
<td>336</td>
<td>369</td>
<td>369</td>
</tr>
<tr>
<td>All Units</td>
<td>6,411</td>
<td>7,501</td>
<td>8,324</td>
<td>9,305</td>
<td>10,626</td>
<td>11,598</td>
<td>12,241</td>
<td>12,812</td>
<td>14,889</td>
</tr>
</tbody>
</table>

* Loudoun County Planning Department Statistics. Extrapolated from building permit data.

4. **Zoning Patterns:**

Figure 2, page 26, illustrates the current housing related zoning pattern in eastern Loudoun. The area north of Route 7 is currently zoned for three planned communities, Sugarland Run, Cascades and Countryside, and two R-1 subdivisions, Broad Run Farms and Richland Acres. The remainder of the vacant property north of Route 7 is zoned R-1 or A-3, including more than 1,000 acres of the Pocahontas (Cascades) property located between Sugarland Run and CountrySide. Realism dictates that agriculture cannot be considered an appropriate use of the Pocahontas (Cascades) property, and the County expects an application for rezoning within the next year.
South of Route 7, most of the area is zoned PD-H 12 for the Sterling Park planned community. On the periphery of Sterling Park, land is zoned for planned townhouse development south of Herndon Junction, adjacent to the Oak Grove community. A 37 acre site is zoned for mid-rise, multi-family development just east of the Sterling Community Center. R-1 zoned property is also located on both sides of Route 606, where it is interspersed with industrial development, and along the east side of Route 28, south of Route 606 around the Chantilly quarries. With the exception of the community of Oak Grove, which is composed of approximately 30 single-family homes, this land is only partially developed with a few house sites. Much of this R-1 zoning is residual and represents land use decisions which, in some cases predate the construction of Dulles Airport. Years of largely light industrial rezoning has rendered the classification of certain of these uninhabited, residentially zoned tracts inappropriate. The County anticipates that rezoning applications for industrial and office park uses will gradually remove these land use anomalies. The old Sterling area of eastern Loudoun is also characterized by a mix of residential (R-2 and R-4) and commercially (C-1) zoned properties. Old Sterling is bounded by Route 28, to the west, the W&OD right-of-way and the old Chessie right-of-way to the north. Evidence of a renewed vitality in the area presents the County with an opportunity to encourage, monitor and evaluate the development of mixed use growth.

5. Residential Development Patterns:


"A moderate amount of additional population should be accommodated within the Community Development Areas. Specific locations and housing densities will be established by the planning area studies which shall be adopted as part of the Comprehensive Plan. New residential communities should employ design and site planning standards which will maximize energy conservation and avoid low density subdivision sprawl, while providing a range of housing types and costs. In addition, such development should employ design concepts which will conserve natural drainage areas and vegetation and foster distinct neighborhood scale communities, each with its own small scale commercial services and public facilities, such as school, park and community center. The community and neighborhood areas should maintain their distinctive identity through land use practices, such as green belts between developments, clustered residential areas, the use of natural landscape features to buffer residential and commercial uses, and road design which will route most traffic away from residential areas. The development of moderate cost rental housing units at appropriate locations is also strongly encouraged."
Subdivisions which employ a cluster design must incorporate public open space of sufficient size and character within the subdivision to accommodate recreational activities. Roads and right-of-ways shall not be considered as public open space in cluster development.\textsuperscript{a}

6. **Community Scale:**

Communities ideally range in size from 4,000 to 10,000 persons or 1,000 to 3,000 housing units at current average household size. Separate communities in the eastern Loudoun area are all tending toward this population range, with a number of distinct neighborhood groupings. This is an appropriate scale of social organization and is encouraged. Support services can be efficiently provided at this level and include volunteer fire/rescue squads, middle schools, community parks and retail shopping. Short automobile trips and pedestrian access for activities is possible.

Figure 3, page 29 shows a generalized breakdown of existing and anticipated development organized according to the neighborhood/community scale concept. The transition zones between planned community areas are occasionally in conflict with this larger pattern. Eventually, zoning should be adjusted to encourage the recognized community pattern. Cautious review of transitional areas to insure adequate physical connections between planned communities in order to permit satisfactory traffic flow and public safety provision is very important. Figure 3 is merely a conceptualization of communities organized to reinforce historical development patterns in a suburban context.

**RESIDENTIAL LAND USE POLICIES**

The **Eastern Loudoun Area Plan** incorporates an approach to residential development management that recognizes both the need for land use harmony and the need to minimize environmental and fiscal disturbances in achieving the goal of a varied, stimulating community.

A. **Compatible Land Use Patterns and Buffering:**

New housing means new residents, additional automobiles, more children and, therefore, an increasing demand for all community services and facilities. Rapid growth also causes land use impacts beyond those on public services. Reducing land use conflicts is an important objective of this plan. A declining scale of land intensity is suggested by Table 3.
<table>
<thead>
<tr>
<th></th>
<th>Residential</th>
<th>Commercial</th>
<th>Office</th>
<th>Warehouse</th>
<th>Light</th>
<th>Heavy</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Low</td>
<td>Mod.</td>
<td>High</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Low</td>
<td>X</td>
<td>X</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Moderate</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td></td>
</tr>
<tr>
<td>High</td>
<td></td>
<td>X</td>
<td>X</td>
<td>X</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Commercial</td>
<td></td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td></td>
</tr>
<tr>
<td>Office</td>
<td></td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td>Warehouse</td>
<td></td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td>Light Manuf.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td>Heavy Industry</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>X</td>
</tr>
</tbody>
</table>

Table 3 implies that similar land use intensity levels will be most compatible while extremely intense use is not compatible with residential activity at all. This should not preclude adjustment of the Zoning Ordinance to permit mixed residential/commercial or residential/office uses to occur where appropriate control and design can be obtained. But such development will need additional buffering when adjacent to more traditional residential development. Loudoun County should furthermore seek to buffer all uses of differing intensities. The County will encourage the creation of these buffers and will seek to integrate these with community open space and pedestrian paths where appropriate. (See Figure 4, page 31). The County should also create a new R-3 (residential 1/3 acre lot) zoning district to permit a smoother transition from R-2 to R-4 uses.

B. Clustering:

Loudoun County has long recognized the essential land use disfunction and aesthetic monotony of the traditional suburban subdivision. Through the voluntary cluster provision in the Zoning Ordinance, the County provided the development community with an alternative. Clustering permits a subdivider the option of reducing individual lot size below that required by the Zoning Ordinance with the unused balance of the required lots aggregated in common open space.
Cluster Design

Model of Desirable Land Use Pattern: The goal is a full, varied community. Land use harmony is achieved through extensive buffering and land use is determined by energy, environmental, social and economic criteria. Pedestrian movement is possible, and the car is needed for major shopping but not essential for day to day activities. Energy efficiency and environmental criteria are important land use considerations.
In theory, clustering was intended to assist socially and environmentally sound development, reduce unnecessary development costs of roads and utilities and generate open space for community recreation. In practice, clustering has not produced all the intended results. In part this was due to certain other county ordinances which required mandatory road frontage and design standards acceptable to the Virginia Department of Highways and Transportation. In part it was due to development community perceptions that the single-family market was mainly interested in as large an individual lot as possible. In consequence, the cluster provision has been frequently used only as a means to overcome low lot yields caused by difficult environmental conditions such as steep slopes, wet soils and surface water courses. The common open space generated by this negative approach has frequently been difficult to maintain. Often it is inaccessible if not hazardous to traverse and has few possibilities for active community recreation. Homeowners, not surprisingly, have become unwilling to accept responsibility for such unpromising land. This reluctance has been interpreted by developers as lack of interest in open space on the part of buyers. On the other hand, the same homeowners are overutilizing county and private playing fields and have enthusiastically endorsed bonds for additional active recreational areas. The County is convinced that the cluster provision can serve eastern Loudoun better than it has in the past. Loudoun County will accordingly seek to strengthen the cluster provisions with an amendment to the Zoning Ordinance. A cluster provision in the Subdivision Ordinance would seek to accomplish the following:

1. Environmental protection and/or enhancement.
2. Sound road and utility layout.
3. Appropriate site development.
4. Provision of high quality, usable open space.

The Planning Commission would be authorized to recommend approval of a valid cluster design which would permit the developer certain density and utility construction benefits. Should a design fail to gain Commission approval, the applicant will be free to submit an alternate cluster design or one which conforms to the standard zoning regulations of that district.

C. Phasing:

The majority of the recently approved residential developments in eastern Loudoun has involved proffers or conditions which established a phased development schedule. Table 2, page 27 indicates that this time phasing, if followed to the greatest extent, would permit the construction of approximately 1,000 dwelling units per year for at least the next five to six years. This rate of construction, if accomplished, would approximately double the average 500-600 units constructed annually in the past decade, but would prohibit an inordinate construction rate in only a few years such as occurred in 1972-73 when more than 2,000 units were constructed in eastern Loudoun. The importance of phasing is of critical moment since it permits the County to correlate the pace of residential growth with the timely provision of public facilities and services. Loudoun County
will continue to encourage the development community to proffer time phasing which is, moreover, of benefit to private development interests as well.

D. Property Review:

At the time of a rezoning or subdivision application, the County will undertake a social, environmental and fiscal review of the property to ascertain the location, character and extent of land use and/or site development when appropriate. The review will include:

1. Resource Management Plan and Area Plan Conformance:

   A review of the property's general location and the conformance of the proposed use with the overall goals and policies of both the Resource Management Plan and the Area Plan.

2. Environmental Review:

   The review will focus on environmental consideration of the site: hydrology, floodplains, slopes, soils, etc. to determine the environmental impact of the proposal (See Environmental Plan).

3. Transportation Review

   The application will initiate a transportation review to determine transportation impacts, the adequacy of existing facilities, and the costs of attendant improvements (see Transportation Plan).

4. Open Space and Community Design Review:

   The provisions of usable, high quality open space, sound buffering, and proposed development layout will form a component of the application's study (see Community Design Plan).

5. Fiscal Impact:

   The financial impact of the proposed development on the County's capital and revenue resources will form an important part of the study. Particular attention will focus on the need to invest public funds in capital improvement projects as a result of the proposed development (see Fiscal Plan).

6. Energy Efficiency:

   Recent increases in all energy costs have highlighted the need to review all proposals for energy efficiency. The review will focus on such internal factors as site development layout to maximize winter solar gains
and temperate breezes in summer, and such external factors as pedestrian pathways to local schools, shops, and recreational facilities (see Energy Plan).

7. Housing Opportunities:

To encourage the provision of a wide range of housing types within each community and to actively seek the provision of such housing which it deems underprovided.

E. Alternative Development Patterns:

In the consideration of rezoning applications, the County shall also evaluate the specific site for other appropriate development patterns. The applicant would then be free to offer the County such contributions or alternative development patterns which, in the context of the proposal would merit an increase in use intensity. The applicant would, of course, remain free to request the use he deems appropriate for his property, given the existing social, environmental, and fiscal context.

F. Proffers:

The proffer system is an accepted process in Virginia, allowed under provision 15.1-491(a) of the Code of the State of Virginia. Its objective is to provide contributions on a voluntary basis that will satisfy local community needs and avoid duplication of facilities. Under this system the development community offers something to the County in negotiation for higher densities or other waivers of zoning restrictions. It is most commonly used to obtain density credit in residential development through facility site dedication or to assure the County that development will be phased on an incremental basis over time. Trust fund contributions can include direct cash contributions as well as land, site preparation or commitments to phased development over time.

Proffers may include the following among others:

1. Provision of supporting public facilities to alleviate impacts of the proposed development on the community (schools, transportation, libraries, community facilities, etc.)

2. Provision of low and moderate income rental and sale housing which shall be evenly dispersed throughout the entire development.

3. Provision of developed recreational areas or other amenities for common or public ownership.
4. Phasing of development to most nearly coincide with programmed provision of public facilities shown in the current Capital Improvements Program, and to reduce interim adverse social and fiscal impacts on the community.

5. Site design sensitivity and exceptional environmental conservation measures to preserve natural resources associated with the property and reduce development impact on adjacent property.

6. Innovative site and building design to incorporate energy conserving features of particular value to future residents of the development and residents of adjacent properties.

7. Land assembly and/or development plan integration which facilitate achievement of Comprehensive Plan objectives.

8. Preservation and/or restoration of buildings, structures or other features of architectural, historic or environmental significance to the community.

9. Cash contribution to a public trust fund for use by the County in the Capital Improvements Program or other public facility needs.

Loudoun County has accepted proffers from the development community for some years. The process has assisted the County in certain tasks, notably in phasing of development and in the acquisition of public facility sites. The County will continue accepting proffers and will set up procedures to ensure that all parties concerned will have a fair chance to present and evaluate the proffered conditions.

IMPLEMENTATION

The following residential land use changes should be seriously considered as each property involved is assessed to determine relationships with adjacent land use and whether the timing of such a change is appropriate and in conformance with the general character of the area. (see Figure 5, page 36)

A. Route 28 and 606 Area (Dulles Airport)

The Plan recommends that residential zoning (R-1 and R-2) be phased out of this general area to accommodate the industrial and office land uses projected for the area. The main land use determinants are the noise contours (Post 1995) from Dulles Airport and the probable construction of the DAAR Toll Road (parallel lanes).

1. The existing R-1 located on Routes 28, 775 and 606 (directly north of the airport) is recommended for planned industrial or office use.
2. The existing R-1 located east of Route 28 and south of Route 606 (Oak Grove) is generally recommended for planned office use. The property abutting the quarry and Route 606 is recommended for planned industrial or office development.

3. Property north of Route 606 adjacent to the Fairfax County line should be developed with offices and limited commercial uses. These commercial uses should be limited to the small parcels located in the immediate vicinity of the county line and Route 606. North of Route 606 and west of Route 824, toward Oak Grove to Trefoil Lane, should be planned industrial or office development. East of Trefoil Lane, toward Oak Grove, should be residential land use with a density commensurate with the surrounding properties, not to exceed three (3) units per acre. Environmental constraints should be considered in the density calculation.

4. The entire border area (approximately 400 feet deep) between the town of Herndon in Fairfax County and Loudoun County should be rezoned and developed in cooperation with Herndon. Logical transition zoning categories should complement adjacent properties in Herndon.

B. Old Sterling and Vicinity

The County’s goal for the Old Sterling Area and the vicinity will be to create a balance of residential, commercial, and employment land uses which create a sense of community and strong visual identity for the Old Sterling Area. To achieve this goal the County establishes the following policies:

1. **Land Use:** The Old Sterling Area will be developed with a variety of land uses which achieve the goal of balanced community. The Plan establishes several distinct land use designations for the area and a Proposed Land Use Plan (see Figures 7 and 8). Ultimate development of the Sterling Area need not be literally consistent with the Proposed Land Use Plan, but should comply with the goals and objectives for the Planning Area.

   a. Employment land uses - a maximum floor area ratio of 0.40 will be considered for areas designated for employment land use.

   b. Commercial land uses - a neighborhood-scale shopping center of up to 150,000 square feet could be developed in the vicinity of the W&OD Trail and Route 625.
OLD STERLING SMALL AREA PLAN

ELAMP
Spring 1988

PROPOSED LAND USE PLAN

KEYNOTE EMPLOYMENT.
FLEX-INDUSTRIAL.
BUSINESS PARK.
FLEX IND./MIXED USE.
MIXED USE.

COMMERCIAL NEIGHBORHOOD CENTER ALTERNATE SITES.
## Figure 8
### STERLING SMALL AREA PLAN

<table>
<thead>
<tr>
<th>PLAN DESIGNATION</th>
<th>DESCRIPTION</th>
<th>POSSIBLE ZONING</th>
</tr>
</thead>
<tbody>
<tr>
<td>Keynote Employment</td>
<td>High visual quality and high trip generating uses including office parks, research and development parks, and similar uses. Larger scale development (e.g., 40,000 GSF+)</td>
<td>PD-IP, PD-RDP*, PD-OP</td>
</tr>
<tr>
<td>Flex Industrial</td>
<td>Medium scale speculative lease/sale space for a broad range of employment uses including computer hardware/software, biomedical products, electronics. Uses frequently entail vertical integration including R&amp;D, assembly warehousing and sale/distribution. (10,000 - 40,000 GSF)</td>
<td>PD-IP</td>
</tr>
<tr>
<td>Business Park</td>
<td>Relatively small scale business and employment uses which could include home service and business service establishments such as print shops, auto repair, etc. provide locational opportunity for incubator - small businesses. (5,000 - 20,000 GSF)</td>
<td>PD-IP**</td>
</tr>
<tr>
<td>Mixed Use</td>
<td>Parcels designated for mixed use will be encouraged to develop with a broad range of commercial, employment, and residential land uses. Mixed use projects should reflect a unified and compact architectural and site design which emphasizes pedestrian over automobile circulation. Mixed use projects should meet the following guidelines:</td>
<td>PD-H**</td>
</tr>
<tr>
<td></td>
<td>- Commercial uses: 5% - 25%</td>
<td>Maximum Proportion</td>
</tr>
<tr>
<td></td>
<td>- Employment uses: 25% - 45%</td>
<td>Maximum Intensity</td>
</tr>
<tr>
<td></td>
<td>- Residential uses: 50% - 70%</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Mixed use projects should be limited to tracts of 10 acres or more. In cases where mixed designated parcels are less than 10 acres in size, the County may consider modifications to the proportion guidelines for the various uses.</td>
<td></td>
</tr>
<tr>
<td>Commercial</td>
<td>Retail service scaled in relation to the available market support within or directly adjoining the planning area.</td>
<td>PD-SC</td>
</tr>
<tr>
<td>Local Offices</td>
<td>Relatively small scale offices for insurance, medical, and legal businesses.</td>
<td>PD-OP</td>
</tr>
<tr>
<td>Residential</td>
<td></td>
<td>PDH</td>
</tr>
<tr>
<td>Low Density</td>
<td>Single-family detached and townhouses</td>
<td></td>
</tr>
<tr>
<td>Moderate Density</td>
<td>Townhouses and garden apartments</td>
<td></td>
</tr>
</tbody>
</table>

* Maximum F.A.R. subject to detailed land use review.
** Could involve the creation of a new zoning district.
*** Densities above 4.0 units per acre must contain a significant component of affordable housing.
c. Residential land uses - a variety of residential uses up to a maximum of 4.0 dwelling units per acre will be permitted to develop in the Old Sterling Area. The County will consider densities of up to 20 dwelling units per acre for mixed use designated areas subject to the following criteria:

i. Tracts specifically designated by the Land Use Plan.
ii. Tracts or portions of tracts not to exceed 30 acres in size.
iii. The overall density of the Eastern Loudoun Planning Area (excluding designated affordable units) shall not exceed 4.0 dwelling units per acre.
iv. A minimum and maximum percentage of the dwelling units will be designated for moderate income households which meet the affordable housing criteria established by the Board of Supervisors, based upon recommendations from the County’s Housing Task Force.

2. Transportation: The County’s transportation objective for the Old Sterling Area will be to create a balanced, functional, urban road network. Recommended transportation improvements for the Old Sterling Area are depicted graphically in Figures 9 and 10. The provision of regional road improvements will primarily be the responsibility of adjoining properties which will be served by such improvements. As part of the rezonings, subdivision, and/or site development process, the County will secure commitments from the private sector to improve the regional road network. The transportation plan as depicted is conceptual. The plan is intended to identify the need for facilities the exact locations of which are to be determined through the land development process.

a. The County will establish a non-residential proffer guideline which will establish minimum levels of developer assistance for helping the County and VDOT upgrade the regional road network.

b. The County will establish minimum acceptable levels of service for regional road links and main intersections.

3. Zoning: The existing zoning classifications within the Old Sterling area could result in a development pattern which would not embody the objectives of the Proposed Land Use Plan. In addition, the proposed business park and flex-industrial employment land use designations suggest the creation of new PD employment zoning districts.

* Maximum F.A.R. subject to detailed land use review.
** Could involve the creation of a new zoning district.
*** Densities above 4.0 units per acre must contain a significant component of affordable housing.
OLD STERLING SMALL AREA PLAN

ELAMP
Spring 1988

PROPOSED ROAD NETWORK

LEGEND:

See Appendix

* See Appendix #10
<table>
<thead>
<tr>
<th>ROADWAY</th>
<th>LOCATION</th>
<th>LANES RIGHT-OF-WAY</th>
<th>DESCRIPTION</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. East Access Rd. Atlantic Blv.</td>
<td>Steeplechase to Route 625</td>
<td>4 lanes divided 90' row</td>
<td>U4R. Urban Minor Collector. Left and right turn lanes required at all intersections and median breaks. Desirable distance between median breaks 700'. 40 mph design speed.</td>
</tr>
<tr>
<td>2. East Access Rd. Davis Drive</td>
<td>Route 625 to Route 634 Extended</td>
<td>4 lanes undivided 70' row (except) 90' row within 225' of major intersections</td>
<td>U4. Urban Minor Collector. 52' Curb face-curb face. Left and right turn lanes required at all major intersections. 40 mph design speed. Controlled access.</td>
</tr>
<tr>
<td>3. East Access Road Davis Drive</td>
<td>Route 634 Extended to Sterling Blvd.</td>
<td>4 lanes undivided 70' row (except) 90' row within 225' of major intersections</td>
<td>U4. Urban Minor Collector. 52' curb face-curb face. Left and right turn lanes required at all major intersections. 40 mph design speed.</td>
</tr>
<tr>
<td>4. Route 634 Extended</td>
<td>Route 28 Overpass (new) to Davis Drive</td>
<td>4 lanes undivided 70' row (except) 90' row within 225' of major intersections and between Glenn Dr. extended and Davis Drive</td>
<td>U4. Urban Minor Collector. 52' curb face-curb. Left and right turn lanes required at all major intersections. 40 mph design speed. Controlled access.</td>
</tr>
<tr>
<td>5. Route 775/Glenn Drive Extended</td>
<td>Route 625 to Sterling Blvd.</td>
<td>4 lanes undivided 70' row (except) 90' row within 225' of major intersections</td>
<td>U4. Urban Minor Collector. 52' curb face-curb face. 40 mph design speed.</td>
</tr>
<tr>
<td>6. Route 636 Shaw Road</td>
<td>Route 625 to Sterling Blvd.</td>
<td>4 lanes undivided 70' row (except) 90' row within 225' of major intersections</td>
<td>U4. Urban Minor Collector. 52' curb face-curb face. 40 mph design speed.</td>
</tr>
<tr>
<td>ROADWAY</td>
<td>LOCATION</td>
<td>LANES RIGHT-OF-WAY</td>
<td>DESCRIPTION</td>
</tr>
<tr>
<td>-----------------------------</td>
<td>-----------------------------------------------</td>
<td>----------------------------------------------</td>
<td>-----------------------------------------------------------------------------</td>
</tr>
<tr>
<td>7. Route 625 Church Road</td>
<td>1,200' West of gore point for Route 28 westside interchange to Route 637</td>
<td>4 lanes divided 120' - 160' row and limited access between Route 28 and Davis Drive. Land required for Route 28 interchange. 110' row between Davis Drive and Route 637</td>
<td>U4R. Controlled access median divided major urban collector. Re-aligned section to become part of Route 28/625 interchange. Left and right turn lanes required at all intersections. 50 mph design speed.</td>
</tr>
<tr>
<td>8. Sterling Blvd. Route 846</td>
<td>Route 28 to Davis Drive</td>
<td>6 lanes divided 120' - 160' row plus land required for Route 28 interchange</td>
<td>U6R. Controlled access median divided major urban collector section to be re-aligned north at Route 28 interchange. Left and right turn lanes required at all intersections. 50 mph design speed.</td>
</tr>
<tr>
<td>9. Route 28</td>
<td>Fairfax County Line to Route 7</td>
<td>6 lanes divided 200' row, plus land dedication required for interchange ramps at all proposed interchange locations</td>
<td>Freeway. E6R Limited Access. All at-grade access will be terminated when road becomes a freeway. Any short-term temporary access limited to existing intersections and stub roads. 60 mph design speed.</td>
</tr>
<tr>
<td>10. &quot;New&quot; East West Connector Road</td>
<td>Route 636 to Davis Drive between Route 625 and Route 634 extended</td>
<td>4 lanes undivided 70' row</td>
<td>U4. Urban Minor Collector, 52' curb face-curb face, 40 mph design speed. This road is intended to be conceptual. The exact location to be determined during land development process.</td>
</tr>
</tbody>
</table>
a. The County will consider substantive amendments to the provisions of the C-1 (commercial) zoning district which create an incentive for property owners to seek reclassification to appropriate PD zoning districts.

i. The County should establish a maximum FAR of between .10 and .20 for the C-1 Districts.

ii. The County should reclassify high trip generating uses within the C-1 District as special exception uses.

b. The County will establish a new PD Business Park employment district which encourages small-moderate scaled business service and home service establishments.

c. Properties which are presently zoned a district classification which is inconsistent with the Proposed Land Use Plan designation will be encouraged to rezone to an appropriate classification. However, the County will permit the development of such properties under their existing zoning.

4. Community Design: The County establishes the following policies in order to reinforce the sense of community and provide cohesive design within the Old Sterling Area.

a. The County encourages the provision of appropriate setbacks and landscape buffers along the W&OD Trail based on proposed uses. Development adjoining the W&OD Trail should be subject to 1:3 bulk plane which will protect the visual quality of the Trail corridor.

b. The County will seek to preserve the existing mature hardwoods which presently line Route 625 (Church Road) between Route 28 and the W&OD Trail. The County encourages the creation of a landscaped boulevard effect along the Route 28 East Service Road and Route 625 which would create a common design element for the area.

5. Public Facilities/Proffer Guideline: The County establishes a new infill development tier for residential projects requesting densities in excess of 4.0 dwelling units per acre and up to a maximum of 20 dwelling units per acre for projects with a significant affordable housing component. Proposed residential densities within the new infill development tier should proffer to assist the County with 35% of the capital facility costs and 50% of the regional road costs associated with such units.
C. **Sterling Park Area**

The appropriate areas surrounding Sterling Park and within its boundaries should be developed to enhance the sense of community and provide a land use focus.

1. The commercially zoned areas of Sterling Park should retain their commercial and office designations, except that innovative housing proposals with mixed use should be considered on a limited portion of the commercially zoned land, adjacent to the site of the Sterling Park Mall. Transitional land uses and housing proposals that meet the highest standards of design will be considered by the County.

2. The property located south of Route 604, adjacent to the Fairfax County line should be considered for a residential density of up to three units per acre with environmental concerns and the quality and extent of proffers being the determining factors for the higher net density.

3. The property known as the Claude Moore Conservation Education Center and Historic Farm could be rezoned from its present R-1 zoning status to an open space zone or related protective type of zoning which will accommodate future parkland uses. This should be pursued with the present owner.

4. The remaining residential property zoned R-1 located south of the PD-CH district (Bowl America) and north of Route 604 should be multi-family rental development to make a transition into the abutting commercial and office development. Transitional office development may also be considered in this district.

D. **North of Route 7 (West of Route 637)**

This area will be the main residential development area in the County. It should be designated as the receiving zone for any potential transfer of development rights from other parts of the County.

1. Northern Virginia Community College could be rezoned and given its own zoning category. The primary access point for any future development in this area should be off of route 637 and adjacent properties, not off of Route 7.

2. The existing A-3 zoned property north of Route 7 is anticipated for major residential development with its own community focus and design. The rezoning category should be PDH-12 with no density allowance or transfer for environmentally critical areas or road right-of-ways. A gross density range of one to three units per acre should be considered. Development criteria should include:
a. Only one access point should be permitted onto Route 7, to be mutually shared with all adjacent property owners. Signalization is necessary and should be proffered by the developer.

b. The full four-lane cross section of the Route 28 loop should be dedicated and constructed with appropriate signalization and safety standards employed.

c. Proffered public facilities and amenities as suggested by the development needs detailed by the Plan, will determine the overall density.

d. The existing environmental features of the various sites should be preserved and promoted. See Environmental Plan.

e. This area will require future special study before any rezoning can be undertaken.

f. Medium density residential densities ranging from 5 to 10 dwelling units per acre are appropriate for development on the two 50 acre parcels located on the north side of the intersection of the Algonkian Parkway with Route 7. Development of these parcels will be contingent upon the Community Design, Infill Development, and Transportation policies contained in the General Plan. The design of the site shall include a 75’ dense vegetative buffer to consist of existing trees and shrubs and the planting of additional trees and shrubs; no buildings are to be constructed within 150’ of property lines on the east and west borders of the parcels; limited parking will be developed at the perimeter of the sites with most of the parking developed internal to the development; any neighborhood commercial uses constructed should be located adjacent to the road network and oriented towards the Algonkian Parkway.

3. Broad Run Farms is zoned R-1 and is recommended for continued one acre development, depending on the availability of sewer facilities.

E. North of Route 7 (East of Route 637 and South of Sugarland) (See Figure 11, page 48)

The undeveloped property in this area is bounded by Richland Acres, Route 7 and Cardinal Glen, Route 637, Mirror Ridge and the planned community of Sugarland Run. It comprises 24 separate parcels on approximately 200 acres and should be developed primarily for residential uses at densities and with housing types both compatible with those of contiguous developments and consistent with the General Plan designation as a residential community. Low rise commercial retail and/or local office uses would be appropriate along Route 7 between Cedar Drive and Lakeland Drive. The specific development details are as follows:
1. The development density gradient should effect a transition from the present 0.9 dwellings per acre of Richland Acres to the east to the 5.5 dwellings per acre of Mirror Ridge to the west, taking into account the 2.5 dwellings per acre of Cardinal Glen and the south Sugarland community.

2. Development plans should include buffers at density transitions whenever possible using natural features such as streams and open space in order to promote harmonious transition from higher to lower densities. Landscaped buffers for visual and acoustical screening should be employed for development where residential and non-residential uses abut.

3. The present R-1 zoning of undeveloped lots in Richland Acres should be continued but low rise commercial retail and/or local office uses are recommended along Route 7 in the area between Cedar Drive and Lakeland Drive. The 10 acre tract along Route 7 between Lakeland and Cedar Drives should be rezoned to non-residential uses only as a unified concept plan. Development Plans for this tract should include careful site design to ensure:
   - Safe and effective vehicle movement from Route 7 into and through the shopping center.
   - Safe and effective pedestrian movement from the north and west into and through the shopping center.
   - The northern portion of the tract facing Richland Acres is free of incompatible non-residential elements such as dumpsters or loading bays.
   - The facades of structures facing Richland Acres be constructed with appropriate finishes and landscaping so as to be a visual and an environmental asset to that residential community.

4. The area should be served by two collector roads: South Cottage Road extended from Sugarland to Route 637 and the extension of Cardinal Glen Circle from Route 7 to the School Board property. The two roads should not connect with each other. These roads should be designed for the area’s ultimate development needs.

5. Environmental sensitivity should be employed in the design of each development to respect, preserve and enhance existing streams and drainage ponds such as that of Baskin or of Kaufman/Jenkins. These environmental areas should be designated passive recreation space to be used as walkways to existing and proposed activity centers such as schools, a library and neighborhood shopping center.

6. A continuous access through the tract should be established connecting Lakeland and Cedar Drives. No median breaks on Route 7 should be permitted. Any development proposal for the site should include
transportation solutions which help meet the following objectives and performance guidelines:

a. No additional median breaks should be allowed on Route 7.

b. The transportation system should not depend on any new U-turns from left turn lanes to accommodate anticipated traffic movements in lieu of new median breaks and current U-turn/left turns such as those now occurring at Route 7 and Route 228 should be eliminated.

c. Route 7 should be widened to six lanes in the area, with appropriate contributions to the improvement from new development along the road.

d. New access to Route 7 at points other than existing intersections should only be considered in cases where:

- Three full directional lanes of traffic (eastbound or westbound) are proposed in a concept plan by the applicant;
- Entrances including deceleration and acceleration lanes are in full compliance with VDOT standards;
- The entrance will not degrade the level of service at proximate intersections
- Traffic safety problems will not be created; and
- Unacceptable weave/merge conflicts will not be created on Route 7.

e. Appropriate stacking distances and lanes will be provided for all left turn movements onto or from Route 7.

f. To the extent that unacceptable impacts are not created on residential areas, access to office/commercial development north of Route 7 should be by parallel roads/project spine roads. The distance of these roads from Route 7 should be consistent with appropriate stacking distances and lanes for left turns on roads intersecting with Route 7 (see Figure 12).

g. Roads intersecting with Route 7 should be improved to an appropriate geometric section. The geometric section of the road segment serving office/commercial development shall not be extended in an inappropriate manner to the residential areas to the north. Appropriate tapered transitions should be provided in these cases.

h. To the extent that unacceptable impacts are not created on residential areas, a continuous parallel road should be provided north of Route 7 (see Figure 12, page 51).
Proposed Land Use North of Route 7 and East of Cedar Drive

(Option One: Exclude Williams Tract)
- New Road/Access
- Widen Existing Road
7. Tax Map 82/Parcel 20 should be developed at a net residential density range of 1.6 to 4.0 dwelling units per acre if the following conditions are met: (a) dedication of 120 foot wide right-of-way for the Route 28 Loop through Parcel 20; (b) construction of two lanes of the ultimate four lane divided section of such road within such right-of-way; (c) the proffer guidelines for determining residential density as established in the Dulles North Area Management Plan (DNAMP) are followed.

F. North of Route 7 (Route 28 Interchange)

This area is scheduled for medium density residential development once the existing landfill operation has exhausted its capacity. The property is zoned R-1 abutting Route 7 and A-3 towards the Potomac River. Future design specifications are:

1. All development should respect the Route 28 Corridor Study for dedication of an interchange and the necessary right-of-way for the roadway. Access should not interfere with the interchange and should be limited in number of access points.

2. Density should be comparable to the neighboring subdivisions of Broad Run Farms and Countryside with the development of medium density residential uses (ranging from 6 to 10 dwelling units per acre) and neighborhood commercial uses to act as a transitional use to the interchange on the two 50 acre parcels located to the north of the interchange (Tax Map 63, Parcels 18, 19, & 19A).

3. Environmental sensitivity should be employed in order that the landfill operation be less visible from adjacent structures.

G. Routes 637 and 7 Intersection

1. Land Use Specifications:

The land area south of Route 7 and abutting Route 637 to the east and west will demand special design considerations. The goal is to preserve the residential character on both highways while allowing low density office uses that will make a transition between the residential and the industrial property to the west. No commercial activity will be allowed. The following land use specifications must be adhered to for any land use proposed in the area:

a. Sufficient dedication of land area for the proposed grade-separated interchange at Route 637 and 7 (potentially a 700 foot radius from Route 7).

b. Limited access points on both Route 637 and 7; combined access is encouraged. A highway overlay zoning district will be established.
c. Conservation of the significant environmental features of the land including the tree cover.

d. Trail connector from old Sterling to the Potomac River to parallel Route 637 as far as the Northern Virginia Community College with a minimum 25 foot right-of-way.

e. Preservation of the existing residential uses along Routes 637 and 7.

f. Land dedication on both Route 7 and Route 637 for eventual widening to eliminate the sight distance problems.

g. The access points should be limited by the implementation of a highway overlay zone along Route 7.

2. Land Use Recommendations:

Southeast Quadrant of Intersection:

This area should accommodate further institutional uses along Route 7 with proper noise attenuation (i.e., churches, public offices, etc.) plus a residential zoning density similar to the adjacent Sterling Park single-family area. A buffer zone located in the future residential area will be encouraged between the residences and the Claude Moore Park property.

Southwest Quadrant of Intersection:

This property should be developed with office/light industrial uses to be a transition between the industrial district to the west and the residential area to the east. Access should be limited to one location on Route 637. Low density offices that respect the many environmental features of the land area will be encouraged.

CONCLUSION

Eastern Loudoun has experienced major growth in the past two decades and trends suggest that this growth will continue in the next decades. The County has adopted a managed growth policy to guide and monitor this development in a manner that is as socially humane, environmentally sound, aesthetically pleasing and financially affordable as possible. The County’s goal is to oversee the creation of varied and full communities in eastern Loudoun and ordinances and procedures will be revised as necessary to achieve this.
## APPENDIX I*

**EASTERN LOUDOUN PLANNING AREAS - HOUSEHOLDS BY TYPE**

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<td><strong>7,501</strong></td>
<td><strong>8,324</strong></td>
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<td><strong>10,626</strong></td>
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<td><strong>12,241</strong></td>
<td><strong>12,812</strong></td>
<td><strong>14,889</strong></td>
</tr>
</tbody>
</table>

* Figures given are as of December 31 of each year

** SFD - Single-family detached
** SFA - Single-family attached
** MF - Multi-family or Condo

## APPENDIX II*

**EASTERN LOUDOUN PLANNING AREAS - POPULATION FORECASTS**

<table>
<thead>
<tr>
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<td>21,792</td>
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<td>28 Corridor</td>
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<td>477</td>
<td>477</td>
<td>651</td>
<td>825</td>
<td>999</td>
<td>1,173</td>
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<td>1,293</td>
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<td><strong>TOTAL</strong></td>
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<td><strong>27,069</strong></td>
<td><strong>30,081</strong></td>
<td><strong>33,616</strong></td>
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<td><strong>43,978</strong></td>
<td><strong>46,009</strong></td>
<td><strong>52,547</strong></td>
</tr>
</tbody>
</table>

* Figures given are as of December 31 of each year.
ENVIRONMENTAL PLAN

INTRODUCTION

A. Background:

The major thrust of the environmental management plan for eastern Loudoun County is the protection of human health, safety and welfare, and the preservation of the resources vital to those ends in the long term. The planning goals of the Resource Management Plan related to natural resources may be echoed for use in this portion of the County:

"Maintain the high quality of Loudoun County's environment as a unique local and regional resource.

Conserve the County's renewable resources at a rate which replaces them at least as quickly as they are consumed and conserve non-renewable resources to the greatest extent possible.

Coordinate human activities with the character and limitations of the natural environment so as to limit its disruption."

Eastern Loudoun is a unique resource for the County and for the metropolitan Washington region. Eastern Loudoun County is now the western edge of the region's urban and suburban development with a more rural way of life than its eastern neighbors. It is an attractive area close to the open countryside on the west and to a large city on the east with less congestion and pollution problems than its eastern neighbors and with taxes that are lower than the close-in suburbs.

The irony in this attractiveness is that it could negate itself as more and more development comes to eastern Loudoun. This portion of the County has felt the metropolitan area growth pressures the most, and as western Fairfax continues to grow, eastern Loudoun will assuredly feel even more pressure. Nonetheless, the toll gates into Leesburg were abandoned decades ago, and their reappearance at the county line would do little to guarantee environmental quality.

Maintaining the quality of the environment and conserving resources in eastern Loudoun means planning for a reasonable amount of growth, guiding that growth into the appropriate areas, managing environmental resources and coping with environmental problems. Coordination of human activities with the natural environment is still possible in the area.

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1 Loudoun County Resource Management Plan, Department of Planning and Zoning, (adopted May 21, 1979), page 193.
Intrinsic opportunities and environmental constraints may be factored into land use decisions along with traditional concerns of location and economics. The conventional pattern of development that destroys natural processes, creates environmental problems and becomes highly dependent on undeveloped areas for its resources may then begin to change.

The several roles of the Eastern Loudoun Area Plan were recognized in the formulation of this environmental section. The Plan functions as the framework for regulation, and decisions in the Plan affecting an individual’s property must be carefully and fairly reasoned and well documented. Restrictive regulation must be linked with valid concerns for the public health and welfare. On the other hand, planning is not necessarily equated with regulation. The Area Plan is not confined to protecting county residents from very grim or dramatic circumstances. It is a reflection of community goals for the future. It announces the concerns of the County related to development and will guide private as well as public investment and decision making. Hopefully, it will provide the framework for a cooperative effort by the county government, county residents and developers to reach agreed upon goals.

B. Environmental Review Process:

Use of maps for analysis is a variation of the overlay design method made famous by landscape architect Ian McHarg.\(^2\)\(^3\) In that method, various natural features and values are mapped and then "sandwiched" to give an overall picture of the relative suitability for development. Many plans have used such a method to map conservation and development areas and yet fall short of enhancing environmental quality. The fault, perhaps, lies not with the data or the method but with a lack of follow-through. Therefore, we have tried to keep a strong link with economic and political realities, to consider not only questions of where, but also how development should occur, and to look toward fostering cooperation between planning and development.

Several different types of maps have been used in determining the approach to managing and planning for development and conservation in eastern Loudoun. Floodplain, soils, geology and planimetric maps are among those used in the interpretive analysis. Specific development applications may require further mapping data.

The discussions of different areas which follow a brief inventory of conditions include the rationale for environmental management, a set of policies and the means to implement them. (It is important to note that many recommendations apply to several or even all of the areas identified, but

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\(^3\) These maps are on file in the Loudoun County Department of Building and Development.
discussions may appear in only one section simply for the sake of brevity). Recommendations have been made in light of current limitations in administration and enforcement and should be reevaluated and expanded as these resources change. While it will be important to move ahead as quickly as possible with various implementation tools for the Plan, it should be recognized that a steady, but gradual evolution of environmental management may be most effective for Loudoun County.

The establishment of progressively refined environmental goals is, in itself, a major step in the environmental management process. These are important seeds for a variety of programs and will function as "notices of intent" while other planning tools are set in place.

C. Sources:

Information on natural features as well as other special environmental considerations was used in the Plan. The primary mapped information sources include:

U.S. Geological Survey topographic maps

Loudoun County Soil Survey, issued September 1960

Federal Aviation Administration Noise Exposure Forecasts for Dulles Airport (Post 1995)

From these sources, several types and levels of interpretative maps (listed below) are under development for use in the Plan and for future reference. The mapped information and committee discussions, as well as written material provided the picture of eastern Loudoun on which the Plan is based. These maps are not all shown in the Plan.

General Development Potential
Drainfield Potential
Agricultural Potential
Hydrology
Vegetation
Slopes
Erodability Hazards
Soil Infiltration Ratings
Noise Zones
Waste Disposal Sites
Landforms

It is important to stress that the maps in this Plan are interpretive and generalized and should not be considered sufficient for review of site plans. Information on these sorts of maps is admittedly simplified, but useful for
community-scale planning and as a tool for decision making. The maps referenced and presented here represent the best and most easily usable information available at this time.

This is not to suggest that the environmental plan rests on unreliable data, but only to recognize the limitations of the data and assure that it is not misrepresented or misused. Some specific points or assumptions may be subject to debate ad infinitum by various specialists, but the body of information collected is a sound basis for environmental planning decisions.

EXISTING CONDITIONS

A. Regional Context:

All of the nearly 20 square miles of the eastern Loudoun area lie within the Piedmont physiographic province and, like the rest of the County, entirely within the Potomac River Basin (see Figures 1 and 2, pages 59 and 60). The Piedmont Plateau, situated between the coastal plain to the east and the Blue Ridge Mountains to the west, is a province of rolling hills stretching for a thousand miles from southern New York to Alabama. The plateau slopes eastward to meet the relatively flat coastal plain and becomes more rugged toward the southern end. The familiar edge of the two provinces in this area is at Great Falls.

B. Geology:

For planning purposes, geological formations are important to consider in determining foundation stability for roads and buildings, suitability for well and septic systems and the potential of a particular formation for mining or quarrying. In addition, the resistance of the different geological formations to weathering has produced the present landscapes, surficial deposits and soil types.

The geology of the eastern Loudoun area is explained in detail in a technical report titled: “Geology of the Eastern Area Plan: Loudoun County, Virginia”, (Richard Weber, 1980), which is on file at the Loudoun County Planning Department and in the office of the Loudoun County Soil Scientist and is included by reference as a part of this Plan.

C. Topography:

As mentioned before, eastern Loudoun is an area of gently rolling hills, with low ridges. The elevations range from about 190 to 440 feet, with the lowest points closest to the Potomac River and the average elevations increasing with distance from the river. The highest point is at Mount Sterling, a hilltop rising above the surrounding landscape south of Route 7; Church Road
Drainage Basins

- Potomac No. 1 Drainage Basin
- Sugarland Run Drainage Basin
- Bull Run Drainage Basin
- Loudoun County
- Maryland, Virginia
- Route 28
- Route 50

Scale in thousands of feet
or Route 625, follows this ridgeline and offers something of a panoramic view in non-forested spots. Another relatively high elevation is a north-south ridge near Oak Grove.

The steep slope areas (15 percent inclinations and greater) evident from the USGS topographic maps are primarily associated with the streams of the area. Severe slopes are found along Broad run and also the tributaries to the Potomac in the northeast corner of the eastern area. The exceptions to this correspondence of steep slopes and streams are some of the alluvial terrace slopes along the Potomac (important because of the potential for instability), the Mount Sterling slopes and, of course, the quarry operations near the airport. Unlike the landscape in other areas of the County, these eastern steep slopes do not take up large blocks of land, but are found scattered throughout the area.

D. Vegetation:

Like the rest of the County, this area was at one time heavily wooded but was cleared substantially for early farms and settlements. The area still has large amounts of vegetation, some of which is poor quality -- mostly cedars -- growing on abandoned crop or pasture land. Hardwoods and mixed hardwood and pine stands are more prevalent south of Route 7 than to the north, where there are large stretches of pine running across the area. To the north of Route 7 an area of note is the Broad Run Farms subdivision which, up to this point, has maintained a wooded character despite development.

An overlay of slope and vegetation maps reveals a number of steep slope areas unprotected by vegetation, but some important stretches of trees along water courses, including Broad Run and Sugarland Run, are still standing. When future approved and proposed developments are considered, there still remains ample room to plan for woodland and tree protection to maintain streams and soils, accommodate wildlife and provide aesthetic and recreational amenities.

E. Hydrology/Water Quality:

The dominance of the Potomac River in shaping this area’s natural features is still evident. A study of landforms shows the alluvial terraces which were created by the river in its changing stages throughout the years, and there are large areas of floodplains and wet lowlands. Within the area, there are three major watersheds: Sugarland Run, Broad Run and Potomac Basin Number One. Some of the streams that feed Sugarland Run and Broad Run originate in Fairfax County, while all five square miles of Potomac Basin Number One lie entirely within the eastern Loudoun area. There are only a few named tributaries in the area; Cabin Branch which is a tributary to Broad Run crosses Route 28 and south of there Indian Creek enters Horsepen Run, another Broad Run tributary.
Under Section 305b of the Federal Water Pollution Control Act, the State is required to report periodically on the water quality of its streams. The most recent 305b report released by the State does not include any specific data on the streams in eastern Loudoun, but notes that the stream quality of this area is generally good. However, the study does show that except for instances of industrial pollution in rural areas, stream quality generally diminishes with proximity to urbanized areas. There is no reason to expect that without water quality planning. Loudoun County’s streams would be the exception to the trend.

Maintenance of water quality, a valid goal of itself, is of heightened importance in part of eastern Loudoun because of the intake point for Fairfax County’s water supply where Old Sugarland Run enters the Potomac. Stream quality standards, mandated by Federal law and dependent upon stream use, are set at a higher level in the northern section of the eastern Loudoun area to reflect this use. These standards apply to ambient or overall stream quality and are indirectly related to the characteristics of effluent or specific point-source discharges.

Concern with the growing metropolitan region’s water resources prompted the State Water Control Board to adopt the Dulles Area Watershed Policy in 1975. That policy, which is still in effect and applies to much of the eastern area, is a wastewater management policy "which includes stringent effluent standards and is intended to protect water quality in the watershed and downstream water supplies." The Dulles Watershed Policy focuses on maintaining ambient quality by controlling point discharges and, at this time, prohibits any new discharge points in the watershed. The only existing direct discharges into streams in eastern Loudoun are found along Sugarland Run, where three sand filter waste systems were installed prior to more stringent regulation. Although these limited discharges are not monitored, the Watershed Policy gives the area an overall high level of protection from waste discharges, and that protection goes hand in hand with a dependence on Blue Plains treatment capacity. (See section on Water and Sewer in Public Facilities Plan). Direct discharges of wastes into the area’s streams, then, do not pose immediate threats to water quality, and a more pressing concern appears to be non-point pollution from the increasing quantity and decreasing quality of stormwater runoff.

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5 Thomas M. Schwarberg, Regional Director, Northern Regional Office, State Water Control Board, Memorandum, June 15, 1978.
F. Air Quality:

Like water quality, air quality may be viewed to some extent as a matter of relative standing, and from that perspective, eastern Loudoun stands above Fairfax County and other more developed neighbors, but behind areas to the west. Again, although local air pollution is not now troublesome, increasing development and loss of vegetation have historically been associated with higher levels of many pollutants. This region has not reached compliance with national air quality standards established by the Federal Clean Air Act, and a cooperative approach toward resolving this situation is required. The greatest challenge in this effort is not from point-source emissions, which are covered by regulations administered by the State Air Pollution Control Board, but from the more diffuse or non-point sources, namely the automobile traffic. These emissions can be decreased by the elimination of stop lights, congestion and traffic back-ups and by reduction in traffic volumes. Since Loudoun County will not be asked to participate in the State Air Pollution Control Board Vehicle Inspection and Maintenance Program, it will be more important to insure that adequate planning be used to eliminate congestion areas.

ENVIRONMENTAL AREAS AND POLICIES

A. Environmentally Critical Areas:

1. Examples:
   a. 100 year floodplain
   b. 25% and greater slope
   c. 15% to 25% slope adjacent to watercourses

2. Management Policy:

   Substantial restriction of development.

3. Sources used to determine location of critical areas:
   a. HUD Flood Hazard maps
   b. USGS Topographic maps, 1" = 2000'

B. Environmentally Sensitive Areas:

1. Examples:
   a. Areas of high erosion potential
   b. Stream buffers
2. **Management Policy:**

Subject to development restrictions and performance regulations.

3. **Sources used to determine location of sensitive areas:**

   a. Hydrology maps
   b. USGS Topographic maps, 1" = 2000'
   c. Soils maps
   d. Vegetation maps

C. **Soils Assessment Zones:**

1. **Examples:**

Soils with very poor development potential due to:

   a. Wetness
   b. Plasticity
   c. Rock

2. **Management Policy:**

Engineering studies prior to development plans.

3. **Sources used to determine location of soils assessment areas:**

   a. Soil maps
   b. "Interpretive Guide to Soils for Planning in Loudoun County, Virginia" (Richard Weber, 1979)

D. **Noise Zones:**

1. **Examples:**

   a. NEF\(^6\) 40
   b. NEF 30

2. **Management Policy:**

Regulation of type of development and limitations on residential development.

\(^6\) Noise Exposure Forecast
CRITICAL AREAS

The Resource Management Plan discussed certain critical areas whose protection is vital to the health and welfare of existing and future communities of Loudoun County. The "continuation in their natural state" is necessary for:

"the long term integrity of terrestrial and aquatic systems: and the protection of the general health, safety and welfare of Loudoun County's residents."\(^7\)

In other words, the "highest and best use", generally thought of in terms of economic return, has actually been dictated by natural processes, and for critical areas, that optimal use is found in the contribution to an environmental quality balance. While there are numerous areas critical to environmental quality which were discussed in the Resource Management Plan at some length, the designation of critical areas has been done as selectively and as narrowly as possible to assure that this planning tool functions to protect environmental quality rather than prohibit development per se. For this and other area plans, critical areas will be defined as the land and resources which are so highly vulnerable to development or whose development presents such a threat to public welfare that intensive uses must be severely restricted. In general terms, these areas are not to be used for residential, commercial or industrial purposes but should be restricted to recreational or agricultural uses; specific uses should, of course, be clearly delineated in zoning and subdivision ordinances.

In light of the use implications, an additional and important factor in these designations was fairness to landowners. Hence, a consideration of "fair warning" was also made, and the severity of problems as well as the extent to which there has been relatively widespread and long-standing knowledge of these types of problems both weighed in the final determination of critical versus sensitive areas. For eastern Loudoun, the critical area designation is reserved for two types of land, floodplains and steep slopes. Because these lines have been so selectively drawn and because preservation of critical areas is necessary to prevent public harm and not merely to secure public amenities, density transfers will not be applied. While this "undevelopable" land does not of itself merit density credit, the County should condone and encourage any efforts by developers to protect these resources and implement the goals of the Plan. Thus, density bonuses would be appropriate for proposals in accord with all of these goals that specially enhance these resources and their utility to the community.

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\(^7\) **Loudoun County Resource Management Plan**, Department of Planning and Zoning, (adopted May 21, 1979), page 12.
Floodplains

The need to keep development out of floodplains is not only a matter of long-term cumulative damages to a crucial ecosystem, but also immediate threats to health and safety. According to a recent study supported by the National Science Foundation, riverine flood is this country's most devastating natural hazard, and Virginia is among 35 states that suffer more than $20 million in building losses due to flooding in an average year. In 1969, the toll from Hurricane Camille in Virginia alone was 114 lives and $113 million in property damage. In 1972, Hurricane Agnes took 22 lives and inflicted $330 million in damage.

In eastern Loudoun, the largest recorded floods prior to Hurricane Agnes occurred in 1943 and 1937, when the floodplains of Broad Run and Sugarland Run were devoted primarily to agricultural uses. Agnes, however, was a dramatic reminder to the rapidly suburbanizing area that unwise development of floodplains can result in unpredictable losses. During that hurricane, 11.9 inches of rainfall were recorded at Dulles Airport in a 24 hour period and several residences along lower Broad Run were severely damaged.

The magnitude of flooding problems has been recognized at the national level with the Flood Control Act and the National Flood Insurance Program, and the approach to flood protection has changed considerably over the years. As it became apparent that losses due to flooding were climbing along with flood-abatement expenditures, the policy emphasis moved from keeping floodwaters away from people to one of keeping settlements away from flood-prone areas. A now widely accepted view of floodplains is summarized in Water in Environmental Planning: "It is human encroachment on the floodplains of rivers that accounts for the majority of flood damage. Because it is a natural attribute of rivers to produce flows that cannot be contained within the channel, the floodplain is indeed a part of the river during such events."

8 J.H. Wiggins Company for the National Science Foundation, Building Losses from Natural Hazards: Yesterday, Today, and Tomorrow, Grant No. ENV-77-08435, p. 13.


11 Glenn R. Wall, p. 92

Guiding development to areas outside of floodplains is also important to maintenance of a stream’s ecological equilibrium, since the destruction of natural flushing or overspill areas can have damaging effects. Development in these areas may change stream geometry and flows, lower water quality, seriously impair a stream’s natural cleansing process, destroy stream life and interfere with groundwater recharge. The valuable role of the floodplains as well as the safety threat dictates their designation as critical, undevelopable areas.

Policies:

1. To protect county residents from the dangers of flooding and to protect public and private property from flood damages.

2. To guard the ecological role of the floodplains in maintaining stream flows, aquatic life and water quality.

3. To minimize the dangers and costs of uncertainty in regard to flooding that are worsened by numerous incremental changes to flood levels.

Implementation:

1. These critical areas should include all land in the 100 year floodplain, as shown by the most reliable information available - HUD insurance maps, flood hazard analyses or special studies. While many people are familiar with the term 100 year floodplain, it may be important to note that this is not an area that would be expected to be inundated only once every century. The year designation of a floodplain is an indication of the probability of inundation based on statistical analysis of stream flow records, and the 100 year flood is one which has a one percent probability of occurring in any given year. It could, in fact, occur several times in one year and one occurrence does not lessen the probability of its recurring the next year.

2. Because it is necessary to rely on this system of statistical measurement rather than some physically recognizable boundary, floodplain mapping efforts should receive continued support from the County, and mapping should be converted to an easily understandable and usable format for public information and easy administration of floodplain regulations. (Figure 3, page 68 is for illustration purposes only.)

The Floodplain Ordinance should be reviewed and amended to assure that it is consistent with the policies of this plan and reflects both the goals of flood protection and resource preservation.
Floodplains
100 Year Floodplains

Note: This map was prepared under the direction of the Loudoun County Planning Department for illustrative purposes only. Actual maps were prepared at a 1" = 1000' and 1" = 500' scale and are on file at the Loudoun County Department of Planning.
3. Because there has been some encroachment into floodplains of eastern Loudoun, most notably industrial uses near Dulles Airport, a policy for those non-conforming uses should be set. Such a policy should recognize the investments already made and expectations for expansion without compromising the goals and objectives related to floodplains. Other jurisdictions, particularly those which have felt substantial pressures to develop their floodplains, should be consulted.

4. As a crucial counterpart to the Floodplain Ordinance, a comprehensive Stormwater Management Policy and supporting ordinance must be developed. The main thrust of such a policy should be to maintain the natural water flow levels, velocity and timing. (See Figures 4 and 5, pages 70 and 71 for illustration of urbanization effects). Water quality impacts should also be addressed to the greatest extent possible.

5. Efforts should be made to assure that there is widespread citizen education about flood hazards and county policy on floodplains. This should include an investigation into the possible use of disclosure laws on land sales that require notice of floodplain information on individual tracts.

Steep Slopes

"Landscape is an assemblage of slopes,"\textsuperscript{13} which are of great concern in land use planning from the standpoint of initial costs of development, costs of providing public services, integrity of the visual environment, stormwater management, erosion and sedimentation and slope failure hazards. Slopes play an important role in the hydrologic cycle by guiding the flow of surface water and forming drainage systems, and, as discussed in the Resource Management Plan, hillsides are natural features in which "slope and soils are in balance with vegetation, underlying geology and the amount of precipitation."\textsuperscript{14} This natural equilibrium is often very delicate, and human interference, in terms of changing slope inclination, adding pavement and speeding up water flows or simply removing vegetation, may have calamitous effects. One text on environmental analysis points out that it is not unusual to find artificial slopes with "changed inclination, drainage, and vegetation"\textsuperscript{15} that erode and fail in spite of stabilization efforts, and experiences in Loudoun County would bear that out.


\textsuperscript{14} Loudoun County Resource Management Plan, (Adopted May 21, 1979), p. 12

\textsuperscript{15} William M. Marsh, p. 51
Stream Hydrograph depicting rise and fall of flow in response to same amount of rainfall.
Figure 5

Steep Slopes

Note: This map was prepared under the direction of the Loudoun County Department of Planning for illustrative purposes only. Actual work maps were prepared at a 1" = 200' scale and are on file at the Loudoun County Department of Planning.
Perhaps because of the sometimes dramatic consequences of development on steep or unstable slopes, there has been a relatively lengthy history of hillside regulation. Slope-density scales and designation of steep slopes as critical or conservation areas are both quite common. These are somewhat simplified approaches to maintaining a complex natural equilibrium, but are nonetheless useful tools for reasoned land use planning, because slope inclination stands out as a major element affecting this natural balance. "Other factors being equal, as slope increases so does the potential for environmental degradation, including slope failure, increased erosion, sedimentation and runoff. In lowering densities as a function of slope, the potential for environmental degradation is decreased."¹⁶

The Eastern Loudoun Area Plan proposes a dual approach to hillside development, with a designation of severe slopes as critical areas and a move toward controlling the intensity of development and how development takes place on the intermediate or less severe slopes (to be discussed further in the section on Sensitive Areas).

Policies:

1. To recognize and respect the natural equilibrium that balances soil loss with soil formation and which plays an integral role in the hydrologic cycle.

2. To protect the public from the hazards of slope failure.

3. To limit the degradation of water quality brought about by erosion and sedimentation from disturbed slopes.

4. To assure that unwise development of slopes does not add to the difficulties of stormwater management or excessive public facilities costs in developing watersheds.

Implementation:

1. Severe slopes should be defined as any slopes with an inclination of 25% or greater regardless of location and any slope from 15% to 25% adjacent to a watercourse. These delineations follow from the goals which stress water quality as well as other concerns. Again, they are intended for incorporation into comprehensive hillside regulations.

2. For the Area Plan, slopes have been mapped at the 1" = 1000’ scale, and this illustrates most areas of concern. However, slope must be

indicated on individual development plans submitted for review. The area falling into the severe slope category should be subtracted from the total area for density calculations. (See Figure 6, page 74).

3. Since vegetation is a crucial slope stabilizing factor, retention of vegetation on critical slopes is necessary. Removal of significant amounts of vegetation on critical slopes should be prohibited first through the Subdivision and Erosion Control Ordinances and eventually through woodland protection and hillside regulations that address a variety of slope conditions.

4. Artificial drainage channels cannot be constructed which would significantly change either the amount of velocity of water flowing over such slopes, and development adjacent to severe slopes should not produce additional stormwater runoff, channeled or otherwise, which could create stabilization or erosion problems. The Subdivision Ordinance should be reviewed and revised as necessary to include guidelines in this area and sufficient flexibility for developers to respond to this concern.

5. Likewise, artificial slopes which are excessive or inherently unstable cannot be created on development projects. The Subdivision Ordinance should be expanded to address these concerns.

SENSITIVE AREAS

The Resource Management Plan has set forth a general goal of maintaining a high level of environmental quality, and in keeping with that goal this area plan emphasizes that there is a continuum, not an on/off point for a healthy environment. The Area Planning Committee discussion pointed to the need to recognize that continuum and to strive for keeping the environmental quality of eastern Loudoun at the high end of this spectrum for the long-term. This approach is in contrast to one which protects a few resources and otherwise permits or even fosters environmental degradation which is incremental but nonetheless irreversible.

Thus, it is necessary to go beyond the designation of critical areas with another level of protection. The logical follow-up to critical areas is the designation of sensitive areas which may not be quite as crucial but are still important to the County. These sensitive areas would be managed with special resource protection efforts.
Figure 6

Water Problems
Associated with Development

SLOW RECHARGE

GREATER STORAGE IN STREAM AND VALLEY

UNDEVELOPED AREA.

DEVELOPED AREA

NO RECHARGE

LIMITED STORAGE IN ARTIFICIAL CHANNEL
The Resource Management Plan discusses sensitive areas and notes that their "sensitivity is derived from the inability of these areas to sustain development above a certain magnitude without negative effects on the long-term integrity" of the environment. In general, these include areas which could be allowed to develop, but where development that disregards natural features would prove unnecessarily destructive. For these sensitive areas, we have tried to look not only at their suitability for development, but more importantly at their roles in a healthy ecosystem.

Sensitive areas addressed specifically in this plan and covered in the subsections to follow include:

1. Stream protection zones
2. Areas of high erosion potential as indicated on interpretative soil maps.
3. Valuable vegetation areas.

Areas important to the maintenance of wildlife populations might also fall into this category, but the most appropriate approach to their protection in eastern Loudoun would follow from preservation of habitat which coincides with identified critical and sensitive areas. In addition, other potentially sensitive areas which cannot be fully addressed without geological information include:

1. Areas important for infiltration of stormwater and groundwater recharge.
2. Alluvial terraces and other potentially unstable landforms.
3. Special resources, including rock deposits.

A. Stream Protection Areas

Protection of water resources is a vital concern for both short and long term environmental quality. An evolution of federal legislation has brought about a variety of mechanisms which have, for the most part, focused on direct discharge regulation. As mentioned in the inventory, however, the major concern in eastern Loudoun County, given the types of industry and other land uses in the area, is from nonpoint pollution.

The effects of urbanization on the hydrologic cycle may be dramatic and quickly evident or subtle and incremental. Those incremental changes may prove to be the most detrimental to eastern Loudoun as the amount of natural area converted to parking lots, rooftops and streets increases steadily. Development results in alteration of natural drainage systems, restriction of infiltration and groundwater recharge and increases in stormwater runoff (See Figure 6, page 74). Ironically, the results are an increase in flooding as well as drought since stable water flows are made erratic. Increased stream flows and velocities in peak periods contribute to erosion of

17 Loudoun County Resource Management Plan (adopted May 21, 1979), p. 214
streambanks, increased sedimentation and turbidity, decreased holding capacity of water bodies and destruction of stream life.

Thus, effective water quality management must address land use and development patterns throughout each drainage basin, not merely activity in or directly adjacent to water bodies. In the words of one writer, "It is evident that water quality control is meaningless over the long pull until it is properly integrated with land use management... Direct land use controls are not only essential for, but are eminently compatible with, good water quality management."¹⁸ A variety of programs directly and indirectly related to water resources, then, are necessary to effective protection of water quality and quantity, particularly in this rapidly growing area. The recommendations in this section for sensitive area protection work in concert with critical area management, erosion control regulations, vegetation preservation and other environmental protection techniques and land use planning tools. As soon as geology and groundwater information is available, planning to protect important recharge areas should begin to complement these other efforts.

Policies:

1. To assure the wise use and conservation of the County's water resources.

2. To maximize future options for water supply by protecting existing water resources beyond what current uses might mandate.

3. To minimize the costs of water treatment, stormwater retention, stream stabilization and other corrective measures necessary when development destroys natural functioning of streams and waterways.

4. To protect habitats for fish and wildlife.

5. To recognize and maintain the valuable role of stream vegetation in filtering pollutants and shading and otherwise protecting watercourses.

Implementation:

1. Designate 75 feet on both sides of watercourses, including intermittent streams, as sensitive areas and establish a Stream Buffer Ordinance to govern development within these sensitive zones. Study for the ordinance should include a thorough re-review of the appropriate distances from different watercourses given topographic and other characteristics and selection of various types of controls and standards to be applied. Filling, grading, removal of vegetation and other land-disturbing activities should be addressed.

2. Develop a checklist of water protection issues for developers to work with. This should be geared toward making developers aware of concerns with the alteration of natural drainageways and alerting decision makers to changes in natural hydrology created by new developments.

3. In the Subdivision Ordinance, strictly limit the channelization of streams and discourage the use of any materials which increase stream velocity. Also in the Subdivision Ordinance, require the protection of natural drainage swales wherever possible.

4. Assure the maintenance of natural steam vegetation through the Stream Buffer Ordinance, tree protection measures and appropriate amendments to the existing Subdivision and Erosion Control Ordinances. Consider a mechanism for density transfer and possible density bonuses for superior design proposals.

5. Coordinate recreation planning and development of park systems with the need to protect stream courses by using appropriate stream buffers for passive recreation.

6. Assure that proper and adequate provisions be taken during the development and construction process to prevent the infestation of mosquitoes and other vectors and insects in areas of standing water.

B. Areas of High Erosion Potential

Naturally occurring and ongoing erosion and sedimentation, like other natural processes, is often disrupted by human actions and turned into a damaging and destructive problem. "Human occupancy of land almost always increases the rate of hill slope erosion by significant and sometimes catastrophic amounts," and as rural areas change to urban uses, erosion rates may increase from 50 to 50,000 tons per square mile per year. The State of Virginia (with construction associated erosion rates above more than half of the other states) has placed the primary responsibilities for erosion control with localities, and Loudoun has responded with its own Erosion Control Ordinance. The recommendations in this section should complement the Ordinance and provide added efficiency with a focus on particularly sensitive areas.

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19 Thomas Dunne and Luna B. Leopold, Water in Planning, p. 510


21 An Assessment of Major Nonpoint Pollution Sources: Relative Magnitudes, Cost Effective Controls, Institutional Constraints, (Bethesda, Maryland: Booz-Allen Hamilton, 1978), p. 4-2
Policies:

1. To encourage recognition of and respect for the natural processes which have established a delicate balance of soil loss and soil formation.

2. To minimize erosion and sedimentation by directing development away from areas which have a high potential for creating such problems.

3. To minimize the threat to water quality and stream life and the aggravation of stream bank erosion brought on by sedimentation.

4. To avoid the need for costly engineering solutions to correct erosion problems and the added cost of treating water from sediment choked streams.

Implementation:

1. Continue to support and enforce the County’s Erosion Control Ordinance, and reevaluate the ordinance to assure that it fully addresses the above goals.

2. Keep intensive development that involves earthmoving and destruction of vegetation out of areas with high erosion potential through changes to the Zoning and Subdivision Ordinances. Where a sliding scale zoning density is adopted, be certain that the density granted reflects the extent of these sensitive areas as well as any desired proffers.

3. Encourage planned district development in these areas to allow flexibility for designing around scattered problem areas. This is particularly important in eastern Loudoun where there are areas which present a mixture of conditions and where full and efficient but not reckless use of land should be encouraged.

4. As with critical slopes, require development plans to indicate areas of high erosion potential.

5. From a study of past experience with performance bonds, determine if it may be wise to scale the dollar amounts required to a more sophisticated rating of erosion potential.

6. Investigate the use of woodland and tree protection regulations and ordinances to implement the goals of this section as well as other environmental goals.

7. Begin development of hillside regulations which are geared toward controlling erosion and sedimentation and preventing slope failures. Use of slope-density scales combined with soil overlays should be
considered, and the experiences of other jurisdictions in terms of enforcement and administration as well as effectiveness should be weighed.

C. **Vegetation**

Although clear-cut land may provide the easiest development sites, the continued loss of vegetation may impose community costs that far outweigh the costs of building around these natural obstacles. Woodlands and vegetation of various types contribute significantly to overall environmental quality, providing such functions as stabilization of soils, interception of runoff and moderation of weather extremes. Although much vegetation is generally sensitive to certain pollutants, some species actually absorb pollutants and help to cleanse the air. Woodlands muffle loud noises, disguise unsightly land uses and provide important wildlife habitat.

Planning must ultimately take into account all of these varied functions as well as the less tangible amenities offered by vegetation, but as a first step, this plan focuses on particularly crucial roles of trees and woodland. While the goals of the section relate to the overall protection of vegetation, the priorities for resources management are directed toward critical and sensitive areas, namely:

1. Steep slopes
2. Areas of high erosion potential
3. Land adjacent to watercourses

These special vegetation protection areas warrant separate mention despite the overlap with other management designations.

**Policies:**

1. To manage the loss of vegetation as the eastern area develops further, so that the important contributions of vegetation to control of water, air and noise pollution are not lost.

2. To protect the important visual, recreational and psychological benefits offered by wooded areas.

3. To recognize and plan for the use of existing vegetative resources in climate moderation and energy efficient community planning.

4. To approach the protection of vegetation in a comprehensive manner which focuses on the variety of roles for vegetation in the environment.

5. To protect important wildlife habitats.
Implementation:

1. Undertake a more complete survey and inventory of vegetation in the eastern area, including to the greatest extent possible, information on type and condition of vegetation. Use such an inventory to set priorities for a comprehensive rather than piece-meal approach to tree preservation.

2. Review and revise subdivision requirements as necessary to reflect the goals of this section. Appropriate requirements and incentives for retaining valuable vegetation should be included. Replanting requirements may also be necessary to assure that vegetation is not destroyed before development plans are submitted merely to circumvent the regulations. For preservation of large stands or corridors rather than isolated small islands of vegetation and to assure equity among landowners, it may be necessary to look at density bonuses as well as density transfers for tree preservation.

3. Gear all guidelines for preservation toward the long term. Development proposals which show on paper the retention of vegetation, but in actuality assure a short life for this vegetation through other sorts of environmental degradation should not be considered in compliance with the goals of this section.

4. Involve the Virginia Division of Forestry in review of zoning and subdivision applications and other development proposals to the greatest extent possible. A representative from that agency should be involved in the development of any new regulations related to woodland and other vegetation.

5. Begin work on a Woodland and Tree Preservation Ordinance which considers the function of vegetation as well as quantity and distribution. Thorough research of similar ordinances, such as that used in Fairfax County, should be undertaken. A simplified approach will be necessary given current county resources.

SPECIAL MANAGEMENT AREAS

A. Noise

In recent years, excessive noise has been recognized as a health hazard and an ever increasing form of pollution. While there is a need to protect the eastern area from all sorts of noise pollution, the major concern of the Area Plan is the noise from Dulles Airport, which was discussed in detail in the Resource Management Plan. The following goals and means of implementation follow from those discussions and touch on other significant noise
considerations (e.g., quarry and other industrial noises), in eastern Loudoun as well.

Policies

1. To recognize "quiet" as a community resource to be valued and protected and to limit the exposure of area residents to hazardous and disruptive noise levels.

2. To help guide non-noise sensitive land uses into areas where there are high levels of noise that cannot be reasonably curtailed.

3. To assure, through careful land use planning, that the Dulles International Airport is an asset rather than a liability to eastern Loudoun.

Implementation

1. Assure that no area in the NEF (Noise Exposure Forecast) 40 be zoned for single-family or other residential uses. (See attached charts on noise compatibility of various land uses, Figure 7, page 82 and NEF contours in Figure 8, page 83). While in localities developing at an urban rather than suburban density, some types of multi-family rather than single-family development may be allowable, the most desirable approach for eastern Loudoun is to keep all homes out of the NEF 40 zones. Such an approach is not excessively restrictive or inconsistent with the existing land use patterns of eastern Loudoun.

2. In the NEF 30 zones, residential uses should be actively discouraged. Where residential uses are permitted, sound proofing will be required. The possible domino effect of a residential rezoning in noise-prone areas should be a primary concern in review of residential development proposals.

3. The County should pursue the idea of disclosure laws to guarantee that property buyers will be forewarned of noise levels from airport operations.

4. The County should maintain a cooperative working relationship with the Federal Aviation Administration (FAA) to assure that any further plans regarding utilization of the airport and county plans for the airport vicinity are compatible and mutually beneficial.

5. The County should move toward a gradual evolution of a comprehensive Noise Ordinance with an initial focus on industrial noise. Meaningful and enforceable standards should be developed with information from the Natural Environmental Health Association, the Environmental Protection Agency, the Virginia Health Systems Agency and other local jurisdictions.
### Noise Impact

#### LAND USE GUIDANCE CHART I: AIRPORT NOISE INTERPOLATION

<table>
<thead>
<tr>
<th>LAND USE GUIDANCE ZONES (LUG)</th>
<th>NOISE EXPOSURE CLASS</th>
<th>INPUTS: AIRCRAFT NOISE ESTIMATING METHODOLOGIES</th>
<th>HUD NOISE ASSESSMENT GUIDELINES</th>
<th>SUGGESTED NOISE CONTROLS</th>
</tr>
</thead>
<tbody>
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<td>L_dB DAY-NIGHT AVE. NOISE EXPOSURE</td>
<td>NEF NOISE EXPOSURE</td>
<td>GNR COMPOSITE NOISE RATING</td>
<td>CNEL COMMUNITY NOISE EQUIVALENT LEVEL</td>
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<td></td>
<td>HIGHER</td>
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</tbody>
</table>

- LAND USE CONTROLS SHOULD BE CONSIDERED
- NORMALLY REQUIRES NO SPECIAL CONSIDERATIONS
- NOISE EASEMENTS, LAND USE, AND OTHER COMPATIBILITY CONTROLS RECOMMENDED
- CONTAINMENT WITHIN AIRPORT BOUNDARY OR USE OF POSITIVE COMPATIBILITY CONTROLS RECOMMENDED
Dulles International Airport - Noise Exposure Forecast

Contours Post 1995

6. Once standards are set, noise monitoring should begin on a spot or complaint response basis under the Department of Environmental Health. Special monitoring efforts should focus on the quarry operations in the County, not with the intent of disrupting quarry operations but to assure that residents near these industries do not suffer substantial inconveniences or long-term damages. Existing performance standards for noise and for vibration should be reviewed with the short- and long-term effects of quarries in mind, and county-initiated spot checks should begin to enforce those standards. Cooperation of industries should be sought and all quarries might be encouraged to follow the example of Luck Quarry which maintains its own monitoring records.

7. Regulations and guidelines on industrial noises should be published and made readily available to all prospective industries through the Department of Economic Development.

8. The Department of Planning and Zoning should recommend amendments to the Subdivision Ordinance to assure that buffers be required for various land uses related to noise generation as well as other considerations. The utility of ordinance flexibility to allow buffers to be designed in response to particular site considerations, such as topography and vegetation, should be explored. Study of the ordinance should also focus on the possibility of extending buffer requirements to non-industrial and land uses bordering such zones, so that the responsibility for quiet not rest solely with the industrial community.

B. Soils

A variety of problems may result from development on poorly suited soils or on sites which may not have received proper engineering evaluation. Cracked foundations and walls, premature road fatigue, and wet basements are examples of soil related problems which, unfortunately, homeowners often must deal with. The most effective and cost efficient time to deal with these problems is before design and construction. Careful analysis of soil and site conditions as part of the engineering design is the main reason for developing a soils assessment policy. All class IV soils mapping units have soil and/or site conditions that are considered to have very poor potential for general development.

Within the Class IV soil mapping unit there are five subclasses: IV-W, wetness; IV-P, soil stability; IV-R, rockland; IV-F, floodplain; IV-S steep slopes. The criteria for each of these classes as well as a county-wide classification of soils is given in the The Interpretive Guide to Soils for Planning22 (Richard Weber, 1980). That document gives a rating for each mapping unit shown in the Soil Survey of Loudoun County, Virginia (Porter, et al., 1960).

22 Available in Soil Scientists and Planning Office.

-84-
The interpretative map, "Soil Potential for General Development on Central Sewer and Water", was prepared by drawing out large blocks of similarly classified soils. At the map's base scale of 1" - 3000' this map lacks the accuracy necessary for detailed planning. Detailed planning and engineering design should be based on much larger scale maps which accurately show the type of soil conditions existing on a particular parcel.

Class IV-F, Very Poor Potential - Floodplain mapping units, and IV-S, Very Poor Potential - Steep Slope mapping units are covered under Critical Environmental Areas, and therefore, are not included in this section. Although the other Class IV mapping units have soil and site potential which severely restrict or may prohibit development (see discussion of each class below), development is not altogether precluded in these mapping units. Careful study at the time of detailed site engineering is the key to environmental management in soils assessment zones. The response to a particular soils problem will not necessarily be a change to progressively lower intensity uses, e.g., large lot housing, but will be dictated by the type and severity of problems presented. For example, poor soils may, in some instances, indicate that multi-family housing on a single foundation is preferable to single-family development.

1. Plastic Soils: (IV-P)

Although many people in Loudoun County may have heard of plastic or expansive soils, shrink-swell clays, jackland or blackjack, the soil stability problems associated with these soils are probably not as well known. Also referred to as the "hidden disaster", these soils may present hardships for people locating their homes in such areas. Nationwide, one-fifth of all families live in homes on plastic soils, and no state is free from significant amounts of it.\(^{23}\) Property damage from expansive soils totals $1.9 billion in an average year, and may increase to $4.5 billion by the year 2000 as pressures to develop plastic soils increase.\(^{24}\)

Eastern Loudoun has some jackland, particularly in the southern section, but is fortunate in that plastic soils are not the major development factor they are in other parts of the County. Soil materials in this category are virtually impossible to upgrade; they may cause foundations to crack and sag, pavement to break up and roads to fail prematurely. In addition, they are unsuited for fill materials, and thus present a problem when necessary undercutting leaves large amounts of spoil to be disposed of.

\(^{23}\) J.H. Wiggins Company for the National Science Foundation, Building Losses from Natural Hazards: Yesterday, Today and Tomorrow, Grant No. ENV-77-08435, p. 11.

\(^{24}\) Ibid.
2. Wet Soils: (IV-W)

As mentioned before, there are substantial areas of flat wet soils in eastern Loudoun County. These Class IV wet soils are those in which there is a prolonged seasonal high water table, sometimes for as long as six months of the year. These soils are unstable when wet and are very difficult to drain. Failure of roads and foundations is not uncommon in these areas, and wet and flooded basements are virtually assured without proper drainage. Development which may add pollutants to stormwater runoff in such areas is an additional threat to the public health, because contamination of water resources is more likely in these wet soils.

3. Rocky Soils (IV-R)

Finally in this group are the Class IV rocky soils which are also included in areas with high erosion potential. This grouping generally consists of rock outcrop land and is often associated with high shrink-swell soils. Development in such areas often requires considerable blasting and may involve difficulties with proper soil compaction. When this rocky material is left in fill rather than disposed of properly, there is an added danger of crushed sewer or water pipes and breaks in basements and foundation walls.

Policies

1. To promote a use of land which is sensitive to and coordinated with natural soil limitations.

2. To protect individual property owners from loss of property and the general public from a proliferation of development in which rapid deterioration is inevitable or highly likely.

3. To protect the County from the damaging side-effects of poorly planned or engineered development, including erosion and sedimentation, contamination of water resources and unnecessarily high costs of public service installment or maintenance.

4. To assure that areas which are naturally suited to development are protected from the introduction of soils wastes that alter that potential.

5. To provide a mechanism by which public investment decisions may be guided by consideration of development costs as well as land prices.
Implementation

1. For all development within Class IV soils, a preliminary engineering investigation and report should be submitted at the rezoning stage. This report may be conceptual rather than detailed. A detailed engineering study must be submitted at the subdivision and/or site plan stage, setting out specifically how soils problems will be handled. On-site engineering tests may be necessary. The booklet, Interpretive Guide to Soils and Geology for Planning in Loudoun County, produced by the County Soil Scientist should be consulted by applicants for development within the designated Class IV soils: it provides background information and a basis for the detailed on-site investigations.

2. Regulations on spoil disposal should be drafted by the Department of Environmental Resources and the Department of Building and Development.

3. Where sliding scale densities are used, the level granted must reflect the severity of soils problems.

Conclusion

In addition to the efforts directed toward particular management areas, there are environmental considerations which require responses that are less location-oriented. Some of these have already been discussed as logical outgrowths of a particular management area concept, but several of these merit separate mention. Amendments to the Zoning and Subdivision Ordinances have been mentioned frequently and deserve immediate attention. In addition, stormwater management, stream protection measures, hillside regulations, woodland and tree protection ordinances and noise regulations will all be important to the environmental quality of eastern Loudoun. While most of these will focus to some extent on particular management areas, they will also address more generalized problems and geographically diverse areas. These new regulations should be developed as quickly as possible to assure workable and effective environmental protection. Other priorities for the eastern area environment that have not been addressed specifically are discussed briefly below.

In order to track progress in maintaining and enhancing environmental quality, to anticipate possible problems and to develop effective environmental management tools, the County should have available a reliable record of environmental quality. Site specific data on trends in ambient air and water quality and storm water runoff quantity and quality. An environmental data base could conceivably involve all sorts of data, and all departments involved in environmental management, including Planning and Zoning, should begin to consider the need for maintaining an information base. Any new regulations should be formulated with an eye toward continual monitoring and data collection rather than ad hoc studies.
The top priority in terms of data collection should be focused on water quality. The Plan recognizes the undeniable link between land use and water quality, and water quality management will be approached not only through floodplain and stormwater management ordinances and stream protection regulations, but also hillside regulation, erosion control, soils assessments and other "land" centered planning tools. An important counterpart of these efforts is water quality monitoring, and efforts should be made to expand the County's capabilities for monitoring water quantity and quality. At the same time, the County should actively seek support from the State, the appropriate federal agencies and regional planning organizations, if not to initiate new data collection, then at least to better coordinate existing programs with local information needs.

Similar to the need for monitoring capabilities discussed earlier is a very pressing need for inspection and enforcement capability. Many of the regulations proposed require substantial inspection and enforcement activities, and while new ordinances should be tailored to Loudoun's resources, the teeth to back up environmental requirements will be necessary. A reasonable expansion of such resources is crucial to a meaningful environmental management program.

The County's cooperation with regional planning efforts is another necessity. Although eastern Loudoun County is substantially different from its metropolitan neighbors, it does share many similar concerns, can learn from others' experiences and must address environmental problems from a regional perspective. The County has been actively involved in regional efforts to improve environmental quality and should continue to support important regional programs.

An impact assessment process is another important tool for planning purposes in the County and is vital to the community in assessing not only if, but how a particular development will occur. Nonetheless, the impact assessment process is not a substitute for comprehensive planning, and a framework of environmental principles is a prerequisite to an impact measurement scheme. A cumulative view of environmental changes is necessary if the individual impact assessments are to be fully beneficial. An environmental program relying solely on impact assessment is very likely to thwart long-term environmental goals, particularly when impact will be considered for generally small development projects.

The County should begin work on an impact assessment process which relates directly to the specific goals and policies identified in the Plan. Study of experiences with impact assessment in other areas should concentrate not only on how to estimate impacts, but also, and perhaps more importantly, on how to use that information. Initial work with an assessment process should build on the current referral process used for zoning and subdivision applications.

Another program to pursue for the future would be one of public acquisition and utilization of important environmental resources. Although the term acquisition may immediately arouse anxieties because public monies are involved, it will be necessary at some point to weigh the costs of acquisition with the costs of
environmental losses. Regulation and guidance of development will do much to prevent environmental degradation and public harm, but some of the area's less crucial but nonetheless, valuable environmental resources may require protection based on shared public cost. This plan does not call for acquisition of any resources at this point, but recommends that resources in eastern Loudoun be evaluated along with other county resources in terms of need and desire for protection, imminent threats, functions and amenities. If such an effort were initiated, priorities for protection could be set and the County could preserve its special environmental quality with a cost effective openly discussed and reasoned program. This would contrast with the situation in many areas where preservation efforts may be erratic and often centered around a crisis requiring hasty response.

It is important that sensible, well-planned environmental management is followed by the County itself in any new programs and purchases. The various county agencies should set the standard for environmental protection; in the eastern areas this is of particular importance because of the relatively rapid development. With the County's example of respect for the environment, the initiation of new environmental regulations and the targeting of protection measures to different management areas, the overall environmental quality of eastern Loudoun may be protected and enhanced.
COMMUNITY DESIGN

INTRODUCTION

Community design is a term which refers to the character of the physical structure and organization of a community, which would include habitable structures, transportation elements, open space areas, and the complex network of relationships between these diverse elements. The primary focus and concern of the community design process is to allow new development to be organized in such a way as to enhance community identity, promote energy conservation and to preserve the existing natural amenities as described in the Resource Management Plan.

The tools of community design efforts are primarily those of physical design, i.e., the choice of road patterns, the selection of sites for open space preservation and the relationship of these to residential and commercial developments, and the site design features that are implemented in all physical developments, including the architectural character of buildings and their relationship to open spaces and transport networks. Community design, in a sense, deals with the same problems of space, scale and circulation that architectural design deals with. The difference is that architectural design focuses on the relationship of spaces in a particular building, whereas community design focuses on the relationship between many different buildings and structures. (See Figure 1 and 2, pages 91 and 92).

The purpose of the community design portion of the area plan is to provide a guide for focusing efforts to improve the overall design quality of new development.

There are three major areas of concern with regard to the character and quality of community design in eastern Loudoun. These are open space, relationships of buildings and structures, and the circulation network.

Open space is an essential and integral part of eastern Loudoun’s community design. The open space land use elements overlap in function with several other kinds of land use, including parks and recreation, historic areas, environmentally critical areas and buffers for community identity. Each of these open space elements has a particular purpose, in addition to the purely aesthetic function of scenic beauty. In general, open space deals with the transition areas between communities, and those natural and scenic areas in eastern Loudoun which the citizens of the area feel should be preserved.

Relationships of buildings and structures to each other is an important aspect of the community in terms of aesthetics, human scale, energy efficiency and the overall visual and cultural character of an area. The relationships between buildings have a large and interacting effect on the circulation network of a community as well. Examples of issues and elements of structural relationships include: setbacks of buildings from the street, height and mass of buildings, outdoor public spaces and their relationship to private outdoor space, density of buildings in terms of units per acre, solar orientation and functional relationships such as the proximity of one type of land use to another.
Community Design

Circulation

Public Gathering Spaces

Semi-Public Gathering Spaces

Private Spaces
ARCHITECTURAL DESIGN
The circulation network is the total transportation system of the community, including roads, highways, trails, and sidewalks. The critical aspects of this complex network are the relationship of the different parts to each other, i.e., highways to pedestrian sidewalks, the quality and character of these elements, i.e., the width and surface quality of roads and trails, the functional efficiency, i.e., capacity and routes of roads, and the relationship of all these transport elements to the buildings where citizens live and work.

POLICIES

The following policies are aimed at providing a direction for the County to take with regard to programs, regulations and other actions involving the character and quality of community design and preservation of open space in the eastern Loudoun area. They set the framework for more detailed program recommendations. These policies are oriented specifically toward the concerns of eastern Loudoun, but they are derived from the general goals and policies stated in the Resource Management Plan.

A. Open Space

The County will:

1. Reserve the land needed for future open space preserves and trails as soon as possible in order to assure the lowest possible cost. The first priority is acquisition, second priority is construction of facilities when in the process of establishing an open space system.

2. Provide incentives for developers to proffer or otherwise dedicate open space lands in areas designated in the Eastern Loudoun Area Plan. (Figure 3, page 94).

3. Wherever possible, use environmentally critical lands for open space buffers, between communities.

4. Require open space buffers between clusters of residential units in order to establish the visual identity of each residential cluster.

B. Relationships of buildings and structures

The County will:

1. Encourage the preservation of the visual identity of new and existing communities and neighborhoods.

2. Encourage the preservation of the basic scenic character of the landscape when building new developments by reacting sensitively to existing topography and vegetation during the design and construction process.
3. Encourage the creation of new developments which conserve the existing natural environment and which are efficient and economical in terms of energy consumption.

4. Encourage the creation of new developments which incorporate design practices that keep construction and development costs to a minimum while still meeting the objectives of preserving the scenic, social and environmental character of the community.

C. Circulation Network

The County will:

1. Encourage the creation of compact, efficient, people-oriented communities which allow for mixed-use developments, pedestrian and bicycle transportation, and nearby employment centers for residents.

2. Encourage the establishment of a safe and pleasant comprehensive pedestrian system which can effectively supplement the road system and which will link activity areas such as schools, commercial centers and community centers.

3. Encourage innovative solutions to the problems of road and highway design, particularly with regard to achieving lower costs, high visual quality and preservation of important existing vegetation.

ANALYSIS

A. Open Space

Currently, the eastern Loudoun area has a large amount of open space which can become a creative element in the area’s community design and character. However, for the most part, this open space exists in an undeveloped state simply because development has not taken place on it as yet, not because it has been planned or preserved as open space. In effect, most of the open space in eastern Loudoun has been "left over" from past development. There are, of course, several major elements in eastern Loudoun which represent the kind of open space features which this plan recommends should be established in the area. These include the following:

1. **Algonkian Regional Park**

   This park site is used for both active and passive recreation. It holds a strategic location on the shore of the Potomac River. Approximately 600 acres.
2. **Claude Moore Conservation Education Center and Historic Farm**

   Formerly property of the National Wildlife Federation, now Claude Moore Park, this site is a wildlife sanctuary, consisting largely of woodland. 357.2 acres.

3. **Washington and Old Dominion Regional Trail**

   The bed of the old railway is owned by the Northern Virginia Regional Park Authority and is the major east-west regional, multi-use trail in northern Virginia, connecting Purcellville with Alexandria.

4. **Vestals Gap Road** (refer to Heritage Conservation Plan, page 274.)

   Although this historic road coincides in part with Route 638, the County still owns part of the right-of-way on the segment which passes through Sterling Park. This road connects two points of Route 7 and several areas in Sterling Park with the property of the National Wildlife Federation; thus, it has excellent potential for use as a linear park-multi-use trail. Route 604 should allow sufficient right-of-way for the expansion of Vestals Gap Road (Class 1 Bikeway).

5. **Sterling Park Golf Swim and Tennis Club**

   This is a good example of one effective way of preserving open space by establishing an active recreation facility that retains the basic open space character of a site. Privately owned and operated.

   However, such uses must be provided in relation to a clear demand on the part of potential users.

6. **School Sites**

   There are several existing school sites in eastern Loudoun (see School section of Public Facilities Plan, page 218) and these are an excellent source of open space preservation. However, the criteria for school sites are based more on access, transportation, proximity and topography than on scenic quality or vistas. But in many instances, the criteria for establishing school sites relates strongly to those for open space, i.e., pedestrian access, suitable topography for active use such as ball fields, proximity to residential neighborhoods, etc.

7. **Potomac Trail**

   The Northern Virginia Regional Park Authority is in the process of acquiring lands along the Potomac River Floodplain to form a trail running from Fairfax to Leesburg. The Park Authority has acquired
several easements to date, and should eventually be in a position to build a continuous trail along the river.

8. **Open Space Reservations in the Cascades and CountrySide Developments**

   The new developments of CountrySide and Cascades have allocated substantial amounts of land as open space, including school sites, floodplains, equestrian areas and athletic fields.

9. **Sugarland Run and Broad Run Creeks and Floodplains**

   A substantial amount of land along the Broad Run and Sugarland Run Creeks lies within the 100 year floodplain. This land will not be developed and will continue to be a major open space resource for eastern Loudoun.

   There are other open space elements in eastern Loudoun in addition to these, such as the property in the Sugarland Run community which is owned by that homeowners' association. These elements are significant in that they represent the kind of acquisition and ownership process (by homeowners' associations and other private groups) which the County should encourage as a means of acquiring and maintaining open space. The most important open spaces in eastern Loudoun, however, are the vast areas which have not yet been developed, but which most certainly will be developed in the future. This undeveloped area includes 75% of eastern Loudoun or approximately 14,000 acres. This land is one of eastern Loudoun's most important resources and should be managed in accordance with the policies and recommendations of this plan.

   The following table indicates how these various types of open spaces can be organized and constructed to help form the community design concept for eastern Loudoun.
### TABLE 1
EXISTING OPEN SPACE ELEMENTS

<table>
<thead>
<tr>
<th>OPEN SPACE ELEMENT</th>
<th>EXAMPLE</th>
<th>PURPOSE</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Parks for active recreation</td>
<td>Ball fields such those at Park View High School</td>
<td>Active, intense recreational activity</td>
</tr>
<tr>
<td>2. Parks for passive recreation</td>
<td>Multi-use trails (linear parks) such as W&amp;OD, nature trails, wildlife sanctuaries such as that of Claude Moore Park</td>
<td>Active and passive recreation, education, transportation</td>
</tr>
<tr>
<td>3. Scenic areas</td>
<td>Woodlands, streams, vistas</td>
<td>Passive recreation, visual amenity</td>
</tr>
<tr>
<td>4. Environmentally critical areas</td>
<td>Floodplains, steep slopes as indicated in Environmental section, Figure 5, page 71 particularly the vicinity of Sugarland Run</td>
<td>Preserve the function of the ecosystem</td>
</tr>
<tr>
<td>5. Community and neighborhoods buffers</td>
<td>Green belts, trails as indicated in Figure 3, page 94</td>
<td>Establish, preserve and reinforce the identity of a community or neighborhoods and provide options for future development.</td>
</tr>
</tbody>
</table>

Figure 3, page 94 provides an illustration of how the open spaces of eastern Loudoun should be organized and interrelated to provide a framework for community design policies.

B. Relationship of Buildings, and Circulation Network

To date, there has been virtually no coordinated study or effort made toward understanding or developing a sound approach to community design in eastern Loudoun County. This is primarily due to the fact that the area has been rural and suburban in character, with new development being undertaken by independent builders operating in a "vacuum".

The form of human settlements has evolved naturally, guided primarily by the forces of economics and transportation. But as communities become more densely populated, the need for a comprehensive, integrated approach to coordinating the design of new developments becomes more important. The
eastern part of the County has reached the point where a comprehensive design approach is necessary in order to assure a well balanced, efficient, aesthetically pleasing and coordinated physical community design.

With the exception of the guidelines provided by the County’s zoning and subdivision ordinances, community design in the eastern Loudoun area has to date been relatively uncoordinated. There are, of course, examples of successful efforts, but in general, the independent, isolated and unplanned pattern of development has produced problems of pedestrian access, lack of community identity, energy inefficiency and poor visual quality due to destruction of vegetation, large-scale roads and illogical site planning. The eastern Loudoun community still has an opportunity to achieve a high level of design quality.

New developments must be planned and designed in relation to each other and in relation to the existing neighborhoods. The principles set forth in this plan must be adhered to as closely as possible in all future developments.

The current character of community design in eastern Loudoun can be described as low to medium density “suburban” development. There are both positive and negative design and organizational features to be found in the area. Examples of positive elements include the following:

1. There are two large planned unit developments (P.U.D.) which represent an attempt to achieve organized, convenient and identifiable neighborhoods. These are Sterling Park and Sugarland Run. They include community facilities and commercial developments within the neighborhoods.

2. The major highways in eastern Loudoun (Routes 28 and 7), are relatively unspoiled in terms of their visual quality. Most development has taken place away from these major roads.

3. The W&OD Railroad right-of-way has been acquired by the Regional Park Authority for the future construction of a regional, multi-use trail, connecting Purcellville with Alexandria, and points in between.

4. Pedestrian circulation is good in some neighborhoods of eastern Loudoun. Many pathways and sidewalks have been constructed. However, many commercial and public facilities remain relatively inaccessible by foot or bicycle.

5. The Algonkian Parkway is in a location which allows maximum use of the Potomac River and which allows a future regional trail along the river to connect to it. Property for the trail is in the process of being assembled by the Northern Virginia Regional Park Authority.
6. A large amount of land in eastern Loudoun remains undeveloped, and thus offers tremendous opportunity for the future development to enhance community identity, design quality, and energy conservation.

7. Some developments such as Forest Ridge, have saved a considerable number of trees during the construction process.

Eastern Loudoun has many of the negative aspects that are common in contemporary design. They include the following:

1. As the Sterling Park and Herndon areas have grown, they have begun to merge, creating a sprawling growth pattern, thus losing their visual identity as separate and distinct communities.

2. Although there is a substantial existing pedestrian circulation system in eastern Loudoun, many areas, particularly the major commercial centers, are practically inaccessible by foot or bicycle.

3. There is no true, clear community focus in the eastern area.

4. Most developers of new residential areas have applied the practice of clear-cutting the existing woodlands on a site in order to make the construction process simpler and easier. This reduces the visual quality of these neighborhoods and also prevents residents from experiencing the benefits of tree shade for energy conservation.

5. Virtually all development in eastern Loudoun is segregated by use. That is, commercial facilities are separated from residential areas, offices separated from retail stores, etc. Often, the only way to get from one use to the other, even when they are adjacent, is by auto. (Example: the Town Center Shopping Center). Planned residential development should have integrated land uses to promote the establishment of traditional growth patterns.

6. The quality of the architectural design of many commercial buildings in the eastern area is not compatible with the traditional character of public and commercial architecture in the area. This new development tends to reduce the visual quality of commercial centers and further stimulate the trend toward segregating these uses from residential areas.

The architecture of downtown Leesburg is a positive example of what can be done. There, commercial shops, offices and residential townhouses all have a very similar design character.

-100-
7. The architectural design and site planning of most residential developments in eastern Loudoun have not adequately taken into consideration or applied such features as proper orientation for energy conservation, road design which will keep auto speeds to a minimum, adequate trail systems, efficient location of window and door openings in houses, landscaping for energy conservation and other similar design elements.

The problems and possibilities for planning a viable community design for eastern Loudoun are complicated and challenging. The policies and recommendations in this plan are aimed at helping to produce a coordinated and innovative approach to community design.

POLICIES AND PRINCIPLES

The following principles and policies are intended to serve as a basis for future action on the part of the County. These will include suggested modifications of the zoning and subdivision ordinances, as well as guidelines for developers to follow during the design and construction stages of new developments.

A. Zoning and Subdivision Ordinance Modifications:

1. Develop detailed site planning standards for all residential, commercial and industrial developments. These standards shall require the implementation of design elements that will reinforce and support the County’s community design policies. Examples of some conceptual elements include: clustered housing units, proper landscaping and woodland retention for energy conservation, and proper siting and sun orientation.

2. Detailed open space specifications for public and private open space will be developed at a later date.

3. Provide density bonuses for private developers who implement any or all of the following design concepts:
   a. Mixed-use development of commercial, office and residential uses.
   b. Donation of scenic easements or similar restrictive covenants on the open space areas designated in the area plan.
   c. Functional pedestrian and bicycle circulation system which does not conflict with auto traffic.
d. Energy-efficient design of all buildings including proper siting and orientation, use of efficient materials, efficient opening sizes and location, minimal use of paving, and substantial, properly designed landscaping.

4. After detailed standards are developed, the following features should be included in the Zoning and Subdivision Ordinances as requirements or as items for which the developer can receive density bonuses:

a. Clustered housing units (See Figures 4, 5, & 6 pages 103-105).

b. Proper landscaping for energy conservation (required).

c. Pedestrian and bicycle trail system that links activity centers.

d. Woodland retention (give density bonus as incentive).

e. Building design for energy conservation such as minimal paving, proper window openings, energy efficient construction materials (See energy section).

f. Greenbelt areas (easements and restrictive covenants) (give density bonus) (See Figure 3, page 94 and Figure 8, page 107).

g. Mixed-use designs (give density bonus).

B. Neighborhood Design Principles:

The following are principles which should be encouraged by the County and written into Ordinances where possible:

1. Connect activity centers in commercial and residential areas with a convenient trail system which ties into an overall community trail system. (See Figures 7 and 8, pages 106 and 107).

2. Trail system and highway system should not conflict. Trails and bicycle paths should meet either Class I or Class II Standards. (See Figure 3, of Transportation Plan, page 179).

3. Orient buildings for maximum southern exposure (See Energy Plan). (See Figure 9, page 109).

4. Provide or retain deciduous vegetation on the southern exposure for buildings (See Figure 9, page 109).
The Land
A site typical of Loudoun County with:
Year around streams and pond
Gentle hills and ridges
Some steep areas
Some soils suitable for building...some not
Attractive woods and fields
Access from a busy road
Typical Subdivision

Monotonous rows of houses
Many natural features destroyed
No open spaces - pond drained, stream underground
No recreational opportunities
Yards back to back
Encroachment on water bodies
Houses often unsuitably located
One housing type . . . limits cross section of families and social mix.
Cluster

Relief from Monotonous Development
Natural features preserved
Open space provides recreation
Yards open onto open space
Road system contributes to privacy and safety
Water bodies protected . . . and enjoyed
Houses located on best sites
Permits varied housing types by cluster grouping . . .
attracting a cross-section of family types for
better social mix . . . young families, older
couples, etc.

Cluster Development Technique
Illustration of Community Design Principles
Relationship of Community Design Elements
Orientation For Energy Conservation

High summer sun is shaded by deciduous tree and overhang

Low winter sun shines on window

Southern exposure

Elevation

Aerial View

Southern orientation to street

NORTH
5. With the assistance and cooperation of the VDOT, residential roads (not including collectors and arterials) should be kept to minimum widths. These roads should be designed to meet the needs of the residents, in terms of fitting into existing topography and vegetation, providing for expected traffic flows, minimizing costs and energy use, reducing vehicle speeds, and reinforcing the pedestrian character of residential neighborhoods.

6. Provide or retain deciduous and/or coniferous vegetation along all roads. The County should develop and adopt a Highway Vegetation Ordinance.

7. Wherever possible, residential dwelling units should front on cul-de-sacs rather than collector roads.

8. Cluster single-family dwellings into small groups in order to preserve open space (See Figure 6, page 105).

9. Preserved open space should be usable. It should be defined space, enclosed on two or three sides by buildings. There should be no “leftover” spaces except those which are designed to be preserved as natural, environmental areas. (See Figure 10, page 110).

10. Parking for every type of residential and commercial structure should be clustered, landscaped, and grade separated where possible (See Figure 10, page 110). Such requirements should be defined in a County adopted site plan Ordinance.

11. Each major community (8,000 - 10,000 people), should have a community focus as a "center" of identity and social and commercial activity. The center should be modeled after the patterns of the historic villages in the County. It should have a central "square" core area which is strongly defined by pedestrian streets with small scale buildings containing commercial uses on the ground floor and offices or apartments on the top floor. Medium/high density residential areas should surround the community center as a transition between commercial and low density residential uses. The entire community should be separated from other communities by a greenbelt buffer of trails, streams, valleys, floodplains, and other open space and environmentally critical areas. (See Figure 8, page 107).

12. Where possible, electric power and telephone lines, should be beneath grade. An Ordinance for underground utilities should be developed and adopted.
Wide, straight streets encourage high speeds and excessive construction costs.

Street & Parking Design

Narrow, curving streets and clustered parking reduce costs, reduce traffic speeds and allow more design flexibility to respect the existing topography and vegetation.

All units oriented for southern exposure.

Where possible, parking should be clustered, landscaped and recessed.
13. Residential dwelling units should be carefully and efficiently designed so that they may be as small as possible in terms of enclosed volume and area. This will keep housing costs down and allow builders to incorporate higher quality materials. Appropriate amendments to the County Building Code should be adopted to meet these needs.

14. Dwelling units should incorporate reverse frontage on major arterial/collector roads. Service roads should not be used.

15. Earthen berms, planted with vegetative ground cover to control erosion, should be built at the edges of distinct neighborhoods and clusters in order to provide visual and audio separation between adjacent neighborhoods and between roads and residential structures. Such berms should react sensitively to existing topography and vegetation.

C. Open Space Policies

The following are specific actions which the County can take toward establishing a viable open space system in eastern Loudoun:

1. Allocate County funds for the development of linear parks (trails) on the same basis as for conventional recreational parks. Linear parks (connecting trails, rather than trails within a subdivision) should receive equal funding consideration to that of active parks.

2. Encourage volunteer groups to assist with fund raising and construction labor for expanding eastern Loudoun's trail and open space system.

3. Focus on the acquisition and development of linear parks on environmentally critical and environmentally sensitive lands.

4. Appropriate areas and standards for vista control in developing areas should be established.

5. The feasibility of developing a Landscape Ordinance for new development should be investigated.

6. Where possible, seek proffers, and where necessary, allocate County funds for the acquisition of critical scenic lands and community buffers. The following areas should be considered for such acquisition:

(Refer to Figure 3, page 94, for general locations.)

a. Land for trail along Broad Run floodplain: Floodplains are often good locations for trails because they are not developable and are often of high scenic value. The Broad Run floodplain can be a critical link between the Potomac and Sterling.

-111-
b. Open Space buffer along Route 637: needed in order to provide an open space spine through eastern Loudoun.

c. Park site(s) on Pocahontas property: logical location for future park site in eastern area.

d. Remainder of Vestals Gap Road right-of-way: historic road which passes through Sterling Park and the Claude Moore Conservation Education Center and Historic Farm (new Claude Moore Park).

e. Open Space buffer north of the community of Sugarland Run: a substantial buffer is needed to protect the existing community of Sugarland Run from the proposed "loop" road.

D. Specific Community Design and Open Space Proposals:

1. Designate a 75’ open space buffer on both sides of the W&OD Regional Trail to preserve this open space asset from development encroachment.

2. Link the various open space elements in eastern Loudoun through a greenbelt-linear park which would extend from the W&OD right-of-way north of the Plantation Industrial subdivision to the Claude Moore Education Center and Historic Farm and the Vestals Gap Road.

3. Obtain easements from property owners to conserve and develop Vestals Gap Road as a hiking trail.

4. Obtain easements from property owners to conserve and develop the Sugarland Run floodplain as a linear park.

IMPLEMENTATION

The community design and open space policies will be implemented by three general methods. First, and most important will be the use of proffers. Described in detail on page 34, proffers are voluntary contributions of land, facilities or monetary funds made by the developer in return for rezonings granted by the County. In the case of trails, for example, the County can identify in advance the areas in which trails should be located and the developer can then make a judgement as to whether negotiations should proceed for a proffer of either land for the proposed trail or the construction of the trail. The second method will be the modification of the Zoning and Subdivision Ordinance and the development of new Ordinances for those items indicated on pages 101 et seq.

The third method for implementing community design proposals will involve the preparation of "mini-area plans" for large sites which are slated for development. The process of producing these development plans will consist of early discussions
between the developer and the County so that each has a clear understanding of the other’s goals and objectives for the site. During this process, the County planning staff will work closely with the developer’s development plan which incorporated as many of the design principles listed on page 98 et seq. as possible.

In addition to these three basic methods for implementing the design and open space recommendations, the County will seek cooperation from the VDOT when attempting to establish trails along existing roads. Trails that run parallel with and adjacent to roads are meant to serve as viable transportation facilities for pedestrians and bicyclists. It is hoped that the VDOT will cooperate with the County’s efforts to establish such alternative transportation elements.

Establishing trails along stream valleys and floodplains will be accomplished by several different methods. The County can receive such lands from developers as proffers, the County can encourage the establishment of restrictive covenants on such land or the County can seek acquisition assistance from agencies such as the Northern Virginia Regional Park Authority. The NVRPA is, in fact, currently involved in a continuous program aimed at acquiring lands along the Potomac shoreline between Alexandria and Leesburg for the eventual settlement of a regional trail along the river. The County has proposed a local trail to be built through the Pocahontas (Cascades) property which will connect the Potomac and W&OD regional trails.

Each of these basic methods of implementation can be used for establishing all of the community design and open space elements of the Plan.
COMMERCIAL AND OFFICE DEVELOPMENT PLAN
COMMERCIAL AND OFFICE DEVELOPMENT PLAN

INTRODUCTION

The Commercial Development Plan addresses the location and extent of the retail trade, personal service and general office activities which will be developed to serve the eastern Loudoun area. Such land uses include neighborhood community and regional shopping centers (See Appendix I, page 133 for definitions), free standing and highway-oriented commercial uses, professional, insurance, banking and real estate offices.

POLICIES

The adopted Loudoun County Resource Management Plan established several salient objectives and policies concerning commercial development in Loudoun County. This commercial development plan for eastern Loudoun is designed to present alternative means of achieving these policies and to recommend actions which will implement them. The Resource Management Plan’s commercial development policies which apply to eastern Loudoun are as follows:

Commercial Service Areas:

1. The County will encourage the development of sufficient retail space to serve the existing and projected residential population of the County and the adjoining service areas. (RMP, p. 210.)

2. Retail commercial uses serving residential areas should be sized and located in direct proportion to the extent of their service areas. (RMP, p. 230.)

3. The existing commercial space in eastern Loudoun will be reinforced by County policy and practice to provide the most economically viable conditions possible. No new commercial space which would reduce the economic viability of the Sterling Park Mall and the Town Center-Sugarland Plaza shopping centers should be rezoned or approved by the County except for small neighborhood centers which will not directly compete with the existing community commercial centers.

Land Use:

4. Specific area plans for the RMP-defined Community Development Areas should designate the size and location for a range of employment centers designed to be compatible with nearby housing and institutional uses. The existing commercial and industrial zoning patterns should form the basis for land uses in these areas. However, the clustering of office and industrial uses in planned, campus-like centers is strongly encouraged in lieu of
continuous strip office and industrial development along Route 7 and Route 28. The County shall develop and adopt specific site planning and design standards for employment land uses. (RMP, p. 230.)

Convenience Services:

5. Convenience and small scale personal service uses may be located within a residential neighborhood, providing that the commercial area is visually and acoustically buffered from the surrounding residences and traffic volumes and accessibility requirements will not conflict with residential vehicular and pedestrian traffic. (RMP, p. 230.)

Location:

6. Larger commercial areas serving several neighborhoods or communities should be located on primary or secondary roads and be heavily screened from nearby residences. Incremental, convenience, small-scale or strip commercial uses should not be located on Route 7 or Route 28 in order to promote good planning and zoning but in particular to limit traffic congestion. (RMP, p. 230.)

BACKGROUND

Commercial Development Market Factors

Commercial land uses may be divided into two major types: regional services and local services. Examples of regional uses include a large shopping mall with multiple department stores and specialty shops and the offices of national associations. Local services include such uses as branch banks, supermarkets, and real estate offices.

The economic and land use factors which influence the location and development potential for regional and local commercial services substantially differ. Local commercial and office services develop primarily in response to the requirements of the population in the immediate vicinity. Hence, a neighborhood shopping area which provides food, drug, cleaning and branch banking services requires a support population of 2,500 to 10,000 persons, depending upon the size of the individual stores. The size and number of local service stores which a particular area can support is usually based upon the magnitude of disposable family income which residents of the service areas spend for particular retail goods and services.

In contrast, regional commercial uses locate in a particular area, either due to regional-serving locational factors such as excellent transportation access, or some other factor such as lower tax rate or better availability of water or sewer service vis-a-vis other regional sites. Hence, large regional malls and office complexes tend to locate, following "market factors", in the most accessible and easily developed locales in the regional service area.
EXISTING CONDITIONS

A. Current Status of Commercial Development in Eastern Loudoun:

Approximately 500,000 square feet of commercial and retail space are currently located in eastern Loudoun serving a local population of approximately 25,000 persons as shown in Table 1 and Figure 1, page 117.

<table>
<thead>
<tr>
<th>Location</th>
<th>Name</th>
<th>Size</th>
<th>Type</th>
</tr>
</thead>
<tbody>
<tr>
<td>Herndon Junction</td>
<td>Sugarland Plaza</td>
<td>190,000 sq. ft.</td>
<td>Community Center</td>
</tr>
<tr>
<td>Herndon Junction</td>
<td>Town Center</td>
<td>150,000 sq. ft.</td>
<td>Large Neighborhood Center</td>
</tr>
<tr>
<td>Herndon Junction</td>
<td>Other Commercial</td>
<td>25,000 sq. ft.</td>
<td>Strip Highway/ Commercial/Office</td>
</tr>
<tr>
<td><strong>TOTAL</strong></td>
<td></td>
<td><strong>375,000 sq. ft.</strong></td>
<td></td>
</tr>
<tr>
<td>Sterling Park Center</td>
<td>Sterling Mall</td>
<td>75,000 sq. ft.</td>
<td>Neighborhood Center</td>
</tr>
<tr>
<td>Sterling Park</td>
<td>Other Commercial</td>
<td>20,000 sq. ft.</td>
<td>Neighborhood Center</td>
</tr>
<tr>
<td>Old Sterling</td>
<td>Commercial</td>
<td>10,000 sq. ft.</td>
<td>Neighborhood Center</td>
</tr>
<tr>
<td>Sugarland</td>
<td>Sugarland Square</td>
<td>8,000 sq. ft.</td>
<td>Neighborhood Center</td>
</tr>
<tr>
<td><strong>TOTAL</strong></td>
<td></td>
<td><strong>113,000 sq. ft.</strong></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Location</th>
<th>Name</th>
<th>Size</th>
<th>Type</th>
</tr>
</thead>
<tbody>
<tr>
<td>Herndon Junction</td>
<td>Village Center on 7</td>
<td>51,750 sq. ft.</td>
<td>(Retail)</td>
</tr>
<tr>
<td>CountrySide</td>
<td>CountrySide Commercial Center</td>
<td>129,000 sq. ft.</td>
<td>Community Center</td>
</tr>
<tr>
<td>Near CountrySide</td>
<td>Parc City Centre</td>
<td>52,600 sq. ft.</td>
<td></td>
</tr>
</tbody>
</table>

The shopping centers located at Herndon Junction at the intersection of Routes 7 and 228 are currently functioning as the area's primary retail commercial center and have more than doubled in size in the past several years. This area is also beginning to serve a portion of the western Fairfax population which is located along Route 228 south of Route 7.
The growth of the Herndon Junction center has had the effect of retarding the development of the planned commercial centers in the Sterling Park and Sugarland Run Planned communities. Recent development in the Sterling Park center has been mainly of a local office and specialized retail nature. Little new commercial activity has occurred in the Old Sterling and Sugarland Run areas in the past five years, while the population in surrounding neighborhoods has markedly increased in the same period.

The Eastern Loudoun Area Planning Committee and independent studies have indicated a strong market demand for major general merchandise and large department store services in eastern Loudoun. These services are currently being provided by department stores located in Fairfax County and involve a 20-50 mile round trip. The need for such services is the primary argument from the local perspective for locating a regional shopping facility in eastern Loudoun.

B. Undeveloped Commercial Land

Figure 2 (page 119) indicates the five main locations zoned for commercial use in eastern Loudoun. The largest vacant site south of the Sterling Park Mall was being processed for final site plan approval of 178,000 square feet at the end of 1986. Its development would complete the Sterling Center and bolster the economic viability of the entire area. In addition, approximately 7 acres of commercially zoned land is available in one acre parcels near the Sterling Community Center north of the Sterling Park Mall. Of this 7 acres, 1.6 acres (Enterprise Shopping Center) was being processed for preliminary site plan approval of 14,070 square feet at the end of 1986.

The old Sterling area along Church Road at the former W&OD rail right-of-way encompasses 20-30 acres of undeveloped commercially zoned property. The W&OD right-of-way has been purchased by the Northern Virginia Park Authority for the inter-county regional trail and thus a portion of this commercial land might better be developed in more compatible residential uses, e.g., the focus of a village center. However, the 5-10 acres adjacent to Church Road could serve as a neighborhood center for the adjacent residential areas (Peace Plantation, Fox Lee and Cabin Branch Forest), as well as old Sterling.

North of Route 7, the two planned communities of CountrySide and Cascades each have 10 acres zoned for commercial use. The CountrySide site has almost been fully developed. In addition, a 10 acre site has been approved at Route 637 south of the entrance to the Sugarland Planned Community in the Mirror Ridge Development. These three commercial areas will each accommodate 50,000-75,000 sq. ft. of retail and office space and will function as neighborhood centers for these planned communities.
C. Future Commercial Development Requirements

The primary planning issue involving commercial development which the County must address is the extent to which the County will accommodate future regional service needs in addition to the services required by the local population. Assuming a local population growth of 25,000-30,000 persons in approved and pending developments in eastern Loudoun, maintenance of the current level of neighborhood and community scale retail services will require approximately 500,000-600,000 additional square feet of commercial space.\(^1\) As indicated above, zoned land is available or planned to accommodate most of this growth. Any large comparison goods facilities (large department stores) would require additional space. In 1982 the County commissioned an economic study which projected a 1990 market area population of over 155,000 for Route 7 retail center locations.

In addition, the property within one to two miles of the Route 28-Dulles Access Road interchange should become more and more valuable for office uses as Dulles Airport expands and the proposed toll road is completed. The County should take advantage of these market forces, as well as the employment potential and objectives outlined in the Resource Management Plan, to plan for the development of a large office complex near Dulles Airport.

During the 1980’s, the great majority of new neighborhoods and community commercial services will be required north of Route 7 to support the expected population growth in the several new planned communities. Sterling Park Mall and development of the shopping area in old Sterling will meet most of the future commercial needs of Sterling Park and should be encouraged. New commercial development in Herndon will also provide services to Sterling Park residents. During the late 1980’s and 1990’s major residential development in the Ashburn area combined with continuing major development north of Route 7 in the eastern part of the County will provide additional demand and trade area balance for an eastern Loudoun regional shopping center site.

COMMERCIAL DEVELOPMENT

A. Large Regional Shopping Center

Within the context established by current development patterns, transportation plans and taking into account future needs, the development of a large regional mall of 1,000,000+ square feet with additional office space in close proximity would replicate the method of meeting this segment of retail demand as carried out in neighboring counties of Montgomery (e.g., Lake Forest) and Fairfax (e.g., Fair Oaks).

\(^1\) Using standards defined in Appendix II.
A regional center in eastern Loudoun will serve not only eastern Loudoun residents but also the balance of Loudoun County to the west and portions of Fairfax County/Herndon in a trade area extending to the east.

<table>
<thead>
<tr>
<th>TABLE 2</th>
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</thead>
<tbody>
<tr>
<td>REGIONAL CENTER: NEW DEVELOPMENT</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Type of Facility</th>
<th>No. of Center</th>
<th>Size Sq. Ft.</th>
<th>Service Area</th>
</tr>
</thead>
<tbody>
<tr>
<td>Neighborhood Centers</td>
<td>5-6</td>
<td>50,000 avg.</td>
<td>Walking distance to one-mile radius</td>
</tr>
<tr>
<td>Community Commercial</td>
<td>1-2</td>
<td>100,000+ ea.</td>
<td>5-10 minutes</td>
</tr>
<tr>
<td>Large Regional Mall</td>
<td>1</td>
<td>1,000,000+</td>
<td>25-30 minutes</td>
</tr>
<tr>
<td>Small Regional Mall</td>
<td>2</td>
<td>600,000-850,000</td>
<td>25-30 minutes</td>
</tr>
<tr>
<td>Regional Office</td>
<td></td>
<td>1,000,000+</td>
<td>SMSA</td>
</tr>
<tr>
<td></td>
<td></td>
<td>2.5-3,000,000</td>
<td></td>
</tr>
</tbody>
</table>

1. Potential Locations:

The regional mall as proposed could be located on 75-120 acres in the southeast quadrant of the Route 28-Route 7 intersection. Community center services could be provided by a 100,000-200,000 square foot addition to the Sterling Mall, and on property near the 637-Route 28 loop intersection. New neighborhood centers would be developed in the four commercially zoned areas, plus additional centers in the Pocahontas (now Cascades) tract. A large regional office center could be developed in the County's "gateway" location near Dulles Airport on land around the Route 606 intersection. The land around the Chantilly Quarry or the quarry site itself could become an extensive regional office complex with access to Dulles Airport and the region via the proposed Dulles Access Toll Road.

Additional regional offices could be developed south of Herndon Junction and adjacent to the Regional Mall along the north and south sides of Route 7. Local service offices similar to the recently developed Holly Plaza in Sterling could be developed adjacent to the CountrySide, Mirror Ridge and Cascades neighborhood centers and adjacent to the community center at 637 and Route 28 loop.
2. **Impacts:**

A regional mall in eastern Loudoun would provide desired commercial services and reduce travel outside of the County to obtain goods. Housing developments with zoning approvals west of Route 28 (*from Leesburg east*) totaled over 10,000 dwelling units in late 1986 in addition to the households existing in this area during 1985. Permitted growth in this area will allow an eastern Loudoun regional center to have a more balanced trade area. When combined with the existing eastern Loudoun households (*10,300 estimated in 1985*) and over 10,000 future residential units in the zoning/development pipeline east of Route 28, the potential for an eastern Loudoun regional center to become more exclusively a "Loudoun-serving" facility is apparent. The number of dwelling units and attendant forthcoming population increase represent significant potential trade area growth since the ELAMP was revised in 1983.

a. **Impact on Transportation**

Regional centers are typically located in the immediate vicinity of the confluence of region-serving highways (*e.g.*, *Fair Oaks at 50/66, Tysons at 7/495, etc.*). The volumes of traffic generated by the large regional center will be roughly equal at different viable locations unless there are significant differences in opportunities for diversion of traffic already on the road. The primary traffic challenge is to minimize congestion during the p.m. peak hour. Thus, the primary test for minimizing congestion should be the degree to which traffic movement conflicts with major commuter flows can be either avoided or minimized.

The impacts of traffic generated by a regional center are also a function of the geographic distribution of the center’s trade area and the availability of capacity in the various elements of the highway system. Capacity will be changing. The County’s highway system improvement program has been and will continue to be in flux. The advent of the State's 1986 transportation financing initiative, the program to 4-lane Route 28, Route 7 grade separation policies and planning of the extension of the Dulles Toll Road to the Leesburg area are examples of changes to be considered in evaluating regional center proposals.

b. **Public Facilities and Services Impacts**

Regional centers do not have the broad impacts on public facilities and services that are associated with residential development. The impacts of large regional centers are primarily in the public safety areas of fire and police protection. Fiscal impact analyses of regional centers generally demonstrate significant revenue balances to local
governments which become available to meet new facility and service needs. It has also been common practice by the large regional centers to provide on-site security forces as well as advanced fire protection systems responsive to insurance underwriter’s requirements.

Similar, but lesser impacts could be expected from large scale office park development. While generating less traffic on a per square foot basis than shopping centers, office parks generate substantial volumes of traffic, e.g., approximately 1 trip per 100 square feet. As office centers’ access would use Routes 28 and 7, the rush hour traffic out of the County would conflict to some extent with the traffic going to County employment centers. The construction of four to six lanes and interchanges at key points on Route 28 and Route 7 would be required.

B. Community/Neighborhood Shopping Centers

Everyday shopping needs of eastern Loudoun residents are and will be met by a combination of community and neighborhood shopping centers.

<table>
<thead>
<tr>
<th>TABLE 3</th>
</tr>
</thead>
<tbody>
<tr>
<td>COMMUNITY SERVICES: NEW DEVELOPMENT</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Type of Facility</th>
<th>No. of Centers</th>
<th>Size (Sq. ft.)</th>
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<td>50,000 average</td>
<td>Walking distance - 1 mile radius</td>
</tr>
<tr>
<td>Community Commercial</td>
<td>1-2</td>
<td>100,000+ (each)</td>
<td>5-10 minutes</td>
</tr>
<tr>
<td>Local Office</td>
<td></td>
<td>100,000+ (each)</td>
<td>Eastern Loudoun</td>
</tr>
<tr>
<td></td>
<td></td>
<td>500-600,000</td>
<td></td>
</tr>
</tbody>
</table>

1. Locations

Neighborhood centers are to be located in currently approved locations in the several planned communities. Existing community center locations at Sterling Park and Herndon Junction are recognized and could be expanded to meet community needs. A new community center location is recommended north of Route 7 on the Algonkian Parkway. The need for additional neighborhood centers may arise with additional planned residential development and employment growth south of Route 7 in the future.
COMMERCIAL DEVELOPMENT POLICIES

Commercial development in eastern Loudoun shall consist of a hierarchy including regional, community and neighborhood shopping facilities. The regional center will also serve areas outside of eastern Loudoun but community and neighborhood centers shall be located and sized primarily to serve eastern Loudoun.

Potentially negative transportation and public service impacts associated with a regional shopping center would be mitigated by implementing the following policies and standards:

1. New commercial retail facilities should be designed to promote the identity of individual communities and reinforce existing commercial facilities within the planning area.

   The new regional center should be the retail focal point for eastern Loudoun, Dulles North and Leesburg for regional shopping needs.

2. The market area and population threshold shall be large enough for the various types of commercial facilities to financially support themselves and not depend upon that portion of the service population which is already served by existing services and facilities.

3. All new commercial development should be located in planned commercial zoning districts (PD-SC and PH-CH) to control the design and compatibility of new development with adjacent land uses and allow site plan control. Strip commercial development will be prohibited.

4. Regional centers with between 600,000 and 1.2 million square feet of leasable area should be developed in eastern Loudoun. The appropriate locations include the site already zoned for 600,000 square feet in the southwest quadrant of the Route 28/Route 625 intersection, the Route 28/Route 7 intersection area, and an 850,000 square foot retail center shall be located in the northwest quadrant of Route 625/Route 28.

5. In the development of the various scales of regional facilities, the following design standards should be followed:

   a. There shall be at least two points of ingress-egress to the shopping center site; neither shall be direct access from Route 7 or Route 28.

   b. Channel interior traffic flows and provide substantial landscaping and buffering around the facility.

   c. The large and small regional retail facilities should be designed as clustered facilities with a range of retail services as defined in Appendix II (page 135). The zoning should be PD-SC with no adjacent commercial zoning. The

   -126-
regional center in the northwest quadrant of the Route 28/Route 625 intersection should be zoned PD-CH and developed with groups of buildings adjacent to each other, with common walls and a front canopy. Individual free standing buildings of supporting or accompanying uses should be included in the plan. Adjacent office uses planned as a part of the retail center should function as transitional uses to the surrounding properties.

d. Grade separated interchange contributions proffered by the developers for free flow of traffic.

e. Fringe parking for commuters.

f. Maintain or improve the capability of Route 7 to handle commuter traffic.

6. Transitional uses such as offices and mixed use developments should be located between large, commercial areas and single family neighborhoods.

7. Environmental and public services considerations should dictate design of the commercial areas. New development should be of a construction type which requires a minimum of specialized fire and police protection.

8. Regional office development proposals are appropriate on the property bounded by Route 606 on the north, Route 28 on the west and the Dulles Access Road on the south, as well as the eastern quadrant of the Route 7/Route 28 relocated intersection.

9. Additional light industrial and regional or local office development is appropriate for the property currently zoned PD-IP adjacent to the intersection of Route 28 and Route 7. Proffers to implement the realigned interchange will be encouraged. It should be noted that a realigned interchange at Routes 28 and 7 is considered a vital component of the proposed transportation plan for this area. The County will encourage proffers to accommodate the realignment in this area.

10. The property located between the Pocahontas (now Loudoun Tech Center) property, zoned PD-IP, south of Route 7 and Route 637 could be considered for local office and institutional uses as a transition between the more intensive uses to the west and lower density residential uses to the east of Route 637.

IMPLEMENTATION

A. Concept for Commercial Developments

The present commercial zoning districts are inadequate for the proper development of shopping centers in Eastern Loudoun. The PD-SC (Planned Development-Shopping Center) district does not address the differences in use
between the neighborhood, community and regional scale shopping centers. This district should be restructured to have three sub-districts corresponding to the three types of shopping centers (similar to the PD-H and Flood Hazard districts).

The C-1 commercial zoning district is a carry over from the 1959 Zoning Ordinance and remained substantially intact in the 1972 Ordinance. The standards of the C-1 district are inadequate to meet the needs and the desires of the County in the 1980’s. There are no requirements for site planning and relatively few requirements covering such standard design elements as landscaping, buffering and parking lot design (see Appendix, page 133).

It is proposed that the C-1 district be transformed into a new "General Commercial" district that would involve some of the design and site plan standards and procedures that are required for the PD districts. As addressed in the residential and heritage conservation elements of this plan, in places such as old Sterling and the community focuses, the commercial zoning districts should be modified to encourage mixed residential-commercial uses.

Presently all of Loudoun County’s commercial and industrial zoning districts limit development to a Floor Area Ratio (FAR) of .4. Considerations should be given to amending the Zoning Ordinance to allow a FAR up to 1.0 in those strategic areas where the Plan proposes extensive development. These density increases should only be allowed in areas designed for office parks and industrial parks. The effect of these changes (assuming Loudoun has a substantial market potential) would be to encourage development in planned areas and discourage scattered or sprawled commercial and industrial development.

The transportation element of this plan points out the need for managing access to the major arteries and that special attention should be given to the sectors near proposed interchanges. It is proposed that special overlay district regulations be created that would both manage access and limit immediate development on the major roads. This may require greater setbacks than would be required in the underlying zone and prohibit development in the actual land set aside for an interchange allowing the landowner to transfer the density either elsewhere on the site or to an adjacent parcel. Such a district or regulations would set out the standards for proper access and maintain an aesthetic buffer along these highways.

Finally, with the development of a Site Plan Ordinance, the landscaping, buffering, and parking lot regulations should be updated. A standard tree and shrub list should be written to categorize those plants that best survive in the Loudoun climate and in urban conditions. Planning regulations must recognize the need to reduce the parking space size requirements due to smaller cars, proper development of storm water management programs and parking lot designs that can be used by several businesses with needs for commuter fringe lots.
B. **Location of Regional Centers**

Based upon past experience, Loudoun County has established and maintained a policy of protecting major highway corridors from commercial and retail development along the highway frontage.

With the current improvement (1989) of Route 28 to a six (6) lane facility and grade separations of both the Route 7/Route 28 and the Route 28/DAATR intersections, development of these regional facilities can commence. However, to function as viable built out centers, grade separation of some of the secondary roads identified in Phase II of the Route 28 plans will be necessary.

Route 7 will also experience highway capacity problems in the future. The Route 7 Corridor Study states that six (6) lanes will be necessary (*page 182*) to accommodate the traffic load. The previously adopted land use pattern south of Route 7 and east of Route 637, which called for employment uses (725 acres), may cause more peak hour transportation problems than the expected residential development in the area. Office and industrial uses promote high peak hour traffic volumes but commercial development has a "flatter" peak hour that does not compete with employment type development for highway capacity. The large regional shopping center could be located to the south of Route 7 if transportation improvements included in the commercial development are designed to control access to a shopping center, directing traffic to State secondary roads from Route 7 and reduce land use impacts on nearby residential areas to the north and east.

In addition to the general guidelines on pages 120, 123, and 133-140, the following highway improvements are examples of the type and magnitude of improvements which will be needed:

1. Development of a major arterial collector four-lane road connecting Route 7 to Route 28, to be designed as part of the State secondary road system, according to VDOT standards. This arterial road should be connected directly to Route 28 at the planned interchange location between Routes 638 and 625, and should tie into the Algonkian Parkway alignment at Route 7.

2. The improvements of the Route 637 and Route 625 corridors to Route 28 according to VDOT design specifications.

3. Improvements to the Route 7/Route 28 intersection consonant with recommendations of the "The Route 28 (Sully Road) Improvement from Route I-66 to Route 7 Location Study".

4. The widening of portions of Route 7 to six (6) lanes and Route 28 to six (6) lanes will enable the opening of regional shopping centers.

-130-
Transportation improvements should be constructed by the time of the opening of the regional shopping centers.

The specific commercial development policies apply to the regional center, itemized on pages 120, 122, and 133-140, and will be required for all development applications for such a facility. The necessary service population will be 150,000 within a twenty (20) minute drive time of the site before a site could be developed for a regional center.

C. **Rezoning Guidelines**

This plan provides for one large regional retail facility and two small regional retail facilities. The Plan also details many decision and locational guidelines which would have to be met to establish a site’s eligibility for shopping center or commercial highway zoning. The final decision on a shopping center development proposal must take into account the standards and guidelines of this Plan which deal with land use relationships and the density and intensity of the use of the property.

The decision must meet the requirements of the Zoning Ordinance in accordance with the valid purposes of a zoning ordinance which are prescribed by Virginia Code Section 15.1-489 as follows:

1. To provide for adequate light, air, convenience of access, and safety from fire, flood and other dangers;

2. To reduce or prevent congestion in the public streets;

3. To facilitate the creation of a convenient, attractive and harmonious community;

4. To facilitate the provision of adequate police and fire protection, disaster, evacuation, civil defense, transportation, water, sewerage, flood protection, schools, parks, forests, playgrounds, recreational facilities, airports and other public requirements;

5. To protect against destruction of or encroachment upon historic areas;

6. To protect against one or more of the following: overcrowding of land, undue density of population in relation to the community facilities existing or available, obstruction of light and air, danger and congestion in travel and transportation, or loss of life, health, or property from fire, flood, panic or other dangers.

7. To encourage economic development activities that provide desirable employment and enlarge the tax base; and
8. To provide for the preservation of agricultural and forestal lands; or in accordance with the statement of the valid purposes of a zoning ordinance as such statement may have been amended at the time a determination of the location of a regional shopping center is made.

In locating and establishing the PD-SC zoning district for a shopping center, those matters required to be considered in drawing zoning ordinance districts as set forth in Virginia code Section 15.1-490 also must be considered.

While this Plan identifies several potential regional shopping center areas in Eastern Loudoun, future road capacities, land use patterns and impacts as discussed on pages 115-130, as well as market-population studies, indicate that Eastern Loudoun can accommodate only one regional shopping center in the next five (5) - ten (10) years. The shopping center proposal which most clearly implements the Plan's Guidelines and which voluntarily incorporates conditions that accomplish the purpose of this Plan, will receive the most favorable response from the County. In the decision making process, particular emphasis will be given to designs that will protect the community by insuring adequate highway facilities and mitigating traffic congestion associated with the development and the general urbanization of Eastern Loudoun, while reducing the land use conflicts in the immediate vicinity.
APPENDIX I

OUTLINE OF COMMERCIAL DEVELOPMENT POLICIES

A. Amend the PD-SC zoning district.
   1. Define three sub-districts:
      a. Neighborhood,
      b. Community,
      c. Regional.
   2. Categorize uses within the sub-districts.

B. Amend C-1 zoning district to:
   1. Provide for Site Plan Control
   2. Institute landscaping, buffering and parking requirements.
   3. Provide for evaluation of Special Exception review by Board of Supervisors
      or by the Board of Zoning Appeals

C. Establish a mixed-use commercial/residential district:
   1. As the focal centers of new communities.
   2. As in old Sterling, Leesburg, and other older communities.

D. Amend the PD-OP and PD-IP districts to increase the FAR density:
   1. Increase the PD-OP up to 1.0 FAR (Options):
      a. New sub-districts based on FAR density .4, .6, 1.0.
      b. Sliding scale density based on adopted standards and criteria to be
         administered by Site Plan Committee or Staff.
      c. Special Exception to the Board of Supervisors concurrent with a site
         plan.
2. Increase PD-IP up to .6 FAR:
   Same options as above.

E. Establish special district or regulations for development along major arterials and near interchanges:
   1. Controlled access points.
   2. Greater setbacks.
   3. Density transfer on site or adjacent parcel to keep land clear for interchange.

F. Adopt Site Planning Regulations:
   1. Site Plan Ordinance
   2. Landscaping regulations, etc.
   3. Update parking regulations.

G. Reinforce Existing Commercial Property:
   1. Promote "village" orientation with neighborhood retail facilities.
   2. Limit commercial rezoning activity that conflicts with economically viable, existing commercial property.
   3. Promote higher density housing in close proximity to commercial properties, especially for the elderly and handicapped.
APPENDIX II

DEFINITION AND DESIGN STANDARDS FOR SHOPPING CENTERS

NEIGHBORHOOD CENTER

Size: Small, under 10 acres; between 25,000 and 100,000 square feet of leasable space. Between 2,500 and 15,000 people required for service population.

Tenants: Convenience stores, laundries, drug stores, groceries and personal services.

Function: Use for "daily" convenience shopping by nearby residents within 10 minutes of center. Services to reinforce the neighborhood and community identity. Should be associated with public facilities such as parks, schools and libraries to provide focal point for community or neighborhood.

Location: Within residential neighborhoods, usually at intersection of local and arterial collector roads. Pedestrian access should be provided.

Example: Lake Anne Center (Reston), Tall Oaks Center (Reston), Montgomery Center (Montgomery Village)

COMMUNITY CENTER

Size: Medium 10-25 acres; 100,000-300,000 square feet. 10,000-25,000 service population.

Tenants: General goods and services but without a full range of specialty and comparison goods shopping. Tenants might include a supermarket, hardware, variety store and junior discount department stores.

Function: "Weekly" convenience shopping and general, limited comparison shopping by residents within a 10 to 15 minutes radius. A community center should act as a center of community activity, by being a central element in an area and by being adjacent to other public facilities such as schools and parks. In addition, mixed-use centers should be encouraged. These would allow residential and commercial uses to occur in the same structure, so as to promote compact "town center" spaces and reinforce the village concept as defined in the Resource Management Plan.

Location: On a main road, but not a major highway. Good visibility is required. Should have as complete a pedestrian access system as is possible.

Example: Sugarland Plaza/Towncenter, Tysons’s Plaza
REGIONAL CENTERS

Size: Large, 75 acres and up; 600,000 - 1.2 million square feet. Market service population of 150,000 and up.

Tenants: Full range of comparison goods, stores and general merchandise, specialty shops and restaurants, some offices and other non-retail uses. At least two major department stores. No daily convenience tenants.

Function: "Monthly" comparison shopping for residents within a 20 minute radius.

Location: Access to major transportation routes. High visibility.

Examples: Fair Oaks (Fairfax); Lake Forest (Montgomery County).

SPECTRUM OF SHOPPING CENTER TENANTS (Typical)

STORE/TENANT

- Grocery Store
- Quick/Convenience
- Drug Store
- Barber/Beauty Shop
- Laundry
- Gas Station
- Liquor
- Variety Store
- Dry Goods
- Supermarket
- Hardware
- Clothing
- Jewelry
- Gifts and Cards
- Furniture
- Discount Department Store
- Candy and Nuts
- Specialty Shops
- Shoe Stores
- Restaurants
- Hobby and Recreational
- Books
- Cinema
- Offices
- Mid-range Department Store
- Fast Food Service
- Prestige Department Store
- High Cost Specialty Stores

- Neighborhood Center
- Community Center
- Regional Center
APPENDIX III

SITE PLANNING STANDARDS FOR COMMERCIAL DEVELOPMENT
A GUIDE FOR DEVELOPING APPROPRIATE DETAILED ORDINANCES

A. Building Placement and Design

1. Scale, material and architectural treatment, particularly for neighborhood
   and community centers, should harmonize with nearby residential
   structures.

2. Natural drainage features such as swales and ponds should be conserved
   to the greatest extent possible.

3. Building lengths in strip and "L" centers should generally not exceed 500
   feet, while a lesser dimension is preferable to conserve the neighborhood
   scale.

B. Traffic Access, Circulation, Parking and Loading

1. Small neighborhood centers may function adequately with only one point
   of access to an adjacent street; larger centers (over four acres) should have
   at least two points of access.

2. Entrances and exits must be located at least 100 feet from the nearest road
   intersection.

3. No structures or landscaping may obstruct sight distances from access
   points.

4. The site's vehicular and pedestrian circulation patterns should be separated
   where appropriate.

5. For neighborhood centers, no more than four rows of parking spaces
   should be located in front of the stores in order to reduce the visual impact
   of parked autos and allow clear visibility of shopping areas².

6. Generally, parking spaces should be located within 350 feet of stores.³

7. Parking spaces should be designed primarily for small cars (approximately
   8' x 16' spaces).

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² Joseph DeChiara and Lee E. Koopelman, Urban Planning and Design Criteria, (New York:
³ ibid.
8. Drive-in window facilities for banks and restaurants must be placed in a manner which will accommodate a queue of 3-6 vehicles. Such queue must not block parking spaces, access or circulation lanes.

9. Truck loading and maneuvering areas should not conflict with or block pedestrian or consumer vehicular access.

10. The interior circulation pattern must permit vehicular circulation to all parts of the site without forcing traffic onto the adjacent public road.

11. Easy, safe pedestrian access must be provided from nearby residential areas.

C. Landscaping and Buffering

1. Natural site environmental features such as hedgerows, mature trees and berms should be integrated into the site’s landscape plan.

2. Parking areas should be visually screened from adjacent streets and residential areas by depressing the parking area several feet and/or by construction of earthen berms. Wood or masonry fences and walls may be used if berms are not practical.

3. Parking areas should include landscaped tree and hedge areas of an extent to shade the parking areas, thereby reducing the heating and local climate effects of large paved areas.

4. All loading and storage areas must be screened from adjacent residential areas by earth berms, masonry walls, permanent wooden fencing, or dense landscaping.

5. The perimeter of all shopping areas should be landscaped with deciduous street trees along road frontages and opaque evergreen trees and hedges adjacent to residential areas. Detailed landscaping studies must be adopted and incorporated into a site plan ordinance.

6. Parking areas should not extend to the adjacent sidewalks. A minimum five foot green area should separate parking lots from sidewalks or adjacent streets in order to absorb water runoff and eliminate blockage of pedestrian access.

7. Required drainage and stormwater management facilities such as holding basins, drainage swales and culverts should be incorporated into the overall design for the commercial area.
D. Signs and Lighting

1. Signs for shopping centers should be developed as an integral part of the overall shopping center design. Graphics and support structures should be harmonious in style and material with adjacent residential land uses.

2. Identification signs should not exceed the height of adjacent buildings, particularly in neighborhood centers.

3. Parking lot lights should be directed away from nearby residential areas and should be designed to be compatible with residential uses in terms of height, brilliancy, form, texture, and character.

E. Design Specifications for Regional Shopping Centers

1. Location:

Tracts west of Route 28 north and south of the Route 625 intersection are appropriate sites for small regional centers and the tract south of Route 7 between Route 28 and Route 637 is appropriate for a large regional mall.

2. Size:

Regional centers should include 600,000 square feet in the case of the facility in the southwest corner of Routes 28 and 625, 850,000 square feet in the case of the facility in the northwest quadrant of the Route 28/625 intersection and 1,200,000 square feet for the facility at the Route 7/Route 28 intersection.

3. Transportation:

The regional shopping center should not diminish the flow of traffic on Route 7 or Route 28. Access to the shopping center shall be from a State secondary road, and not directly from Route 7 or Route 28. There shall be at least two points of egress and ingress to the shopping center.

4. Transitional Land Uses:

Planned commercial rezoning should also provide additional support facilities to promote a focal point of activity, i.e., office and light industrial development property surrounding the center could include PD-OP and PD-IP. There should be no provision for residential development along Route 28 or its adjoining secondary roadways, while open space or other transitional land use such as office buffers would be needed between any shopping center south of Route 7 and residential communities.
5. Environmental Criteria:

Any rezoning in the Route 28 or Route 7 area should respect the floodplains and watercourses in the area.
INDUSTRIAL AND ECONOMIC DEVELOPMENT PLAN

INTRODUCTION

Industrial development in eastern Loudoun County has increased substantially during the last decade. This growth has provided many economic benefits to the County in the form of more jobs and a larger tax base. The industrial activity in eastern Loudoun includes a large portion of the employment in the County. The industrial sectors account for a significant portion of the County’s tax revenues, and these revenues help provide the funds needed to offset the net deficit which is incurred from most residential properties. Industrial growth can be expected to indirectly cause a substantial increase in residential growth and with it, the associated increase in demand for county services. This will happen because not all newly created jobs will be filled by present county residents. Many people will move into the County because of the new jobs. Still, the net fiscal impact of industrial growth in the short run must be assumed to be positive.

Recent trends in economic and employment characteristics in the eastern area and the County as a whole are as follows:

1. During the past two decades, the County has become a “bedroom” community to employment centers located in jurisdictions to the east. Approximately 60% of employed Loudoun County residents work in other jurisdictions. It is safe to assume that due to the eastern area’s close proximity to the major employment centers of Fairfax County and Washington, D.C., the percentage of “outcommuters” for eastern Loudoun is as great or greater than the percentage for the County as a whole.

2. Dulles Airport has not been the major catalyst for industrial growth that it was expected to be, but a substantial increase in Dulles air traffic is anticipated and should cause an increase in employment growth in the area.

3. Most new industry in the County is located in the eastern Loudoun area.

4. Much of the industrially zoned land is in the eastern area.

5. The proposed parallel lanes along the Dulles Access Road are expected to greatly stimulate industrial and employment growth in the eastern Loudoun area.

6. The participation rate of the County’s work force is rising, although most workers have jobs outside the County.

EXISTING INDUSTRIAL AND ECONOMIC DEVELOPMENT SITUATION

The Eastern Loudoun Planning Area contains about a third of the County’s total employment (See Table 1, page 156), over 40% of the industrially zoned land in the
County, and approximately 40% of the labor force. Although the eastern area has about a third of these primary economic resources, it has only 3.5% of the County's total land area. It is clearly evident that industrial and economic activity of the eastern area has a critical effect on the entire County.

Eastern Loudoun County currently has more than two dozen major industrial operations and about 6,000 acres of industrially zoned land. Of this 6,000 acres, about 5,000 acres are potentially suitable for industrial activity since some of the land has environmental constraints such as steep slopes and floodplains (See Resource Analysis, page 159). The major employment centers in eastern Loudoun include Dulles Airport, located on the edge of the area, the Route 28 Corridor which runs through a large area of industrially zoned land, and the Route 606 Corridor. About 8% of the industrially zoned land is developed. The future population and labor force growth offers a potentially large labor supply for new industries. Most of the industrial land has highway accessibility and adequate public utilities.

Industrial growth has been steady during the last few years. Most new firms have located along the Route 28 Corridor, the Route 606 Corridor and the PD-GI zone next to Dulles Airport (See Figure 1, page 143). At least 24 new industrial firms were established in the County between 1976 and 1979, accounting for about 1,242 new jobs. Most of these were located in the eastern area.

The area has at least 25 major industrial operations (See Table 2, page 157). In addition to these existing firms, there are at least two new firms which are planning to locate in the area in the near future. Of the 25 existing industries, five industrial types are most commonly represented. They are: local consumption manufacturing (five firms), metal fabrication (four firms), warehouse (three firms), electronics (three firms), and research and development (two firms). Most of these have located in the area since 1976. The fact that there is a large proportion of these kinds of firms is not surprising since the locational factors which are important to them are ones which Loudoun County possesses (See Resource Analysis, page 157). The major locational factors which have attracted these firms are the wide choice of good, relatively low cost sites, reasonably good transportation access, adequate utilities and strong local markets. In addition, property taxes are lower in eastern Loudoun than in Fairfax County.

Loudoun County has a strong competitive advantage over neighboring jurisdictions as well as other regions with regard to several economic development location factors. The County should preserve its advantage in these areas (air transport, taxes, quality of life) and attempt to strengthen its competitive position in those areas in which it is lacking (highway transportation and the cost of labor, land and housing).

Due to the high rate of residential growth in the eastern Loudoun area, the County needs a substantial amount of new industrial growth in order to offset the fiscal deficits caused by the rapid residential growth. For planning purposes, it must be clearly understood that industrial growth will provide incentives for continued residential growth,

1 Loudoun County Department of Economic Development, 1979.
However, as previously noted, the County has no choice but to try to attract as much employment growth as possible, since some residential growth will occur regardless of the County policy toward economic development.

POLICIES

The goals and policies for industrial and economic development in eastern Loudoun follow from those which are set forth in the Resource Management Plan. The county-wide goals for economic development as stated in the RMP are also applicable to the eastern area in particular (RMP, page 247). These two goals calls for establishing a wide range of employment centers which are environmentally sound. In addition, one other major goal should be defined for the eastern area. This goal can be stated as follows:

The County will promote the development of economic growth centers that focus industrial, commercial and residential development toward logical growth areas, rather than scattered throughout the landscape.

Stemming from these goals are the following policies which apply to not only the County as a whole, but also the eastern area in particular. These policies have been formally adopted by the County as part of the Resource Management Plan:

1. Resources:

Location of new industries which are compatible with the existing environmental, transportation and work force resources will be encouraged by the County. (RMP, page 248, #7)

2. Employment:

Provision of employment opportunities and training for local young people, particularly those who have been educated within the County, will be encouraged. (RMP, page 248, #9)

3. Employment Centers:

The County will encourage the development of employment centers that are accessible to transportation systems, including the trail system. (RMP, page 247, #2)

4. Cluster Development:

Clustering of residential, industrial and commercial land uses in planned communities will be encouraged in order to reduce travel times and to give new communities a strong identity. (RMP, page 247, #3)
5. Public Access:

The County will encourage the location of employment centers near residential areas and public facilities in order to maximize public access and efficiency of public service facilities (RMP, page 247, #4)

6. Transition:

Establishment of compatible transitional land uses as links between industrial centers and low density residential areas will be encouraged.

In addition to the applicable policies set forth in the RMP, other supportive policies which are aimed specifically at the eastern area are:

1. Expansion of Services:

The County will encourage the expansion of services and utilities that will promote industrial growth in eastern Loudoun.

2. Diversity of Employment:

The County will encourage the development of a compatible mix of industries and businesses to provide a wide range of employment opportunities.

3. Environmentally Sound Development:

Development of clean, non-polluting industrial operations, particularly offices and research centers will be encouraged.

4. Speculative Development:

Development of speculative office and warehouse space in order to offer prospective corporations a place to locate will be encouraged by the County.

5. Mixed-use Development:

The County will encourage mixed-use developments where employment centers are within walking distance of residential areas.

6. Labor Force:

The County will encourage the establishment of new employment centers and businesses which will draw upon the existing labor force in the area rather than attract new residents from outside the County.
7. Landfill or Waste Disposal Operations:

Landfill operations that are used for the disposal of refuse, construction waste or sludge should be compatible with the adjacent land uses. The landfills should be located in the industrial zoning districts and designed to limit noxious odors, air pollution and ground water contamination. They should be situated so as not to be visible from surrounding properties. Any landfill located in close proximity to residential development should be phased out and a re-use plan established.

8. Noise Attenuation:

Development located near or within the FAA designated NEF 40 and NEF 30 contours should incorporate noise attenuation procedures in the building design plans.

9. County Participation:

The County will participate in the promotion of industrial activity and growth in eastern Loudoun and throughout the County.

10. Zoning:

All industrially zoned land in eastern Loudoun should be included in a planned zoning district (PD).

These additional policies overlap somewhat with the county-wide policies, but provide more specific efforts for the County to pursue with regard to the eastern area. This overlap is due to the dominant role that the eastern area’s resources play in the County’s overall economic growth.

**PROGRAM IMPLEMENTATION**

1. The County shall encourage industrial development in eastern Loudoun by supporting the provision of services and utilities to the industrially zoned areas that have the need and which are identified in this Plan.

   Areas which are determined to be the most appropriate should have the highest priority for utility extensions in order to encourage further industrial development. Approximately 1,500 acres of industrially zoned land in eastern Loudoun are not adequately served by roads or sewer. The County should encourage the extension of such facilities into areas which are otherwise suitable for industrial development and should adopt a policy of encouraging the Loudoun County Sanitation Authority to sell bonds to fund the extension of sewer lines to appropriate industrial sites which have immediate potential for compatible development.
2. The County shall focus on encouraging the expansion of existing industrial firms.

Most new jobs result from the expansion of existing operations. Therefore, the County shall concentrate on keeping local firms satisfied and promoting their expansion.

The Loudoun County Department of Economic Development is the primary agency engaged in this ongoing effort. This activity is a vital part of that department. In addition, the Loudoun County Department of Planning can be called upon to assist in data collection and analysis, as well as coordination and liaison work between county and state agencies and existing local firms. Some of the problem areas on which the County could focus in order to encourage expansions include the following:

a. Insure that existing firms have proper zoning adjacent to them in order to absorb expansion.

b. Work with the VDOT to help solve any highway problems which may be stumbling blocks toward expansion, such as traffic congestion, road maintenance and road improvements.

c. Assist existing firms in gathering and analyzing information needed for submission to the County during the proposed impact review process.

3. The Department of Economic Development, in conjunction with the Comprehensive Planning staff shall undertake a study which will identify firms that have the potential for locating in the County in general and the eastern area in particular.

Making direct contact with a few specifically appropriate firms is usually more cost effective than an expansive, general advertising effort in newspapers and magazines without such contact.

The Department of Economic Development is currently undertaking a study which identifies the kinds of firms in the region and nation which might be likely prospects for relocating or expanding to Loudoun County. This study requires a substantial research effort, but will be more cost effective than blanket advertising. The study identifies general industrial types as well as individual firms whose needs would coincide with the locational factors that were identified, in the Resource Analysis (page 159). Once these firms are identified, they will be contacted directly and provided with information about the County’s resources. Contact with these firms will than be made on a regular basis so that they can be kept up-to-date on the County. Such a study is a continuous activity carried out as part of the County’s Economic Development Program.
4. The County shall provide as many incentives as possible for County residents to work within the County.

Many local workers, particularly in eastern Loudoun, have jobs in other jurisdictions. The County, in effect, loses large amounts of revenue due to such "out-commuting." Incentives should be established which would encourage residents to work within the County.

The provision of incentives for eastern area residents to work within the County will require many different programs and activities on the part of the County. There are at least three major ways in which the County can encourage the development of incentives for local employment.

First, as part of its ongoing activity, the Department of Economic Development can focus its efforts on attracting the kinds of firms which could hire people who live in eastern Loudoun. Presently, the County does not have detailed information concerning the education and occupation characteristics of residents, but much of this kind of information will be forthcoming from the 1980 census. Until then, the County can make some general assumptions about the occupations of the eastern work force. This labor force includes many people who commute to Fairfax County and Washington, D.C. It is likely that many of these are professionals who work for the federal government or for private consulting firms. The northern Virginia region has many scientific, electronics and other industries and fortunately, the resources which this area possesses are appropriate location factors for these kinds of firms (refer to Resource Analysis, page 159).

Second, the County can assist local firms in attracting local employees by making firms aware of local labor force resources, by providing demographic data, by assisting with general promotional activities sponsored by such groups as the Chamber of Commerce, and by making local citizens aware of employment opportunities.

Third, the County can work aggressively to establish a viable pedestrian and bicycle trail system which connects residential areas with employment centers. The establishment of such an alternative transportation system touches on several needs that eastern residents have. A good trails system would save energy by reducing auto travel, would provide additional areas of active recreation, help conserve scenic resources and make constructive use of otherwise undevelopable areas such as floodplains.

The ongoing effort to attract new firms and aid local firms is one that is currently being performed by the Department of Economic Development. The establishment of a trails system is a major proposal of this Eastern Loudoun Area Management Plan (See Community Design Plan, page 90) and shall be pursued with diligence by the County.
5. **Loudoun County, in conjunction with Fairfax County, will continue to investigate the feasibility of establishing a foreign-trade zone on or near Dulles Airport in order to help attract manufacturing firms.**

A foreign trade zone is an area which is assigned special legal status by the U.S. Department of Commerce. The basic purpose of such a zone is to reduce the operating costs of a business engaged in international trade by deferring, reducing or eliminating U.S. Customs import duties or excise taxes on products produced for export. The result of such benefits is to encourage the development and growth of industries which manufacture and assemble products for international trade.

Consultants for Fairfax County completed an extensive study in 1976 of the feasibility of establishing a foreign trade zone for the Dulles Airport area. The general conclusion of the study was that it would be, in fact, feasible to establish such a zone due to the increasing international import and export activity at Dulles International Airport, and due to the airport's strategic location in relation to population centers of the northeast, south-central and mid-Atlantic regions of the U.S. The study recommended that the zone be operated by a private contractor, on a franchise basis, as a public utility. The proposal for such a project in Fairfax County has been delayed due to a loss of previously committed private financial support.

Loudoun County shall take two major steps toward establishing a foreign trade zone. First, the County shall work closely with Fairfax County officials to continue to pursue the effort to establish a trade zone. Fairfax has done a substantial amount of basic groundwork and preliminary studies toward this effort. The two counties should work closely together since both may benefit greatly if a trade zone is established, and neither will benefit if one is not established.

Second, the County shall make a survey of local firms to determine which ones might be interested in using a foreign trade zone. The true viability of such a zone may not be known until after it is established, due to the complex cost/benefit trade-offs involved with deferrals or reductions in duties vs. increases in operating costs within the trade zone itself. However, an exploratory survey shall be made in order to get an idea of the level of need and interest among the existing local manufacturing industries.

6. **The County will investigate the feasibility of establishing a county sponsored industrial park in order to provide existing facilities for prospective firms to lease or purchase.**

The County needs speculative office, manufacturing and warehouse space for prospective firms who wish to lease space or who wish to relocate immediately. The County might consider financing the development of its own industrial park in the eastern Loudoun/Dulles Airport area. This will require a detailed market study, some advanced commitment from future tenants or buyers, and acquisition of
adequate financing. The first step should be to undertake a market study to
determine if such a project would be any more feasible for the public sector than
it has been for the private. A public, non-profit, Industrial Development Authority
could help in providing funds for industrial expansion and could assist in acquiring
industrial development bonds, utility extensions and land for new industries.

7. The County will investigate the feasibility of establishing a Flood Control District in
the present PD-GI zone adjacent to Dulles Airport.

Currently, there are several significant industrial operations which are
located within the limits of the 100 year floodplain adjacent to Horsepen Run near
Dulles Airport. The County’s current and future policy is to prohibit development
in the 100 year floodplain. If this policy is upheld, it would preclude these firms
from expanding. The County, however, does not want to limit the expansion
capability of any existing firm. On the other hand, the County does not want to set
a precedent for construction in the floodplain. A possible solution may lie in the
creation of a Flood Control District for the existing PD-GI zone which would require
that the necessary flood control structure be built to prevent the damage and
pollution consequences of substantial flooding in the area. These structures would
be funded by the firms which are located within the floodplain and by firms whose
facilities are contributing to the increase in floodplain area or increased risk of
flooding. The County should contact these firms, explain the alternatives to them
and determine whether or not such a Flood Control District would be useful and
feasible.

8. The County shall enact a Tax Incentives Ordinance for substantially rehabilitated
older structures.

This Ordinance will provide incentives for owners of older industrial and
commercial properties to rehabilitate existing structures (refer to the Heritage
Conservation Plan for detailed discussion of this program).

9. The County will amend the Zoning Ordinance in order to make it more feasible for
developers to create mixed-use developments.

The ordinance amendment proposal should contain three major points.
First, it should be clearly stated that the present planned development zones do
in fact allow mixed-uses to the extent that office, commercial and residential
activities can be located adjacent to each other. Second, the amendment should
contain wording that allows conditional approval of mixed-use structures where two
or more compatible uses are located in the same building. Third, the exact
requirements of a development plan proposal which is submitted by the developer
should be specified.
10. The County will investigate the feasibility of increasing the allowable floor area ratio in those areas which are the most appropriate for industrial development (See Figure 2, page 152).

The allowable floor area ratio (FAR) might be increased in the areas shown in Figure 2, page 152). These are areas which are particularly appropriate for new industrial growth and include some areas which have the potential for viable mixed-use development. The allowable floor area ratio could be augmented by amending the Zoning Ordinance so that it allows a specific increase in FAR for those areas indicated in the Eastern Loudoun Area Management Plan, by Special Exception from the Board of Supervisors. This would eliminate the necessity of creating a new zone or changing the zoning map.

11. The County will determine whether or not the amount of land zoned PD-GI (Planned Development-General Industrial) should be increased in order to provide more choices for the kinds of industries that can locate in such a zone. (See Figure 3, page 153)

Several items should be contained in this amendment proposal. First, the PD-GI zone should be expanded to include some of the land around Dulles Airport. Second, the performance standards for continued industrial operations should be updated to reflect current needs. Third, the Ordinance should be amended so that site plan approval is required for all development proposals in the I-1 zone. Fourth, a new institutional/industrial zone should be created to allow more flexibility for economic development which would benefit the County.

12. A Highway Overlay Zone shall be established which puts strict controls on land uses adjacent to primary and secondary roads including requirements for adequate buffers between the highway and any industrial operation.

The Highway Overlay Zone will apply to all primary and secondary roads and will include requirements for entrance design, landscaping, buffering and setbacks. Where possible, these requirements will be expressed as performance standards in order to allow maximum flexibility for the developers.

13. Hidden Lane Landfill operation north of Route 7 in the Route 28 vicinity will be redefined in terms of its continued operation. This existing landfill operation, located between the CountrySide and Broad Run Farms residential developments is a heavy industrial use located in a predominantly residential district. The industrial use is incompatible with the residences and should be phased out or limited in expansion capability to conform with the character of the area. A re-use plan should be submitted for County review once the legal status is resolved concerning the landfill's original use permit. If operation is permitted to continue at the site, the following considerations should be adhered to:
Environmental Considerations:

a. No filling in the Potomac 100 year floodplain.

b. Visually screen from adjacent land uses (height limit may be necessary).

c. Prevent groundwater contamination from landfill leachate.

d. Secure fill slopes to prevent erosion (2:1 slopes may be too steep).

e. Provide on-site detention basins for sediment settling.

f. On-site fire control in case of methane gas explosion or ignition.

g. Dense, heavily planted buffer (200') to help minimize dust, particulates and litter affecting adjacent properties.

h. Strict controls on truck traffic and equipment operation (i.e., time constraints) to reduce noise to neighboring land uses.

Transportation Considerations for Property Between the Landfill and Route 7:

i. Dedicate the Route 28 "Loop" right-of-way for both the grade-separated interchange on Route 7 and the actual roadway as defined by the Route 28 Corridor Study.

j. Improve the entrance to a commercial standard access point with deceleration lanes and right-of-way dedication and secure a valid VDOT permit.

k. Buffer the existing residences from the roadway.

Zoning Considerations for Property Between the Landfill and Route 7:

l. The existing R-1 and A-3 property should be rezoned to a PDH district while the existing landfill area should be designated "open space" once the operation is complete (see Residential section design details).
APPENDIX I

INDUSTRIAL AND EMPLOYMENT INVENTORY

For the purpose of data gathering, policy analysis and land use decision making, the method of establishing categories for industrial land use will be similar to that of the County’s Zoning Ordinance, and that of the Virginia Employment Commission’s industrial categories. For purposes of describing and defining industrial uses, the industrial zone category will generally include all businesses except retail commercial, independent professional offices, farming and recreational uses. Industrial zoning is divided into three general categories: heavy, medium and light. Examples of heavy industry include mining and quarrying operations, as well as large manufacturing operations. Also included in the heavy industry classification are those activities such as rendering plants, steel mills, paper mills, power generation plants, etc., which could have particularly adverse environmental or aesthetic impacts. The medium industrial category includes light manufacturing, large laboratories, warehousing and similar activities. Light industry includes offices, research and development operations, electronic parts assembly plants, computer operations, etc. Generally, these categories represent a spectrum based upon potential visual, transportation and environmental impacts. The existing zoning districts for industrial uses are: I-1 (general industrial, heavy industry), PD-GI (planned development-general industrial, heavy industry), and PD-IP (planned development-industrial park, medium and light industry). (Refer to Figure 1, page 143).

An estimate of the current level of employment in the eastern Loudoun area was made by compiling information from various sources. Estimates were made for each employment sector and are shown in Table 1, page 156. The total estimate is assumed to be somewhat higher than the true level of employment because the major industrial category includes some firms which actually fit into other sectors. The reason for this overlap is that the data for the major industrial sector was compiled from a detailed survey, whereas the data for some of the other sectors was estimated by using employees to population ratios.

For a detailed inventory and analysis of existing industrial resources, refer to Table 2, page 157.
<table>
<thead>
<tr>
<th>Sector</th>
<th># of Employees</th>
<th>Source</th>
</tr>
</thead>
<tbody>
<tr>
<td>Major Industrial(^2)</td>
<td>1,023</td>
<td>Inventory by Loudoun County Dept. of Planning and Dept. of Economic Development.</td>
</tr>
<tr>
<td>Retail Commercial</td>
<td>1,150</td>
<td>Assumes 435 sq. ft. per employee</td>
</tr>
<tr>
<td>Dulles Airport</td>
<td>687(^3)</td>
<td>National Capital Planning Commission</td>
</tr>
<tr>
<td>Local Government</td>
<td>454</td>
<td>Superintendent of Schools Director of Libraries, Director of Parks and Recreation</td>
</tr>
<tr>
<td>Construction</td>
<td>493</td>
<td>Assumes 19.7 employees per 1000 population (RMP, p. 116)</td>
</tr>
<tr>
<td>Services</td>
<td>1,190</td>
<td>Assumes 47.6 employees per 1000 population (RMP, p. 120)</td>
</tr>
<tr>
<td>Transportation, Communication and Utilities</td>
<td>550</td>
<td>Assumes 20.5 employees per 1000 population (RMP, p. 117)</td>
</tr>
<tr>
<td>Finance, Insurance and Real Estate</td>
<td>262</td>
<td>Assumes 10.5 employees per 1000 population (RMP, p. 121)</td>
</tr>
<tr>
<td>Other</td>
<td>1,390</td>
<td>Assumes 50 employees per 1000 population (RMP, p. 127)</td>
</tr>
<tr>
<td><strong>TOTAL</strong></td>
<td><strong>7,287</strong></td>
<td>Represents 34% of total County employment using 1980 total estimates in RMP, p. 105</td>
</tr>
</tbody>
</table>

\(^2\) Includes light, medium and heavy manufacturing industries.

\(^3\) 1976 estimates.
EXISTING INDUSTRIAL OPERATIONS

Table 2 shows a partial inventory of the major industrial firms in the eastern Loudoun area. The data in this table was obtained by telephone interviews and records of the Commissioner of the Revenue and the Department of Economic Development.

### TABLE 2

<table>
<thead>
<tr>
<th>Firm</th>
<th>Product/Activity</th>
<th>Number of Employees</th>
<th>Sq. Ft. Encl. (^4)</th>
<th>Total Acres</th>
<th>Annual Prop. Tax Revenue to County (^5)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Loudoun Quarries</td>
<td>Crushed stone</td>
<td>20-25</td>
<td>289</td>
<td>$8,036</td>
<td></td>
</tr>
<tr>
<td>Pro-Type Industries</td>
<td>Machine &amp; metal fabrication</td>
<td>22-27</td>
<td>8,000</td>
<td>2</td>
<td>2,225</td>
</tr>
<tr>
<td>Superior Iron Works</td>
<td>Steel fabrication &amp; erection</td>
<td>71</td>
<td>38,000</td>
<td>3</td>
<td>7,378(^6)</td>
</tr>
<tr>
<td>Century Steel</td>
<td>Structural Steel</td>
<td>15</td>
<td>8,500 (lease)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Trowbridge Steel</td>
<td>Steel fabrication</td>
<td>20-25</td>
<td>3</td>
<td>4,017</td>
<td></td>
</tr>
<tr>
<td>Virginia Concrete</td>
<td>Ready-mixed concrete</td>
<td>20-30</td>
<td>10</td>
<td>3,820</td>
<td></td>
</tr>
<tr>
<td>Sterling Enterprises</td>
<td>Metal products</td>
<td>27</td>
<td>20,450</td>
<td>3</td>
<td>2,380</td>
</tr>
<tr>
<td>Dowty-Rotol(^7)</td>
<td>Aircraft parts wholesale &amp; repair</td>
<td>240</td>
<td>54,000</td>
<td>39</td>
<td>4,320</td>
</tr>
<tr>
<td>Engen, H.O.</td>
<td>Brick and block supply</td>
<td>25</td>
<td>6,000</td>
<td>3</td>
<td>1,666</td>
</tr>
<tr>
<td>Preferred Plastics</td>
<td>Molded Polystyrene</td>
<td>101</td>
<td>80,000</td>
<td>15</td>
<td>9,618</td>
</tr>
<tr>
<td>Shade Shop</td>
<td>Manufacture window coverings</td>
<td>50</td>
<td>23,000</td>
<td>3</td>
<td>4,320</td>
</tr>
<tr>
<td>State Equipment</td>
<td>Construction equipment; distribution and repair</td>
<td>10-15</td>
<td>10,000</td>
<td>10</td>
<td>2,363</td>
</tr>
<tr>
<td>Radiation Systems(^8)</td>
<td>Communication</td>
<td>164</td>
<td>90,000</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

\(^4\) Approximate.

\(^5\) Does not include machine and tools tax or utilities taxes.

\(^6\) Does not reflect expansion completed 1979.

\(^7\) Expansion underway.

\(^8\) To begin operation 1980.
<table>
<thead>
<tr>
<th>Firm</th>
<th>Product/Activity</th>
<th>Number of Employees</th>
<th>Sq. Ft. Encl.</th>
<th>Total Acres</th>
<th>Annual Prop. Tax Revenue to County</th>
</tr>
</thead>
<tbody>
<tr>
<td>Continental Telephone Co.</td>
<td>Regional offices</td>
<td>350</td>
<td>100,000 (lease)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Expressway Contractors</td>
<td>Highway Construction</td>
<td>8,000</td>
<td>15</td>
<td>1,623</td>
<td></td>
</tr>
<tr>
<td>Insulated Building Systems(^9)</td>
<td>Insulation Manufacturing</td>
<td>35-40</td>
<td>11,250</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td>Systems Technologies</td>
<td></td>
<td></td>
<td>20,000</td>
<td>3</td>
<td>5,236</td>
</tr>
<tr>
<td>Luck Stone Center</td>
<td>Wholesale Landscape Materials</td>
<td>15</td>
<td>10,000</td>
<td>6</td>
<td></td>
</tr>
<tr>
<td>A.M.F.</td>
<td>Electronic Research</td>
<td>24</td>
<td>11,200 (lease)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Gamma Flux</td>
<td>Electronic Manuf. &amp; Distribution</td>
<td>15</td>
<td>10,000 (lease)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Metro Printing</td>
<td>Printing</td>
<td>150</td>
<td>40,000</td>
<td>10</td>
<td>9,486(^10)</td>
</tr>
<tr>
<td>Greenfield Institute</td>
<td>Construction Labor Training</td>
<td>6</td>
<td>24,670</td>
<td>22</td>
<td>6,554</td>
</tr>
<tr>
<td>Experimental Pathology</td>
<td>Animal Pathology R &amp; D</td>
<td>56</td>
<td>8,300</td>
<td>12</td>
<td>3,695</td>
</tr>
<tr>
<td>Hazelton Labs</td>
<td>Life Science Research</td>
<td>50-55</td>
<td>100,000</td>
<td>11</td>
<td>19,823</td>
</tr>
<tr>
<td>E.I.T.</td>
<td>Electronic Instruments</td>
<td>40</td>
<td>12,000</td>
<td></td>
<td></td>
</tr>
<tr>
<td>McGee Crane</td>
<td>Storage-Crane Rentals</td>
<td>9</td>
<td>N/A</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td>Falcon Concrete</td>
<td>Ready-Mixed concrete</td>
<td>14</td>
<td>3.7</td>
<td></td>
<td></td>
</tr>
<tr>
<td>G.A.M. Printing</td>
<td>Printing</td>
<td>10-20</td>
<td>5,000</td>
<td>1</td>
<td>809</td>
</tr>
<tr>
<td><strong>TOTALS</strong></td>
<td></td>
<td><strong>28 FIRMS</strong></td>
<td><strong>1,559-1,604</strong></td>
<td><strong>598,370</strong></td>
<td><strong>463</strong></td>
</tr>
</tbody>
</table>

\(^9\) To begin operation 1980.

\(^10\) Does not reflect expansion completed 1979.
APPENDIX II

RESOURCE ANALYSIS

The most valuable industrial resources in Loudoun County are located in the eastern area, both in terms of existing employers and the basic resources which can be expected to attract new industries.

Location factors are those major positive and negative features which any industry will evaluate and analyze when considering whether to locate in the area. There any many locational factors, but the most important ones, and eastern Loudoun’s status with regard to them are as follows:

1. Labor Force:

There is a large potential labor force in the Fairfax-Loudoun area, which would include the Chantilly, Herndon, and Reston communities. This labor force tends to have a high income due to the effect of high federal employment, the generally high wages found in most urban areas, and the large number of scientific, administrative, and other professional employees. It is characterized by a large number of new, young entrants annually and the size, skill level and age of it can generally be considered as positive aspects. It would appear then, that the eastern Loudoun labor force, when analyzed as a locational factor for new industries, could be expected to attract rapidly growing scientific and technical firms which need new young employees and which are prepared to meet the higher than average salary levels. The labor force is expanding rapidly, but the trend, as previously discussed, is toward increasing levels of residents commuting to work in other jurisdictions. Most of the existing labor force is skilled and demands high wages, thus making it more difficult to attract general manufacturing firms. If such industries do locate in the County, appropriate, moderately priced housing will be needed for the employees.

2. Potential Sites:

The eastern Loudoun area has a large amount of industrially zoned land, most of which has relatively good transportation access and topography which is suitable for industrial development. The eastern area has over 40% of the industrially zoned land in the County. This land is shown in Table 3, page 160 and Figure 1, page 143.
<table>
<thead>
<tr>
<th>ZONE</th>
<th>ACRES IN EASTERN LOUDOUN</th>
<th>% OF TOTAL INDUSTRIALLY ZONED LAND</th>
</tr>
</thead>
<tbody>
<tr>
<td>Planned Development-Industrial Park (PD-IP)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Permitted uses include: agriculture forestry, research</td>
<td>5,704</td>
<td>(40%)</td>
</tr>
<tr>
<td>and development, light and medium manufacturing and</td>
<td></td>
<td></td>
</tr>
<tr>
<td>assembly such as scientific instruments, paper products,</td>
<td></td>
<td></td>
</tr>
<tr>
<td>electrical machinery, pharmaceuticals, etc. (Site Plan</td>
<td></td>
<td></td>
</tr>
<tr>
<td>approval required)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Planned Development-General Industrial (PD-GI)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Permitted uses include: those allowed under the PD-IP</td>
<td>443</td>
<td>(3%)</td>
</tr>
<tr>
<td>zone as well as borrow pits, storage areas for building</td>
<td></td>
<td></td>
</tr>
<tr>
<td>materials, equipment, lumber, coal or petroleum products,</td>
<td></td>
<td></td>
</tr>
<tr>
<td>public utility facilities, etc. (Site Plan approval</td>
<td></td>
<td></td>
</tr>
<tr>
<td>required)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Industrial (I-1)</td>
<td>approx. 100</td>
<td>(less than 1%)</td>
</tr>
<tr>
<td>Permitted uses: primarily created for uses which are</td>
<td></td>
<td></td>
</tr>
<tr>
<td>natural resource oriented such as sawmill, quarry, mine,</td>
<td></td>
<td></td>
</tr>
<tr>
<td>borrow pit, sewage disposal, etc. (No Site Plan approval</td>
<td></td>
<td></td>
</tr>
<tr>
<td>required)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Planned Development-Office Park (PD-OP)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Permitted uses: administrative and business offices,</td>
<td>37</td>
<td>(less than 1%)</td>
</tr>
<tr>
<td>professional offices such as medical and dental. (Site Plan</td>
<td></td>
<td></td>
</tr>
<tr>
<td>approval required)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Total Industrially Zoned Land in Eastern Loudoun:</td>
<td>6,184</td>
<td>(44%)</td>
</tr>
<tr>
<td>Less Environmentally Critical Areas</td>
<td>1,250</td>
<td>(9%)</td>
</tr>
<tr>
<td>Total Acres of Potential Industrial Land</td>
<td>5,035</td>
<td></td>
</tr>
</tbody>
</table>
Presently, most of the industrially zoned land in eastern Loudoun is concentrated along the Route 28 corridor (PD-IP) and on the northeast side of Dulles Airport (PD-GI). Most of this land is PD-IP and some of it is located in or near the 100 year floodplain (see Figure 1, page 143). Except for a relatively small amount of PD-GI land, the area that is zoned for industrial uses in eastern Loudoun is PD-IP. Environmental constraints reduce the total amount of potential industrial sites somewhat, but, nevertheless, eastern Loudoun has one of the largest contiguous blocks of industrial land in the Washington, D.C. area, and should be marketed as such to potential users.

The projected land requirements for industrially zoned property in Loudoun County over the next decade range from a high estimate of 3,108 acres by 1990 to a low estimate of 1,967 acres by 1990.\(^\text{11}\) It can be assumed that the great majority of this development will occur in eastern Loudoun.

3. Transportation:

The eastern Loudoun area generally has good transportation resources with which to attract and retain industry. The dominant transportation element is Dulles Airport since it is one of the finest airports in the country and is in close proximity to Washington, D.C. Air facilities, however, are not usually a major locational consideration for most industrial firms. Truck transportation systems are more important to most firms than is air travel.\(^\text{12}\) Rail is sometimes helpful. The eastern area has an adequate road system which does connect to major east-west and north-south interstate highways. This is an important factor for most industrial firms. There is no rail service in Loudoun County which is a disadvantage in terms of attracting some industries, particularly the heavy manufacturing operations. However, truck transportation is the most important mode of transport for most manufacturing firms. Eastern Loudoun has relatively good highway access compared to jurisdictions in many other regions, although not as good as some competing local jurisdictions such as Frederick County, Maryland and Fairfax, Frederick and Prince William Counties, Virginia. The principal reason is the lack of an interstate highway. Transportation access in terms of the movement of labor, would improve with the construction of the proposed Dulles Access Toll Road, but only if truck traffic is guaranteed the use of the toll road would the County’s highway accessibility be markedly improved.

4. Utilities:

Most of the eastern Loudoun area has sewerage and water service. This is usually a requirement for industrial development. As long as the County is able to offer adequate sewer and water capacity to prospects, it should be in a good position to attract industrial growth.

\(^\text{11}\) Loudoun County Department of Planning and Zoning Resource Management Plan, page 128.

\(^\text{12}\) Commonwealth of Virginia Governor’s Office, Division of Industrial Development, Loudoun County Industrial Location Factors and Potential Economic Activity, July 1974.
5. Markets:

In addition to the preceding location factors, available and potential markets are usually the prime consideration in location decisions. The market area or trade area will be different for each firm. Eastern Loudoun and, in a larger context, the Washington, D.C. region, have many different markets. Some of the major markets include technical consulting services, light manufacturing, most professional services, electronic equipment, printing, paper products and precision instruments. In short, eastern Loudoun and the region have substantial current and potential markets for many kinds of industries, particularly professional and scientifically oriented ones. Each firm will, of course, perform its own market analysis before expanding or relocating. Such an analysis would have to be based upon the firm's particular products, methods and needs.

6. Taxes:

Loudoun County compares favorably with regard to real estate, machinery and capital taxes when compared with other jurisdictions in the Washington SMSA. This factor is somewhat like the effect of land costs in that it will come into play when a final choice between two locations in the same area must be made, but not when first choosing the general area. These costs may prove to be important assets to eastern Loudoun, because it will often be competing directly with neighboring jurisdictions for the same kind of industry.

7. Quality of Life:

More and more firms are seeking communities which offer a pleasant place to live. For corporate headquarters of administrative offices such as the Xerox Training Center, this can be a prime factor in location decisions. Fortunately, eastern Loudoun has a very high quality of life in terms of such things as higher air quality, lower traffic congestion and lower crime rate when compared with the more urban neighboring jurisdictions. This factor will likely increase in importance and become an even greater asset to eastern Loudoun.

When evaluated for Loudoun County, the preceding locational factors clearly point to the Eastern portion of the County as the most logical area for industrial growth. This does not mean that all such growth will or should occur in the eastern area. It simply means that this area offers the best potential for attracting needed industrial activity.

In order to determine which kinds of industries eastern Loudoun can expect to be able to attract, the major locational factors should be combined to show the overall picture of available resources. In order to be most suited for eastern Loudoun's resources, a firm would be one which requires an international airport, good highway transportation and access to major interstate routes, have no need for rail service, have a high pay scale and require highly trained professional employees. Industries which come close to matching these requirements are research and development firms, administrative offices, and educational facilities.
Other industrial activities which could fit comfortably into eastern Loudoun are "manufacturers for local consumption",\textsuperscript{13} such as dairy products and bakeries, printing, concrete manufacturing, pharmaceutical supplies, plastics, metal fabrication and wholesales. These are some of the industries which eastern Loudoun might hope to attract. Fortunately, these are the kinds of industries which are generally desirable in terms of environmental and economic impact. However, they do tend to represent a somewhat narrow range of industries which could limit the range of employment options for local young people. Of course, locational decisions are made by the firms themselves and not by the County. Ultimately, the major locational factors will determine the final decision of a firm. Therefore, the County should work towards improving and broadening its industrial development resources, by implementing the recommendations set forth in this plan.

\textsuperscript{13} Commonwealth of Virginia Governor's Office, Division of Industrial Development, \textit{Loudoun County Industrial Location Factors and Potential Economic Activity}, July 1974.
TRANSPORTATION PLAN
TRANSPORTATION PLAN

INTRODUCTION

Transportation planning in eastern Loudoun has one overriding goal: that is to provide safe and efficient transportation service without extensive disruption to the lives of the people who live in local neighborhoods. Given the projected three-fold increase in traffic volumes\(^1\) in the area, careful design and location of new roads and improvements of existing roads will be necessary to realize this goal. The future transportation network must separate residential from commuter traffic. These separate road facilities will help to promote neighborhood identity and develop a sense of community in eastern Loudoun as defined in the Resource Management Plan (RMP). Alternative transit modes such as pedestrian facilities and bus service should also be developed to help alleviate road capacity problems and promote energy efficiency. Increased accessibility of all destinations for eastern Loudoun families will require planning coordination and cooperation with citizens. The Eastern Loudoun Area Plan will provide the framework for these decision and improvements.

The Transportation Plan offers generalized policies to govern highway planning and improvements for the future. These policies are defined in terms of their relationship to the RMP, and represent a response to citizen concerns expressed by the Eastern Loudoun Area Planning Committee. Specific transportation recommendations are offered with emphasis on the improvements and priorities defined by the Committee. The appropriate implementation techniques conclude the transportation element for the Eastern Loudoun Area Plan.

RMP POLICIES

The immediate goal of transportation management in eastern Loudoun is to provide the necessary public improvements to local streets, highways and right-of-ways in order to meet the travel demands of the residents. With the great magnitude of growth projected for eastern Loudoun, many improvements will be necessary to safely and efficiently allow the travelling public accessibility to their destinations. Because eastern Loudoun travel characteristics depend so heavily on the automobile, transportation alternatives are limited in function and effectiveness. Therefore, this transportation plan must offer viable policies and recommendations for automobile traffic, while maintaining options for transit alternatives and making these options available for future use.

The items described below are specific policies adopted in the Resource Management Plan. Page references from the RMP follow each policy. The objective of this plan is to implement these policies. The transportation recommendations offered in this plan will become county policy and will be implemented with each new subdivision or transportation planning effort.

1. **RMP Provisions:**

   Transportation planning for eastern Loudoun will comply with the land use goals and policies as stated in the *Resource Management Plan (RMP)*. Provisions for development of new roadways are detailed in the "Community" and "Potential Community" sections, in area-specific policies and standards of the RMP. *(RMP, p. 218-231).*

2. **Future Planning:**

   Future transportation planning should assess all modes of traffic available to Loudoun County, and eastern Loudoun, and should include a regional analysis of the transit options *(RMP, p. 228, #6).* The Council of Governments *(COG)* Transportation Planning Program and the Transportation Planning Programs of the Virginia Department of Transportation *(VDOT)* should be incorporated into the County’s planning program.

3. **Design:**

   Transportation planning and design must promote the clustering concept of local neighborhoods and their singular identities without neighborhood disruption. *(RMP, p. 196, #2).*

4. **Industrial Promotion:**

   Transportation improvements will be planned to encourage expansion of the eastern Loudoun industrial base and increase employment opportunities. *(RMP, p. 195, #2).*

5. **Phasing:**

   Transportation improvements, especially new facilities, will be designed and phased over time for actual construction. The strain and impact of new residences on all public facilities should be limited and not disrupt the existing social fabric. *(RMP, p. 197, #2; p. 229, #2; p. 231, #2)*

6. **Bus/Car Pooling:**

   Alternative modes of travel to the automobile will be encouraged in road planning and in the subdivision review process. *(RMP, p. 196, #1).*

7. **Roadway Function:**

   Local residential streets and highways will be designed to separate commuter trips from the local residential street traffic in order that neighborhood identity may be preserved. *(RMP, p. 196, #1)*
8. Pathways:

A pedestrian and bike path system will be designed to link residences with activity areas such as schools, shopping areas, recreational facilities and places of worship. Trails that intersect a freeway, arterial or major collector road should be grade-separated with either overpass or underpass facilities at the intersections. (RMP, p. 195, #2; p. 241, #7)

9. Environmental Review:

Roadway improvements will be developed to limit environmental degradation by complying with the provisions included in the impact review process, i.e., environmentally critical and environmentally sensitive land. (RMP, p. 193, #3; p. 196, #2; p. 197, #3)

10. Historic Sites:

Transportation improvements must promote the integrity of the local, designated historic sites in eastern Loudoun. (RMP, p. 228, p. 230)

11. Regional Highway Needs:

A regional approach to highway construction is necessary; cooperation with neighboring jurisdictions and the Council of Governments is crucial to planning for new highways and their capacities. (RMP, p. 196, #3)

12. Off-site Improvements:

All proposed land uses will adequately and safely handle their fair shares of necessary highway improvements and not place undue hardship on existing facilities.

13. Energy Management:

New highway development will promote energy efficiency through the design of energy saving techniques, i.e., express lanes, car pools, transit service and proffered fringe parking lots.

14. Major Facilities:

Routes 7 and 28 have been primarily designated for commuter traffic; access points that limit the capacity of these roads will be discouraged.

15. Secondary Road Improvements:

Necessary secondary road improvements will be incorporated into the annual "Six Year Plan" as approved by the Board of Supervisors.
16. Separation of Land Uses:

Residential and non-residential (commercial, industrial) roadways should be separated in traffic function and design.

EXISTING AND PROJECTED CONDITIONS

A. Characteristics of Transportation Demand:

Eastern Loudoun County is generally characterized as a fairly low density area with an affluent population. Work places are usually located long distances from the homes of eastern Loudoun and this results in long commuting distances for its people. Only limited commercial facilities exist within the area, but more retail services are planned. Other transportation destinations such as recreation, government services and transit facilities are also located fairly long distances from eastern Loudoun. Without public transit, car pools and the private bus lines are the only transportation alternatives to the automobile. Eastern Loudoun needs new roadway improvements, but also requires improved transit service to limit its reliance on the automobile.

Given the relative affluence of the population and the dispersed destinations of the highway users, a typical household could generate more than the average of ten auto trips per day. This situation, coupled with the rapid increase in residential, commercial and industrial growth, has placed a high demand on existing road facilities and will continue to do so. Commuting and personal trips require sufficient additional highway capacity on all eastern Loudoun roadways.

As the major commuter highway for the County (Route 7) continues to become more congested, all of Loudoun County will suffer the resultant adverse effects. Road and highway improvements will be necessary. Existing and future land use and development patterns must promote the highest level of transportation service financially possible in this area.

B. Characteristics of Existing Transportation Facilities:

The eastern Loudoun area encompasses 20 square miles of Loudoun County. The County’s total land area is 517 square miles. The area is part of the Regional Metropolitan Washington Transportation System, involving Route 7, the Dulles Airport Access Road (DAAR) and the Washington and Old Dominion (W&OD) Linear Park (See Figure 1, page 168). The proposed Springfield Bypass and Dulles Toll Road will link eastern Loudoun to the metropolitan area with a four-lane divided highway, and will further tie the whole of Loudoun County to the metropolitan region.

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2 Institute of Transportation Engineers, "Trip Generation" (Arlington, VA 1976) Section 200.
Dulles International Airport is a dominant land use facility in the area. Major expansion is planned for both the terminal and runway facilities in order to accommodate 7.5 million annual passengers by 1985, assuming an 11.3% increase per year.\(^3\) This expansion is expected to stimulate industrial growth along the Route 7 and Route 28 corridors, assuming the economy continues to grow and expand.

The area has as its primary highway commuting facilities, Routes 7 and 28. Route 28 is a controlled access road. The major secondary roads are Routes 606, 625, 637, 846 and 1701. These roads are designed as major residential or industrial collector facilities which feed into the primary highways as shown in Figure 2, page 170.

Primary and secondary roads in eastern Loudoun are experiencing capacity problems with the present high traffic volumes. See Appendix II, page 203 for detailed traffic volume information. Projections for design year 1990 are also included. The traffic capacities of these roads will determine the future level of service to eastern Loudoun residents. Recommendations for improvements to the level of service desired in the Transportation Improvement Program (TIP) for Loudoun County will depend heavily upon this analysis and a transportation study of eastern Loudoun undertaken by the Washington Area Council of Governments.

C. Traffic Volumes and Transportation Demands:

Route 7 will exceed its design capacity by 1985 if approved development is constructed on schedule. Route 28 is not experiencing severe capacity problems now, but this situation will change by 1985 if the Dulles Airport Toll Road is completed. Route 28 will become the major highway artery for the County by 1990 as Route 606 and the Toll Road increase in importance. Population density will increase north of Route 7 with the Cascades, CountrySide and Pocahontas developments. The Ashburn/Arcola area will also experience population density increases. This will redefine the orientation of traffic destinations. Correspondingly, the secondary roads in eastern Loudoun are experiencing increased traffic volumes (See Appendix II, page 203), and will be severely impacted by new development.

Traffic volumes will increase population growth. Population information for eastern Loudoun compiled by the Planning Department and by the Metropolitan Washington Council of Governments (COG) indicates that households and population will double for the area by 1990. Traffic generation will also double, as shown in Table 1.

TABLE 1

TRAFFIC GENERATION - EASTERN LOUDOUN

<table>
<thead>
<tr>
<th>Year</th>
<th>Households</th>
<th>Population</th>
<th>Estimated Daily Trips</th>
</tr>
</thead>
<tbody>
<tr>
<td>1979</td>
<td>7,501</td>
<td>27,069</td>
<td>68,347</td>
</tr>
<tr>
<td>1985</td>
<td>12,812</td>
<td>46,009</td>
<td>111,233</td>
</tr>
<tr>
<td>1990</td>
<td>14,889</td>
<td>52,547</td>
<td>129,197</td>
</tr>
</tbody>
</table>

The impact of all this new development was described and outlined in the recent Council of Governments study, "Impact of Future Land Development on Transportation Facilities and Services." The study concludes that virtually all major roadways in eastern Loudoun will begin to experience a decrease in level of service by 1985. According to the COG report, an additional 12 new travel lanes will be needed by 1990.

New transportation facilities will be necessary, plus land use and zoning decisions that protect the design capacity for Routes 7 and 28. Route 7 will be impacted most severely. "It is clear that if Route 7 alone is available to serve these (future) demands, the forecast of 90,000 vehicles per day made in the Resource Management Plan could well be borne out."

Level of Service (LOS) and capacity relationships are offered in Table 2, page 171. The present level of service for Route 7 is at level C. Level D or E is probable by 1985. Without major improvements or transit options developed, congestion and safety problems will be the common condition of eastern Loudoun roadways.

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7. Metropolitan Washington Council of Governments, Appendix II.

<table>
<thead>
<tr>
<th>Type of Facility</th>
<th>Peak Hour Capacity 10</th>
<th>Daily Volumes Capacity</th>
<th>Level of Service</th>
</tr>
</thead>
<tbody>
<tr>
<td>Two Lane</td>
<td>500</td>
<td>8,300</td>
<td>E</td>
</tr>
<tr>
<td>Four Lane</td>
<td>1,600</td>
<td>26,600</td>
<td>E</td>
</tr>
<tr>
<td>Six Lane</td>
<td>2,600</td>
<td>43,300</td>
<td>E</td>
</tr>
<tr>
<td>Four Lane Freeway (toll)</td>
<td>4,000</td>
<td>66,700</td>
<td>E</td>
</tr>
</tbody>
</table>

Arterial route capacity must be increased on all major routes to accommodate the future growth. The Transportation Improvement Program (TIP) of the Transportation Plan suggests the improvements necessary to realize the objective of 12 additional lanes.

D. Car Pools and Transit Service:

The arterial road capacity in eastern Loudoun could be increased by bus transit service and car pooling. The Level of Service of commuter facilities is dictated by peak hour capacity. New transit facilities could defer major improvements, but these alternatives are limited in their ridership potential by the diverse destinations of work and convenience trips. The two major destinations for work trips from Loudoun County are Washington, D.C., with an estimated 13% of all commuter trips, and Tyson’s Corner-Beltway areas with 12% of all work trips. The remaining 75% of work trips have destinations across the metropolitan area. Daily personal vehicle trips to the core area are estimated at 4%. This pattern of transportation activity, therefore, limits the potential of major transit service to reduce auto trips and new highway capacity requirements.

Presently, public transportation does not serve eastern Loudoun, but a private bus service and carpooling activity are actively supported. The Sterling Commuter Bus, Inc., offers express bus service from the Sugarland Run and Sterling areas for approximately 450 downtown D.C. commuters. Carpooling is actively supported by an estimated 300 or more commuters. Both of these travel modes will be supplemented by the proposed Section 18 Federal Highways Administration (FHWA) grant for increased mini-bus service and the promotion of car and van pooling ridership. Fringe lots in both the Dulles Access Road area and along Routes 7 and 846 will be necessary for the continued safe and efficient operation of carpooling and bus activities.

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9 General criteria, other factors include r-o-w, pavement, signalization, etc.

10 Should dictate capacity.
Future work trips and daily vehicle trips were estimated by the Council of Governments to increase substantially by 1995. Table 3, page 173, describes this situation.

<p>| TABLE 3 |
|------------------|------------------|
| PROPORTION OF WORK TRIPS AND DAILY VEHICLE TRIPS |
| IN 1995 FROM SUB-AREAS A AND B TRAVELLING TO THE CORE AND TYSON’S CORNER AREA |</p>
<table>
<thead>
<tr>
<th>(Number of People)</th>
<th>(Number of Vehicles)</th>
</tr>
</thead>
<tbody>
<tr>
<td>To the Core (Zones 1-17)</td>
<td>4,200</td>
</tr>
<tr>
<td>To Tyson’s Corner and Vicinity</td>
<td>4,000</td>
</tr>
<tr>
<td>To all other Destinations</td>
<td>23,800</td>
</tr>
<tr>
<td>Total 1995 Forecast</td>
<td>32,000</td>
</tr>
</tbody>
</table>

The major variable in limiting time and distance in the commuter trip to the metropolitan core area will be the ability of Loudoun County residents to use the Dulles Access Road. For purposes of this report, it is assumed that any four-person car pool will be allowed access to this facility. Travel time will be greatly diminished, even with a toll facility, especially with the opening of Route I-66. Metrorail will be available from Vienna and West Falls Church by 1984 with fringe lots to serve commuters. Actual travel times from eastern Loudoun to the core areas will change with the advent of I-66 and opening of the Dulles Access Road. Assuming the construction of these facilities, the estimated bus and car pool potential for 1995 is shown in Tables 4 and 5.

---


TABLE 4\textsuperscript{13}

<table>
<thead>
<tr>
<th>Sub-Areas</th>
<th>Estimated Transit Potential</th>
<th>Estimated Car Pool Potential</th>
<th>Maximum Transit Potential</th>
<th>Maximum Car Pool Potential</th>
</tr>
</thead>
<tbody>
<tr>
<td>B (Sugarland)</td>
<td>27%</td>
<td>17%</td>
<td>35%</td>
<td>32%</td>
</tr>
<tr>
<td>D (Sterling)</td>
<td>30%</td>
<td>20%</td>
<td>43%</td>
<td>32%</td>
</tr>
<tr>
<td>A (Xerox)</td>
<td>28%</td>
<td>16%</td>
<td>35%</td>
<td>32%</td>
</tr>
<tr>
<td>C (Ashburn-Broad Run)</td>
<td>30%</td>
<td>19%</td>
<td>42%</td>
<td>32%</td>
</tr>
</tbody>
</table>

TABLE 5\textsuperscript{15}

<table>
<thead>
<tr>
<th>Sub-Areas</th>
<th>Estimated Transit Potential</th>
<th>Estimated Car Pool Potential</th>
<th>Maximum Transit Potential</th>
<th>Maximum Car Pool Potential</th>
</tr>
</thead>
<tbody>
<tr>
<td>B</td>
<td>12%</td>
<td>11%</td>
<td>15%</td>
<td>11%</td>
</tr>
<tr>
<td>D</td>
<td>9%</td>
<td>13%</td>
<td>14%</td>
<td>17%</td>
</tr>
<tr>
<td>A</td>
<td>13%</td>
<td>10%</td>
<td>15%</td>
<td>11%</td>
</tr>
<tr>
<td>C</td>
<td>13%</td>
<td>12%</td>
<td>17%</td>
<td>15%</td>
</tr>
</tbody>
</table>

The characteristics of travel may change in eastern Loudoun, but over the life of this plan, it is assumed that transit and car pooling service will remain a secondary transportation mode to the single passenger automobile. The COG study stated that, “significant benefits can be expected from transit use and car pooling; everything possible

\textsuperscript{13} See Appendix 4 for time and destinations.
\textsuperscript{14} Metropolitan Washington Council of Governments, page 18.
\textsuperscript{15} See Appendix 4 for time and destinations.
\textsuperscript{16} Metropolitan Washington Council of Governments, page 18.
should be done to encourage such use." It must be demonstrated that alternatives to the automobile are reliable and relatively inexpensive. Factors such as the opening of the Dulles Airport Access Road, fringe parking lots, implementation of the Section 18 grant and cooperation by all participatory parties, both public and private, are mandatory if transit service is to survive and remain viable. With highway capacity requirements increasing dramatically over the next decade in eastern Loudoun, due to increasing travel demand, bus service and car service could attract one-quarter of the vehicular trips originating in eastern Loudoun. Transit options will be a necessity in the not too distant future.

E. Pedestrian and Bikeway Access: (See Figure 3, page 176).

Other potentially significant modes of travel are walking and bicycling. If the automobile and public transit can provide transportation for commuting trips and long distance travel, bikeways can provide an alternative choice for that small percentage of residents who want to combine recreation with transportation. Bicycle and pedestrian paths are especially feasible for young people desiring recreation, for the elderly and for households without motorized transportation.

Trails should be designed as important links to shopping areas, employment, community centers, places of worship and recreational locations. An interconnected system of pedestrian trails which combines existing roadways and separate bikeways is an important portion of all new residential subdivisions. This network of trails has been included in the Sugarland Run and Countryside subdivisions. A coordinated network that links all these trails together is proposed in the Recreation and Open Space section of the Area Plan.

F. Growth:

Transportation improvements greatly affect growth. The amount and density of residential development, the size of commercial centers and the expansion of industrial uses is affected by the capacity and location of improvements to the highway system. In eastern Loudoun, although 65% of the land is "built-out" or committed for development, new growth depends on how and when these roads are constructed or improved.

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Bikeway Classifications*

A completely separated right-of-way designated for the exclusive flow of bicycles. Cross-flow conflicts by pedestrians and automobiles are minimized.

A restricted right-of-way designated for the exclusive flow of bicycles. Through-travel flow by automobiles or pedestrians is not allowed. Cross-flows by pedestrians and automobiles are allowed. The restricted right-of-way for Classification 2 is formed by vertical markers, painted extruded asphalt curbs, or raised pavement.

A combined right-of-way for automobiles and bicycles designated by a continuous dashed stripe line. Generally, this classification has been indicated by signs on vertical posts or stencilled on the pavement at random distances.

### TABLE 6

#### PRIORITY RATING AND HIGHWAY IMPROVEMENT PHASING

<table>
<thead>
<tr>
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<tbody>
<tr>
<td>Top Priority:</td>
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<td></td>
</tr>
<tr>
<td>1. Dulles Access Road Improvements</td>
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<tr>
<td>Toll Road Construction</td>
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<tr>
<td>2. Route 7 Improvements</td>
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<tr>
<td>3. Park-and-Ride Lots</td>
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<td>4. Route 777</td>
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<tr>
<td>5. Route 625, et. al.</td>
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<tr>
<td>6. Route 604</td>
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<tr>
<td>Intermediate Priorities:</td>
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<tr>
<td>7. Route 28 Loop</td>
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<tr>
<td>8. Bridge: Sugarland Run</td>
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<td></td>
<td></td>
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<tr>
<td>9. Route 637</td>
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<tr>
<td>10. Route 846</td>
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<tr>
<td>11. Route 775</td>
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<td></td>
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<tr>
<td>12. South Cottage Road</td>
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</tr>
</tbody>
</table>

The growth implications are clear: if Loudoun County is to continue to attract office and industrial use along Routes 7 and 28, plus maintain the high quality and character of residential development and other amenities of suburban living, the transportation network of eastern Loudoun must be improved concurrently with this growth. As industrial and residential growth occurs, necessary public services must follow that development. The policies that follow will serve as guidelines for implementing a system of phased transportation improvements that will meet the future travel demands in eastern Loudoun. The problems of congestion, safety and aesthetics are also addressed, but the emphasis is placed on planning for the extensive future growth expected in eastern Loudoun County.
TRANSPORTATION IMPROVEMENT PROGRAM (TIP)

The transportation recommendations represent short-term implementation priorities plus long-term planning priorities. The proposed Transportation Improvement Program (TIP) can be based on these priorities, and will be reviewed separately by the Planning Commission. Appropriate projects will also be included in the 1981-1986 County Capital Improvements Program (CIP). Major projects are listed in order of their priority: (See Figure 4, page 179).

A. Top Priorities:

1. Dulles Airport Access Road Improvements: increased accessibility to the County should be provided through major road improvements to the DAAR and the Route 28 interchange. The first priority for improvements should be the endorsement and construction of the Toll Road (parallel lanes) alongside the present facility. Secondly, ramp access should be provided at the Route 28 interchange for carpools and transit vehicles.

2. Acquisition of Park-and-Ride Lots: the County should promote the installation of park-and-ride facilities for commuters in order to encourage transit use.

3. Route 7: Route 7 in eastern Loudoun should be improved by providing left turn lanes and right turn deceleration lanes where necessary, signalization where necessary, installation of a free-flow lane at Sterling Boulevard, and coordinated signalization to promote traffic flow and proper turning movements.

4. Route 777: this unpaved roadway should be improved to acceptable standards for secondary roads.

5. Public Transit: investigate options for public transit within the major transportation corridors in eastern Loudoun, e.g., Dulles Airport Access Road corridor and Route 7 corridor.

6. Route 625, 604 and East Frederick Drive: improve to four-lane facilities.

7. Route 28: Concurrent with the growth of industry and housing in the eastern area, Route 28, south of Route 7, should be improved to a four-lane, freeway-type facility.

B. Intermediate Priorities:

1. Route 28 Loop: the planned Route 28 loop should be designed and constructed to service the growth north of Route 7 and designed to limit the necessity to use Route 7 for personal or convenience household needs. (See Figure 5, page 180).
2. Bridge over Sugarland Run: the bridge over Sugarland Run should be designed and constructed as the adjacent properties are developed. Funding alternatives should be explored, specifically a trust fund for VDOT funding.

3. South Cottage Road (Route 1701): This road facility should be improved to a four-lane, reverse frontage facility (U4F). The right-of-way should correspond to the existing South Cottage section.

4. Route 7: Design of Route 7 will follow the provisions contained in the adopted Route 7 Corridor Study.

5. East-West Highway: the interconnection of Route 606 with 634 and Route 625 with 643 should be designed to provide parallel facilities to Route 7.

6. Springfield Bypass: the design and construction of the Springfield Bypass should interconnect with the Route 28 loop at Route 7 at a point in Fairfax county to be determined by VDOT.

7. Route 28: as the growth of industry and housing in eastern Loudoun increases, Route 28 should be improved to a four-lane controlled access highway south of Route 7. Grade-separated interchanges will be located along the corridor at:

   a. Routes 7 and 28 (realigned to east).
   b. Between Routes 638 and 625 (by Broad Run).
   c. Route 625.
   d. Route 846 (full interchange).
   e. Route 606 (full interchange).
   f. W&OD Trail will be a grade-separated crossing.

The roadway will be limited access with service roads interconnecting the interchanges to allow free flow of traffic in the corridor. In order to promote the continued accessibility of the corridor to the industrial users, the following policy will apply:

Accessibility for industrial users along Route 28 will be granted on an interim basis via the existing stub facilities along the highway. These stub roads will be closed as service roads interconnect the interchanges along the roadway.
The Route 7 Corridor Plan was adopted by the Board of Supervisors of the County of Loudoun on October 3, 1988. The Plan is a part of the County’s comprehensive plan, amended to the Eastern Loudoun Area Management Plan (ELAMP), the Dulles North Area Management Plan (DNAMP), and the Leesburg Area Management Plan (LAMP).

The Route 7 Corridor Plan has been developed to address future traffic flow management along Route 7 from the Leesburg corporate limits east to the Fairfax County line. With continued development anticipated along this section of Route 7, the Planning Commission has deemed a comprehensive study of this corridor to be necessary for the development of an adequate road network plan more capable of accommodating the resultant traffic generated by new development and the continued growth experienced in the County.

The Route 7 Corridor Plan includes Route 7, proposed north and south parallel collector roads, a series of proposed north-south roads crossing Route 7 by flyover bridging, and north-south major arterial roads intersecting Route 7 at grade separated interchanges. Major roads in this corridor area are proposed to be four or six lanes.

The Plan proposes a limited access condition to Route 7 from Leesburg east to this proposed Algonkian Parkway interchange near the CountrySide subdivision. From the Algonkian Parkway east to the Loudoun/Fairfax County line, the Plan proposes controlled access to Route 7.

The Plan is to be considered a guide for improvements to the Route 7 corridor. The intent is for this Plan to function as a tool, a guide to Loudoun citizens, the land development community and the County government through the decision making process for projects in this corridor area. Subsequent changes to the Plan can be made through the plan amendment process and/or the land development process.

The development of this Plan has been a cooperative effort. Involved in this effort have been the Planning Commission, individual citizens and citizen groups of the County, members of the business community active in the County, the Virginia Department of Transportation and County staff.

Inquiries concerning the Route 7 Corridor Plan can be addressed to the Transportation Division of the Department of Planning (telephone: 777-0246).

**General** (Page numbers below are referring to maps)

Road alignments are subject to refinements until such time as they have been through the subdivision and site plan processes and are ready for construction permit issuance.

The location of interchanges are conceptual in nature and are subject to refinement on the basis of approved record plats, subdivision plans, rezoning and special exceptions.

Page 5: The final Route 7/Route 659 interchange design and location should accommodate the Washington Gas and Light gas line.
Page 6: The location of the Lansdowne/IBM east flyover should be sensitive to the Belmont Plantation and adjacent development and could be moved as long as it meets VDOT requirements.

Page 7: Potomac Farms:
- The north parallel road will be realigned to the north to lessen its impact on existing homes. This alignment may encroach on the floodplain and would need to be sensitive to floodplain requirements.
- A grade separated point of access that crosses the north parallel road will be provided to maintain access to the Potomac River. This access shall accommodate emergency vehicles.
- A second point of access that minimizes the attraction of through traffic will be identified.

Page 9: The Route 28 west parallel road needs to connect to the Route 7 south parallel road. The crossing of Broad Run needs to be at the best engineering location which is to be determined by VDOT.

Prior to the Phase II Route 7/Route 28 interchange construction which eliminates direct access to the Broad Run Farms community, the location of a second point of access to the community must be identified.

Page 10: The design of the Algonkian Parkway interchange is to be reexamined in an effort to eliminate signalization.

Page 13: For the north service road, alignment adjustments and buffering should be used at the site plan stage to minimize impacts on residential areas and the lake.
TYPICAL SECTIONS

TYPE E4R-E6R-E8R
(Extension I.d.r lane raised median)

TYPE R4R-R6R
(Rural R 4 lane raised median)

TYPE U4R
(Urban 4 lane raised median)

TYPE U4
(Urban 4 lanes)

TYPE L4
(Industrial access road 4 lane)

PROVISION OF SIDEWALK CONSIDERED ON A CASE BY CASE BASIS

COUNTY OF LOUDOUN
C. Other Highway Improvements - No Priority Given:

1. TIP: The County should initiate and implement a planning tool, updated annually, called the Transportation Improvement Program (TIP) for both primary and secondary road improvements.

2. Road Classification System: the County should collaborate with VDOT on the classification and design specifications for the arterials, collectors and local residential streets in eastern Loudoun.

3. Street Design: residential subdivisions of R-2 or greater density should be designed for an urban cross-section. All non-residential development will require urban cross-section design, unless specifically waived by the County for particular environmental or traffic management reasons. Bus turnarounds and drop off locations are to be included in the road design.

4. Land Dedication: interchanges will be designated at various points along Routes 7 and 28. Developers should be encouraged to proffer the dedication or reservation of such interchange sites.

5. Controlled Access Easements: easements should be purchased if necessary, or obtained during the development approval process as travel demands increase on all major highway facilities in order to control the number of access points.

6. Route 637: Route 637 should be upgraded with controlled access points and four lane improvements.

7. Route 846 (Sterling Boulevard): signals and improvements are necessary at major intersections: i.e., Route 625 (Church Road) and Route 1401 (Greenthorn Avenue).

8. Route 28: signalization installed at intersection of Routes 28 and 625.

9. Route 634: Re-align intersection with Route 625, 1,000 feet from Route 28.

10. South Fillmore Drive: Eventually improve to a two lane connector road from East Maple Drive to county line to serve as a reverse frontage road facility to carry through traffic from Crestview Drive in Fairfax County to Sterling without residential traffic conflict. The right-of-way has been dedicated to the State and should be developed only when residential conflicts are apparent.

IMPLEMENTATION

The recommendations will require ordinance changes, legislative review, priority ranking and procedural changes. This section will propose the changes necessary to implement the recommendations.
1. **Transportation Improvements Program (TIP):** The function of highway implementation has traditionally been the responsibility of the Virginia Department of Transportation (VDOT). Primary road improvements are planned for construction through the ten year plan; the secondary road improvements are planned through the six year plan. The TIP, as suggested by this plan, should function as the annual updating vehicle for all County road improvements and should be a separate portion of the five-year county Capital Improvements Program (CIP). The TIP should be drafted in cooperation with VDOT and written as the adopted County priority ranking for road budgeting and construction.

2. **COG Studies:** The Council of Governments transportation planning policies and programs should be incorporated into the transportation program for eastern Loudoun.

3. **Resource Management Plan:** The adopted RMP will require a five year update as mandated by the State. The Area Plan's recommendations for improvements should be included in this updating procedure.

4. **Zoning and Environmental Review:** The County will implement the policies of design and control of new roadway improvements in eastern Loudoun in the zoning and environmental procedures associated with zoning and subdivision site plan processing.

5. **Controlled Access Roadways:** Routes 7 and 28 should require access easements, either bought or proffered to the County to control the number of future access points.

6. **Route 28 and DAAR Interchange:** This project should be implemented through funds from either the bond issue for the toll road or the uncommitted demonstration funds from the original DAAR Transit Study. No county funds should be expended.

7. **Park-and-Ride Lots:** Land and improvements should be procured from local developers as proffers, and from local businesses or through federal grant-in-aid projects. *(See Figure 4, page 179 for locations.)*

8. **Public Transit:** Investigate options for public transit within the major transportation corridors of eastern Loudoun, e.g., Dulles Access Road corridor and Route 7 corridor.

9. **Proffer Items:** New residential and non-residential development should include voluntarily proffered items as conditions for zoning approval. Suggestions for acceptable proffers include:
   a. Pedestrian trails to centers of community activity and pedestrian underpasses for safe access to local schools, properties and community centers.
b. On-site transportation improvements, i.e., four-lane cross section design for large subdivisions.

c. Off-site transportation improvements, i.e., signalization and safety improvements, deceleration and acceleration lanes directly required by the development.

d. Noise abatement measures, i.e., berms, planting, screens between large collector roads and residences as the needs are determined by the County.

e. Funds for highway improvements, specifically the Sugarland Bridge.

10. **Subdivision Transition Areas:** New residential subdivisions shall include completed roadways that interconnect neighboring property with the new subdivision. Stub roads will be dedicated if adjacent property is vacant.

11. **Road Design:** Bus drop-off facilities should be incorporated in the non-residential developments and the residential subdivisions with added rights-of-way dedication for bus usage.

12. **Interchange:** All major intersections, either planned for construction or designated by the County, will be rezoned to PD-IC (Planned District-Interchange) and development criteria will accompany these rezoning proposals.

13. **Bridge Construction:** Federal and state agencies should be tapped for priority designation and funding for the Sugarland Run bridge construction.

14. **Highway Construction Fund:** An eastern Loudoun Highway Improvement Fund should be established. Each local development will contribute its fair share of monies for designated future projects that are necessary for the local area.

15. **Right-of-way Dedication:** Local land developers will be encouraged to dedicate land that will eventually be used to upgrade roadways. Highway dedication will be designated by VDOT and the County.

16. **W&OD and Route 28:** The W&OD intersection with Route 28 (a freeway facility) should be grade-separated to allow continuity of the trail.

17. **Elderly/Handicapped Accessibility:** Federal grants to provide access for the elderly and handicapped in eastern Loudoun should be pursued by Loudoun County.

18. **Transit Shelters:** Bus shelters for school children and transit patrons will be constructed at designated locations to promote transit use. Local JCs, Ruritan Clubs and community associations or other civic associations can be approached for funding.
19. **Interchange Developments:** Land development in the vicinity of a highway interchange will be specially zoned to limit traffic congestion and premature over-development. Land use and access points will be controlled.

20. **Corridor or Transportation Studies:** The relevant corridor and transportation studies, once adopted, should be incorporated into the *Eastern Loudoun Area Management Plan* with specific recommendations.

21. **Noise Attenuation:** The major transportation roadways (*major collectors, arterials and freeways*) should incorporate noise attenuation techniques that will buffer the adjacent land uses. Residential property will require extensive berm-type noise attenuation.

**CONCLUSION:**

The ease of movement of people in eastern Loudoun is the single most important improvement the public and private sector can provide for the residents of the area. To that end, constant review and reevaluation of the various means to move people effectively, plus road improvements offered by private developers (*buses, bikeways or road improvements*) will be closely monitored by the County and VDOT.
## TRANSPORTATION APPENDIX I

### ROADWAY DESIGN IMPROVEMENTS

<table>
<thead>
<tr>
<th>Roadway</th>
<th>Location</th>
<th>Lanes Right-of-Way</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>1A. Route 7</td>
<td>Route 28 - CountrySide Blvd.</td>
<td>6 lanes - divided 200' ROW plus land dedication.</td>
<td>Freeway. E6R Limited Access. All at-grade access will be terminated when road becomes a freeway. Diamond interchange at Rt. 7 and CountrySide Blvd. 60 mph. design speed.</td>
</tr>
<tr>
<td>1B. Route 7</td>
<td>CountrySide Blvd. - Fairfax County Line</td>
<td>6 lanes - divided 200' ROW, plus land dedication required for East Loudoun Spine Road interchange ramps.</td>
<td>U6D. Controlled access median divided major urban arterial. Left and right turn lanes required at all intersections. Decel lanes required at entrances. 50 mph design speed 900’ desirable distance between median breaks.</td>
</tr>
<tr>
<td>2. Route 28</td>
<td>Fairfax County Line to Route 7</td>
<td>6 lanes - divided 200' ROW, plus land dedication required for interchange ramps at all proposed interchange locations.</td>
<td>Freeway. E6R Limited Access. All at-grade access will be terminated when road becomes a freeway. Any short-term temporary access limited to existing intersections and stub roads. 60 mph design speed. Phased Improvement Program may include 4 and/or 6 lane major arterial sections. Left and right turn lanes required at all intersections/entrances during arterial phases of Route 28 improvements. All arterial improvements must be consistent with ultimate freeway design sections.</td>
</tr>
</tbody>
</table>
### TRANSPORTATION APPENDIX 1

#### ROADWAY DESIGN IMPROVEMENTS

<table>
<thead>
<tr>
<th>Roadway</th>
<th>Location</th>
<th>Lanes Right-of-Way</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>3. Route 606 Old Ox Rd.</td>
<td>West Access Road to Route 636 Shaw Rd. (East Access Rd.)</td>
<td>4 lanes - divided 120' - 160' ROW plus land required for Route 28 interchange ramps.</td>
<td>U4R. Limited access median divided, major urban collector. Section to become part of Rt. 28/Rt. 606 interchange. Left and right turn lanes required at Rt. 636 and West Blvd. intersections. 50 mph design speed.</td>
</tr>
<tr>
<td>4. Route 606 Old Ox Rd.</td>
<td>Shaw Rd. (East Access Rd.) to Fairfax County Line.</td>
<td>4 lanes - divided 120' ROW.</td>
<td>U4R. Controlled access median divided, major urban collector. Left and right turn lanes required at all intersections. Decel/right turn lanes required at all entrances. 800' desirable distance between median breaks. 45 mph design speed.</td>
</tr>
<tr>
<td>5. Route 606 Old Ox Rd.</td>
<td>West Access Rd. to Rt. 634</td>
<td>4 lanes - divided 120' ROW</td>
<td>U4R. Controlled access median divided, major urban collector. Left and right turn lanes required at all intersections. Decel/right turn lanes required at all entrances. 900' desirable distance between median breaks. 50 mph design speed.</td>
</tr>
<tr>
<td>6. Route 606 Old Ox Rd.</td>
<td>Rt. 634 to Rt. 50</td>
<td>4 lanes - divided 120' ROW</td>
<td>R4R. Controlled access median divided, rural collector left and right turn lanes required at all intersections. Decel/right turn lanes required at all entrances. 900' desirable distance between median breaks. 50 mph design speed.</td>
</tr>
<tr>
<td>7. CIT Spine Road</td>
<td>Rt. 28 to Center for Innovative Technology</td>
<td>4 lanes - divided 120' ROW plus land dedication required for Rt. 28 interchange</td>
<td>U4R. Median divided minor urban collector. Left and right turn lanes required at all intersections. Decel/right turn lanes required at all entrances. Desirable distance between median breaks 700'. 40 mph design speed. To be expanded to 6 lanes if required by build-out densities in CIT area.</td>
</tr>
<tr>
<td>Roadway</td>
<td>Location</td>
<td>Lanes Right-of-Way</td>
<td>Description</td>
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</tr>
<tr>
<td>8. Algonkian Parkway</td>
<td>Route 7 (at Holly Knolls Dr.) to Route 7 (Rt. 28/East Access Road)</td>
<td>4 lanes - divided 120' ROW</td>
<td>R4R. Controlled access median divided, major urban collector. Left and right turn lanes required at major intersections. Desirable distance between median breaks 700’. 40 mph design speed.</td>
</tr>
<tr>
<td>9. Route 604 Sugarland Road</td>
<td>Route 625 to Fairfax County Line</td>
<td>4 lanes - undivided 60' ROW</td>
<td>U4. Minor Urban Collector. 52’ curb face-curb face. 40 mph design speed.</td>
</tr>
<tr>
<td>10. Route 604 Sugarland Rd.</td>
<td>Route 625 to Dead End</td>
<td>2 moving traffic lanes 1 side on-street parking 50’ ROW</td>
<td>S38. Subdivision Road. 38’ curb face-curb face. 35 mph design speed.</td>
</tr>
<tr>
<td>11. E. Frederick Drive</td>
<td>Route 846 to Route 604</td>
<td>4 lanes - divided 120' ROW</td>
<td>S48. Subdivision Collector. 48’ curb face to curb face. 40 mph design speed.</td>
</tr>
<tr>
<td>12. CIT Loop Road</td>
<td>Route 606/Davis Drive Extended. CIT Spine Road</td>
<td>4 lanes - divided 120' ROW</td>
<td>U4R. Median divided urban minor collector. Left and right turn lanes required at all intersections. Decel/right turn lanes required at all entrances. Desirable distance between median breaks 700’. 40 mph design speed. To be expanded to 6 lanes if required by build-out densities in the CIT area.</td>
</tr>
<tr>
<td>13. Route 636/Shaw Road/E. Access Rd.</td>
<td>CIT Spine Road to 0.3 miles north of Route 846</td>
<td>4 lanes - undivided 70’ ROW (except) 90’ ROW within 225’ of major intersections.</td>
<td>U4. Urban Minor Collector. 52’ curb face-curb face. Left and right turn lanes required at all major intersections. 40 mph design speed.</td>
</tr>
<tr>
<td>Roadway</td>
<td>Location</td>
<td>Lanes Right-of-Way</td>
<td>Description</td>
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</tr>
<tr>
<td>14. East Access Rd. (New Road)</td>
<td>0.3 miles north of Route 846 to Davis Drive Extended</td>
<td>4 lanes - undivided 70' ROW (except) 90' ROW within 225' of major intersections.</td>
<td>U4. Urban Minor Collector. 52' curb face-curb face. Left and right turn lanes required at all major intersections. 40 mph design speed.</td>
</tr>
<tr>
<td>15. Davis Drive (Part of East Access Rd. System)</td>
<td>Route 606 to Route 625</td>
<td>4 lanes - undivided 70' ROW (except) 90' ROW within 225' of major intersections.</td>
<td>U4. Urban Minor Collector. 52' curb face-curb face. Left and right turn lanes required at all major intersections. 40 mph design speed.</td>
</tr>
<tr>
<td>16A. East Access Rd.</td>
<td>Route 625 to Route 7 South Parallel Road/Route 638 relocated.</td>
<td>4 lanes - divided 90' ROW.</td>
<td>U4R. Urban Minor Collector. Left turn lanes required at all intersection and median breaks. Desirable distance between median breaks 700'. 40 mph design speed.</td>
</tr>
<tr>
<td>16B. East Access Rd.</td>
<td>Route 7 South Parallel Road to Route 7/Algonkian Parkway</td>
<td>4 lanes - divided 120' ROW</td>
<td>U4R. median divided urban minor collector. Left and right turn lanes required at all intersections. Decel/right turn lanes required at all entrances. Desirable distance between median breaks 800'. 45 mph design speed.</td>
</tr>
<tr>
<td>17. Glenn Drive</td>
<td>Route 846 to Davis Drive</td>
<td>4 lanes 60' ROW</td>
<td>U4. Industrial Local Access Road. 52' curb face-curb-face. 35 mph design speed.</td>
</tr>
<tr>
<td>18. Route 625 Waxpool Road</td>
<td>1,200' west of gore point for Route 28 westside interchange ramps to Rt. 607</td>
<td>4 lanes - divided 120' ROW</td>
<td>U4R. Controlled access median divided major urban collector. Left and right turn lanes required at all intersections. Decel/right turn lanes required at all entrances. 900' desirable distance between median breaks. 50 mph design speed.</td>
</tr>
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</table>
## TRANSPORTATION APPENDIX I

### ROADWAY DESIGN IMPROVEMENTS

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</thead>
<tbody>
<tr>
<td>19. Route 625 Waxpool Rd./Church Road</td>
<td>1,200' west of gore point for Route 28 westside interchange ramps to East Access Road</td>
<td>4 lanes - divided 120' - 160' ROW, plus land required for Route 28 interchange ramps.</td>
<td>U4R. Limited access median divided major urban collector. Section to become part of Rt. 28/Rt. 625 interchange. Left and right turn lanes required at East and West Access Road intersections. 50 mph design speed.</td>
</tr>
<tr>
<td>20A. Route 625 Church Road</td>
<td>Route 637 to Route 846</td>
<td>4 lanes - undivided 70' ROW (except) 90' ROW within 225' of major intersections.</td>
<td>U4. Urban Minor Collector. 52' curb face-curb face. Left and right turn lanes required at all major intersections. 40 mph design speed.</td>
</tr>
<tr>
<td>20B. Route 625 Church Road</td>
<td>Route 637 - East Access Road</td>
<td>4 lanes - divided 100' ROW</td>
<td>U4R. Controlled access median divided major urban collector. Left and right turn lanes required at all intersection. Decel/right turn lanes required at all entrances. 700' desirable distance between median breaks. 40 mph design speed.</td>
</tr>
<tr>
<td>21. Route 636 Shaw Rd.</td>
<td>East Access Road to cul-de-sacs south of Route 625 and east of Route 28.</td>
<td>4 lanes - undivided 60' ROW</td>
<td>L4. Industrial Local Access Road. 44' curb face-curb face. 35 mph design speed.</td>
</tr>
<tr>
<td>22. Route 637 Potomac View Rd.</td>
<td>Rt. 7 to Algonkian Parkway</td>
<td>4 lanes - divided 110' ROW</td>
<td>U4R. Controlled access median divided major urban collector. Left and right turn lanes required at all intersections. Decel/right turn lanes required at all entrances. 800' desirable distance between median breaks. 45 mph design speed.</td>
</tr>
<tr>
<td>Roadway</td>
<td>Location</td>
<td>Lanes Right-of-Way</td>
<td>Description</td>
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</tr>
<tr>
<td>23. Route 637 Sterling Road</td>
<td>Rt. 7 to Rt. 7 South Parallel Road/East Loudoun Spine Road</td>
<td>4 lanes - divided 110' ROW</td>
<td>U4R. Controlled access median divided major urban collector. Left and right turn lanes required at all intersections. Decel/right turn lanes required at all entrances. 700' desirable distance between median breaks. 40 mph design speed.</td>
</tr>
<tr>
<td>24. Route 637 Sterling Road</td>
<td>Rt. 7 South Parallel Road/East Loudoun Spine Road to Route 625.</td>
<td>4 lanes - divided 120' ROW.</td>
<td>U4R. Controlled access median divided major urban collector. Left and right turn lanes required at all intersections. Decel/right turn lanes required at all entrances. 700' desirable distance between median breaks. 40 mph design speed.</td>
</tr>
<tr>
<td>25. Route 7 South Parallel Rd. (Route 638 Corridor Rd.)</td>
<td>Route 637 to Route 28 East Access Road</td>
<td>4 lanes - divided 110' ROW</td>
<td>U4R. Controlled access median divided major urban collector. Left and right turn lanes required at all intersections. Decel/right turn lanes required at all entrances. 800' desirable distance between median breaks. 45 mph design speed.</td>
</tr>
<tr>
<td>26. Route 7 South Parallel Rd. (Route 638 Corridor Road)</td>
<td>Route 28 East Access Road to Route 28 West Access Road</td>
<td>4 lanes - divided 120' - 160' ROW, plus land required for Route 28 interchange ramps</td>
<td>U4R. Limited access median divided major urban collector. Section to become part of Rt. 28/Rt. 638 Corridor Road interchange. 50 mph design speed.</td>
</tr>
<tr>
<td>Roadway</td>
<td>Location</td>
<td>Lanes Right-of-Way</td>
<td>Description</td>
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<tr>
<td>27. Route 7 South Parallel Rd. (Route 638 Corridor Road Extended)</td>
<td>Route 28 West Access Road to Route 607</td>
<td>4 lanes - divided 110' ROW</td>
<td>U4R. Controlled access median divided major urban collector. Left and right turn lanes required at all intersections. Decel/right turn lanes required at all entrances. 800' desirable distance between median breaks. 45 mph design speed.</td>
</tr>
<tr>
<td>28. Route 7 South Access Rd.</td>
<td>Route 637 to Ridgetop Road</td>
<td>4 lanes - undivided 70' ROW</td>
<td>U4. Minor Urban Collector. 52' curb face to curb face. 40 mph design speed.</td>
</tr>
<tr>
<td>29. Route 7 South Access Rd.</td>
<td>Ridgetop Road to CountrySide Blvd. extended.</td>
<td>4 lanes - undivided 70' ROW</td>
<td>U4. Minor Urban Collector. 52' curb face to curb face. 40 mph design speed.</td>
</tr>
<tr>
<td>30. CountrySide Blvd. Extended</td>
<td>Route 7 to East Access Road</td>
<td>4 lanes - divided 120' ROW</td>
<td>U4R. Controlled access median divided urban major collector. Left and right turn lanes required at all intersections. Decel/right turn lanes required at all entrances. 700' desirable distance between median breaks. 40 mph design speed. Diamond interchange at Route 7.</td>
</tr>
<tr>
<td>31. Rt. 777 Tripleseven</td>
<td>Route 7 to Cromwell Rd. (Extended)</td>
<td>4 lanes - undivided 70' ROW</td>
<td>U4. Minor Urban Collector. 52' curb face to curb face. 40 mph design speed.</td>
</tr>
<tr>
<td>32. Rt. 777 Tripleseven</td>
<td>North of Cromwell Road</td>
<td>Subdivision traffic lanes 60' ROW</td>
<td>S40, Subdivision Road. 40' curb face-curb face. 35 mph design speed.</td>
</tr>
<tr>
<td>Roadway</td>
<td>Location</td>
<td>Lanes Right-of-Way</td>
<td>Description</td>
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</tr>
<tr>
<td>33A. West Access Road (New Road)</td>
<td>Route 606 to transition point north of W&amp;OD ROW</td>
<td>4 lanes - divided 110’ ROW</td>
<td>U4R. Median divided major urban collector. Left and right turn lanes required at all intersections. Decel/right turn lanes required at all entrances. Desirable distance between median breaks 700’. 40 mph design speed.</td>
</tr>
<tr>
<td>33B. West Access Road (New Road)</td>
<td>South of Route 7 to transition point north of W&amp;OD ROW</td>
<td>4 lanes - undivided 70’ ROW</td>
<td>U4. Urban Minor Collector. 52’ curb face to curb face. 40 mph design speed.</td>
</tr>
<tr>
<td>34. Route 846 Sterling Boulevard</td>
<td>Route 28 East Access Road to Route 28 West Access Road</td>
<td>4 lanes - divided 120’ - 160’ ROW, plus land required for Route 28 interchange ramps.</td>
<td>U4R. Limited access median divided major collector. Section to become part of Rt. 28/Route 846 interchange. Segment west of Route 28 new road. 50 mph design speed.</td>
</tr>
<tr>
<td>35. Route 846 Sterling Blvd. (extended)</td>
<td>Route 28 West Access Road to Route 775</td>
<td>4 lanes - undivided 70’ ROW (except) 90’ ROW within 225’ of major intersections.</td>
<td>U4. Urban Minor Collector 52’ curb face-curb face. Left and right turn lanes required at all major intersections. 40 mph design speed.</td>
</tr>
<tr>
<td>36. Route 775 Sterling Road</td>
<td>Route 846 extended to Route 606</td>
<td>4 lanes - undivided 70’ ROW (except) 90’ ROW within 225’ of major intersections.</td>
<td>U4. Urban Minor Collector. 52’ curb face-curb face left and right turn lanes required at all major intersections. 40 mph design speed.</td>
</tr>
<tr>
<td>37. Route 775 Sterling Road</td>
<td>Route 846 extended to cul-de-sac west of Route 28</td>
<td>4 lanes - undivided 60’ ROW</td>
<td>L4. Industrial Local Access Road. 44’ curb face-curb face. 35 mph design speed.</td>
</tr>
<tr>
<td>Roadway</td>
<td>Location</td>
<td>Lanes Right-of-Way</td>
<td>Description</td>
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</tr>
<tr>
<td>38. Route 775 Sterling Road</td>
<td>Route 28 East Access Road to cul-de-sac east of Route 28</td>
<td>4 lanes - undivided 60’ ROW</td>
<td>L4. Industrial Local Access Road. 44’ curb face-curb face. 35 mph design speed.</td>
</tr>
<tr>
<td>39. Route 634 Moran Road</td>
<td>Route 28 West Access Rd. to cul-de-sac west of Route 28</td>
<td>4 lanes - undivided 60’ ROW</td>
<td>L4. Industrial Local Access Road. 44’ curb face-curb face. 35 mph design speed.</td>
</tr>
<tr>
<td>40. Route 634 Moran Road</td>
<td>Route 28 West Access Rd. to Route 789</td>
<td>4 lanes - undivided 70’ ROW (except) 90’ ROW within 225’ of major intersections.</td>
<td>U4. Urban Minor Collector. 52’ curb face-curb face. Left and right turn lanes required at all major intersections. 40 mph design speed.</td>
</tr>
<tr>
<td>41. Route 634/606 Connector Road (New Road)</td>
<td>Route 634 to Route 606</td>
<td>4 lanes - undivided 70’ ROW</td>
<td>U4. Industrial Local Access Road. 52’ curb face-curb face. 40 mph design speed.</td>
</tr>
<tr>
<td>42. East Loudoun Spine Road (New Road)</td>
<td>Algonkian Parkway to Route 637</td>
<td>4 lanes - divided 120’ ROW plus land required for interchange at Route 7.</td>
<td>U4R. Controlled access median divided urban major collector. Left and right turn lanes required at all intersections. Decel/right turn lanes required at all entrances. 800’ desirable distance between median breaks. 45 mph design speed.</td>
</tr>
<tr>
<td>Roadway</td>
<td>Location</td>
<td>Lanes Right-of-Way</td>
<td>Description</td>
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</tr>
<tr>
<td>43. Route 267 Extended</td>
<td>Dulles Toll Road to Route 606</td>
<td>4 lanes - ROW to</td>
<td>Freeway. E4R. Limited Access. Alignment across Dulles Airport land and</td>
</tr>
<tr>
<td></td>
<td>(continues on to Route 643</td>
<td>be determined.</td>
<td>location of interchange with Rt. 606 to be determined. Check with County for</td>
</tr>
<tr>
<td></td>
<td>DNAMP Corridor)</td>
<td>(estimated</td>
<td>most recent details. 60 mph design speed.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>160' - 200')</td>
<td></td>
</tr>
<tr>
<td>44. Route 824 Oak Grove Road</td>
<td>Route 606 to Trefoil Lane</td>
<td>4 lanes - undivide</td>
<td>U4. Industrial Local Access Road. 52' curb face-curb face. 35 mph design</td>
</tr>
<tr>
<td></td>
<td></td>
<td>ed 60’ ROW</td>
<td>speed.</td>
</tr>
<tr>
<td>45. Route 7 North Access Road (New Road)</td>
<td>Lakeland Drive to Richland Drive</td>
<td>4 lanes - undivide</td>
<td>L4. Local Access Road. 44' curb face-curb face. Buffer required on north</td>
</tr>
<tr>
<td></td>
<td></td>
<td>ed 60’ ROW</td>
<td>side of road to protect residential area. 35 mph design speed.</td>
</tr>
<tr>
<td>46. Lakeland Drive</td>
<td>Route 7 to Route 7 North Access</td>
<td>4 lanes - undivide</td>
<td>U4. Minor Urban Collector. 52' curb face-curb face. 40 mph design speed.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>ed 60’ ROW</td>
<td></td>
</tr>
<tr>
<td>47. Cedar Drive</td>
<td>Route 7 to Route 7 North Access</td>
<td>4 lanes - undivide</td>
<td>U4. Minor Urban Collector. 52' curb face-curb face. 40 mph design speed.</td>
</tr>
<tr>
<td></td>
<td>Road</td>
<td>ed 60’ ROW</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Road</td>
<td>ed 60’ ROW</td>
<td></td>
</tr>
<tr>
<td>49. Richland Lane (New Road)</td>
<td>North of Rt. 7 North Access</td>
<td>4 lanes - undivide</td>
<td>S48. Subdivision Collector. 48’ curb face-curb face. 40 mph design speed.</td>
</tr>
<tr>
<td></td>
<td>Road</td>
<td>ed 60’ ROW</td>
<td></td>
</tr>
<tr>
<td>50. Trefoil Lane (New Road)</td>
<td>Oak Grove Rd. - Davis Drive</td>
<td>4 lanes - undivide</td>
<td>L4. Industrial Local Access Road 44’ curb face-curb face. 35 mph design</td>
</tr>
<tr>
<td></td>
<td>Extended</td>
<td>ed 60’ ROW</td>
<td>speed.</td>
</tr>
</tbody>
</table>

196
## TRANSPORTATION APPENDIX I

### ROADWAY DESIGN IMPROVEMENTS

<table>
<thead>
<tr>
<th>Roadway</th>
<th>Location</th>
<th>Lanes Right-of-Way</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>51. Route 7 North Parallel Rd.</td>
<td>Route 777 East Loudoun Spine Road</td>
<td>4 lanes - undivided 70' ROW (except) 90' ROW within 225' of major intersections</td>
<td>U4. Urban Minor Collector. 52’ curb face-curb face. Left and right turn lanes required at all major intersections. 40 mph design speed.</td>
</tr>
<tr>
<td>52. Route 7 North Broad Run Farms Access Road</td>
<td>From Route 808 East (N. Boundary, church property) to Algonkian Parkway</td>
<td>Subdivision traffic lanes 60' ROW</td>
<td>S40, Subdivision Road. 40’ curb face-curb face. 35 mph design speed.</td>
</tr>
</tbody>
</table>
DEFINITION OF TERMS USED IN ELAMP APPENDIX 1

Each road in Appendix 1 of the Eastern Loudoun Area Management Plan (ELAMP) is defined in terms of its:

1. Location
2. Number of lanes, right-of-way width
3. Road description parameters, including:
   - Typical section
   - Access format
   - Functional classification
   - Turn lane requirements
   - Design speed

When used in conjunction with all applicable Virginia Department of Transportation (VDOT) standards, this Appendix allows the design of road improvements in conjunction with development projects which are consistent with the requirements of the County's Comprehensive Plan and VDOT standards.

The following will assist the reader in understanding the terms used in this Appendix:

Location. Location specifies the termini (i.e., end points) of each road section. Approximate alignments of the road improvements are shown on Map A-1, Eastern Loudoun County Road Improvements. Please Note: These are approximate alignments. Please contact the Loudoun County Planning Department with regard to functional design plans or construction plans and profiles which may be available for a specific section, and which specify detailed alignments.

Lanes/Right-of-Way. The number of through traffic lanes are indicated in this column; i.e., 2, 4 or 6 lanes. A 4-lane road has two through lanes in each direction; a 6-lane road has three through lanes in each direction. A divided road has its directional through lanes separated by a median (central reserve of land). Median divided roads are capable of servicing higher volumes of traffic at acceptable levels of service than undivided (no median) roads. Where higher volumes of left turns are expected, median crossovers provide for safer and more efficient traffic operations because left turn lanes can be constructed in the median area which separates left turn traffic from through traffic. However, medians are generally not effective on roads with frequent access points (entrances, driveways, etc.) since substantial volumes of U-turns can accumulate at median crossovers.

Right-of-way refers to the total width of land which must be provided to the public sector for the construction and maintenance of a road section. Right-of-way widths generally vary from 50 feet - 60 feet for a 2-lane local road to 60 feet - 70 feet for a 4-lane undivided road to 110 feet - 120 feet for a 4-lane median divided road to 200 feet or more for a freeway. In cases where turn lanes are required at intersections or entrances additional right-of-way may be required.
Description

Typical Section. This refers to the characteristics of a road’s cross section including number and width of lanes, curbs/gutters or shoulders and medians. Typical sections are generally divided into urban and rural types. Urban types normally have sidewalks, curbs and gutters and the various design components are designed to meet narrower right-of-way requirements. In the following typology of roads, urban sections are designated by the first letter U. Rural types are characterized by road shoulders and drainage ditches and are designated by the first letter R. The number following the first letter refers to the number of lanes. If a letter follows the lanes number this indicates the road has a median. An R indicates a raised median (curb) and a D indicates a depressed median (such as currently exists on Route 7). Typical sections used in Appendix A include:

E6R: A limited access freeway with three lanes in each direction and a raised median.
U4R: A 4-lane divided road with curb and gutter and a raised median. The pavement width of each 2-lane directional section will generally be 25 feet. Sidewalks should be provided in areas where substantial pedestrian movements are anticipated.
R4R: A 4-lane divided road with shoulders and drainage ditches and a raised median.
U4: A 4-lane undivided road with curb and gutter. Forty-eight feet of pavement is generally required with two 2-foot gutters for a total curb face-curb face width of 52 feet.
L4: Similar to a U4 section but with narrower pavement widths. Curb face-curb face widths of 40 feet - 48 feet depending on project traffic volumes and adjoining land uses.
S36, S38, S40: Subdivision curb and gutter street sections with curb face-curb face widths of 36 feet - 40 feet. Widths are dependent on projected traffic volumes and are defined in VDOT’s subdivision street standards.

Functional Classification. This is a definitional system in which highways and streets are grouped into classes according to the character of service they are intended to provide. At the top of the hierarchy are principal arterials which are oriented to serving inter or intrastate travel and connect major regional activity centers. Examples of such roads in Loudoun County are Route 7, Route 28, Route 50. These roads normally serve substantial volume of through (as opposed to locally oriented) traffic and have higher design speeds. Major collectors provide service to large traffic generators not on the arterial system and serve the more important intracounty travel corridors. Examples of such roads in Loudoun County are Route 846, Route 606 and the Algonkian Parkway. Minor collectors link locally important traffic generators with major collectors and arterials by collecting traffic from local roads. These roads normally do not serve large amounts of through traffic. The lower levels of the functional classification system consist of various types of local roads. These roads provide access to adjacent land.

Access Format. The regulated limitation of access to a public road is called access control. It is achieved through the regulation of public access rights to and from the properties abutting the public roads. Access controls are required to insure safe and efficient operation of key roads with respect to anticipated traffic volumes and other characteristics of traffic flow. Generally access controls are required for the safe and
efficient operation of arterial and major collector roads and may be necessary for some minor collectors.

The following access control definitions and standards are used in the ELAMP:

**Limited Access.** No at-grade access is allowed. All access to the road is provided via grade separated interchanges or slip ramps to collector - distributor roads.

**Restricted Access.** At-grade access points to the public road must be a minimum of 1,000 feet distance from another road and, in general, will be restricted to intersections with other public roads. All access points must be aligned with a median crossover for a median section road.

**Controlled Access.** On controlled access roads, preference is given to through traffic to a degree that, in addition to access connections with selected public roads, there may be some access by private entrances/driveways. For median section roads the desirable distances between median breaks (*crossovers*) is related to the design speed of the road as follows:

<table>
<thead>
<tr>
<th>DESIGN SPEED</th>
<th>DESIRABLE DISTANCE BETWEEN MEDIAN BREAKS (CROSSOVERS)</th>
</tr>
</thead>
<tbody>
<tr>
<td>40 mph</td>
<td>700 feet</td>
</tr>
<tr>
<td>45 mph</td>
<td>800 feet</td>
</tr>
<tr>
<td>50 mph</td>
<td>900 feet</td>
</tr>
</tbody>
</table>

In general all access points to controlled access roads should be aligned with median crossovers. However, in selected cases, consistent with good traffic safety and road performances, access may be permitted to a median section road through a right turn in - right turn out entrance not aligned with a median crossover.

Access to local roads should be consistent with VDOT standards.

**Turn Lane Requirements.** Separate turn lane(s), left and/or right, are to be provided at all intersections where they are necessary for safety and to efficiently serve anticipated traffic volumes and operating conditions. Right turn/decel lanes are to be provided for permitted private entrances where required by VDOT standards.

**Design Speed.** This is a speed determined for design and correlation of the physical features of a road that influence vehicle operation; it is the maximum safe speed maintainable over a specified section of highway when conditions permit design features to govern. VDOT standards for road characteristics including curvature, super elevation, sight distance and gradients are related to design speeds and should be adhered to in the design of any specific road improvement.
Proposed ELAMP Road Network

LEGEND

11 March 1987

PROJECT NO. GEOMETRIC SECTION
GEOMETRIC SECTIONS

FREEm bubble

USR UAR
RUR
U4 (52°)
L4
S36 S38 S40 S48

NORTH

FEET

MILE

KILOMETER

1 2 3 4

5000 3000 1000 0 1000

COUNTRYSIDE

SUcAland Run

STERLING PARK

DULLES INTERNATIONAL AIRPORT

CIT

207
TYPICAL SECTIONS

TYPE E4R-E6R-E8R
(SIX LANE THROUGH STREET DOUBLE MEDIAN)

TYPE R4R-R6R
(TWO LANE THROUGH STREET RAISED MEDIAN)

TYPE U4R
(URBAN 4 LANE RAISED MEDIAN)

TYPE U4
(URBAN 4 LANE)

TYPE L4
(INDUSTRIAL ACCESS ROAD 4 LANE)

PROVISION OF SIDEWALK CONSIDERED ON A CASE BY CASE BASIS

COUNTY OF LOUDOUN
ROUTE 7 CORRIDOR PLAN
LEESBURG PIKE LOUDOUN COUNTY

FROM: LEESBURG CORPORATE LIMITS
TO: LOUDOUN - FAIRFAX COUNTY LINE

Prepared by: Transportation Planning Division with assistance from Loudoun County Planning Department
JANUARY 1984

CONCEPT PLAN SUBJECT TO CHANGE
The Route 7 Corridor Plan was adopted by the Board of Supervisors of the County of Loudoun on October 3, 1988. The Plan is a part of the County’s comprehensive plan, amended to the Eastern Loudoun Area Management Plan (ELAMP), the Pearson North Area Management Plan (PANMP), and the Leesburg Area Management Plan (LAMP).

The Route 7 Corridor Plan has been developed to address future traffic flow management along Route 7 from the Leesburg Corporate Limits east to the Fairfax County line. With continued development anticipated along this section of Route 7, the Planning Commission has deemed a comprehensive study of this corridor to be necessary for the development of an adequate road network plan more capable of accommodating the resultant traffic generated by new development and the continued growth experienced in the County.

The Route 7 Corridor Plan includes Route 7, proposed north and south parallel collector roads, a series of proposed north-south roads crossing Route 7 by flyover bridges, and north-south major arterial roads intersecting Route 7 at grade separated interchanges. Major roads in this corridor area are proposed to be four or six lanes.

The Plan proposes a limited access condition to Route 7 from Leesburg east to the proposed Algonquin Parkway interchange near the Countryside subdivision. From the Algonquin Parkway east to the Loudoun/Fairfax County line, the Plan proposes controlled access to Route 7.

The Plan is to be considered a guide for improvements to the Route 7 corridor. The intent is for this Plan to function as a tool, a guide to Loudoun citizens, the land development community and the County government through the decision making process for projects in this corridor area. Subsequent changes to the Plan can be made through the plan amendment process and/or the land development process.

The development of this Plan has been a cooperative effort. Involved in this effort have been the Planning Commission, individual citizens and citizen groups of the County, members of the business community active in the County, the Virginia Department of Transportation and County staff.

Inquiries concerning the Route 7 Corridor Plan can be addressed to the Transportation Division of the Department of Technical Services (telephone: 777-0220) or the Department of Planning and Zoning, Division of Comprehensive Planning (telephone: 777-0246).

The location of interchanges are conceptual in nature and are subject to refinement on the basis of approved record plats, subdivision plans, rezoning and special exceptions.

The final Route 7/Route 659 interchange design and location should accommodate the Washington Gas and Light gas line.

The location of the Lansdowne/IBM east flyover should be sensitive to the Belmont Plantation and adjacent development and could be moved as long as it meets VDOT requirements.

Potomac Farms:
* The north parallel road will be realigned to the north to lessen its impact on existing homes. This alignment may encroach on the floodplain and would need to be sensitive to floodplain requirements.

* A grade separated point of access that crosses the north parallel road will be provided to maintain access to the Potomac River. This access shall accommodate emergency vehicles.

* A second point of access that minimizes the attraction of through traffic will be identified.

The Route 28 west parallel road needs to connect to the Route 7 south parallel road. The crossing of Broad Run needs to be at the best engineering location which is to be determined by VDOT.

Prior to the Phase II Route 7/Route 28 interchange construction which eliminates direct access to the Broad Run Farms community, the location of a second point of access to the community must be identified.

The design of the Algonquin Parkway interchange is to be reexamined in an effort to eliminate signalization.

For the north service road, alignment adjustments and buffering should be used at the site plan stage to minimize impacts on residential areas and the lake.
"The County endorses the continuation of a limited access condition for Route 1 east to the James City County Line. The western end of this limited access will remain jointly with the County of James City, the Town of Leesburg and the Virginia Department of Transportation."

NOT TO SCALE
The final Routes 7/Freeway 419 interchange design and location should accommodate the Washington Gas and Light line.

The location of the Lansdowne/RCA and Freeway should be sensitive to the Scoburn Plantation and adjacent development and could be moved as long as it meets VDOT requirements.
Prior to the Phase II Route 29/Route 28 interchange construction which eliminates direct access to the Grand Run Farms development, the location of a secure point of access to the community must be identified.

The Route 29 west parallel road needs to connect to the Route 7 north parallel road. The crossing of Grand Run roads to be at the best existing location which is to be determined by VDOT.

The design of the Aldie-Monk Parkway interchange is to be reconsidered in an effort to eliminate signalization.
For the north service road, alignment, adjustments, and buffering should be used at the site plan stage to minimize impacts on residential areas and the lake.
## APPENDIX II

**EASTERN LOUDOUN**  
**INVENTORY OF SELECTED SECONDARY ROAD**  
**AVERAGE DAILY TRAFFIC**  
**1970-1978**

<table>
<thead>
<tr>
<th>Route</th>
<th>From</th>
<th>To</th>
<th>1970</th>
<th>1974</th>
<th>1976</th>
<th>1970</th>
<th>Av. annual % increase</th>
<th>Total % increase</th>
</tr>
</thead>
<tbody>
<tr>
<td>606</td>
<td>634</td>
<td>775</td>
<td>1,228</td>
<td>1,791</td>
<td>1,990</td>
<td>2,309</td>
<td>8.2%</td>
<td>88.0%</td>
</tr>
<tr>
<td>606</td>
<td>775</td>
<td>28</td>
<td>1,524</td>
<td>2,224</td>
<td>2,508</td>
<td>2,107</td>
<td>4.1%</td>
<td>38.3%</td>
</tr>
<tr>
<td>606</td>
<td>28</td>
<td>605</td>
<td>3,181</td>
<td>5,033</td>
<td>6,529</td>
<td>8,128</td>
<td>12.4%</td>
<td>155.5%</td>
</tr>
<tr>
<td>625</td>
<td>607</td>
<td>28</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>1,315</td>
<td>N/A</td>
<td>N/A</td>
</tr>
<tr>
<td>625</td>
<td>28</td>
<td>775</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>3,673</td>
<td>N/A</td>
<td>N/A</td>
</tr>
<tr>
<td>625</td>
<td>775</td>
<td>637</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>4,008</td>
<td>N/A</td>
<td>N/A</td>
</tr>
<tr>
<td>625</td>
<td>637</td>
<td>846</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>3,132</td>
<td>N/A</td>
<td>N/A</td>
</tr>
<tr>
<td>625</td>
<td>846</td>
<td>604</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>450</td>
<td>N/A</td>
<td>N/A</td>
</tr>
<tr>
<td>637</td>
<td>625</td>
<td>638</td>
<td>382</td>
<td>535</td>
<td>605</td>
<td>950</td>
<td>12.1%</td>
<td>148.7%</td>
</tr>
<tr>
<td>637</td>
<td>638</td>
<td>7</td>
<td>300</td>
<td>640</td>
<td>730</td>
<td>993</td>
<td>16.1%</td>
<td>231.0%</td>
</tr>
<tr>
<td>637</td>
<td>7</td>
<td>839</td>
<td>-</td>
<td>7,041</td>
<td>7,983</td>
<td>8,080</td>
<td>3.5%</td>
<td>14.8%</td>
</tr>
<tr>
<td>637</td>
<td>839</td>
<td>826</td>
<td>1,097</td>
<td>922</td>
<td>1,403</td>
<td>1,781</td>
<td>6.2%</td>
<td>62.4%</td>
</tr>
<tr>
<td>846</td>
<td>7</td>
<td>625</td>
<td>8,890</td>
<td>13,338</td>
<td>13,657</td>
<td>15,458</td>
<td>7.2%</td>
<td>73.9%</td>
</tr>
<tr>
<td>846</td>
<td>625</td>
<td>1402</td>
<td>6,608</td>
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<td>14,357</td>
<td>13,891</td>
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<tr>
<td>846</td>
<td>1402</td>
<td>1401</td>
<td>6,022</td>
<td>13,500</td>
<td>12,902</td>
<td>13,103</td>
<td>10.2%</td>
<td>117.6%</td>
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<tr>
<td>846</td>
<td>1401</td>
<td>1417</td>
<td>6,995</td>
<td>13,416</td>
<td>13,366</td>
<td>12,958</td>
<td>8.0%</td>
<td>85.2%</td>
</tr>
<tr>
<td>846</td>
<td>1417</td>
<td>1419</td>
<td>6,509</td>
<td>11,376</td>
<td>11,014</td>
<td>10,790</td>
<td>6.5%</td>
<td>65.8%</td>
</tr>
<tr>
<td>846</td>
<td>1419</td>
<td>636</td>
<td>5,813</td>
<td>10,060</td>
<td>8,120</td>
<td>9,863</td>
<td>6.8%</td>
<td>69.7%</td>
</tr>
<tr>
<td>846</td>
<td>636</td>
<td>28</td>
<td>5,590</td>
<td>7,725</td>
<td>6,619</td>
<td>8,359</td>
<td>5.2%</td>
<td>49.5%</td>
</tr>
<tr>
<td>Route</td>
<td>From</td>
<td>To</td>
<td>1970</td>
<td>1974</td>
<td>1976</td>
<td>1970</td>
<td>Av. annual % increase</td>
<td>Total % increase</td>
</tr>
<tr>
<td>-------</td>
<td>------</td>
<td>----</td>
<td>------</td>
<td>------</td>
<td>------</td>
<td>------</td>
<td>----------------------</td>
<td>-----------------</td>
</tr>
<tr>
<td>1701</td>
<td>637</td>
<td>0.08M E begin loop</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>8,100</td>
<td>N/A</td>
<td>N/A</td>
</tr>
<tr>
<td>1701</td>
<td>0.08M E begin loop</td>
<td>1,702</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>6,191</td>
<td>N/A</td>
<td>N/A</td>
</tr>
<tr>
<td>1701</td>
<td>1702</td>
<td>1712 E int.</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>4,244</td>
<td>N/A</td>
<td>N/A</td>
</tr>
<tr>
<td>1701</td>
<td>1712 E int.</td>
<td>1735 S. Int.</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>2,279</td>
<td>N/A</td>
<td>N/A</td>
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<tr>
<td>1701</td>
<td>1735 S. Int.</td>
<td>1,742</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>1,976</td>
<td>N/A</td>
<td>N/A</td>
</tr>
<tr>
<td>1701</td>
<td>1742</td>
<td>1,725</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>2,488</td>
<td>N/A</td>
<td>N/A</td>
</tr>
<tr>
<td>1701</td>
<td>1725</td>
<td>1,724</td>
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<td>-</td>
<td>-</td>
<td>2,609</td>
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<td>N/A</td>
</tr>
<tr>
<td>1701</td>
<td>1724</td>
<td>1701 End Loop</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>4,291</td>
<td>N/A</td>
<td>N/A</td>
</tr>
</tbody>
</table>

Sources: 1970, 1974, 1976 Counts from Loudoun County RMP 1978 Counts taken May-August 1978 by VDOT and are generally understated from real traffic counts.
<table>
<thead>
<tr>
<th>ROADWAY</th>
<th>LOCATION</th>
<th>LANES RIGHT-OF-WAY</th>
<th>DESCRIPTION</th>
</tr>
</thead>
<tbody>
<tr>
<td>2. East Access Rd. Davis Drive</td>
<td>Route 625 to Route 634 Extended</td>
<td>4 lanes-undivided 70' row (except) 90' row within 225' of major intersections.</td>
<td>U4. Urban Minor Collector. 52' curb face-curb face. Left and right turn lanes required at all major intersections. 40 mph design speed. Controlled access.</td>
</tr>
<tr>
<td>3. East Access Road Davis Dr.</td>
<td>Route 634 Extended to Sterling Blvd.</td>
<td>4 lanes-undivided 70' row (except) 90' row within 225' of major intersections.</td>
<td>U4. Urban Minor Collector. 52' curb face-curb face. Left and right turn lanes required at all major intersections. 40 mph design speed.</td>
</tr>
<tr>
<td>4. Route 634 Extended</td>
<td>Route 28 Overpass (new) to Davis Drive</td>
<td>4 lanes-undivided 70' row (except) 90' row within 225' of major intersections and between Glenn Dr. Extended and Davis Drive.</td>
<td>U4. Urban Minor Collector. 52' curb face-curb face. Left and right turn lanes required at all major intersections. 40 mph design speed. Controlled access.</td>
</tr>
<tr>
<td>5. Route 775/Glenn Drive Extended</td>
<td>Route 625 to Sterling Blvd.</td>
<td>4 lanes-undivided 70' row (except) 90' row within 225' of major intersections.</td>
<td>U4. Urban Minor Collector. 52' curb face-curb face. 40 mph design speed.</td>
</tr>
</tbody>
</table>

205
<table>
<thead>
<tr>
<th>ROADWAY</th>
<th>LOCATION</th>
<th>LANES RIGHT-OF-WAY</th>
<th>DESCRIPTION</th>
</tr>
</thead>
<tbody>
<tr>
<td>6. Route 636 Shaw Road</td>
<td>Route 625 to Sterling Blvd.</td>
<td>4 lanes-undivided 70' row (except) 90' row within 225' of major intersections.</td>
<td>U4. Urban Minor Collector. 52' curb face-curb face. 40 mph design speed.</td>
</tr>
<tr>
<td>7. Route 625 Church Road</td>
<td>1,200' west of gore point for Route 28 westside interchange to Route 637.</td>
<td>4 lanes-divided. 120'-160' row and limited access between Route 28 and Davis Drive. Land required for Route 28 interchange. 110' row between Davis Drive and Route 637.</td>
<td>U4R. Controlled access median divided major urban collector. Re-aligned section to become part of Route 28/625 interchange. Left and right turn lanes required at all intersections. 50 mph design speed.</td>
</tr>
<tr>
<td>8. Sterling Blvd. Route 846</td>
<td>Route 28 to Davis Drive</td>
<td>6 lanes-divided. 120'-160' row plus land required for Route 28 interchange.</td>
<td>U6R. Controlled access median divided major urban collector section to be re-aligned north at Route 28 interchange. Left and right turn lanes required at all intersections. 50 mph design speed.</td>
</tr>
<tr>
<td>ROADWAY</td>
<td>LOCATION</td>
<td>LANES RIGHT-OF-WAY</td>
<td>DESCRIPTION</td>
</tr>
<tr>
<td>------------------</td>
<td>--------------------------------------------</td>
<td>-----------------------------------------------------------------------------------</td>
<td>-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------</td>
</tr>
<tr>
<td>9. Route 28</td>
<td>Fairfax County Line to Route 7</td>
<td>6 lanes-divided 200' row, plus land dedication required for interchange ramps at all proposed interchange locations.</td>
<td>Freeway. E6R Limited Access. All at-grade access will be terminated when road becomes a freeway. Any short-term temporary access limited to existing intersections and stub roads. 60 mph design speed. Phase Improvement Program may include 4 and/or 6 lane major arterial sections. Left and right turn lanes required at all intersections/entrances during arterial phases of Route 28 improvements must be consistent with ultimate freeway design sections.</td>
</tr>
<tr>
<td>10. &quot;New&quot; East West Connector Road</td>
<td>Route 636 to Davis Drive between Route 625 and Route 634 extended.</td>
<td>4 lanes-undivided 70' row</td>
<td>U4. Urban Minor Collector, 52' curb face-curb face, 40 mph design speed. This road is intended to be conceptual. The exact location to be determined during land development process.</td>
</tr>
</tbody>
</table>
COMMUNITY FACILITIES PLAN

INTRODUCTION

Community Services and Facilities take on special importance in the eastern Loudoun area. The area borders Dulles International Airport and is the location of prime industrial land. It has the largest population concentration in the County outside the Town of Leesburg. Therefore, the demand for services will be disproportionately high in eastern Loudoun, as compared to the balance of the County.

Community Services and Facilities serve one primary goal. This goal is to provide for the physical, cultural and safety needs of the community. The services of concern are fire and rescue, law enforcement, sewer and water, libraries, schools, parks and recreation. This section of the area plan analyzes the future community needs for these specific public facilities. This area plan element establishes a general guideline for location and timing of questions which are annually reviewed in the County Operating Budget and the Capital Improvements Program.

Facilities and services are expensive to provide. Therefore, demand must be recognized early so that costs may be planned for well in advance. Community facilities can also influence growth, either to promote or retard it at specific locations. Advance planning is necessary if facilities are to guide and not simply follow growth. Moreover, services and facilities are the visible response to community demand. They also respond to specific needs of public health, safety and welfare. Finally, community facilities, if properly located, can serve to foster community identity. This is especially needed in a suburban area such as the eastern Loudoun area where many people work outside the County.

With the increasing demands on the County budget and the desire to influence growth (and foster community identity) while responding to community needs, it is incumbent on the County and its citizens to carefully consider all the costs involved with each community facility or service. Accepting a privately contributed site at the wrong location not only does an injustice to its immediate service area, but offends the taxpaying community at large because additional funds will be expended at a poor location with limited service potential.

The County must consider advance purchase of sites and pursue methods which will reduce the tax burden for maintenance of community facility sites. Only in this way can facilities be assured in the most appropriate locations at the most reasonable cost. This is managed development in the best interest, providing for the health, safety, and welfare of the citizens of Loudoun County.

Residential and non-residential development proposals will be required to plan and design for a "community focus" within each planning area. The elements of these activity centers are (1) schools, (2) commercial centers, (3) fire and library facilities and (4) parks.

Community Services and Facilities can be thought of as providing for citizen needs on two broad levels, the "community" and the neighborhood. This is stated in the
Resource Management Plan as the “Village Center” concept. Under this concept, facility provision is focused to encourage a sense of community. This occurs at the neighborhood and community levels. A neighborhood level facility is one which is generally within easy walking distance. This would include elementary schools, neighborhood parks and, at times, a fire/rescue branch station. A community facility requires the population support of two or more neighborhoods. Neighborhood shopping centers are provided at this level, as are libraries, community centers and high schools.

POLICIES

The items described below are specific policies adopted in the Resource Management Plan. The key objective of the Community Facilities Plan is to implement these policies. The planning recommendations offered in this section will become County policy and will be implemented with each new subdivision or planning effort.

1. RMP Provisions:

   Community Facilities and Utilities will be located to serve an optimum number of citizens and to be in agreement with the land use goals and policies as stated in the Resource Management Plan (RMP). These policies are specified under the “Community Development” section, pp. 230-232 in the RMP.

2. Future Planning:

   As part of the metropolitan area, Loudoun County and eastern Loudoun should coordinate facility and service provisions with other jurisdictions. (RMP, p. 198, #4).

3. Standards:

   Provision of services and facilities should maintain the highest community standards possible to promote the health, safety, welfare and order within the management area. (RMP, p. 197, #1).

4. Industrial Promotion:

   Public utilities will be planned to encourage expansion of the industrial base and increase employment opportunities at an appropriate rate. (RMP, p. 198, #2).

5. Phasing:

   Community facilities and utilities will be designed and phased at a scale and rate compatible with fiscal restraints and the impact of new construction. (RMP, p. 198, #2 and p. 232, #8).

6. Environmental Concern:
Community facilities and utilities will be developed to limit environmental degradation (RMP, p. 194, #3, p. 196, #2, p. 198, #2).

7. Facility Function:

Community Facilities will be located to focus the community at the neighborhood or village center level to promote community identity. (RMP, p. 228, #8, p. 232, #8.)

8. Fiscal Management:

Develop multiple purpose facilities where compatible with service provision and where a contiguous population is to be served.
SEWER AND WATER FACILITIES

INTRODUCTION

The eastern Loudoun area has developed to a density requiring public water and sewer service. The objective for future development is to provide sewer and water to additional growth areas in a coordinated and planned manner. There has been adequate sewer and water for eastern Loudoun’s growth in the past two decades, but there remain existing residential areas that require public facilities to promote the health and welfare of the local residents. These existing areas with inadequate facilities should be serviced at the appropriate time, in conjunction with new growth areas.

The Resource Management Plan (RMP) recommends that all areas designated as "Community" and "Community Development" areas should have public water and sewer. (See Figure 1, page 212). This policy will promote the phasing out of septic systems and development of adequate public facilities. The Loudoun County Sanitation Authority has the regulatory power to implement the County sewer policy which requires that all developers build the public infrastructure necessary for public health, subsequent to the Board of Supervisors’ approval of a development (See Figures 2 and 3, pages 213, 214 for location of proposed and existing water and sewer lines.)

RMP RELATED POLICIES

The following policies and goals have been adopted as guidelines for adequate service to all sewer and water users in eastern Loudoun.

Sewer and water extensions will be designed and constructed to comply with the goals and policies as stated in the RMP. Specific areas for these extensions will be reviewed according to the “Community” and “Potential Community” sections of the Plan, and according to area-specific policies and standards. (RMP, p. 230, #7).

1. Design and Construction:

The Loudoun County Sanitation Authority will regulate the location and design of the sewer and water facilities in conjunction with the Planning Department, Environmental Health Department and other appropriate agencies. (RMP, p. 196 and 197, #1).

2. Sewer and Water Extension Locations:

The entire area planning district will be served by sewer and water facilities for all major development of medium or high density. Low density development tied to individual septic systems, will require waivers from the County Department of Planning and Zoning and the Sanitation Authority. (RMP, p. 252).
Figure 2

Existing & Proposed Sewer Lines
Eastern Loudoun 1979 (Approximate)

Existing Sewer Lines
Proposed Sewer Lines
Figure 3

Existing & Proposed Water Lines
Eastern Loudoun 1979 (Approximate)

Existing Water Lines
Proposed Water Lines
3. Size of Lines:

   The location of lines for sewer and water will be planned by the Sanitation Authority for the appropriate density for all future development, including fire service. *(RMP, p. 253 #4)*

4. Industrial Promotion:

   Sewer and water extensions will be designed and constructed to provide for extensive industrial and office development. Expanded employment and industrial bases are high priorities for future development. *(RMP, p. 253, #3).*

5. Phasing:

   If the Blue Plains expansion program is deferred or capacity limits are imposed on Loudoun County, sewer capacity will require a phased approach to development. The proportions of sewer capacity should be allotted equitably by the Sanitation Authority to approved industry, office and commercial development and to housing development. Phasing areas should be established and implemented. *(RMP, p. 197, #2; p. 253, #4).*

6. Expansion of Treatment Capacity:

   The County should encourage alternative treatment plants to that at Blue Plains. If Blue Plans is limited with regard to Loudoun County capacity, new sources will have to be planned and developed. *(RMP, p. 197, #4). (See implementation section of this plan).*

7. Environmental Review:

   The location of sewer and water lines should be reviewed with a view to causing the least environmental disruption to the area. *(RMP, p. 197, #2; p. 253, #3).*

8. Capital Improvements Program:

   The existing and proposed sewer and water facilities that require public expenditure should be initiated as a Capital Improvements Program *(CIP)* item and planned for implementation by the Sanitation Authority. *(RMP, p. 254, #1).*

**EXISTING CONDITIONS**

   The majority of eastern Loudoun is, or is able to be served by public sewer and water. Sanitation facilities such as on-site disposal *(septic systems)* exist in the area, but have a high failure rate due to soil and groundwater problems. Generally, these areas are one acre lots for single family homes in the Broad Run Farms, Richland Acres and Oak Grove subdivisions. Due to the poor soil conditions, these areas will require an alternative sewage disposal method to promote public health and safety. Public water
service is available to the majority of eastern Loudoun except for various individual lots scattered throughout.

The capacity of future sewer and water connections is determined by the Blue Plains sewer treatment plant in Washington, D.C., and the Fairfax City water reservoir on Goose Creek. The County and the Sanitation Authority have formal agreements governed and implemented by the Loudoun County Sanitation Authority that regulate the amount of sewage treatment available and the capacity for water development.

The capacity of both water and sewer facilities could be exceeded in the near future if additional capacity is not allocated at Blue Plains and on Goose Creek. Over 4,000 housing units are planned for construction in the area which do not have Sanitation Authority approval for sewer capacity reservation at Blue Plains. Also, extensive commercial and industrial expansion is planned without reserved capacity. Water supply may also be a problem in the future if the flows in Goose Creek diminish. The implementation section offers alternative solutions to these potentially very significant problems.

The history of Loudoun County’s sewer capacity is complicated. The initial Blue Plains agreement (1963) allowed for 17.93 million gallons of effluent per day from Loudoun County. This was altered in 1971 to 3.208 million gallons, until the expansion of the plant could be completed. As of September 1, 1979, the County was contributing 1.937 million gallons per day to Blue Plains, and had committed 1.1 million gallons for future development, making a total of just over 3.0 million gallons.

Capacity for future projects will be determined by two factors: (1) timing and size of existing projects, and (2) completion of the expansion of Blue Plains, projected for the summer of 1980. New residential, commercial and industrial development in eastern Loudoun could be restricted if the 3.208 million gallons per day limit is exceeded. Therefore, the timing of existing and new projects is critical to the growth of eastern Loudoun. The District of Columbia has recently informed the Sanitation Authority by letter that they acknowledge their responsibility to provide sewer capacity to Loudoun County under the 1963 agreement and will use their best efforts to honor that agreement.

POLICIES

Future Development:

New sewer and water utility proposals will be reviewed and implemented by the Loudoun County Sanitation Authority. Development costs will be borne by the private developer. Priorities for sewer and water extensions will be given to the following areas as they receive the appropriate approvals from county agencies for development.

1. Industrially zoned land which has the capacity for growth and which is located adjacent to highway facilities, especially in conjunction with Highway Access Funds to promote industrial expansion.
2. Consideration shall be given to adjacent properties during the rezoning process, specifically for sewer and water capabilities. The capacity for sewer facilities will be specifically tied to the planned density for the watershed or sewer service area.

3. Areas planned for commercial development that are presently zoned C-1 or PD-SC.

4. Other areas adjacent to Routes 28 and 7.

Existing Sewer Problem Areas:

The properties that are experiencing constant sewage disposal problems should be programmed for sewer extensions at the appropriate time. Those large areas are: Broad Run Farms, Oak Grove and Richland Acres. Many other smaller properties exist in eastern Loudoun that have soils and disposal problems. The process for obtaining public sewer service would be:

1. Area designated as a sewer extension area by Resource Management Plan, with concurrence of residents.

2. Funding source identified:
   a. Environmental Protection Agency (EPA)
   b. Private developer within the general area.
   c. Community Development Block Grant (CDBG) application.
   d. County expenditure or matching funds.

3. Inclusion of project into County CIP.

4. Finance and construction schedule established by Sanitation Authority.

**IMPLEMENTATION**

Sewer Treatment Capacity:

Additional sewage treatment facilities should be identified in view of the uncertain future of Blue Plains. Options include:

1. "Pumpdown": Trade off of capacity with Fairfax County with their sewage pumping station off of Colvin Road at Route 7. Cost would be approximately $5 million for 10% of the capacity of the pumping station. The pumping station is designed for 10 million gallon ultimate capacity in the year 2000.
2. Dulles Airport. In 1974 plans were discussed for a treatment plant to be built at Dulles Airport. Loudoun should be included in discussions if such plans are initiated.

Additional Water Capacity:

The reservoir on Goose Creek is controlled by the City of Fairfax, but Loudoun County has a legal agreement to purchase water for the County at cost. If additional water flow is necessary, the future options available would be:

1. Fairfax City Reservoir: Increase the capacity of the reservoir to allow more storage of water.

2. Goose Creek: The amount of water extracted from Goose Creek could be increased. This requires state approval.

3. Potomac River: The water supply project being undertaken by the Fairfax County Water Authority in eastern Loudoun can be tapped for further water reserves for the surrounding population.

SCHOOLS

INTRODUCTION

The location, design and rate of construction of school facilities are key factors in defining the future physical character and financial status of both Loudoun and the entire County. School buildings can be seen as the social focus for a neighborhood, as well as providers of valuable open space and recreational opportunities for the surrounding households. The provision of quality education for the students of eastern Loudoun will require major public investment in the future. Since school construction and operation account for more than 75% of the annual County budget, the number and capacity of new schools requires special emphasis in the Area Plan.

Schools require extensive land area (up to 50 acres for a high school) and cost about $4,000,000 for the standard elementary school. The rate of construction of schools affects the County’s bond capacity, bond rating and tax rate, and affects the allocation of funds to all other County operations and programs. For these reasons, school location must be planned far in advance of actual construction. Proper siting criteria must be developed and relayed to prospective private developers prior to a rezoning application, in order to promote appropriate proffers. Developers should be encouraged to proffer both sites and funds to be applied toward the construction of new schools which would more equitably place the burden of new educational costs on the residents who will use them.

This element of the public facility plan discusses the locational issues and extent of school development. The other important issues relating to financing and design will require a cooperative planning effort with the School Board and other County agencies.
POLICIES

The following policies govern the future implementation of school facilities in eastern Loudoun. These policies apply not only to school programming but also to recreational facilities, transportation and public utilities.

1. Relationship to Resource Management Plan:

School development will comply with the public facility provisions of the RMP to assist in the control of growth and to limit unwarranted and poorly timed growth. Only "Villages", "Potential Communities" and "Community" areas will be considered appropriate locations for schools. (RMP, p. 256, #1).

2. Capital Improvements Program:

All new public schools and additions will be included in the County CIP to program the construction over the five-year life of the CIP.

3. Location:

New school sites should be located to encourage maximum pedestrian usage of the school, with safe and efficient vehicular access.

4. Recreation:

New and existing school properties will be encouraged to accommodate County recreational facilities to promote efficient use of public property for multiple purposes (RMP, p. 256, #3.)

5. Utility Extensions:

The provision of sewer and water extensions for schools will be planned to promote concentrated development with a community focus.

6. Vehicular and Pedestrian Access:

Each new school site should be designed to provide safe and efficient vehicular and pedestrian access, including grade separated underpasses where necessary.

EXISTING FACILITIES

There are currently six elementary, two middle and two high schools serving 27,069 people of the eastern Loudoun area. The Broad Run High School is located outside the planning area, but serves portions of eastern Loudoun. It will be necessary to construct a new high school as CountrySide, Cascades and Pocahontas (now part of Cascades) are developed north of Route 7. The Meadowland Elementary School will relieve pressure
on the Sugarland Run Elementary School in the Sugarland vicinity. The new Forest Ridge subdivision may require a new elementary school in that area. The following table describes the capacity situation of the existing schools in eastern Loudoun. Given the projected population growth, the existing excess school capacity will be utilized in three to four years.

<table>
<thead>
<tr>
<th>School</th>
<th>Design Capacity</th>
<th>1978 Enrollment</th>
<th>1979 Enrollment</th>
<th>Use Capacity(^2)</th>
<th>Use Balance</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sterling Elementary</td>
<td>660</td>
<td>555</td>
<td>452</td>
<td>579</td>
<td>127</td>
</tr>
<tr>
<td>Meadowland Elementary</td>
<td>760</td>
<td></td>
<td>474</td>
<td>692</td>
<td>218</td>
</tr>
<tr>
<td>Seneca Ridge Middle</td>
<td>1,200</td>
<td>618</td>
<td>640</td>
<td>1,080</td>
<td>440</td>
</tr>
<tr>
<td>Rolling Ridge Elem.</td>
<td>760</td>
<td>577</td>
<td>592</td>
<td>628</td>
<td>36</td>
</tr>
<tr>
<td>Park View High School</td>
<td>1,500</td>
<td>1,143</td>
<td>1,263</td>
<td>1,350</td>
<td>87</td>
</tr>
<tr>
<td>Sugarland Elementary</td>
<td>760</td>
<td>680</td>
<td>493</td>
<td>654</td>
<td>161</td>
</tr>
<tr>
<td>Sterling Middle</td>
<td>1,050</td>
<td>1,047</td>
<td>998</td>
<td>945</td>
<td>-53</td>
</tr>
<tr>
<td>Guilford Elementary</td>
<td>660</td>
<td>527</td>
<td>604</td>
<td>579</td>
<td>-25</td>
</tr>
<tr>
<td>Sully Elementary</td>
<td>660</td>
<td>592</td>
<td>552</td>
<td>579</td>
<td>27</td>
</tr>
<tr>
<td>Broad Run High School</td>
<td>1,325</td>
<td>836</td>
<td>728</td>
<td>1,193</td>
<td>465</td>
</tr>
</tbody>
</table>

**FUTURE REQUIREMENTS**

School enrollment in the County has been declining overall and is projected to continue falling as household size drops until 1985-86. However, household size is higher in rapidly growing communities such as eastern Loudoun, and student generation per household can be expected to be higher. Furthermore, as the housing stock increases, so do the number of school children. The following table indicates anticipated school children by planning area. Actual students should attend the schools approximately six months after the year-end date indicated.

---

1. The discussion and estimates in this section were prepared by the planning staff, working with the School Board staff from the most recently released information from the School Board. The School Board will make the final decision about timing and location of facilities, in conjunction with the Planning Department.

2. The use-capacity of schools shall be defined as the number of students that can be housed in a school building based upon the system-wide program as determined by the School Board. The use capacity of schools shall be revised annually at the beginning of each school year.
<table>
<thead>
<tr>
<th></th>
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<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>North of Route 7</td>
<td>1,889</td>
<td>2,296</td>
<td>2,739</td>
<td>3,362</td>
<td>4,298</td>
<td>4,987</td>
<td>5,505</td>
<td>6,005</td>
<td>7,512</td>
</tr>
<tr>
<td>South of Route 7</td>
<td>4,576</td>
<td>5,150</td>
<td>5,521</td>
<td>5,847</td>
<td>6,175</td>
<td>6,420</td>
<td>6,472</td>
<td>6,508</td>
<td>6,788</td>
</tr>
<tr>
<td>Totals</td>
<td>6,465</td>
<td>7,446</td>
<td>8,260</td>
<td>9,209</td>
<td>10,473</td>
<td>11,407</td>
<td>11,977</td>
<td>12,513</td>
<td>14,300</td>
</tr>
</tbody>
</table>

Enrollment in most schools in the eastern Loudoun area is currently under both design and use capacity (See Table 1). Students per school are expected to remain relatively stable except where new residential development, primarily north of Route 7, will raise enrollment. However, new state and federally mandated education programs and new capacity criteria are expected to substantially decrease school use capacity by 1980 which will tax the existing schools even further. These programs, in addition to population growth, will require additional new capacity in the near future. Given the excess capacity of existing schools in eastern Loudoun, plus the projected residential development, the area will be experiencing severe capacity problems by 1982 or 1983.

1. **Future School Needs**

   The County School Board has several choices that address school facility requirements. With growth in residential units, the Board may:

   a. Build new school buildings.
   b. Expand existing buildings with permanent structures.
   c. Expand existing buildings with temporary classrooms.
   d. Bus students to neighboring schools that have excess capacity.

   New schools will eventually be required in eastern Loudoun, although the timetable for actual construction is difficult to project at this point. The general standards for new school construction are shown in Table 3.

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3 The discussion and estimates in this section were prepared by the planning staff, working with the School Board staff from the most recently released information from the School Board. The School Board will make the final decisions about timing and location of facilities. Figures given are for December 31 of each year.
These capacity figures are seen as guidelines for school site proffers and are not valid indicators for actual school locations.

Figure 4, p. 223, indicates the locations of both existing and proffered school sites in eastern Loudoun. The major growth area north of Route 7 has four school sites tentatively offered for school dedication. They are:

CountrySide Development: 2 elementary schools 1 middle school

Cascades: 1 elementary school

The growth projections for this area are very high and assuming a development of approximately 3,000 units at the Pocahontas (now western part of Cascades) tract, at least five elementary schools, one middle school and one high school site will be required. The necessary middle and high school sites are proffered to the County and provide sufficient space until approximately 1985. South of Route 7, the elementary schools (Guilford, Sully and Sterling) will soon be experiencing capacity problems. As the Cabin Branch, Peace Plantation and Oak Tree subdivisions are developed, this area will require more elementary school facilities. The capacity of Rolling Ridge Elementary School will also be taxed by the development of the Woodstone, Webster and Swart subdivisions.

Therefore, north of Route 7, only one additional elementary school will be needed, if the School Board accepts the four sites already proffered to the County. South of Route 7, one elementary school, possibly two, will be required.

These assumptions are subject to review by the Loudoun County School Board and will require more detailed analysis for actual location and specific size of the schools. The State of Virginia may soon change its school capacity requirements which may change the County’s assumptions regarding school capacity.

---

These figures may change in 1980 as the State of Virginia may alter its capacity figures.
Figure 4

Existing
School Sites
1979

1. Sugarland Elementary
2. Meadowland Elementary
3. Seneca Ridge Middle
4. Rolling Ridge Elem.
5. Park View High
6. Sterling Elementary
7. Sterling Middle
8. Guilford Elementary
9. Sully Elementary
10. Broad Run High

Proposed Sites
P Preferred, Accepted by County
P Preferred, Unaccepted by County
N Necessary for future Development

Legend

- 223 -
2. **Proposed New School Sites:**

   Aside from their purpose of response to public need, schools are important in focusing community identity. If schools are to be used to help create this sense of community, land acquisition for school sites in new developments should be carefully planned. The following land is currently owned by the County or has been proffered for schools.

**County Owned:**

   a. **Seneca Ridge Site:** This is an 87 acre site currently owned by the Loudoun County School Board. It is north of Route 7, south of Sugarland Run, with access from South Cottage Road. The Seneca Ridge Middle School is located on the northern edge of this site. The School Board purchased this site with long-range plans to develop a future high school here. Part of the land is in the floodplain which could present construction problems. If this site is to function adequately as a school site, a direct link with the Seneca Hills property across Sugarland Run Creek will be desirable. The traffic pattern should be designed so that access to the site does not overburden Sugarland Run residents with school vehicles. Due to the large size of the site, it has good potential for a school/park site if the floodplain is utilized. A small community scale park with playing fields would be appropriate at this location.

**Proffered Sites:**

   a. **CountrySide:** One middle school site and two elementary school sites have been proffered by the developer. The middle school site on the western edge of the tract should be more centrally located due to its large potential service area. This is also true of the elementary site on the northern edge of the tract. Furthermore, both sites would require difficult crossing of the Route 28 loop road. A grade-separated crossing is necessary. The site on the southern edge of the tract is more centrally located and is acceptable despite the number of road crossings required for elementary aged children.

   b. **Cascades:** Currently, one centrally located site has been proffered by the developer. According to current estimates, this single site will be insufficient to serve the build out demand of both Cascades and the adjacent Seneca Hills subdivision. An additional site needs to be obtained in this area.

   c. **Forest Ridge:** There is one satisfactorily located site within the Forest Ridge subdivision at this time. This site may be the first of the proffered sites developed for construction of an elementary school.

   Additional schools will most likely be necessary as increasing amounts of new development occur. The particular area of concern should be the Pocahontas
(now western part of Cascades) Tract between Route 637 and the CountrySide and Environs subdivisions.

If the Seneca Ridge site is developed as a combined middle school/high school campus, the Pocahontas tract will need 2-3 elementary schools. However, if this option is not taken, an additional high school site will be necessary in this vicinity.

A coordinated trails system to provide safe passage for children is an integral part of appropriate site selection. Trails are further discussed in the Recreation and Transportation sections of the Plan.

IMPLEMENTATION

1. Community Development:

This plan embraces the concept of "neighborhood schools" as described in the Resource Management Plan, especially with regard to elementary schools. All schools should be centrally located within a large planned development or at the logical point between several smaller housing clusters. The "neighborhood schools" concept for elementary schools should be stressed in the negotiated proffer process.

2. Trails:

Trails leading to schools should be proffered (see Transportation Plan). If trails intersect with arterial, freeway or collector roads, grade-separated crossings need to be provided.

3. Buffers:

All schools should be located within or adjacent to residential areas. Middle and high schools can act as buffers between residential and other uses. Use of schools after hours should be encouraged to minimize vandalism and maximize use.

4. Recreational Activity:

Recreational amenities, especially ballfields, should be an integral part of each school site.

5. Homeowner's Association:

If extra recreational facilities or land are available adjacent to a school site, the county should either insure that the homeowners association is financially capable of maintaining the site or a park maintenance staff should be set up by the County.
6. Location:

   Elementary schools should be at least one block off of major thoroughfares.

7. New sites:

   One additional elementary school site should be acquired in the Cascades/Seneca Hills vicinity. If a site cannot be acquired through the proffering process, it should be acquired by some other means and placed in the 1981-82 Capital Improvements Program. The Pocahontas (now western part of Cascades) developers should proffer a minimum of three school sites.

8. Temporary Use of Proffered Sites:

   Proffered school sites should be utilized as temporary recreational sites if they are not slated for immediate school construction. Sites should be prepared at general county expense for this purpose.

9. Environmental:

   The County will require that all new school sites should be proffered on land which is reasonably easy to develop with limited slope problems, floodplain land or environmentally sensitive or critical land. A soils analysis will be required for each proffered site.

10. Proffers:

    School sites should be encouraged as proffers from private developers in advance of need. Pedestrian bridges and tunnels and playing fields are also appropriate proffer items.

11. Energy:

    Every effort should be taken to promote energy efficiency in design and operation of school facilities.

12. Existing Proffered Sites:

    The proffered sites should be reviewed by the Loudoun County School Board and the proper sites dedicated to the County for future school use.

13. Future Proffered Sites:

    Assuming the School Board accepts the proffered sites, there will be a need for two or more elementary schools north of Route 7, given the projection for growth in that area. The Pocahontas Tract could offer such a site.
14. Capital Improvement Program (CIP)

All new public schools and additions will be included in the County CIP to program their construction over the five-year life of the CIP.

LIBRARIES

EXISTING FACILITIES

The eastern Loudoun area has only one public library, located in the Sterling Community Center. The Northern Virginia Community College also provides limited library services to the area. According to the state standard of .6 square feet per person, the Sterling Library is serving approximately 11,800 more people than it should. This is borne out by the high average daily use and the extremely heavy use of the bookmobile stop in the Sugarland Run area. Although not considered primary public facility needs, more library services will certainly be required as the area grows.

Two library sites in the Mirror Ridge and CountrySide developments have been proffered by private developers in the area north of Route 7, an area which is expected to place the most serious strain on library services in the future. Both sites could function as temporary or permanent library sites. They have excellent road frontage and are adjacent to proposed neighborhood shopping centers and higher density residential areas, which would promote easy access and encourage pedestrian utilization.

POLICIES

1. Resource Management Plan Provisions:

Library facilities and future construction needs should be reviewed and given consideration with other public facilities and investments in the Eastern Loudoun Planning Area, as determined by the adopted Resource Management Plan.

2. Library Services:

Quality, quantity, types and levels of library services and administration should be provided, based on standards approved by the Virginia State Library Board and the American Library Association.

3. Future Library Locations:

The County’s future planning efforts should include library sites and services as part of the Capital Improvements Program. Proffered locations within planned communities are desirable. A library should be within one block of a major thoroughfare with good visibility and should be in, near or adjacent to a shopping center. There should be easy pedestrian access by sidewalks and trails. The Sugarland Square proffered site should be considered as a potential library site due to its location in Sugarland Run and its proximity to commercial development.
4. Multiple Use:

If a library building is to be utilized for multiple purposes such as a community center, there must be separate entrances.

IMPLEMENTATION

Although library resources are expected to be limited over the next few years, library use is expected to increase markedly with the projected population growth in eastern Loudoun County. Implementation techniques are as follows:

1. Bond Issue:

   The County should consider a bond appropriation for future library facility construction.

2. Library Plan:

   The County should undertake an extensive library plan that analyzes future needs for library facilities over the next decade. This plan should include standards for library sites in eastern Loudoun which could be proffered by developers.

3. Library Construction:

   As the CountrySide and Environs subdivisions develop, the proposed library site at Countryside should be considered for a permanent facility. If the county sees fit, at or near the buildout of the Pocahontas (now western part of Cascades) Tract, an additional permanent library site should be developed somewhere along the Route 637 corridor.

PARKS AND RECREATION

INTRODUCTION

The primary function of the Parks and Recreation Plan is to insure adequate recreational opportunities and facilities for the citizens of the eastern Loudoun area. Both park facilities and the land on which to build them are necessary to respond to increased citizen demand for active and passive recreational pursuits. As more citizens come to the eastern Loudoun area, additional facilities are necessary if even the current service level is to be maintained. Early acquisition of land for park sites, open space and trails would be cost efficient and is necessary to insure adequate recreation for all citizens before the available open land has been built up.
POLICIES

The Resource Management Plan incorporated policies for parks and recreation. These have been reiterated here with emphasis on the eastern Loudoun area. Other applicable policies are also included.

1. Future Development:

   Preserve the unique quality of open space and village development patterns in future residential development. \( RMP, p. 209. \)

2. Citizen Awareness:

   Make citizens more aware of available recreational opportunities within eastern Loudoun and the balance of the County.

3. Planning:

   Encourage the advance acquisition of sites for parks as a part of the planning efforts to maximize County spending power. \( RMP, p. 260, \#1. \)

4. Historic Sites:

   Make citizens more aware of existing historic sites within eastern Loudoun and the County which can be used for recreational activity.

5. Energy Conservation:

   Parks and recreational sites should be developed to promote limited use of the automobile. Small parks should be located within each major subdivision with appropriate recreational activities available.

6. Coordination:

   Coordinate park site and school site planning for efficient use of public land. \( RMP, p. 260, \#2. \)

7. Critical Areas:

   Create park sites using environmentally critical areas and other land areas not suited for intensive development. \( RMP, p. 260, \#3. \)

8. Trails:

   Link community activity areas by open space corridors, such as stream valleys, trails, pedestrian walkways and bikeways. \( RMP, p. 260, \#4. \)
9. Access:

The County should promote access to all residents of the County, including handicapped citizens.

EXISTING FACILITIES

Passive and active recreation are provided in eastern Loudoun by both the County and by private subdivisions. The following is a list of parks and recreational facilities that exist in the eastern Loudoun Area. The relative locations are indicated in Figure 5, page 138.

| TABLE 4 |
| EXISTING RECREATIONAL FACILITIES |
| FACILITY | TYPE FACILITY | OWNERSHIP |
| Briar Patch Park | Neighborhood Park | Loudoun County |
| Sterling Community Center | Community Facility | Loudoun County |
| Algonkian Regional Park | Golf, swimming and active | No. Va. Regional Park Authority |
| Newberry Community Center | Private Community Facility | Homeowners’ Association |
| Sterling Park Golf, Swim & Tennis Club | Private Club | Sterling Park Golf, Swim & Tennis Club |
| Sugarland Run Community Ctr. | Private Community Center | Homeowners’ Association |
| Claude Moore Conservation Education Center and Historic Farm | Private Open Space | National Wildlife Federation |
| Capital Courts | Private Club | Private Corporation |

A. Description of Existing Facilities:

The existing facilities are analyzed in terms of their location for efficient provision of recreational service and their expansion potential.

The County owns a four acre neighborhood park known as "Briar Patch" plus the Sterling Community Center (See Figure 5, page 138). Both sites are poorly located for easy, safe pedestrian access for the majority of area residents. Furthermore, the community center is limited to indoor recreational activities and the County does not presently own any contiguous land for future expansion. The balance of County owned recreational activities are offered at athletic fields on the nine school sites with the eastern Loudoun area. Overall, existing recreational...
1. Sterling Community Center
2. Briar Patch Neighborhood Park
3. Algonkian Regional Park
4. Newberry Community Center
5. Sterling Park Golf & Community Area
6. Sugarland Community Center
7. Claude Moore Conservation Education Center & Historic Farm
facilities are used to maximum capacity, particularly the athletic fields. During the past two years, the Parks and Recreation Department has scheduled every available field to its maximum capacity. This seriously affects informal recreational opportunities which are forced into the local streets. As land is developed, additional pressure will be placed on an already inadequate system.

Recreational facilities can address additional special needs. Recently, juvenile delinquency has become a serious problem within the eastern Loudoun area, with problems such as vandalism and harassment of shoppers at the Sterling Park Shopping Center and other areas. Recreational facilities and programs can supply a useful mechanism to reduce this problem. Young people need a place to go where both structured and informal activities are permitted. Thus, as population increases, demand for recreational space for youths and for youth programs is becoming more apparent.

Algonkian Regional Park substantially supplements existing and planned county and private recreational areas. However, like the county sites, access is difficult without a car. During the next two fiscal years, the Northern Virginia Regional Park Authority plans to construct picnic shelters, tennis courts, a swimming pool, and a miniature golf course as well as to initiate major landscaping and road improvements. The site is located on Route 637 at the Potomac River. Existing facilities include an 18 hole golf course, a boat launching ramp, picnic tables, multiple purpose fields, olympic sized swimming pool and a clubhouse.

The Northern Virginia Regional Park Authority expects to continue its efforts to acquire land along the Potomac River to create a scenic trail. The recently opened Washington and Old Dominion Trail (W&OD) is expected to be completed from the County line to Goose Creek by 1980. Further development of the trail will occur as funding becomes available.

Other recreational amenities in the area are supplied on a private basis through homeowners' associations and private clubs. Activity on these sites is limited to residents in the immediate area who are members of the associations or of the clubs. The Sugarland and Newberry Community Centers offer swimming pools and clubhouses for their members’ use, and many programs are available. Sterling Park has no homeowners' association, but the Sterling Park Golf, Swim and Tennis Club offers recreational facilities to its members. In the future, to insure that private sites fully serve their intended clients, mandatory homeowners’ associations should be established with increased responsibility for operation and maintenance. This would help assure adequate site maintenance and access to all members within a specific neighborhood.

B. Future Recreational Development

1. Standards for Future Recreational Development:

Recreation in the eastern Loudoun area plays a major role in creating community identity. This is done by two methods: (1) focusing community solidarity through centralized activity area; (2) separation of larger
communities with linear parks. For this reason, two generalized standards adapted from national recreational criteria are offered as guidelines for future recreational development. First, local parkland should be provided within one mile of all portions of residential areas. The second standard is tied to the population and necessitates that 2.5 acres of active recreation area be provided for every 1,000 people.\(^5\)

Determining how many parks are needed and what sizes they should be is the function of definitions and standards. Therefore, the standards which follow indicate appropriate guidelines for recreational provision and community focus.

a. Definition of Parks

Active parks in the eastern Loudoun area should fall under one of the following general definitions to be used for planning land acquisition and guiding site dedication in eastern Loudoun.

| TABLE 5 |
|-------------------|------------------|
| PARK CRITERIA\(^1\) |
| Park Type | Acres  | Description                                                                 |
| Neighborhood Park | 3-10 | Playground, athletic fields, picnic tables, tennis and basketball courts. Service area: 1/2 mile ideal; 3/4 mile maximum. |
| Community Park | 10-50 | Community center, outdoor theater, buffer, plus everything in neighborhood parks. Service area: 1 mile ideal; 2 miles max. |
| Greenbelt Park | Linear | Special purpose buffer, stream valley park, trails, wildlife refuge, golf courses. |
| County or Regional Parks | 50+ | Include all uses mentioned above, plus any special activities such as camping, boating, shooting ranges, etc. Service area: county-wide. |

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\(^1\) Loudoun County Department of Planning in conjunction with the Department of Parks and Recreation.

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b. Recreational Facility Size Standards:

Specific standards adapted from the State of Virginia guidelines are necessary to determine demand and appropriate acreage for each use:

<table>
<thead>
<tr>
<th>Facility</th>
<th>Standard/Pop.</th>
<th>Acres</th>
</tr>
</thead>
<tbody>
<tr>
<td>Athletic Fields (baseball, softball, soccer)</td>
<td>1 per 1,500</td>
<td>4 acres/field</td>
</tr>
<tr>
<td>Tennis Courts</td>
<td>1 pair per 2,000</td>
<td>1 acre/pair</td>
</tr>
<tr>
<td>Basketball Courts (outdoor) (half court)</td>
<td>1 per 500</td>
<td>1/2 acre/court</td>
</tr>
<tr>
<td>Swimming Pools - 25 meter</td>
<td>1 per 10,000</td>
<td>4 acres/pool</td>
</tr>
<tr>
<td>Swimming Pools - 50 meter</td>
<td>1 per 20,000</td>
<td>7 acres/pool</td>
</tr>
<tr>
<td>Outdoor Theaters</td>
<td>1 per 20,000</td>
<td>10 acres</td>
</tr>
<tr>
<td>Golf Course (18 hole)</td>
<td>1 per 20,000</td>
<td>200 acres</td>
</tr>
<tr>
<td>Community Centers</td>
<td>1 per 15,000</td>
<td>25 acres</td>
</tr>
</tbody>
</table>

c. Trails

Currently, the Washington and Old Dominion Trail System (W&OD), and the Northern Virginia Regional Park Authority’s Potomac Trail are the only existing trails within eastern Loudoun. Residential communities do not tie into these trails at this time, either for transit or recreational purposes. Trails through greenbelt parks could serve an excellent recreational need. With careful study, trails such as these could become a coordinated trails system to provide access to community facilities and shopping. Further discussion will be found in the Transportation section of this plan as well as specific functional and design criteria.

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6 Developed by Department of Planning in conjunction with the Department of Parks and Recreation.
d. Location Standards

   Probably the most important question beyond, "Do we need a park?" is "Where should a park be located?" With this in mind, and to improve future site selection decisions, the following park location standards are recommended for adoption by the County.

1. To encourage park use, there should be easy pedestrian access by coordinated trails and sidewalks to all parks, excluding regional or County parks.

2. The park must be located within or adjacent to residential areas so that the park is within walking distance of intended users. School parks, especially those attached to elementary schools, could be a suitable option.

3. Neighborhood parks must be located within or adjacent to residential areas so that the park is within walking distance of intended users. School parks, especially those attached to elementary schools, could be a suitable option.

4. Community parks should be within one mile of intended residential users.

5. Community parks can act as buffers between two residential communities or between residential areas and areas with incompatible uses.

6. For each 275 households (approximately) there should be 2.5 acres of local parkland available (per 1,000 population).

2. Future Residential Needs

   Analyzing active recreational needs can be estimated by applying the standards recommended under Table 3, page 222, Park Size Criteria. The most immediate need in the area is for multiple purpose athletic fields. In some cases, standards fall short of demand. Utilizing the criteria of Table 6, Table 7 was calculated to indicate demand for specific facilities.

   \[ \text{Ibid.} \]
<table>
<thead>
<tr>
<th>Facility</th>
<th>Required by Standard</th>
<th>Existing Facilities</th>
<th>Balance</th>
</tr>
</thead>
<tbody>
<tr>
<td>Athletic Fields</td>
<td>18 Multiple Purpose Fields</td>
<td>29&lt;sup&gt;8&lt;/sup&gt;</td>
<td>+11</td>
</tr>
<tr>
<td>Tennis Courts</td>
<td>27 Courts</td>
<td>16</td>
<td>-11</td>
</tr>
<tr>
<td>Basketball Courts</td>
<td>27 Court</td>
<td>32</td>
<td>+4</td>
</tr>
<tr>
<td>Swimming Pools</td>
<td>2.7 - 25 meter pools</td>
<td>1.5 (private)</td>
<td>-1.2</td>
</tr>
<tr>
<td>Outdoor Theaters</td>
<td>1.4 theaters</td>
<td>0</td>
<td>-1.4</td>
</tr>
<tr>
<td>Golf Courses</td>
<td>1.4 18 Hole Courses</td>
<td>2</td>
<td>none</td>
</tr>
<tr>
<td>Public Community Centers</td>
<td>1.8 Indoor Centers</td>
<td>1</td>
<td>-.8</td>
</tr>
</tbody>
</table>

<sup>2</sup> Calculation based on December 1979 population estimate of 27,069. Note Appendix.

Table 7 attempts to estimate likely demand. However, the category of athletic fields is somewhat misleading. School sites comprise the majority of fields and they are available for a limited number of hours. Many sites can be used only for baseball and not for soccer which further limits use. There is a higher demand for true multiple purpose athletic fields than for other facilities. It is clear that the eastern Loudoun area is in need of a substantial number of recreational facilities if supply is to meet demand.

IMPLEMENTATION

1. Acquisition Priority:

   Acquisition by purchase, condemnation or proffer should occur in the following sequence where a choice is possible for the purpose of capital projects programming at the County and regional level: (1) athletic fields (baseball, soccer), (2) community centers, (3) basketball courts, (4) outdoor theater, (5) trails, (6) tennis courts, (7) swimming pools, (8) golf courses. Where dedication by the development community is not possible, the County will program park expenditures through the Capital Improvements Program.

<sup>8</sup> The number of existing fields is misleading since not all fields are multiple purpose, nor are all fields available for public use at all times (school fields). The Committee also expresses the need for more multiple purpose fields.
2. Special Studies:

A Recreation Plan should be prepared and adopted as part of the County's Comprehensive Plan. The Parks and Recreation Department should develop space requirements for a variety of recreational activities within each type of park, working with the Department of Planning.

3. School Parks:

As neighborhood parks are to be actively encouraged, the County shall explore expansion of school site size to permit school parks and community centers. Since school sites already play a primary role in recreational activities in eastern Loudoun, this would seem appropriate.

4. Sanitary Landfill Sites:

Landfill sites should be considered for future community parks, both passive and active.

5. Park and Recreational Development Activities:

The staff should prepare a County Recreation Plan that defines the overall park needs for the entire County and should then determine how eastern Loudoun can address these needs in proffers, capital investment and new facilities.

6. Proffer Criteria:

No active recreational park property proffered by a private developer will be accepted by the County, unless the soils and other environmental properties are conducive to acceptable design standards.

7. Sterling Community Center Expansion:

in order to provide land for expansion of the community center, the adjacent East Apartment site, off Holly Avenue, should be investigated for such expansion. The County could accept a higher density on the overall 37 acre tract while using two-three acres as a recreational expansion area.

8. Community Center Needs:

Given the extensive development planned north of Route 7, a new community center, with the necessary recommended facilities, should be built when the population north of Route 7 reaches 15,000. Specifications:

a. Acquire land by purchase or proffer (25 acres) at a central location, i.e., near Route 637.

b. Begin programming for construction with the 1981-82 Capital Improvements Program.
c. Include future expansion capability for ballfields in design considerations.

9. School Property:

Existing and future school property and facilities shall be used for community recreational activities. The Loudoun County School Board, Board of Supervisors, Parks and Recreation Department and/or other authorized organizations shall permit alternative supervision and maintenance procedures for such community recreational facilities, including use of responsible organizations in lieu of paid County personnel.

10. Trails:

Residential trails should be tied into regional trails and greenbelt park trails at a future date, by proffer, easement or purchase. *(See Community Design Plan).*

11. Linear Parks:

Use floodplain as part of linear parks, open space or potential active recreation areas where possible.

The W&OD Trail and the Vestal’s Gap Road should be supported as part of a linear park system and trails from residential areas should tie directly to these trails where possible.

12. Neighborhood Parks:

Neighborhood park sites should be considered as an appropriate part of any development zoned for R-1 or greater density.

13. Buffers:

Where possible, recreational areas or parks should act as buffers between less compatible land uses.

14. Adaptive Use:

The old Sterling Elementary School shall be considered for active community usage pending a positive feasibility study by the County.

15. Community Parks:

Community parks *(10-50 acres)* with multi-use facilities are particularly important in highly populated areas such as eastern Loudoun. Large residential developments should, whenever possible, combine during the planning process to provide a community park.
EXISTING SITUATION

The tremendous population and employment growth in eastern Loudoun have been accompanied by a substantial increase in juvenile delinquency, vandalism and other community crimes. These problems necessitate increased police protection and associated public facilities and services.

The Loudoun County Sheriff's Department is responsible for law enforcement in Loudoun County. Local community groups, as well as the Eastern Loudoun Area Planning Committee, feel that the County Sheriff can continue to provide adequate law enforcement services for the next five years if the proper number of personnel are assigned to eastern Loudoun, and the personnel are properly trained and paid and possess the necessary support facilities.

POLICIES

1. The County should provide the Sheriff's Department with the manpower and support facilities required to provide all areas of the County with professional and efficient law enforcement.

2. The existing substation facilities should be expanded or moved to a larger facility to accommodate police function and a magistrate's office.

IMPLEMENTATION

Expanded law enforcement facilities should be planned and programmed as a part of the County's Capital Improvement Program.
FIRE AND RESCUE

EXISTING CONDITIONS

The eastern Loudoun volunteer fire/rescue service is one of the best in the region. However, as pressures of new residential and industrial growth increase, demand on the existing system to maintain the current service level will become increasingly difficult and costly. The Sterling Park station, assisted by the temporary substation in Sugarland Run serves approximately 7,500 households. As development occurs north of Route 7, problems of time and distance will become more acute for the Sterling Park unit located over a mile from Route 7 near the Sterling Park Shopping Center. With the probable future industrial development in the Route 28 Corridor, another fire/rescue station will be needed. However, it would be extremely difficult to provide staffing for such a station because there are few residential units in the area; therefore, few or no volunteers could be recruited.

Nonetheless, the fire/rescue service is sufficient for the majority of the planning area at this time, despite some basic distance and access problems, specifically, the area to the east of Sugarland Run which has poor access, and the Broad Run Farms area and Route 606 and Route 28 corridors which have distance problems. Fortunately, there are reciprocal agreements with certain fire companies in Fairfax County which are of substantial aid in protecting these areas. However, as growth increases, these problems of time and distance will become more acute. Staffing during normal working hours is already a severe problem and the Sterling Park Fire/Rescue Center now pays two full time persons to man the station during daylight hours.

It is clear that new fire and rescue facilities will be required to meet the future demand of the growing residential and industrial areas. This plan will indicate proffered sites and the most logical locations for future facilities.

POLICIES

1. Protection:

   Provide adequate fire/rescue protection in a timely and efficient manner for the citizens and businesses of the eastern Loudoun area. \(RMP, \ p. \ 258, \ #1\).

2. Site Location:

   Provide fire/rescue protection at the most logical location for time and distance limitation. \(RMP, \ p. \ 258, \ #1\).

ANALYSIS OF POTENTIAL SITES

New locations, dedicated for fire/rescue service use, will be required to insure adequate protection. Five sites have been proffered north of Route 7 as possible
fire/rescue sites. None of these sites has been officially dedicated at this time. The subdivisions that have been reviewed for proffered fire station sites are: (See Figure 6, p. 242).

1. CountrySide:

   This site is located adjacent to a commercial area with access onto a major internal thoroughfare. It will have easy access to Route 7 and Route 28 on the northern edge. With the proposed connecting road to Route 777 and the adjacent Environs subdivision, this site will serve a large population to the east.

2. Cascades:

   The site location is not yet confirmed but it is expected to have direct access onto the proposed Route 28 loop. This site would serve both the Cascades and Seneca Hills subdivisions. A station at this site would appear to be a necessity if effective fire/rescue protection is to occur.

3. Sugarland Square:

   This site is less desirable than other options since it is landlocked within Sugarland Run. It has poor access to Route 7 and is not likely to be effective in aiding future subdivisions along Route 637. The site will revert to the developer in five years if not developed as a fire station. The area plan recommends that this site be considered for a temporary library facility.

4. Seneca Ridge:

   This site is the poorest location proffered for fire/rescue services. The site is landlocked, has no direct access to a major thoroughfare, and will be in a poor position to adequately serve 2,000 households. If the Fire Marshal agrees, this site should be discounted as a potential fire station.

5. Point of Woods at Cardinal Glen:

   This site has direct access to Route 7, and is nearly opposite the Sterling park entrance. For this reason, it is too close to a major intersection and creates substantial overlap of the current safety center. This site would not substantially improve service to areas north of Route 7 which need it. It is a poor location for a fire station.

6. Route 637 Corridor - North of Route 7:

   The area north of Route 7 should be serviced by a station off of Route 637 as close to Route 7 as possible.
IMPLEMENTATION

1. Location

A general rule to determine adequate demand for fire/rescue facilities is one station per 2,000 households. Additional criteria should include proximity to several major roads and location at the center of the station’s primary service area. Consideration of road congestion in determining location is a major factor. Large intersections are poor locations for fire/rescue sites.

Location Standards for Fire/Rescue Sites:

a. Access to major thoroughfare (speed limit: 40 mph, state maintained, hard surface road).

b. Within 100 years of major thoroughfare.

c. Within 2-3 minutes of Route 7 or Route 28 (note Cascades-Seneca Hills exception).

d. Fire/rescue within same building for permanent location.

e. Apparatus to include at least one pumper and one rescue unit.

f. Multiple use site or adjacent to other public site, especially community center or other recreation site, where possible.

g. Approximately 2,000 households should be considered a threshold value creating demand for a new fire/rescue facility.

2. Timing:

In order to insure that fire/rescue protection is offered in a timely fashion to current and anticipated new citizens, the County has several choices: (1) build and staff new fire/rescue facilities at appropriate locations; (2) encourage the volunteers to build new facilities at appropriate locations; (3) work with volunteers to provide sites at appropriate locations and at low cost. The volunteer system has provided very adequate service in the past to citizens of the eastern Loudoun area. Therefore, it is recommended that the County select one of the latter two options to insure public safety. The volunteer system is by far the most cost-effective from the point of limiting tax dollar expenditures.

3. Staffing:

New volunteers rarely are recruited from low density, single-family homes. Where possible, new facility locations should be recommended at locations near moderately valued homes.
4. **Location:**

   There are several proffered sites for fire/rescue in the eastern Loudoun area. The site on Route 637 at Mirror Ridge best fits the criteria and is recommended as a fire/rescue site if it can be obtained as such. Presently, it is proffered as a library site. As the new communities of CountrySide and Cascades reach the threshold level of 2,000 homes, other stations should follow to serve the growing population. Arrangements for a facility at Route 637 should begin as soon as possible in cooperation with the Fire Marshal and the Emergency Medical Service Council.

5. **Site Identification:**

   a. **Sugarland Square:** This proffered site is recommended for elimination as a fire station site and recommended to be used as a library facility.

   b. **Future Fire Station Site:** The ideal site for the next fire and rescue station is along Route 637, north of Route 7. Proposed locations:

      i. **North of Community College:** The site adjacent to the community college would be very acceptable, provided it had immediate access to Route 637.

      ii. **Pocahontas (western part of Cascades) Property:** A site adjacent to Route 637 on the Pocahontas tract would be worth consideration.

   c. **Seneca Ridge:** This site should be relocated to allow greater accessibility to the surrounding residential growth pending review by the Fire Marshal.

6. **Site Dedication:**

   The Board of Supervisors should turn over a fee simple title to the volunteers for proffered sites as need dictates, with a covenant for returning land to the County if any use other than a fire/rescue facility is contemplated.
FISCAL PLAN
FISCAL PLAN

INTRODUCTION

Residential, industrial and commercial construction in eastern Loudoun have had major impacts on the County’s capital improvement and operating budgets. Employment and commercial centers have generated sufficient revenues to pay for necessary public services and indeed have had a positive impact on County budgets. The industrial base in eastern Loudoun is significant and should be expanded whenever possible. Loudoun County will need to monitor this growth, but can expect that industrial development will assist in keeping property taxes within reasonable bounds.

New housing, on the other hand, fails to generate sufficient tax revenue to cover the operating costs of needed public services, and invariably imposes the need to build new capital facilities. Since eastern Loudoun has been the focus of great residential development, that area has been a major factor in the County’s need for extensive public expenditure. Loudoun has paid for these additional costs through careful financial management, bonds, property tax increases and inter-governmental transfers of funds such as revenue sharing. However, there are limits to fiscal prudence, borrowing, property tax increases and grantsmanship. Loudoun County must currently spend some $10,000 in capital improvements per residence. Total public investments are higher still when one considers the other services to which the County contributes such as roads, senior citizen services, health facilities, etc.

Loudoun County has sought in the past to share these fiscal burdens with the development community, and intends to continue this practice in the future. The County is willing to assume its share of development costs if the developer is willing to pay his fair share.

GOALS AND POLICIES

1. General Fiscal Planning Goal:

   In order to plan for a better future for eastern Loudoun County, and for the improved health, safety, welfare and fiscal stability of the area, there is a need for all new development to pay its fair share of new County expenditures.

2. Fiscal Impact Review:

   Assess all major residential and non-residential development proposals in eastern Loudoun County through use of the community services and facilities standards in this plan in the preparation of a fiscal impact assessment for each new development. (*RMP, p. 261, #3*).

3. Phasing Plan:

   Incorporate location and phasing plans for capital facility development as an integral part of planning district and area studies. Carry this information down to the site planning level. (*RMP, p. 261, #4*).
4. Proffers:

   Establish definitive criteria and requirements for developer contribution (proffers) to public land and capital facility needs, occasioned by new development in eastern Loudoun and the rest of the County. (RMP, p. 261, #5).

5. CIP:

   Recommend specific additions to the five-year Capital Improvements Program and establish priorities among major public facility commitments for the eastern Loudoun Planning Area. (RMP, p. 261, #2).

6. Revenue Analysis:

   Encourage revenue diversification within the County government, especially through user fees, to at least reflect changes in financial costs.

7. Tax Base:

   Establish a range of employment centers, designed and located to expand the County’s tax base and provide employment opportunities for local residents. (RMP, p. 195, #1).

EXISTING CONDITIONS

A. Revenue

   The most significant revenue source in eastern Loudoun is the property tax from industrial, commercial and residential properties. Property taxes fall into two primary groups. First, is the real estate tax which is the assessment against the value of real property (primarily land and improvements). The second is personal property. Eastern Loudoun residents contribute to the County’s income through these forms of tax obligations. The other two areas of income for the County are sales tax and user fees and fines. The sales tax is a single-stage tax on goods and services levied at the point of retail transaction and expressed in percentage terms. It is an incremental tax. User fees and fines are a miscellaneous collection of charges which are paid directly for a service, item or amenity as a means to "charge back" costs to the user, generally on a break-even basis. Eastern Loudoun residents benefit from these taxes through State and County services. In general, commercial and industrial development create more revenue in taxes than they require in County services. The fiscal strain is caused by the extensive housing development.

   Table 1 presents the County-wide revenue breakdown for fiscal year 1978-1979.
<table>
<thead>
<tr>
<th>Actual Revenue</th>
<th>% of Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Real Estate Tax</td>
<td>$17,308,954</td>
</tr>
<tr>
<td>Personal Property Tax</td>
<td>3,057,600</td>
</tr>
<tr>
<td>User Fees and Fires</td>
<td>5,711,920</td>
</tr>
<tr>
<td>Sales Tax (includes alcoholic and profits tax)</td>
<td>2,253,300</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>$28,331,774</strong></td>
</tr>
</tbody>
</table>

An indicator of the strength of all local revenue sources against local real estate taxes is the non-property tax divided by real estate property tax ratio. The estimated ratio from the adopted 1979-1980 budget is .63. The closer the ratio is to one (1), the better the County is balancing its resources. These are strictly locally generated taxes where non-property taxes include personal property, sales, user fees and fines, and alcoholic beverage tax. The 1974 Local Revenue Diversification report prepared by the Advisory Commission on Inter-governmental Relations points out the unpopularity of real estate taxation as opposed to any other method of taxation. The report emphasizes the need to diversify County revenue options on a county-wide basis if the County is to better manage its fiscal resources.

In fiscal 1979-1980 the average home in Loudoun paid real property taxes of $729.50. Table 1 indicates that personal property taxes, user fees and fines contributed an additional $459.60 per household. Real property and non-real property taxes thus average some $1,189.10 per dwelling unit. Based on this evaluation, the estimated 7,500 homes in eastern Loudoun contributed some $8,918,250 in taxes to the County.

Loudoun furthermore receives a share of the taxes paid by its citizens to the Commonwealth of Virginia and the Federal Government. These funds are estimated to have averaged $691 per home in fiscal 1979-1980. The 7,500

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1. Information derived from Fiscal Year 1979-80 Loudoun County Budget.


3. Total Real Property Revenues $16,379,300
   Less Commercial & Farm Real Property Revenues 2,642,000
   Total Real Residential Property Revenues $13,731,300
   Average Real Property Tax Revenue per Dwelling 729.50
dwellings in eastern Loudoun thus contributed some $5,182,500 to local government via Washington and Richmond.

B. Expenditure

New residents generate new demands on County staff, programs and facilities. Eventually new residences require the construction of new public facilities, schools, roads, sewage treatment plants, community centers, and new programs. Technically, new residences should be evaluated for the funds needed to meet these incremental needs. However, marginal cost attribution requires a system of cost identification which the County does not possess. Accordingly this section will attribute county-wide, average costs to new residential construction.

1. County Operating Costs

Table 2 expresses unit household cost figures for major County programs. The table indicates that the average annual operating cost to the County of each household is $2,170. The major element of this total is schools: $1,284. (It actually costs the County approximately $1,900 per year to educate each child and county-wide every three households send two children to the public schools.)

<table>
<thead>
<tr>
<th>Area</th>
<th>Est. Cost</th>
<th>Budget %</th>
<th>Cost/Household</th>
</tr>
</thead>
<tbody>
<tr>
<td>General Govt.</td>
<td>$6,227,242</td>
<td>15.24</td>
<td>$330.67</td>
</tr>
<tr>
<td>Police</td>
<td>2,190,525</td>
<td>5.36</td>
<td>116.32</td>
</tr>
<tr>
<td>Fire/Rescue</td>
<td>631,034</td>
<td>1.54</td>
<td>33.51</td>
</tr>
<tr>
<td>Libraries</td>
<td>395,714</td>
<td>1.00</td>
<td>21.01</td>
</tr>
<tr>
<td>Parks &amp; Recreation</td>
<td>869,029</td>
<td>2.13</td>
<td>46.15</td>
</tr>
<tr>
<td>County Debt</td>
<td>86,900</td>
<td>.21</td>
<td>4.61</td>
</tr>
<tr>
<td>Schools</td>
<td>24,187,993</td>
<td>59.19</td>
<td>1,284.41</td>
</tr>
<tr>
<td>School Debt</td>
<td>4,734,001</td>
<td>11.58</td>
<td>251.38</td>
</tr>
<tr>
<td>Other School</td>
<td>157,617</td>
<td>.39</td>
<td>8.37</td>
</tr>
<tr>
<td>Va. Public Assistance</td>
<td>1,385,557</td>
<td>3.39</td>
<td>73.57</td>
</tr>
</tbody>
</table>

| Total          | $40,723,612| 100.00   | $2,170.00      |

These figures represent the cost of building facilities in 1980 with money borrowed at 6 1/2% interest over 15 years. Inflation and current interest rates of 8 1/2 - 9% would significantly raise costs in future years.
Non-school, general County debt service at $4.61 per household reflects past County policy to borrow prudently, to finance needed expenses out of current revenues and to rent office space rather than build.

2. County Capital Costs

An increasing population generates an increasing demand for services which in turn translates into new school seats, additional library facilities, new ballfields and the like. The cost of building new facilities is substantial and Table 3 gives a cost projection by major County functions.

<table>
<thead>
<tr>
<th>TABLE 3</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Per Household Capital Costs</strong></td>
</tr>
<tr>
<td></td>
</tr>
<tr>
<td>Single-Family Detached</td>
</tr>
<tr>
<td>Single-Family Attached</td>
</tr>
</tbody>
</table>

Thus, the creation of new school seats, parks, fire/rescue, landfill and other capital facilities could cost some $10,500-10,800 for a single-family detached home and $9,800-10,100 for a single-family attached residence.

In addition to these expenditures immediately associated with the County, Loudoun is also involved in the creation and extension of other public facilities such as the Sugarland Run Bridge or Route 28 loop. These projects either tap local resources or intergovernmental transfers, e.g., VDOT Secondary Road Improvement and Industrial Access Funds, and thus drain County capital resources. Lack of direct control over funding sources further complicates the pressing business of maintaining service levels at a per capita constant while balancing the County budget.

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4 These figures represent the cost of building facilities in 1980 with money borrowed at 6 1/2% interest over 15 years. Inflation and current interest rates of 8 1/2 - 9% would significantly raise costs in future years.

5 General governmental facilities include the Judiciary and Jail, Youth and Senior Citizen Services, sanitary landfill, Central Administration, Environmental Health, Mental Health, Public Health and numerous related facilities.
C. Revenue/Expenditure Assessment

The County’s fiscal planning policy is to match operating service costs with current taxes. The approximately $300 net deficit between per household revenue and service expenditure will need to be re-examined in the light of overall community needs and other County policies such as those designed to attract office development and light industry through favorable tax rates.

In terms of capital investments, the County recognizes that it is heir to 200 years of public improvements and that it is its duty to maintain and create new capital facilities for present residents and for the future. The County further recognizes that new development invariably taps these existing resources while generating new facility needs, and should, therefore, pay a fair share of the cost of these schools, libraries, and the like. (Failure to do so would result in significantly higher taxes for all County residents and an inequitable subsidy of new development).

Overall, the County will seek to maintain and improve its delivery of services and this section will review alternative means of financing these services and facilities.

IMPLEMENTATION

A. Financing Alternatives

Property taxes were closely related to income when farming was the predominant economic activity of America since farmland sold as a multiple of average annual crop yields. However, property taxes today have ceased to work in this way. The property tax can cause a hardship if household income should drop temporarily due to a downtown in the economy. Sound taxing policy should include a property tax component to insure a stable revenue base for government expenditures. However, the County should try to find alternative taxes which relate more closely to a household’s income.

Eastern Loudoun and the County as a whole depend heavily upon the property tax to finance public expenditures. This revenue source will need to increase markedly over the next decade unless alternative revenue sources are identified because of the amount of services and public expenditures required for anticipated population increase.

1. Development Phasing:

A first step toward preventing an increase in property taxes would be the careful phasing of new development. New neighborhoods typically attract new families with small children. As the neighborhood ages, so do these young students as they graduate from pre-school, elementary and high school. Phasing new development would insure optimum long-run use of schools, playing fields, parks and other public facilities.
2. **Trust Funds:**

Another means of insuring provision of adequate community facilities is through establishment of community facility trust funds to defray major facility costs. A trust fund is a special purpose fund to account for money and property received from developers at the time of the sale of a home and held by the County Board of Supervisors in the capacity of trustee or custodian. This type of trust fund is known as an expendable public trust fund whose principal and income both must be used for some public purpose.\(^6\) In other words, an individual or corporation can establish a specific or general trust fund to contribute cash, property or some other item on a per household basis to serve a specific community. For example, the U.S. Steel Corporation pledged a per household contribution of $250.00 for the Sterling Park community in the early 1960’s which would represent approximately $650.00 today. As a result, the Sterling Community Center was built. These trust deposits can be made for a specific purpose such as highway developments, public buildings and land acquisition for non-determined projects. Some specific areas where trust deposits of land or money should be encouraged would be for schools, parks, community centers, Route 28 “loop”, Route 28 bridge and general highway improvement.

To encourage use of such a mechanism, assurances would be made that the purpose of preparing public facilities would serve citizens within a particular development. If sites could be identified for community facilities simultaneously or in advance of new development, the developers would be able to understand the future needs. This mechanism permits smaller developers, whose projects would not by themselves need public facilities, to contribute towards a facility serving a larger area. Under this reasoning, two general approaches become apparent.

The individual or non-public organization establishes a trust fund and names the Board of Supervisors as trustee, or the County establishes a broad range trust fund, to which the development community could contribute. A sliding scale based on density, population or housing units could be established to aid in determining an equitable contribution. This type of fund could be established as part of the Capital Improvements Program.

3. **Special Tax District:**

Another alternative to pay for specific services or facilities is to establish a special tax district. A special tax district can only be formed in Virginia through limited incorporation. Through this means, a specific area could choose to tax itself, over and above County taxes, in order to obtain services or facilities which are not yet available to the balance of the population.

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\(^6\) National Committee on Governmental Accounting, MFOA, *Governmental Accounting, Auditing and Financial Reporting*, (Michigan, 1968), p. 75.
County. Service levels could thus be improved beyond usual County policy. For example, eastern Loudoun might choose to increase its level of police protection or to buy additional parkland. Although not advisable at this time, a special tax district might be appropriate at the time of this plan’s five year review.

4. **Grants:**

   Pursuit of additional grant monies from the state or federal governments can relieve some of the burden placed on local revenue sources. This would allow higher service levels without changing the existing tax rate. Grantsmanship is a very specialized and time consuming approach, but would be cost effective for the dollars invested. However, a more rigorous, thorough attempt must be made to acquire these funds than has been made in the past. The County recognizes that grants are only interim solutions and eventually the County must fund the projects totally or abandon them.

5. **Capital Improvements Program:**

   The County budget is a combined operating and capital budget, prepared annually to describe anticipated revenues and expenditures. The operating budget describes all recurring or short-life items from salaries to typewriters. This pays for County services which are demanded by County residents. The capital budget is the first year of the Capital Improvements Program and includes all facilities, land or equipment with a life of ten or more years and usually valued in excess of $25,000. These are the management tools which facilitate movement of funds within the County and can be used to encourage growth in those areas best able to deliver public services efficiently. The Capital Improvements Program should be strengthened and all County agencies should be expected to participate.

B. **Financing Recommendations**

1. Where it is necessary to establish a priority for public and private expenditures for the Eastern Loudoun Planning Area, the following facilities have been established for construction priority:

   a. School Facilities
   b. Police
   c. Fire/Rescue
   d. Parks and Recreation
   e. Libraries

2. These public facilities will be developed either by developer proffer or through the CIP budgetary process. Where a priority for one type of recreational facility must be selected, the following priorities were determined by review of the general needs of the area:
a. Athletic Fields (*Multiple purpose fields*)
b. Community Centers
c. Basketball Courts
d. Trails
e. Outdoor Theater
f. Tennis Courts
g. Swimming Pools
h. Golf Courses

3. The County should establish separate trust funds for the following critical needs in eastern Loudoun County:

a. Sugarland Bridge Fund
b. Community Centers
c. Schools - School Improvements Fund for new construction

4. Proffer Designation:

The specific proffers necessary for community development in eastern Loudoun are described in the Community Facilities section of this plan.

5. Special Tax District:

In five to ten years, eastern Loudoun should be considered for designation as a Special Tax District for specific services and utilities. There are inherent problems such as the necessity for a public referendum and state enabling legislation.

6. The following specific capital improvements should appear within the Capital Improvements Program by fiscal year 1982-83, if growth rates dictate the need for such facilities:

a. Multiple purpose room addition to Sterling Community Center.
b. A new community center north of Route 7 within six to seven years.
c. A library north of Route 7 (*a temporary library within four years and a permanent facility within six years*).
d. Athletic fields, especially ballfields, as soon as possible.

7. All new development should be encouraged to support itself through a system of volunteer developer contributions.

8. The following recommendations are proposed to the Virginia Department of Highways and Transportation:

a. Construction of the additional toll lanes along the Dulles Access Road.
b. Provision of direct access to the Dulles Access Road through monitored access ramps from Route 28.
c. Acquisition of park-and-ride lots through developer contributions and grants.

Other priorities for transportation are discussed in the transportation section of the Plan.

9. Establish appropriate zoning and site plan alternatives as suggested in the Residential Development Plan to lower overall development and facility costs.

10. Where possible build multiple purpose buildings to lower new facility costs and increase public use. Schools and recreation can work well together if funding for a larger site or gymnasium is allocated by the Board of Supervisors.

11. Seek to reduce real estate taxation through revenue diversification and an aggressive economic development program.

C. Development Review Procedure:

The demand for increased community services and facilities will markedly increase as the population of eastern Loudoun increases and existing facilities become overburdened. In the future, the County will experience pressures to maintain a reasonably low tax rate while providing increased services that require high capital and operating expenditures. Therefore, new development, both residential and non-residential, should be required to pay its fair share of development costs and to contribute to necessary community services. This procedure can be implemented through an extensive Impact Review Process that addresses fiscal, environmental and community impacts resulting from residential and non-residential development. The final density of a development proposal should depend upon conditional zoning criteria, i.e., how the development effectively mitigates its overall impact on the area and the County.

The developer should be required to prove to the County that his voluntary proffers merit the density proposed (See Residential Plan for appropriate density ranges). The County’s fiscal evaluation should review the following:

1. Fiscal Evaluation Review:

   a. Benefit-Detriment Analysis: The development proposal will be reviewed by using a cost benefit or cost detriment analysis. Each unit can be evaluated by determining all public expenditures and revenues likely to result from the proposal. The smaller the net deficit, the higher the density allowed.

   b. Community Services: The amount of community services proffered by the developer to alleviate the impact on the existing services, will be used in the overall impact analysis.
c. **Capital Improvements Program:** The most detrimental effects of new development on County services are caused by the need for major capital expenditures, i.e., schools, roads, bridges, utilities, community centers. The developer able to proffer specific CIP projects that will greatly benefit the community will be given consideration for a higher density of development.

d. **Trust Funds:** Necessary public expenditures may require an incremental method to finance certain projects, e.g., Sugarland Run bridge or a community center. A trust fund will be established to provide a vehicle for eventual funding of a given project.

e. **Proffers:** Specific proffered facilities are identified under the individual subject areas. The County will determine the critically important public needs and forward this information to developers, prior to their applications, as part of this area plan and revised zoning regulations.

2. **Other Fiscal Implementation Techniques:**

a. **Demographic Review:** The "Development Activity Report" should be expanded to accommodate detailed information on demographics, housing development, existing facilities, adequacy of and review of adjacent zoning densities. The goal will be to identify public proffer items for particular areas.

b. **Budget Assessment:** The County Commissioner of the Revenue should maintain equitable assessments of the entire eastern Loudoun area in order to limit the lag time in assessing properties.

c. **Economic Development:** The County should investigate the need for a publicly financed Economic Development Corporation with bonding authority. The group could finance the extension of utilities or roads to promote industrial development in eastern Loudoun.

d. **Trust Funds:** The County should investigate the potential use of trust funds for developer contributions for the eventual construction of:

   a. Bridge at Sugarland Run
   b. Community center north of Route 7
   c. Park development with ballfields
   d. School construction

e. **The Capital Improvements Program:** will require the following:

   a. Elementary schools north of Route 7.
   b. High schools north of Route 7.
   c. Library expansion (Sterling and Sugarland) (1984-1986)
   d. Addition to Sterling Community Center (1981)
HERITAGE CONSERVATION PLAN

INTRODUCTION

John Ruskin wrote in 1849 about old buildings:

“They are not ours. They belong partly to those who built them and partly to all the generations of mankind who are to follow us. That which they intended to be permanent, we have no right to obliterate. What other men gave their strength and wealth and life to accomplish, it belongs to all their successors.”

The cultural heritage of eastern Loudoun County is rich in historic significance. The eastern portion of the County includes land that was originally part of the early land grants from Lord Fairfax to various settlers. There is a long history of agricultural activity dating from the time of the colonists. Before that the area was rather densely settled by various Indian civilizations. The remains of some of these early Indian settlements have been discovered on Lowe’s Island and are thought to date back as much as 6,000-10,000 years. The eastern Loudoun area was travelled extensively by early colonists throughout the 18th and 19th centuries. The Vestal’s Gap Road (see resources inventory p. 269) was the major east-west transportation route in this part of the country and was travelled many times by George Washington on his way between Leesburg and Alexandria. There still remains much physical evidence of the agricultural, residential and transportation elements which made up the early community of eastern Loudoun County. This remaining evidence is the strongest physical and visual connection that citizens of eastern Loudoun have with their past and should be preserved by implementing the area plan.

From the earliest settlements in the 18th century, until the last few decades, there was little change in the social and economic community of eastern Loudoun County. Growth was very slow, which kept the population virtually stable over a period of two centuries. The agricultural industry was the primary economic element, with the associated supporting goods and service industries also present. It was basically a rural, agrarian society until the development boom of the 1950’s and 1960’s.

As development rapidly expanded from Washington, D.C. through Fairfax County into Loudoun County, the character of the eastern Loudoun community changed from predominantly agricultural to a largely suburban residential character. Along with this growth came a large amount of destruction of historic homes, farm buildings and farmlands in order to make room for new housing developments and commercial facilities. Although many, and perhaps most of the pre-twentieth century structures have been destroyed, there are still some left. Of course, in addition to actual structures, there still exist sites of former structures or of significant events. The general trends that have taken place over the last two decades in the eastern area can be outlined as follows:

1. As suburban growth has occurred in eastern Loudoun, many older structures have been demolished to make room for new residential subdivisions.
2. As farms have been sold and converted into new residential development, large amounts of scenic land have been covered with roads and buildings and many farm related structures have been destroyed and replaced by new residential and commercial structures.

3. As large numbers of new residential units have been built in eastern Loudoun, and as many of these have been purchased by people who work in other jurisdictions, the eastern Loudoun area has ceased to be an independent rural farm community and has become essentially a "bedroom" community for the Washington, D.C. and Fairfax employment centers.

4. As farming has diminished as a major industry in eastern Loudoun, and residents are not tied as closely to the land, the people in eastern Loudoun have become increasingly transient and very mobile in terms of their places of residence. This has tended to reduce the concern for and awareness and understanding of the community's cultural and architectural heritage.

5. In many instances, property owners have found that it is more economical to demolish an older existing structure and replace it with a new one, or let the older structure deteriorate rather than rehabilitate or expand it.

POLICIES

The policies which will guide the land use management decisions regarding the conservation of heritage resources in eastern Loudoun County can be divided into three major topic areas. These are: existing historic sites and structures, scenic and open space resources, and the impact and character of new development. The county-wide policies which are stated in the Resource Management Plan (RMP, page 241) apply to the eastern Loudoun area specifically, as well as to the rest of the County. In addition to these general policies, the eastern area needs specific policies of its own in order to guide heritage conservation efforts in an area whose character is like no other area in the County.

The additional policies for heritage conservation in eastern Loudoun are as follows:

A. Existing Historic Sites and Structures:

The County will:

1. Encourage the education of eastern Loudoun residents with regard to the cultural heritage of their community.

2. Encourage the establishment of historic district overlay zoning for both neighborhoods and individual sites.

3. Encourage rehabilitation of older structures for continued use or adaptive uses.
4. Encourage private efforts aimed at preserving historic properties.

B. Scenic and Open Space Resources:

The County will:

1. Encourage the establishment of preservation easements on significant scenic and historic properties.

2. Encourage developers to reserve substantial areas of open space within new developments in order to conserve the scenic character and quality of eastern Loudoun.

3. Identify those scenic and open space areas in eastern Loudoun which should have the highest priority for conservation efforts and institute programs and mechanisms aimed at preventing them from being damaged by new development.

4. Coordinate programs aimed at conserving environmentally sensitive areas with those aimed at conserving scenic areas, so that each of these efforts will reinforce the other.

C. The Impact and Character of New Development:

The County will:

1. Encourage the development of compact communities which include all types of uses (*industrial, commercial, recreational and residential*) in very close proximity to one another so as to reduce the dependence on motor vehicles, to conserve as much open space as possible, and to maintain the scale, and identity that are evident in older historic communities.

2. Establish design and site planning standards for new communities which will require that pedestrian and bicycle trails be built, that important or unique scenic areas be preserved, and that new buildings and neighborhoods exhibit a quality, integrity and character that is compatible with the historic sites and communities in the area.

3. Encourage mixed use developments in which different but non-conflicting uses may be allowed to occur on the same site or in the same building in order to achieve the benefits of community and economy that have been achieved by historic developments.

**IMPLEMENTATION**

The following are general recommendations for implementing programs aimed at the conservation and management of the historic and scenic resources of eastern Loudoun County. The topics of interest to which these recommendations apply are
organized in the same categories as are the policies. The recommendations refer mainly to general programs which the County should undertake in order to effectively conserve and use its heritage resources in the east.

A. **Existing Historic Sites and Structures**

1. **Issues/Needs:**

   a. Residents of the eastern Loudoun Area have the need and the right to see and experience evidence and examples of the cultural heritage of their community.

   b. The citizens who live in a given community or neighborhood should have some voice in how their fellow residents use or abuse the property in their neighborhood, especially if a change in use or appearance will have a large impact on the historic and visual character and quality of the community.

   c. Residents who own old and historic buildings often need some form of outside assistance or incentive in order to ease the economic difficulty of restoring or rehabilitating those structures.

2. The County shall establish Historic Overlay Zoning Districts in the eastern Loudoun area.

   a. **Concept and Purpose:**

      The purpose of a Historic District Overlay Zone is to conserve the character of a site, neighborhood or community which has particular historic or architectural significance. The overlay zone does not affect the basic zoning in terms of allowed uses or density; rather, it simply puts restraints on demolition of buildings, and allows for citizen review of major structural additions or alterations.

   b. **Feasibility for Eastern Area:**

      In eastern Loudoun County, there are no large areas which remain rich in significant sites in comparison to certain areas in the western part of the County. There are very few sites in eastern Loudoun which have regional or national significance. Also, there are no large concentrations of many historic sites or structures. However, even though there are few sites of extremely great significance, there are many structures and neighborhoods which have tremendous local significance to the citizens of the eastern Loudoun area. Listed in the inventory and Analysis (see Appendix, p. 269) are some of the more important individual sites and neighborhoods in the eastern area. Because of the rapid growth occurring in eastern Loudoun, it is especially important that as many
of these sites as possible be conserved. There are several sites which have enough coherence, character and local significance to merit designation as historic districts. Since the restraints placed upon land use by the Historic Overlay District are relatively minor in that they do not affect current land use of density, it should be feasible to establish one or more historic districts in the area.

c. Implementation Procedures:

The following areas are recommended for inclusion in the County’s Historic District Overlay Zone:

Groups of structures and neighborhoods:

1. Oak Grove community
2. Old Sterling commercial area

Individual Sites/Structures:

1. Lowe’s Island
2. W&OD right-of-way and buffer area
3. Vestals Gap Road

After defining specifically the area to be included in a district, the County Planning Staff or designated volunteers should contact the landowners within the areas proposed for Historic District designation. After determining and documenting the level of support among the landowners whose property is involved, the Staff will, if necessary, redefine the area to be included and then proceed with submission of the proposed district to the Planning Commission for public hearing.

Depending upon the needs of affected landowners, it may be necessary to develop and adopt a modified Historic District Overlay zone which would apply to only the eastern Loudoun area.

3. The County shall formally designate the remaining significant historic sites as being of local historical significance, thus establishing a County Register of Historic Places. (Refer to inventory in Appendix, p. 269).

4. The County shall submit application for inclusion on the State and National Registers, the following sites: old Sterling, Oak Grove, Lowe’s Island, Vestals Gap Road.

5. The County shall add to its existing Zoning Ordinance, provisions for granting density bonuses to developers if they preserve County designated historic or scenic properties with easements or other restrictive covenants.
a. Concept and Purpose:

The purpose of amending the Zoning Ordinance to allow increased density in a new development in return for preserving or rehabilitating an old or historic structure/site is to give a developer a reasonable incentive to retain important heritage resources during the development process.

The concept is similar to that of providing for increased densities in return for donating open space and other amenities.

If a developer purchases land which contains an important historic resource which the County feels should be preserved, but which the developer does not choose to preserve, the County could offer some reasonable increase in the number of residential units allowed to be built, or an increase in the floor area ratio, whichever is applicable to the property. In return for this increase in development capacity of the site, the developer would agree to rehabilitate the historic resource, if necessary; place it under easement, if possible; or have it moved to an acceptable site.

b. Feasibility:

This zoning mechanism would be particularly appropriate and feasible for the eastern Loudoun area due to the rather large scale developments on the horizon and because there are relatively few highly significant historical sites remaining. In addition, this kind of incentive is a simple method for implementing a preservation effort on a particular historic resource since the procedure is straightforward, no money would change hands and the costs to both the developer and the County would be very small and diffused.

c. Implementation:

As with other provisions of the Zoning Ordinance, rules for incentives for preserving heritage resources would be drafted by the Staff and submitted to the Planning Commission. Public hearings would be held, and, if adopted by the Board of Supervisors, the provisions would become part of the County’s Zoning Ordinance.

6. The County shall enact an Ordinance, allowed under 1978 State enabling legislation, that will grant local tax incentives for the substantial rehabilitation of older properties.

a. Concept and Purpose:

State enabling legislation allows the County to institute an Ordinance which would provide tax incentives for property owners who substantially rehabilitate older structures. The purpose of the
state law is two-fold. First, it is meant to conserve energy and help keep the economy viable by giving incentives to property owners to rehabilitate older existing structures rather than tear them down because of property tax burdens. The second purpose is to encourage the preservation and rehabilitation of old and historic buildings which are important to the architectural fabric and cultural character of local communities. The incentives allowed by the law take the form of stabilized real estate assessments on that portion of the property value which is due to the rehabilitation work. Thus, property owners who want to rehabilitate structures which are at least 25 years old, can do so without causing an increase in their real estate taxes due to the rehabilitation improvements.

b. Feasibility for Eastern Area:

This Ordinance would be a county-wide Ordinance, applying to all areas of Loudoun County. It is, of course, particularly applicable to many neighborhoods in eastern Loudoun. The Planning Staff, in conjunction with the County Attorney, has drawn up a draft Ordinance, based upon the State enabling legislation. The next necessary step will be to do a study of the impact of such an Ordinance on the tax revenues to the County if such an Ordinance is adopted. This study will determine the financial feasibility of the program in terms of the County’s overall economic interests. The program would most certainly be feasible in terms of private interests, as a stimulant to rehabilitation efforts, but the overall effect on the County budget has yet to be determined and this aspect is the critical one with regard to the actual feasibility of the program.

c. Implementation:

After the cost/revenue study is completed, the draft Ordinance would be amended or modified as necessary and submitted to the Board for its approval. State enabling legislation would allow local laws to go into effect any time after January 1, 1980.

B. Scenic and Open Space Resources

1. Issues/Needs:

a. Many scenic and historically significant lands have a very high market value, especially in eastern Loudoun, and this often prevents owners from keeping these lands open, due to taxes and other financial pressures.

b. Many, and possibly most, effective scenic preservation programs have been the result of private initiatives on the part of concerned citizens.
2. Implementation Procedure:

The County should actively encourage the acquisition of preservation easements on significant scenic and historic properties, for the purposes of heritage conservation, environmental conservation and the preservation of community and neighborhood identity.

3. Purpose and Concept:

A preservation easement is a legal agreement between a landowner and a qualified public body or non-profit organization. It is a deed that is designed so that certain restrictions are placed on the present and future use of the property. An easement may be limited to a specified number of years, but the best approach, in terms of tax benefits and preservation effectiveness, is for the easement to run in perpetuity. The owner retains most of his fee simple property rights. He can still lease or sell the land, and is not required to open the land to public access. The only legal restrictions imposed on the owner are those which are specifically stated in the easement agreement and incorporated into the deed. This also means that the owner can design the easement so that is applies to only a particular portion of his property.

Easements are generally the most effective method of preserving scenic and historic resources because of the permanence of the agreements. However, they also usually cover smaller land areas and take a great deal of time and effort to establish. Due to their concentrated and long-term effects, they are particularly appropriate for application in the eastern Loudoun area. A small number of strategically located easements could have a relatively large positive impact on the future scenic character of the eastern area.

4. Feasibility:

The County recently established a county-wide Easements Acquisition Program, following through with one of the options set forth in the Resource Management Plan. The feasibility of such a program in the eastern portion of the County depends, in large part, on the level of commitment that is present among owners of significant properties. Easements can produce certain advantages as well as disadvantages to landowners who grant them. The countywide Easement Program will focus a portion of its efforts on properties in the east, since these properties are generally subject to greater pressure for conversion than properties in the rural areas of the County.

5. Implementation:

A citizens' committee made up of persons who are knowledgeable and experienced in easement acquisition activities has been appointed by the Board of Supervisors as a first step toward the development of a full-
fledged easement program. The citizens' committee serves primarily as an informational and coordinating body which aids the Planning Staff in identifying properties worthy of easement acquisition. With the Staff serving in an advisory capacity, the committee is seeking contact with those landowners and the appropriate receiving agencies to attempt to work with both groups in order that a suitable easement agreement could be arrived at by both parties. *(The Committee serves as a coordinator, educator and negotiator.)* Depending upon the level of success, the program could be expanded at some future date to include more staff support or actual County funding or County acceptance of donated easements. Until such time, the program will rely primarily on citizen volunteers.

C. **The Impact and Character of New Development**

1. **Issues/Needs:**

   Residents of the eastern Loudoun area have the right to expect and demand that new buildings and neighborhoods possess the same level of quality and visual integrity that the traditional structures and neighborhoods possessed.

2. **Implementation Procedure:**

   The County should establish design and site planning regulations for new communities which will require that pedestrian and bicycle trails be built as an integral part of the transportation and recreation system, that major scenic areas be preserved, and that new buildings and neighborhoods exhibit a scale, character and organization that is compatible with the historic communities of the area.

3. **Concept and Purpose:**

   The traditional human settlements that developed in Loudoun County during the 18th and 19th centuries generally grew around a mill or a crossroads or both. Due to the relatively primitive nature of transportation and communication technology, and the predominance of manual and simple mechanical manufacturing methods, residential, commercial and industrial uses were usually found in very close proximity, often with different uses in the same structure. This kind of development pattern offered several advantages. First, it tended to keep the community in a compact form which made transportation and communication easy and efficient. Second, it allowed people to live near where they worked which added a measure of convenience to their lives. Third, this compact form of village organization promoted a large degree of social solidarity and community identity.

   With the development of and increased use of the automobile, people's residences began to become separated from their places of work
and commerce. Contributing to this trend was the fact that many modern industrial operations produce excessive noise, traffic and other environmental nuisances which made cohabitation with residential uses difficult and uncomfortable. The trend toward segregation of land uses increased dramatically during the development boom of the 1950’s and 1960’s as the modern shopping center became a common form of commercial development. The Tyson’s Corner Mall was built in the late 1960’s and serves as a good local example of the way “functional ghettos” of single-use developments have sucked the “life blood of diversity” from many of the villages and towns in the area. By concentrating most of the retail commercial facilities of an entire community in one building which is surrounded by parking lots and highways, it forces residents to drive their cars when they want to go shopping which reduces their choice of travel mode and further exacerbates the dependency on the car, the segregation of potentially compatible land uses and the inefficiency of community development patterns.

The desire of people to live in communities and neighborhoods which possess the character, charm, convenience and efficiency of historic developments is indicated by the popularity of and demand for residential properties in such places as Georgetown, Washington, D.C.; Old Town in Alexandria, Virginia; Annapolis, Maryland; and Leesburg. The growing market demand for real estate in such areas strongly suggests that great numbers of people in the area have a desire for the many amenities that are associated with these compact, mixed-use developments. The use of the automobile has been one of the primary culprits in the demise and deterioration of many local mixed-use villages.

Thus, there are many very strong reasons for Loudoun County to draw upon its past in order to influence new development so that new communities can exhibit some of the positive qualities that the traditional villages possessed, including those in eastern Loudoun.

The purpose of encouraging the establishment of mixed-use developments is to produce new communities and neighborhoods which have a clear identity, an energy-efficient organization and transport system, and which give their residents a maximum number of choices of lifestyles and which provide them with the greatest amount of convenience for all social, cultural and occupational activities.

The concept of mixed-use development simply involves building new communities in a manner that is generally similar to the traditional patterns of towns and villages in the County. This would include such features as residential structures located near, adjacent to or above retail commercial facilities; offices, especially doctors and dentists, located next to the residential and commercial facilities; schools integrated with residential areas, and pedestrian pathways connecting all of these land uses. These kinds of features can be implemented through County development policies, zoning regulations and site planning standards.
4. Feasibility:

The feasibility of re-establishing "the highest growth pattern that has taken place in the County in the last 220 years,"¹ within the eastern area of Loudoun is doubtful. What is feasible is for that traditional growth pattern to be used as a model to influence new development and especially planned communities. The eastern area is in desperate need of compact, pedestrian-oriented neighborhoods which have a strong, independent identity. The County's land use policies, as defined in this plan and its zoning regulations as amended in conformance with the recommendations of this plan, could bring about a positive effect on the character and quality of future development in eastern Loudoun. The necessary actions for such success will be:

a. Effective implementation of the policies and programs set forth in the Eastern Loudoun Area Plan.

b. Careful and thorough negotiation, coordination and cooperation between the County and developers.

c. Commitment and support from the citizens of eastern Loudoun for these policies and programs.

Mixed-use developments and the establishment of new communities which are convenient, efficient and comfortable are feasible for eastern Loudoun. It will require, however, a close working relationship between the County, local citizens and all developers, in order to realize success. The development industry has become specialized, which makes it more difficult for the County to bring commercial, residential and industrial uses together in one project. The policies and programs stated here define the direction the County wishes to take. Attaining these objectives will require new Ordinances, new land use decisions and a strong commitment from the citizens.

5. Implementation:

The implementation of a strategy for establishing mixed-use developments will require several actions and processes on the part of the County. These are:

a. Coordinating the efforts of private developers:

Most new development in the area today is of a specialized nature. A development firm which has mastered the art of building shopping centers does not usually wish to become involved in building houses with which it may not have experience. Conversely,

residential developers do not often want to be involved with the unique problems of shopping centers. The County must bring these kinds of specialists together so that they can combine their efforts and work as a team on a single, mixed-use development. Also, the County must enter the design and site planning process at a very early stage so that it can effectively influence the decisions that are made. "Mini area plans" should be formulated with a large amount of participation from both the owner/developers and neighboring residents. These kinds of coordinating activities can be undertaken if the County adopts them as administrative policies. They are essential ingredients for achieving mixed-use development.

b. Modifications and Additions to the Zoning Ordinance:

The County’s zoning regulations should be amended to include the following provisions:

i. A zone which would allow retail commercial, office and high density residential uses to be located adjacent to one another should be established.

The Zoning Ordinance tends to segregate land uses, although the "planned community" zones do allow some mixes. These zones should be expanded both in terms of the amount of land area to which they apply, and the extent to which they allow mixed-uses, i.e., retail and residential uses should be allowed to occur in the same structure, not just on the same property.

ii. Pedestrian circulation systems should be required for all new development.

The pedestrian circulation system of all new developments should be a functional transportation system, distinct from, but complementary to the road system. It should be required to tie into the County's linear park system where possible, and be organized so that residents are given a true option with regard to transport mode.

iii. For large scale residential developments, a specified mix of high density residential, office space and retail commercial uses should be required, and these should not be segregated from each other.

A developer should be required to provide a total mix of community facilities for very large scale projects. This will help reduce the segregation that normally occurs in new developments. It is important that these non-residential facilities be focused on the new community itself, so that they
serve to increase community identity, efficiency and convenience. In addition, these uses should be mingled together rather than isolated in their own separate lots and structures.

iv. **The road system in new developments should reinforce the pedestrian system rather than interfere with it.**

Standards should be developed for inclusion in the Zoning Ordinance which would require that new communities be built "around" the pedestrian and the bicycle instead of the auto. The road system should have a secondary priority in transportation design within neighborhoods. If the pathways and trails are the primary transportation system in a new community, the community will be more compact, more efficient and very likely, more livable.
APPENDIX

A. Inventory and Evaluation Procedures

1. General Approach:

   The remaining historic resources in eastern Loudoun are fewer than in most other areas of the County. Also, the dramatically significant sites and structures which are found throughout the central and western sections of the County are relatively rare in the eastern part. There are, of course, a few very important historic and scenic sites, but generally, the very old and the very significant resources are uncommon in the east. For this reason, evaluation of historic and scenic resources in eastern Loudoun should not be as restrictive as it might be in areas which are rich in historic resources. A typical historic site or structure in eastern Loudoun has, in fact, relatively more importance in terms of heritage conservation than would a similar site in the western part of the County, due to the fewer resources in the east, as well as to the imminent threat of destruction from rapidly expanding suburban growth.

   Two sources were used to identify the historic resources in the east. First and primary was the inventory done by Mr. John G. Lewis, the former Regional Representative of the Virginia Historic Landmarks Commission. Second was a field survey and analysis done by the Loudoun County Comprehensive Planning staff. Both of these inventories were evaluated against the criteria set forth in the County's Resource Management Plan.

2. The Virginia Historic Landmarks Commission Inventory:

   The survey and documentation done by Mr. Lewis during the last few years, focused primarily on those sites which had potentially the greatest local, regional and national significance, either architecturally in terms of design and materials, or historically, in terms of significant events or people. The primary focus of the V.H.L.C. survey was, therefore, in the central and western portions of the County where such resources are more abundant. However, this survey did identify several highly significant sites which merit high priority for conservation and preservation efforts.

3. Field Survey:

   The Loudoun County Comprehensive Planning staff undertook a field survey of the eastern Loudoun area in an attempt to identify some of the sites which were not included in the V.H.L.C. survey. The staff interviewed several long-time local residents and completed a windshield survey of some of the neighborhoods which have substantial numbers of older buildings.
4. Criteria for Analysis:

   The criteria used for evaluating the identified sites are the same as those set forth in the Resource Management Plan. These criteria express a non-quantitative method of evaluation which allows some flexibility in order to take into account the unique nature of the individual historic resources. *(Refer to RMP, p. 64.)*

B. Cultural Heritage Resources Inventory *(see Figure 1, page 271)*

Communities and Settlements

1. Daysville *(now destroyed)* V.H.L.C. No. 53-608:

   This was a small crossroads community, founded in 1817, primarily as a stopping place between Dranesville, four miles to the east and Leesburg, ten miles to the west. A skirmish between the first Vermont Cavalry and Mosby's Rangers occurred in the vicinity in 1863. It was located in the area of the present Northern Virginia Community College.

2. Oak Grove:

   This community is one of the earliest black settlements in the County, dating from 1874. It was formed after the Civil War by former Virginia slaves.

3. Old Sterling:

   This is the "downtown" area of the village of Sterling. There are many buildings which date back 50 to 100 years, most of which are wood frame structures. The basic character of this neighborhood has been well preserved, largely due to the fact that Church Road *(Route 625)* runs to the south of Ruritan road, which is the road on which most of these structures are located. This "bypass" has reduced some of the obvious conversion pressure that might otherwise bear on this old neighborhood. This community is a good representative of the early railroad towns of this locality, and remains relatively intact.

4. Village of Nokes:

   Settled after the Civil War; includes decaying frame house of Ada Nokes.

Individual Sites and Structures:

5. Oak Grove Church:

   Originally built in 1868; destroyed by fire. Rebuilt in 1944.
6. Jim Jackson's Store:

   Late 19th century; one of the largest and oldest country stores in the area. Closed 1930.

7. Sterling Methodist Church:

   Built in 1880.

8. Old Sterling School:

   Two room frame building, built in 1879, closed in 1947.

9. Brick Sterling School:

   Built in 1947.

10. Guilford Church:

    Board and batten structure, gothic windows and doors; built 1882.

11. James Buchanan Summer Home:

    Frame house built c. 1859-60. Used as summer home by President James Buchanan.

12. Old Sterling Post Office Building:

    Used as post office 1887-1907.

13. Broad Run Bridge and Toll House (Bridge destroyed) V.H.L.C. No. 53-110:

    This was a stone bridge built by the Leesburg Turnpike Company around 1820 as part of the road which was to connect Alexandria with Leesburg. The bridge was in use until 1949 when a concrete and steel bridge was built beside it. Until its final collapse in 1976, it was one of the few remaining stone bridge/toll house combinations in the Commonwealth. It is listed on the National Register of Historic Places and is a County Historic site.

14. Broad Run Mill (destroyed) V.H.L.C. No. 53-431:

    An early mill at Broad Run, destroyed, as most of the other mills in the County have been.

15. Moore House - now the "Claude Moore Education Center and Historic Farm", V.H.L.C. No. 53-498, 18th century house.

   Early farm house, built in the late 1700’s, on land which was part of the original McCarty grant.

17. Algonkian Park (site) V.H.L.C. No. 53-570:

   Now a regional park, built on land which was part of the original McCarty grant.

18. Frame House (destroyed) V.H.L.C. No. 53-571:

   Probably the Ankers House, built by Samuel Ankers, a blacksmith, in 1856. Probably the first structure in the Daysville settlement.

19. Brockman House V.H.L.C. No. 53-578:

   Built in the late 1700’s or early 1800’s on land which was part of the original McCarty grant.

20. Seneca Quarry (site) V.H.L.C. No. 53-579:

   Early quarry site.

21. Potomac Canal at Seneca V.H.L.C. No. 53-580:

   Site of George Washington’s first attempt at building a canal on the Virginia side of the Potomac.


24. Cameron Parish Anglican Church (destroyed).

25. Log House at Broad Run V.H.L.C. No. 53-697, 698:

   Early log house, moved to Leesburg area.

26. Old Barn in Sterling Park:

   One of the only remaining farm structures on the farmlands which were converted to residential use when Sterling Park was built. It is an example of successful adaptive use, having been converted to a privately owned meeting hall used for community activities.
27. Hepner House:

    Frame house located on the former Hepner dairy farm, now in the middle of the Sugarland Run subdivision. An early to mid-twentieth century frame house surrounded by 1970’s suburban houses.

28. Lowe’s Island:

    Significant archaeological site where evidence of early Indian settlements has been discovered. Artifacts date back between 6,000-10,000 years.

29. Daysville School:

    One room frame school house built in 1889.

30. Dulles Airport Terminal:

    *(Technically not within Eastern Loudoun Area Plan boundaries, but closely associated with the eastern Loudoun community)*

    Dramatically beautiful and innovative airport facility, designed by Eero Saarinen; built 1962. Concrete piers and steel cable roof.

Roads, Trails and Rails:

31. Vestals Gap Road:

    One of the most significant historic roads in the country. The road was the major east-west transportation route in Virginia during the 18th century. It was traveled many times by George Washington before and during the Revolution. It began as a natural animal trail, became a major Indian trail and was eventually improved by the colonists in the early 1700’s. It is no longer in active public use.

32. Washington and Old Dominion Railroad:

    Railroad which connected towns in western Loudoun County to Alexandria. Abandoned for rail use, purchased by Northern Virginia Regional Park Authority which is building a multi-use trail along the rail bed.

Scenic Resources:

    There are numerous scenic resources in eastern Loudoun County. Rather than attempt a complete listing, only some of the major ones will be mentioned here. Generally, the conservation of scenic resources will be approached through other parallel and overlapping program areas such as historic districts, County and
regional parks and recreation areas, easements, environmentally sensitive areas, etc. A few of the outstanding scenic resources in the eastern area are the following: (see Figure 2, pg. 276).

1. Potomac River Shoreline:

   The shoreline consists primarily of lands which lie in the 100 year floodplain. The Northern Virginia Regional Park Authority has acquired much of the shoreline land in eastern Loudoun County for a potential linear park.

2. Algonkian Regional Park:

   This regional park is part of the Potomac's 100 year floodplain and includes some of the shoreline itself.

3. Broad Run:

   This stream runs from the southeast portion of the County to its confluence with the Potomac River, passing through the western portion of the Eastern Loudoun Management Area.

4. Sugarland Run:

   This creek enters Loudoun County near Route 7 and flows north to its confluence with the Potomac River.

5. National Wildlife Federation (Claude Moore Education Center and Historic Farm):

   A large tract of undeveloped woodland south of Route 7, just west of Sterling Park.
ENERGY PLAN
ENERGY PLAN

INTRODUCTION

The function of energy planning in the area planning process for Loudoun County is to effectively prepare for the County’s energy future through conservation and efficiency and to provide a framework to guide decision-making. A detailed County Energy Plan may follow the Area Plans. The potential for energy conservation and energy development must be reviewed and priorities for action established. The goals of this eastern Loudoun Energy Plan are to enhance and coordinate the efforts of individuals to conserve energy, to attempt to brighten the energy prospects for future residents of Loudoun County and to keep the costs of energy usage as low as possible for the County and its residents. Although not thoroughly addressed in this area plan, another important energy goal is to assure that the County government itself is an informed and frugal user of energy.

More and more localities have recognized their responsibility to take on an energy planning function since the first oil embargo, the subsequent adoption of national energy legislation, including a call for state energy plans, rising costs to government for energy and the increasing number of crisis situations which require local response. Among the most compelling illustrations of the need for localized short-and long-range planning, are the increasing numbers of families unable to budget for higher energy costs and the rising costs of fuel assistance programs each year.

Thus, the need to plan for wise use of energy and even to recognize the existence of energy resources, becomes more and more apparent. In addition, the inclusion of such a plan as part of the Comprehensive Plan is in compliance with the Resource Management Plan which calls for the conservation of renewable and non-renewable resources.

BACKGROUND

The recommendations for this section have been divided into the following subcategories: land development patterns and practices, transportation, education and other. While much of this discussions may apply to the entire County, a good portion of the recommendations are most applicable and relevant to the eastern portion of the County which has the greatest population growth and hence the greatest energy usage. Many of the land development and transportation recommendations are best suited and in response to suburban growth patterns rather than those of a more rural nature.

Countywide there have already been a variety of responses to the need for energy planning and action. Important programs for fuel allocation, fuel assistance, building rehabilitation and weatherization, fuel crisis management and education have been started or are in full operation. On a regional basis, the County Board of Supervisors has adopted the "Energy Conservation and Management Plan" as proposed by the
Metropolitan Washington Council of Governments.¹ This eastern Loudoun plan has not attempted to document or analyze these efforts, but offers recommendations which should complement other programs. The emphasis is on long-range and comprehensive energy planning with a special focus on land use issues. Many recommendations are offered to promote a continuing and growing interest in Loudoun’s energy future.

EXISTING CONDITIONS

Although the traditional failure to plan for energy conservation and use has been accompanied by a general failure to collect energy data, some limited information is available. The main sources of home heating fuels in Loudoun County are the fossil fuels such as oil and gas, as well as electricity. The most common heating source has been oil, but since 1970 electricity has been the major heating source for new homes. Reliance upon gas has been limited by a long-standing moratorium on new gas connections which has only recently been lifted.

<table>
<thead>
<tr>
<th>Table 1</th>
</tr>
</thead>
</table>

**PRIMARY HOUSEHOLD ENERGY SOURCE - 1970²**

<table>
<thead>
<tr>
<th>House Heating Fuel</th>
<th>Number Units</th>
<th>% of County</th>
</tr>
</thead>
<tbody>
<tr>
<td>Oil</td>
<td>6,211</td>
<td>59.1%</td>
</tr>
<tr>
<td>Electricity</td>
<td>2,100</td>
<td>10.0%</td>
</tr>
<tr>
<td>Gas</td>
<td>1,636</td>
<td>15.6%</td>
</tr>
<tr>
<td>Wood</td>
<td>292</td>
<td>2.8%</td>
</tr>
<tr>
<td>LP Gas</td>
<td>96</td>
<td>.9%</td>
</tr>
<tr>
<td><strong>TOTALS</strong></td>
<td><strong>10,505</strong></td>
<td><strong>100.0%</strong></td>
</tr>
</tbody>
</table>

More recent statistics would probably bear out the trend away from oil which is, of course, in response to the availability as well as the cost of fuel. The use of solar, wind, hydroelectric, wood, geothermal and cogeneration power is presently limited, but may become important for future energy self-reliance and efficiency. *(The use of wood, however, is increasing.)* Price and reliability will again provide a basic incentive for implementation of these technologies, but planning for and promotion of these energy alternatives is important for the County now.


IMPLEMENTATION

A. LAND DEVELOPMENT PATTERNS AND PRACTICES:

General development patterns as well as site specific orientation and construction practices may have quantifiable impacts on energy efficiency which have traditionally been ignored. The advantages of design which uses natural heating and cooling have been well documented in recent years\(^3\) as has the tendency of local land use regulation to thwart the use of energy sensitive development.

A general development pattern which locates housing regardless of the sun and wind angles, promotes a spread out or sprawl pattern which in turn increases dependence on the automobile and necessitates the replacement of natural conditions by concrete and asphalt is, of course, at odds with energy conservation goals. The advantages of the cluster type of development versus "sprawl" development patterns have been discussed in other portions of the Plan, particularly in the Community Design section. This energy plan need not review these implications, but merely emphasize the potential energy benefits of planned, cluster-type development.

On a site specific level there are many strategic placement decisions which may affect energy use. Figure 1, page 280, illustrates some of the energy implications of site design. With basic information such as this, a move should be initiated immediately to work with developers on an informal basis regarding energy concerns in site design. A checklist similar to the one in Figure 2, page 191, may be used for discussion purposes and to provide the basis for fair and equal treatment of all developers in this area. For residential development, densities granted may, in some instances, change with the level of commitment demonstrated by the developer.

A vital counterpart to this move would be one by the County to assure that its own zoning and subdivision regulations allow for designs based on passive energy considerations. Davis, California has provided the model from which many localities are now pursuing energy conscious regulation, and a Loudoun study should take advantage of their pioneering. However, regional climate differences must be carefully considered, and the Davis ordinance could not be simply transferred to eastern Loudoun. Further, the County should proceed with the full realization that rigid criteria that are easily administered may not be useful and may, in fact, work to the detriment of energy conscious site planning. Rigid lot size, setback, yard and street requirements may prove to be obstacles that should give way to more flexible standards. Specific areas of concern which must be addressed before such a study is complete include setback and yard requirements, fence regulations, minimum lot sizes and road regulations.

Site Considerations for Energy Efficiency

Protected Ridge
Unwooded, warm slope - good development for solar energy
Warm plateau - partially open; good potential
Wooded area
Frost pocket

Unprotected, cool Plateau - poor energy potential unless heavily buffered
Unwooded cool slope - poor energy potential
Wooded cool slope - summer recreation potential
Frost pocket of large body of water - usually floodplain - do not develop.

Summer Breezes

Winter Winds
### SAMPLE

**CHECKLIST FOR ENERGY EFFICIENT DESIGN**

<table>
<thead>
<tr>
<th>Site Design</th>
<th>Used By Developer</th>
<th>Partially Used</th>
<th>Not Considered</th>
</tr>
</thead>
<tbody>
<tr>
<td>Most efficient water, sewer, utility layout</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Street design and orientation for energy economy</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Cluster development</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Mixed-use layout</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Pedestrian trails to activity centers</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Other</td>
<td></td>
<td></td>
<td></td>
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</tbody>
</table>

### Building Placement

| Housing sited on warm slope                                               |                   |                |                |
| Buildings facing southeast                                                |                   |                |                |
| Non-solar buildings in wooded or otherwise sheltered area                 |                   |                |                |
| Other                                                                      |                   |                |                |

### Vegetation and Building Material

| Shade trees on east-southeast and west-southwest sides of structures      |                   |                |                |
| Windbreaks situated for winter protection, summer cooling                 |                   |                |                |
| Use of arbors, fences, porches, etc., to enhance passive heating and cooling |                   |                |                |
| Shade trees selected for longevity, density, pollution tolerance, care requirements |                   |                |                |
| Use of materials (e.g., gravel, cobble, bricks and turf blocks) to cut heat load problems associated with asphalt & cement |                   |                |                |
| Other                                                                      |                   |                |                |
In relation to the last item mentioned, road improvements, the County should continually note the effects of state road requirements on energy efficiency. In developing its own requirements, the County should consider energy losses associated with street widths, replacement of natural drainage swales with artificial channels, and various types of pavement for off-street cover.

In the development of any woodland and tree protection ordinances, (see Environmental section) the issue of energy efficiency must be considered. Shading goals for streets, parking lots, commercial developments and county owned buildings should be included. In addition, solar access rights must be considered in the development of vegetation requirements. That is, new regulations must not create a barrier to the expanded future use of solar energy by individual buildings.

B. TRANSPORTATION:

In Energy for Survival, Wilson Clark reports that automobile traffic increased 142 percent from 1950 to 1974 while the amount of energy used by automobiles increased 171 percent. In 1970 alone, autos consumed 65 billion gallons of gasoline or 13 percent of the country’s total energy usage for that year. The need to cut transportation-related use of energy is overwhelmingly apparent. Alternative modes of transportation in eastern Loudoun are necessary. (See Transportation section of this plan for detailed recommendations.)

Transportation policies which promote private automobile alternatives are very important, as are overall land use policies which decrease dependency on the private automobile. While the ideal for which to strive would be a drastic cut in the total miles travelled, it should be noted that the types of trips as well as number of trip miles affect energy usage. Short, stop-and-go trips, particularly from cold starts, are not only more polluting, but also less fuel efficient. Thus, traffic flow design and pedestrian accessibility to local services are key considerations.

The Transportation section addresses several energy related issues in some detail. The key transportation strategies are as follows:

1. Promote ridesharing, car pool and van pool facilities as described in the proposed Loudoun County Coordinated Transit System.

2. Construct pedestrian and bicycle trails to connect major activity centers; look into possibilities for expanding pedestrian/bike access as all new roads are constructed.

3. Promote and encourage proffers for the installation of fringe parking and park-and-ride facilities throughout the area.

4. Establish rights-of-way for express lanes on primary highways, where appropriate.

---

5. Give preference to car/van pools for all new roads and fringe lots.

6. Combine home-based auto trips to non-work travel via a coordinated County service.

7. Promote citizen awareness of available transit operations in the County.

8. Promote consistent area wide approach to gasoline sales restriction programs and arrange gas availability information programs during crisis situations.

C. EDUCATION:

Because wasteful use of energy is often promoted by misinformation and ignorance, education is an important component of any energy plan. Resources are available from offices such as the Department of Energy, the Virginia Energy Office and the local utilities, and the County should take advantage of existing opportunities for citizen education. County residents should have available to them information on the energy efficiency of home appliances and heating techniques, and widespread use of energy audits currently offered through the State and the power companies should be actively promoted. On another level, the County should begin collecting energy consumption information as soon as possible, so that long term energy planning may be informed and effective.

D. OTHER:

Aside from the above recommendations which may affect the residents of eastern Loudoun specifically, there are other energy strategies which are logical outgrowths of this initial step toward energy planning in eastern Loudoun. The following list includes additional recommendations of the Committee, the most important of which is a call for a County Energy Plan.

1. Develop a county-wide energy plan and seek out grant or subsidy programs available through the state and federal governments for this plan and its implementation.

2. Encourage the use of local energy resources such as corn, wood, recyclable solid waste, and other indigenous fuels to promote energy self-sufficiency.

3. In plans for waste management, give consideration to resource recycling and recovery options.

4. Consider energy efficiency in purchase and/or construction of new County facilities.
5. Include energy consumption predictions in impact assessment process, where possible.

6. Apply for both federal and state energy grants that may promote:
   a. Energy efficiency in the home
   b. Alternative modes of transit
   c. New energy sources for home heating fuels
   d. Solar access in subdivision design
   e. Efficiency in design of roadways
   f. Education of public in energy efficiency

7. Establish a full-time county energy office for crisis intervention, fuel economy in County government and uniformity in county energy (especially gasoline) allocations and distributions.
### Eastern Loudoun Area Management Plan Amendments

<table>
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<tr>
<th>CASE #</th>
<th>PROJECT NAME</th>
<th>DATE ADOPTED</th>
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<tr>
<td>CPAM 1994-0006</td>
<td>Old Sterling Center</td>
<td>April 19, 1995</td>
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<tr>
<td>CPAM 1995-0001</td>
<td>Route 7/Cascades Parkway Interchange</td>
<td>June 21, 1995</td>
</tr>
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<td>CPAM 1994-0007</td>
<td>Route 7/Augusta Drive</td>
<td>August 2, 1995</td>
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<tr>
<td>CPAM 1996-0003</td>
<td>Telecommunication Towers</td>
<td>November 6, 1996</td>
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CPAM 1994-0006
Old Sterling Center

Adopted April 19, 1995
ELAMP

1. Amend Figure 5 on p. 36 to add Regional Commercial Center Location to the northeast quadrant of the Route 625/Route 28 intersection.

2. Amend Policy 1.b on p. 38 to state, Commercial land uses - a small regional shopping center of up to 400,000 square feet could be developed in the vicinity of the W&OD trail and Route 625.

3. Amend Figure 7 on p. 39, to show commercial uses on the subject tract.

4. Amend Figure 5 on p. 128 to add Regional Commercial Center Location to the northeast quadrant of the Route 625/Route 28 intersection.

5. Amend the text on p. 131 to state, This plan provides for one large regional retail facility and three small regional retail facilities.

Add the following policies to the Old Sterling Small Area Plan on page 38.

6. The extension of the East Access Road from its current terminus with Magnolia Road to its intersection with Route 625 at Davis Drive will be aligned, engineered and constructed to avoid small parcels of individually-owned land and small businesses where possible. In order to mitigate impacts on small properties and businesses, the County may consider the incorporation of modified turning movements, “T” intersections, and reduced design speeds in the design of the road network.

7. Small businesses fronting Route 625 that will be affected by the alignment and construction of the East Access Road may be accommodated by alternative parking arrangements, such as shared parking, reduced parking requirements, and offsite parking.

8. The road network in the area currently served by Ruritan Road and Ruritan Circle will be modified based on new development in the area and the construction of the East Access Road. Route 610 will be abandoned north of the existing trail crossover when interparcel connections can be made among those parcels accessing Ruritan Road north of the crossover.

9. As redevelopment occurs on these properties, the small properties located to the east of the W&OD will be served by a new road, which will intersect either Magnolia Road or Ruritan Circle.
10. When the East Access Road intersects Route 625 and connects with Davis Drive, Ruritan Circle west of the W&OD trail will be rerouted to provide local access to the small businesses located on Ruritan Road. A median break in the East Access Road will also provide access to properties located along Ruritan Road.

11. The County encourages the grade separation of the trail and Atlantic Boulevard and will work with the NVRPA, VDOT, and area property owners to institute the most cost-effective means for providing the grade separated crossing.

12. The County will explore alternative funding sources for the grade separation of the trail and Atlantic Boulevard.

13. The W&OD trail should be viewed and used as a design amenity for new development.

14. New development should provide opportunities for pedestrian connections between existing and new land uses.

15. The County anticipates that when the East Access Road is constructed between Atlantic Boulevard and Route 625, it will serve as the focal point for new development along that portion of the East Access Road. Buildings constructed after the dedication of the East Access Road should be oriented to front it and should be compatible in site design and pedestrian orientation to relate to the existing small businesses adjacent to it.
CPAM 1995-0001
Route 7-Cascades Parkway Interchange

Adopted June 21, 1995
Amendments to the **Eastern Loudoun Area Management Plan:**

1. Amend Figure 5, Page 36, (Attachment 3) to add a Regional Commercial Center Locations designation to the southeast quadrant of the Route 7- Cascades Parkway interchange.

2. Amend Policy G. 2. Southwest Quadrant of [Route 7/637] Intersection, Page 53:

   "This property should be developed with office/light industrial uses to be a transition between the industrial uses and the small regional shopping center to the west and the residential area to the east. Access should be limited to one location on Route 637. Low density offices that respect the many environmental features of the land area will be encouraged."

3. Amend Table 2, Page 121 to state:

<table>
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<tr>
<th>Type of Facility</th>
<th>No. of Centers</th>
<th>Size Sq. Ft.</th>
<th>Service Area</th>
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<td>Small Regional Mall</td>
<td>4</td>
<td>600,000-400,000</td>
<td>25-30 minutes</td>
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<tr>
<td></td>
<td></td>
<td>850,000 gross leasable area</td>
<td></td>
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</tbody>
</table>

4. Amend Policy 5, Page 126:

   "In the development of the various scales of regional facilities, regional commercial centers, the following design standards should be followed:

d. Grade separated interchange contributions proffered by the developers for free flow traffic—provided, however, that The center at the Route 7 - Cascades Parkway interchange shall have access to Route 7 only by the existing grade separated interchange provided the major roads connecting to the interchange are completed or being constructed to their planned ultimate condition (i.e. accommodating four lanes of traffic).

5. Amend Policy 10, Page 127:

   "South of Route 7, the property between the Pocahontas (now Loudoun Tech Center) property east of the Price Club and the designated Small Regional Commercial Center location in the southeast quadrant of the Route 7- Cascades Parkway interchange properties, zoned PD-IP, south of Route 7 and west of Route 637 should be considered for local office and institutional uses as a transition between more intensive uses to the west and lower density residential uses to the east of Route 637.

6. Amend Figure 5, Page 128, (Attachment 4) to add a Regional Commercial Center locations designation to the southeast quadrant of the Route 7 - Cascades Parkway Interchange.
7. Amend text of C. Rezoning Guidelines, Page 131:

This plan provides for one large regional retail facility and three **four** small regional retail facilities.

8. Amend Appendix II, Regional Centers, Page 136:

**Size:** Large Regional Commercial Center, 75 acres and up; 600,000 - 1.2 million square feet. Market service population of 150,000 and up.

Small Regional Commercial Center, 25 - 75 acres, 400,000 - 850,000 square feet. Market service population 100,000 and up.
CPAM 1994-0007
Route 7/Augusta Drive

Adopted August 2, 1995
Amendments to the Eastern Loudoun Area Management Plan:

E. North of Route 7 (East of Route 637 and South of Sugarland) (See Figure 11, page 48)

The undeveloped property in this area is bounded by Richland Acres, Route 7 and Cardinal Glen, Route 637, Mirror Ridge and the planned community of Sugarland Run. It comprises 24 separate parcels on approximately 200 acres and should be developed primarily for residential uses at densities and with housing types both compatible with those of contiguous developments and consistent with the General Plan designation as a residential community. Low rise commercial retail and/or local office uses would be appropriate along Route 7 between Cedar Drive and Lakeland Drive; Office/Institutional/Neighborhood Commercial uses would be appropriate along Route 7 between Cedar and Augusta Drives.

1. The development density gradient should effect a transition from the present 0.9 dwellings per acre of Richland Acres to the east to the 5.5 dwellings per acre of Mirror Ridge to the west, taking into account the 2.5 dwellings per acre of Cardinal Glen and the south Sugarland community.

2. Development in the Augusta Drive/Route 7 area shall comply with the following policies:

a. The undeveloped lots in Richland Acres adjacent to the Black and Jennings’ properties should be permitted to develop at residential densities ranging from 3.0 to 3.5 units per acre. Richland Forest and the Black property are also planned to develop at densities up to 3.0 to 3.5 dwelling units per acre.

b. The portion of the Jennings’ tract located east of Augusta Drive and north of the proposed Route 7 North Parallel Road should be developed with single family attached and/or detached residential units at densities ranging from 6.0 to 8.0 units per acre to effectuate a transition between the non-residential uses to the south and the lower density residential uses to the north and the east. To assure that an effective transition is realized between this property and neighboring lots, a 50 foot minimum building setback will be maintained along the northern and eastern boundary. Adjacent to the property line within the building setback, a 25 foot landscaped buffer will be constructed on the Jennings’ property with a fence being constructed on the inner edge of the buffer on the north and east sides. The buffer yard will meet the requirements of the 1993 Zoning Ordinance Type 4 Buffer yard.
c. The portion of the Jennings' tract on the west side of Augusta Drive should transition in density from 4.0 single family detached dwelling units per acre near and adjacent to the existing and planned single family detached dwelling units of Richland Forest, Cardinal Glen and the Carter property. Higher densities of 6.0 to 8.0 single family attached and/or detached units can be developed as the site transitions towards Route 7 and Augusta Drive with an overall development density not to exceed 7 dwelling units per acre.

d. The Carter property should have an overall development density not to exceed 4.0 single family detached units per acre.

3. Development plans should include buffers at density transitions whenever possible using natural features such as existing stands of trees, streams and open space in order to promote a harmonious transition from higher to lower densities. Extensive landscaped buffers for visual and acoustical screening should be employed for development where residential and non-residential uses abut Route 7, the proposed Route 7 North Parallel Road, non-residential uses and between the single family attached units and Richland Acres subdivision.

4. The site design of single family attached residential units should minimize the visual impact on the existing single family detached neighborhoods. Where different types of residential units back to existing single family detached residential units and/or subdivisions, landscaping, screening and/or facade treatments should be developed.

5. The backs of residential units should not face Route 7.

6. Development plans should include a pedestrian network which links to existing residential communities. Pedestrian access to the Cardinal Glen subdivision should be provided at the existing road access located at the southern entrance to the subdivision and should not be located between existing residential units.

7. The site design of the office/institutional/neighborhood commercial uses between Cedar and Augusta Drives fronting Route 7 should be visually screened and buffered from the residential units. This includes protecting these areas from any visual effects of on-site lighting and signage.

3. The present CR-1 zoning of undeveloped lots within Richland Acres should be continued; however, the undeveloped lots which abut the Jennings' property should be permitted to develop at a higher single family detached residential density of 3.0 - 3.5 du/ac to provide an effective transition between residential uses on both sides. Low rise commercial retail and/or
local office uses are recommended along Route 7 in the area between Cedar Drive and Lakeland Drive. The 10 acre tract along Route 7 between Lakeland and Cedar Drives should be rezoned to non-residential uses only as a unified concept plan. Development Plans for this tract should include careful site design to ensure:

a. Safe and effective vehicle movement from Route 7 into and through the shopping center.

b. Safe and effective pedestrian movement from the north and west into and through the shopping center.

c. The northern portion of the tract facing Richland Acres is free of incompatible non-residential elements such as dumpsters or loading bays.

d. The facades of structures facing Richland Acres be constructed with appropriate finishes and landscaping so as to be a visual and an environmental asset to that residential community.

9. Office, Institutional and limited neighborhood commercial uses are recommended along Route 7 between Cedar and Augusta Drives. The intent of this designation is to provide a distinct transition between the commercial uses to the east and the residential uses to the west. The Plan strongly encourages the consolidation of frontage parcels to provide one cohesive, comprehensive development plan at the time of rezoning. Development plans for this area should include careful site design to ensure:

a. The proposed uses reflect office, institutional and limited neighborhood commercial types of uses. Appropriate uses for this area are limited to the following: office, administrative, business and professional; bank and financial institution (no drive through); health and fitness center; office, medical and dental; post office; adult day care center; educational institution; printing services; business service establishment; library; park; public utility service center, without outdoor storage; radio and television recording studios, excluding broadcasting towers and antennas; research, experimental, testing or developing activities; utility substation; water and sewer pumping stations; church, synagogue and temple; child care center; fire, police and rescue station; restaurant; facilities for lessons in dance, gymnastics, judo, and sports training; private schools, accessory to a church; personal service establishments; convenience food store without gas pumps; art gallery; studio space; and pharmacies. Uses which are precluded are: commercial uses
which are not identified above or do not meet the definition of personal service\(^1\) or business service establishments\(^2\); gas stations; gas pumps; drive through fast food establishments; drive through banks and financial institutions, construction retail establishments and community centers.

b. The only means of ingress and egress to the area will be provided from the proposed Route 7 North Parallel Road. There will be no access from Route 7, Cedar Drive and Augusta Drive.

c. Safe and effective pedestrian movement from the north and west into and through the area will be developed.

d. Placement of incompatible non-residential elements of the development in the area such as dumpsters or loading bays will be away from adjacent residential areas and will not be visible from Route 7.

e. For Office and Institutional uses, landscape buffers, will be installed along Route 7, Augusta Drive, Cedar Drive and the proposed Route 7 North Parallel Road. For any neighborhood commercial uses which are developed, landscape buffers consisting of walls, berms and/or dense landscape materials will be installed along Route 7, Augusta Drive, Cedar Drive and the proposed Route 7 North Parallel Road.

f. In the event the properties located directly on Route 7 are not developed as one consolidated development plan, the property owners will be encouraged to develop cohesive landscaping along Route 7 and maintain consistent building setbacks.

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\(^1\) **Personal Service Establishment:** Establishments primarily engaged in providing services, including the care of a person or his or her apparel, such as, but not limited to, laundry, cleaning and garment services, garment pressing, linen supply, diaper service, coin-operated laundries, dry cleaning, carpet and upholstery cleaning, photographic studios, beauty shops, barber shops, shoe repair, hat cleaning, steam baths, reducing salons and health clubs, travel agent, clothing rental, locker rental, porter service, optician, and tailor.

\(^2\) **Business Service Establishments:** Establishments primarily engaged in rendering services on a fee or contract basis to the business, commercial, industrial, or institutional community, such as advertising and mailing; business maintenance; employment service; management and consulting services; travel agent; protective services; equipment rental and leasing; commercial research; development and testing; photo finishing; quick print shop; and personal supply services; but not including retail sales to the general public in excess of twenty (20) percent of the gross floor area. Such retail sales area shall only be a secondary and subordinate ancillary activity.
g. The facades of structures in the area will be constructed with finishes that complement the character of the adjacent residential communities and to provide a visual asset to the residential community. Roof top air conditioning units will be visually screened from view.

h. Lighting of the facilities developed in the area will be directed toward the on-site uses and will not encroach upon any residential area.

i. Signage will complement the design of the principal use(s) of the area and will be placed so as not to cast glare on the adjacent residential uses.

10. Environmental sensitivity should be employed in the design of each development to respect, preserve and enhance existing streams and drainage ponds such as that of Baskin or of Kaufman/Jenkins. These environmental areas should be designated passive recreation space to be used as walkways to existing and proposed activity centers such as schools, a library and neighborhood shopping center.

11. A continuous access through the tract should be established connecting Lakeland and Augusta Drives. No median breaks on Route 7 should be permitted. Any development proposal for the site should include transportation solutions which help meet the following objectives and performance guidelines:

a. No additional median breaks should be allowed on Route 7.

b. The transportation system should not depend on any new U-turns from left turn lanes to accommodate anticipated traffic movements in lieu of new median breaks and current U-turn/left turns such as those now occurring at Route 7 and Route 228 should be eliminated.

c. Route 7 should be widened to six lanes in the area, with appropriate contributions to the improvement from new development along the road.

d. New access to Route 7 at points other than existing intersections should only be considered in cases where:

1. Three full directional lanes of traffic (eastbound or westbound) are proposed in a concept plan by the applicant;
2. Entrances including deceleration and acceleration lanes are
in full compliance with VDOT standards;

3. The entrance will not degrade the level of service at proximate intersections

4. Traffic safety problems will not be created; and

5. Unacceptable weave/merge conflicts will not be created on Route 7.

e. Appropriate stacking distances and lanes will be provided for all left turn movements onto or from Route 7.

f. To the extent that unacceptable impacts are not created on residential areas, access to office/commercial development north of Route 7 should be by parallel roads/project spine roads. The distance of these roads from Route 7 should be consistent with appropriate stacking distances and lanes for left turns on roads intersecting with Route 7 (see Figure 12).

g. Roads intersecting with Route 7 should be improved to an appropriate geometric section. The geometric section of the road segment serving office/commercial development shall not be extended in an inappropriate manner to the residential areas to the north. Appropriate tapered transitions should be provided in these cases.

h. To the extent that unacceptable impacts are not created on residential areas, a continuous parallel road should be provided north of Route 7, terminating to the west at Augusta Drive. (see Figure 12, page 51)
Proposed Land Use North of Route 7 and East of Cedar Drive

Option One: Exclude Williams Tract

- New Road/Access
- Widen Existing Road
Strategic Land Use Plan for Telecommunication Facilities

Adopted as part of Loudoun County's Comprehensive Plan
November 6, 1996
Adopted by:
The Loudoun County Board of Supervisors

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Jim Burton
Helen A. Marcum
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SECTION I: BACKGROUND

A. INTRODUCTION

There are currently more than forty commercial public telecommunication antenna sites in Loudoun County (see “Existing and Proposed Telecommunication Antennas” map available through the County). Changes in commercial public telecommunication demand and technology have caused a great demand for additional antenna mounting facilities, mostly in the form of lattice towers or monopoles. The increased demand for these facilities poses a number of important land use issues for Loudoun County including facilitating collocation of antennas, ensuring appropriate siting and design, and mitigating impacts of telecommunication facilities.

The policies outlined in this document were developed by the County to balance the public demand for commercial public telecommunication service with the County’s desire to avoid proliferation of towers and monopoles. Guidance is provided for the location and design of commercial public telecommunication facilities only, not amateur operations. The intent of these policies is to provide the overall land use strategy for allowing commercial public telecommunication service in Loudoun County, while mitigating any negative impacts.

B. GOAL AND OBJECTIVES

Goal:
Loudoun County recognizes that modern, effective, and efficient telecommunications is an essential part of creating an attractive economic development environment and meeting the desires of its citizens for high quality service. The County seeks to encourage improvements in telecommunications services while mitigating the impacts on its residents, nearby land uses, scenic beauty, and rural heritage.

Objectives:

1. To identify a hierarchy of areas where future commercial public telecommunication facilities can be located, while minimizing the proliferation of towers and monopoles;

2. To require collocation of commercial public telecommunication facilities on existing structures and towers;

3. To attempt to ensure compatibility of telecommunication facilities with nearby land uses;

4. To establish siting and design criteria to mitigate negative impacts;

5. To establish commercial public telecommunication tower and monopole removal policies;
6. To establish a process by which an applicant can demonstrate their compliance with these policies.

7. To stay abreast of changing technologies that may reduce the need for new towers and monopoles.

C. COMMUNITY PLANNING PROCESS

The proposed policies were developed initially by the Transportation, Subdivision, and Site Plan Committee of the Planning Commission over a three month period in the spring of 1996 that included two public input sessions. As part of their review, the Committee heard presentations from citizens, telecommunication providers, the FCC, Leesburg Airport, and the County's Fire and Rescue staff. The Committee then reviewed existing County policy and regulations and looked at the policy and regulations of several other jurisdictions.

On May 22, 1996, the Committee presented the recommended draft policies to the Planning Commission Committee of the Whole. The draft policies were then sent to referral agencies for review. The Planning Commission held a public hearing on the draft telecommunication policies on June 12, 1996 and made further amendments to the draft policies at their June 19 work session. The Board of Supervisors held a public hearing on these policies on September 4, 1996 and subsequently added two new policies and revised others. On November 6, 1996, the Board approved this comprehensive plan amendment establishing this document as part of the County's comprehensive plan.

D. RELATIONSHIP TO OTHER COUNTY DOCUMENTS

Loudoun County's Comprehensive Plan consists of the General Plan, several area management plans, strategic plans, and related documents. The General Plan provides the overall countywide goals and policies for managing growth and development while the area management plans and strategic plans outline more specific strategies for local planning areas or particular issues. These telecommunications policies are a strategic plan consisting of goals and policies for the siting and design of telecommunication facilities. As such, these telecommunication policies supersede Energy and Communication Policies 4, 5, and 6 on page 83 and Energy and Communication policy 2 on page 156 in the General Plan and apply in all areas of the County.
SECTION II. TELECOMMUNICATION POLICIES

A. LOCATION POLICIES

The location policies establish a hierarchy of preferred locations for new commercial public telecommunication facilities. The County’s first preference is to have new antennas collocate on existing tall structures, monopoles and towers in order to minimize the need for new towers and monopoles. When a telecommunication antenna cannot locate on an existing structure for technical or location reasons, the County then prefers that new towers or monopoles be located where they are most compatible with surrounding land uses.

The second level of preferred locations for new monopoles or towers is in industrial and employment areas, within overhead transmission line rights-of-way, and on public sites or volunteer fire and rescue company properties (see the “Public Facility Sites” and “Telecommunications By-Right Zoning” maps available through the County). The policies provide incentives, such as allowing monopoles as a by-right use, for applicants to locate in these preferred areas. In urban eastern Loudoun County, the policies encourage telecommunications antennas additionally on light poles within the VDOT or Dulles Greenway right-of-way, and potentially on towers on existing low-rise heavy industrial buildings.

In order to protect the scenic rural beauty of Loudoun County, commercial public telecommunications towers and monopoles in rural areas will be allowed only by special exception. Furthermore, the County will not allow new towers or monopoles to locate in County designated historic districts.

Countywide Location Policies

1. To minimize the need for new towers and monopoles, the County prefers that new commercial public telecommunication antennas be located on existing buildings, towers, monopoles, water tanks, overhead utility transmission line structures and other tall structures wherever possible. Commercial public telecommunication antennas should be permitted by-right on all existing towers, monopoles, and other tall structures subject to performance standards to mitigate visual impacts.

2. Where it is not feasible to locate on an existing structure, the County prefers that new towers or monopoles be located

   a. In planned and zoned industrial and employment areas,

   b. Within overhead utility transmission line rights of way where structures greater than eighty (80) feet in height already exist, and
c. On public sites or volunteer fire or rescue company properties where such facilities mitigate adverse impacts on the character and use of the public or public safety site.

3. In order to encourage location in industrial and employment areas, commercial public telecommunication monopoles up to 199 feet in height should be a by-right use, subject to performance standards to mitigate visual impacts, in areas that are both planned and zoned for industrial and employment uses (such as the GB, PDGI, PDSA, PDOP, PDIP, PDRDP and MRHI zoning districts but not the employment areas within PDH districts) provided that the monopole is not located within 750 feet of a residentially zoned property.

4. In order to facilitate use of volunteer fire and/or rescue company sites, telecommunication monopoles should be permitted as a by-right use up to 199 feet in height, subject to performance standards to mitigate visual impacts, on fire and/or rescue sites in rural and agricultural areas (specifically A3, A10, A25, all CR, and RC zoning districts). In addition, The County encourages use of other public sites where telecommunication uses should be permissible as an accessory use by special exception. Any Zoning Ordinance amendments should also consider adoption of visual impact performance standards to mitigate impacts on adjacent residential or other sensitive uses.

5. Except for areas where towers or monopoles are permitted by right, an applicant for a new commercial public telecommunication tower or monopole will demonstrate to the County that location on an existing tall structure is not feasible. An applicant will evaluate the feasibility of using existing or approved towers, monopoles, or other structures greater than 50 feet in height within a one mile radius of any proposed site in the Eastern Loudoun Urban Growth Area and within a two-mile radius elsewhere in the County. Technological, physical, and economic constraints may be considered in determining unfeasibility. Collocation may be determined to be unfeasible in the following situations:

a. Planned equipment would exceed the structural capacity of existing and approved towers or monopoles, considering existing and planned use of those towers, and such towers or monopoles cannot be reinforced to accommodate planned or equivalent equipment at a reasonable cost;

b. Planned equipment will cause interference with other existing or planned equipment for that tower or monopole, and that the interference cannot be prevented at a reasonable cost;

c. Existing or approved towers or monopoles do not have space on which planned equipment can be placed so as to provide adequate service; or

d. Existing or approved towers or monopoles will not provide adequate signal coverage.
6. The County encourages new towers and monopoles to locate in overhead utility transmission line rights of way where there are existing tall structures. The Zoning Ordinance should be amended to allow monopoles up to 199 feet in height by-right, subject to performance standards, within overhead utility transmission line rights of way where there are existing transmission support structures greater than eighty (80) feet in height.

**Urban Location Policies**

1. The County should revise the Zoning Ordinance to allow towers up to 40 feet in height on existing buildings in areas which are both planned and zoned for heavy industrial uses (such as MRHI and PDGI) subject to performance standards to mitigate visual impacts.

2. The County encourages the location of commercial public telecommunication antennas on light poles and other existing tall structures in the right of way of the Dulles Greenway and VDOT’s arterial roads.

**Rural Location Policies**

The County recognizes the importance of maintaining the natural scenic beauty and historic character of the rural and historic areas. As such, monopoles and towers are prohibited within the County’s Historic and Cultural Conservation Districts. As in urban areas, the County prefers locating new antennas on existing towers, monopoles or other tall structures. When existing structures cannot be used, new monopoles or towers should be sited within the right-of-way for overhead utility transmission lines where the visual impact of an additional tall structure would be minimal. Elsewhere, towers and monopoles should be located in rural areas only by Special Exception and subject to design criteria for mitigating visual impacts.

1. The County prefers that commercial public telecommunication antennas locate on existing tall structures where possible.

2. Except within overhead utility transmission line rights of way as specified in Countywide Location Policies four (4) and six (6), commercial public telecommunication towers and monopoles will be permissible in agricultural-residential areas (such as the A-3, A-10, A-25, and CR zoning districts) only by special exception and subject to performance standards to mitigate visual impacts.

3. Commercial public telecommunication towers and monopoles are prohibited within County designated historic districts.
B. DESIGN STANDARDS

This plan calls for design standards to address visual and land use impacts of commercial public telecommunication facilities. There are two main components of the design strategy. The first is to limit the need for new towers and monopoles by providing for collocation. The second is to mitigate visual impacts through appropriate setbacks, screening, and design. The policies will help minimize and mitigate impacts through appropriate siting and design and provide guidance for development of new Zoning Ordinance performance standards.

Tower and Monopole Design

1. Due to their reduced visual impacts, when technologically and physically feasible, monopoles are the preferred design.

2. Tower and monopole sites should be designed and constructed to the minimum height necessary to accommodate at least three providers on the tower or monopole and provide sufficient land area for additional equipment buildings unless doing so would:
   a. Create an unnecessary visual impact on the surrounding area; or
   b. No additional need is anticipated for any other potential user in this area; or
   c. There is some valid economic, technological or physical justification as to why collocation is not possible.

Countywide Visual Impacts

1. The visual impact of commercial public telecommunication facilities should be mitigated so as to blend with the natural and built environment of the surrounding area.

2. The specific communication facility design issues that should be examined in looking at visual impact are: the setting, color, lighting, topography, materials and architecture. Towers and antennas should be neutral in color to blend with the background, unless specifically required by the FAA to be painted or lighted otherwise.

3. To mitigate the visual and noise impacts of new equipment buildings and accessory uses, these structures should blend in with the surrounding environment through the use of appropriate color, texture of materials, topography, scale of buildings, landscaping and visual screening.
Rural and Historic Areas

1. New commercial public telecommunication facilities sited in rural and historic areas should conform with the following design considerations:
   
a. Monopole or tower sites should be sited within areas of existing mature vegetation so that the maximum amount of the structure and associated buildings are screened;
   
b. Monopoles or tower sites shall not be located along ridge lines but down slope from the top of the ridge lines to protect views of the Catoctin, Bull Run, and Hogback Mountains, the Short Hill, and the Blue Ridge;
   
c. Monopoles or towers proposed where mature vegetative buffering or topographical conditions will not contribute to screening shall demonstrate that there is no existing mature vegetated area nearby that could be used instead. In all cases, the County encourages camouflaging the facility to mitigate visual impacts;
   
d. Monopoles or towers should generally be sited toward the interior of a property rather than close to a property line unless a lesser visual impact would occur from locating it elsewhere. Visual impacts should be mitigated by measures onsite rather than relying on offsite conditions for mitigation.

2. When there is not a feasible location with existing mature vegetation then the preferred location for a new tower or monopole is close to existing tall structures.

3. Commercial public telecommunication towers or monopoles on the property of a structure or site that is listed on the National Register of Historic Places should show how the visual impact on views from or toward the structure will be mitigated. The applicant should provide visual imagery from several different perspectives to help determine the extent to which the facility could be designed to mitigate the visual impact on the historic structure or site.

4. Applicants proposing a telecommunication tower or monopole within one mile of a County designated Historic District or State Scenic Byway should provide both a visual impact analysis and justification why the tower or monopole could not be sited elsewhere.

Publicly Owned or Controlled Facilities and Volunteer Fire or Rescue Companies

1. Applicants for commercial public telecommunication towers or monopoles must demonstrate that there will not be any physical or technological interference with the existing or planned function of the public facility or volunteer fire or rescue company facility.
2. Required landscaping may be less stringent for public sites or volunteer fire or rescue company sites where the visual impact of the support building is otherwise mitigated or is consistent with the surrounding area.

By-Right Uses

1. Commercial public telecommunication monopoles in employment or industrial areas should locate toward the interior of a lot rather than along the common boundary with existing or planned residential areas and should mitigate visual impacts onsite rather than relying on offsite conditions for visual mitigation.

2. Within employment or industrial areas, commercial public telecommunication monopoles should be separated from residentially zoned property by a minimum of 750 feet. Along existing overhead utility transmission line rights of way, the 750 foot separation does not apply.

3. In some locations, such as in industrial areas, required landscaping may be less stringent where the visual impact of the support buildings is otherwise mitigated or consistent with the surrounding area.

Arterial Road Corridors

1. The County may consider allowing towers or monopoles in major and minor arterial road corridor setback areas if the tower can be sited within existing mature vegetation or the topographical conditions are such that the visual impact of locating within the setback is less than a nearby location that adheres to the setback.

C. SAFETY AND HEALTH POLICIES

This plan addresses two main issues related to safety and health. The first is the potential for conflict between new towers or monopoles and existing airports. The Metropolitan Washington Airports Authority (MWAA) and the Town of Leesburg have expressed concern with coordination between the commercial public telecommunication providers, the County, and the airport authorities. The Plan calls for a commercial public telecommunications provider to demonstrate to the County that they have contacted the appropriate airport authorities prior to submission of a land development application so that any potential airport issues can be addressed.

The second issue relates to the appropriate abandonment of a site no longer maintained for commercial public telecommunication use. The County has included a policy to require that a site
no longer used for commercial public telecommunications be returned as nearly as possible to pre-existing site conditions.

Policies

1. Applicants for any commercial public telecommunications facility shall demonstrate that they have complied with applicable regulations of the FCC and the FAA. If a proposed telecommunications tower or monopole is higher than 200 feet or within (5) five miles of either Dulles or Leesburg Airports, the applicant will provide verification that he/she has notified the appropriate airport authority (Metropolitan Washington Airports Authority or the Town of Leesburg) and that the FAA has determined that the proposed facility is neither a hazard nor an obstruction to aviation.

2. An applicant or its successors shall remove all unused structures and facilities from a commercial public telecommunication site, including towers and monopoles, within 90 days of cessation of commercial public telecommunication use or the expiration of the lease, whichever occurs first, and the site should be restored as closely as possible to its original condition.

D. IMPLEMENTATION POLICIES

The implementation policies specify strategies for the County to execute this telecommunications plan. The policies give guidance to applicants proposing new commercial public telecommunication facilities as well as outline further actions the County intends to take to implement these policies.

1. The County should initiate a Zoning Ordinance amendment to develop regulations that comply with this plan. The Zoning Ordinance performance standards for commercial public telecommunication facilities should be revised to be in conformance with these policies.

2. The County should maintain maps of existing and proposed telecommunication facilities, public facility sites, and areas of by-right zoning for telecommunication monopoles for information purposes.

3. The Joint Annexation Committees for Purcellville and Round Hill should be encouraged to adopt the County’s commercial public telecommunication policies for their Urban Growth Areas.

4. Require all applications for future monopoles and towers to:
a. Demonstrate that the location proposed has resulted from the systematic review of all options from the hierarchy of County location preferences and justify the option selected.

b. Demonstrate compliance with all design criteria. The applicant should provide a photo-image or other similar visual simulation to show the proposed tower or monopole in relation to its surroundings. The applicant should provide such visual imagery from several different perspectives to help determine the extent to which the facility could be designed to mitigate the visual impact on area residences and roads.

c. Address the terms and conditions under which collocation by other users would be acceptable.

5. Applicants for proposed new towers should notify in writing and meet with citizens in the vicinity of the proposed site at least three weeks prior to the Planning Commission public hearing.

6. Applicants for proposed new towers are encouraged to provide space on the tower for Loudoun County Fire and Rescue communication purposes.
CPAM 1996-0001
COUNTYWIDE RETAIL POLICY PLAN AMENDMENT

Adopted February 19, 1997
Amended Through March 15, 2011
I. BACKGROUND

The purpose of this Comprehensive Plan Amendment is to update existing retail commercial policies to accommodate changing trends and to provide consistent policy guidance for retail development in the County’s Eastern Urban Growth Area. Loudoun County’s Comprehensive Plan consists of the General Plan, several area management plans, strategic plans and related documents. The General Plan provides Countywide goals and policies for managing growth and development while area management plans and strategic plans outline more specific strategies for local planning areas or particular issues.

This plan amendment is a strategic plan for retail commercial development in the County’s Eastern Urban Growth Area. It is intended to provide policy guidance to enable the County to capture the retail expenditures of Loudoun’s citizens without having the County become a retail center for the Washington Metropolitan Area. It provides specific and comprehensive guidance about the function, location and design of commercial retail centers and uses. As such, these policies supersede General Plan and area plan policies relating to retail commercial development.

The initial recommendations for revisions to the County’s retail planning policies were prepared by the Zoning, Comprehensive Planning Committee of the Loudoun County Planning Commission. The full Planning Commission reviewed the Committee’s recommendations and certified the final plan amendment language on September 25, 1996. Relevant background data and key findings that shaped the proposed amendments are summarized below.

A. Retail Development Issues

Initial concerns about the County’s current retail policies grew out of a series of recent applications seeking commercial retail development in the Route 7 Corridor. These applications raised fundamental questions about how retail centers are classified, where retail development should be located, how much retail development the County can support, and the impact of new retail commercial development on existing retail areas. As discussion of the applications evolved, it became evident that the County needed to take a comprehensive look at its retail policies to ensure that they remain a basis for sound and consistent decision making.

In May 1995, the Board of Supervisors committed to undertake work on a plan amendment to evaluate the County’s retail policies. However, recognizing the need for additional information about the County's retail sector, the Board also requested that the Economic Development Commission (EDC) expand the scope of its annual retail study to include a retail demand analysis for Loudoun County. This retail demand analysis provided the technical and analytical framework for evaluation of the County’s retail commercial policies and subsequent recommendations by the EDC and the Planning Commission. Key findings of that report and the EDC recommendations based on their findings are summarized below. The August 9, 1995 Retail Demand Analysis and Supporting Tables and Worksheets are Appendixes B and C of this plan.
amendment. The EDC's, November 9, 1995 Report - A Review of Loudoun County Retail Policies is Appendix D.

B. The Current Retail Environment

Retail sales in Loudoun County have increased substantially in the past several years, reflecting rapid growth and an increase in shopping choices. In 1994, retail sales in the County topped one billion dollars for the first time in the County's history. However, many Loudoun County citizens continue to shop outside of the County for comparison goods (apparel, home furnishings and fixtures, general merchandise, etc.) since there are limited opportunities to purchase these goods in Loudoun County today. The Retail Demand Analysis report prepared by Economic Development staff estimated "leakage" of retail sales to other jurisdictions for this type of merchandise at $78 million in 1995.

According to the Retail Demand Analysis, the majority of existing retail space in the County is neighborhood or community-oriented. Loudoun County (including the incorporated towns) contained approximately 3.7 million square feet of constructed retail space in June 1995. Based on the definition of regional retail center used in that report, none of the County's existing shopping centers are classified as regional commercial centers. The County's first regional commercial center, Potomac Run Center (470,000 square feet of retail anchored by several big box users) is currently under construction. An additional 400,000 square feet of large, freestanding commercial uses (Home Depot, Price Club, WalMart, Best) are also classified as regional in nature.

C. Loudoun's Retail Future

The 1995 EDC report recognized that relatively high income levels, rapid growth and other demographic characteristics have made the County increasingly attractive to many established and emerging retailers and heightened pressures on the County to allow additional retail commercial development. Loudoun has become a retail "hot spot", particularly for destination oriented retailers.

Based on 20 year population and income forecasts from the County's recent Zurn Initiative, the Retail Demand Analysis study concluded that an additional 7.1 million square feet of retail space would be needed by the year 2015 to satisfy retail demands within the County. An additional eight million square feet of retail space is already zoned but undeveloped. These projections are based on the assumption that within the Metropolitan Washington Area, a typical household can support 50 to 100 square feet of retail space.

Approximately one-third (2.9 million square feet) of the County's approved, but unconstructed, retail space is regional in nature and comprised of three projects in the Route 28 corridor: Dulles Town Center Mail (1.2 million square feet), Nattak Mall (850,000 square feet), and Dulles 28 Centre (833,000 square feet excluding the auto park). The remaining square footage is planned in neighborhood or community-oriented centers.
Taking this information at face value, it appears that Loudoun County has sufficient land zoned for commercial development to satisfy projected consumer demand through 2015; however, the County continues to hear from the retail community that the areas currently zoned for retail development are not located where the retailers want to be and that site selection is limited.

The EDC reviewed the Retail Demand Analysis information and reviewed the County’s current planning policies to determine how well the County is prepared to address future retail development. The EDC concluded that the County's current retail policies were fundamentally sound but a few key policy revisions were needed. The EDC's key recommendations included:

- Emphasizing the Route 7/Route 28 intersection as the focus of the County's destination retail development to spur the synergy provided by the clustering of retail uses and allowing them to season before additional uses are approved;
- Defining the function and limiting the amount of retail uses allowed in Business Communities to protect the County’s vision of Route 7 and other major corridors for Keynote Employment development.
- Defining retail relative to its function and market responsiveness and ensuring consistency in County documents;
- Broadening the combinations of retail uses allowed in certain areas (i.e., industrial) to provide flexibility and reflect retail trends;
- Developing retail corridor identities by establishing design guidelines affecting signage and landscaping;
- Providing certainty to protect existing and zoned retail uses when land use changes occur.

D. Key Findings/Recommendations

The Zoning, Comprehensive Planning Committee received input and recommendations from a variety of sources during its policy deliberations. Key resources included the recommendations of the EDC, public input and discussions with members of the development community. The Committee also allowed public input at the beginning of each Committee meeting. The comments of all of these groups helped to shape the final recommendations of the Committee. In making its recommendations, the Committee sought, among other issues, to balance public and private sector interests; to assess traffic and visual congestion versus the need for visibility and access; to maintain sight of broad economic development objectives in the face of the short-term, "hot" retail market; to seek viable, supportable commercial retail and avoid speculative development.

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1 The full text of the EDC recommendations can be found on pp. 4-7 of Appendix D - "A Review of Loudoun County Development Policies” Loudoun County Economic Development Commission, November 9, 1995.
The Planning Commission held a public hearing on July 10, 1996, to receive public comment on the proposed plan amendment language. The Commission forwarded the plan amendment to the Board of Supervisors with a recommendation of approval on September 25, 1996.

Key policy recommendations are summarized below:

1. **Revise the County's Retail Hierarchy**

   The General Plan's current hierarchy of retail centers is not consistent with area plan documents and emphasizes center size rather than function. The revised policies emphasize function as the most important characteristic defining retail centers. A new retail matrix is proposed that recognizes the fundamental difference between retail uses that serve a regional market and need to be located along major corridors and those that are community-serving and that should be located within the areas they serve.

2. **Destination Retail needs to be Directed to Appropriate Areas in Principal Arterial Corridors**

   The policies clarify the definition of "destination retail" uses and provide specific policies regarding the location of these uses to keep inappropriate retail development out of residential areas. Policies limiting the development of destination retail to specific areas in the Dulles Greenway, Route 7 and Route 50 corridors will protect these areas as office/employment corridors consistent with the County's long-term vision.

3. **The County needs to Recognize and Provide Opportunities for New Forms of Retail Commercial Development**

   The EDC report highlights changing retail trends that will affect retail development in the future. The revised policies seek to accommodate limited accessory retail commercial uses in industrial zoning districts. The policies also clarify the intent of retail uses in non-residential communities and provide specific guidelines to accommodate big box and other large format retailers to ensure that uses are as attractive as they can be and appropriately located.

4. **Channel Community Serving Retail to Appropriate Locations and Consider Market Area As a Factor in Future Retail**

   The policies provide specific design and location criteria for retail uses located in residential areas to ensure that retail development does not negatively affect residential neighborhoods. Community-serving retail applications would also include a market analysis to help avoid market saturation and development of non-viable retail uses.

5. **Provide Incentives to Keep Existing Retail Areas Viable and Encourage Other Uses for Less Viable Retail Sites**

   New policies are recommended to expand the County’s support for existing retail areas. A key policy recommendation is to allow for reduced fee rezonings or a
waiver of rezoning fees to allow less viable retail sites to be rezoned to a more appropriate commercial use.

II. GENERAL RETAIL POLICIES

Convenient, well designed, attractive shopping centers can act as activity centers for residential neighborhoods that contribute to community identity, sense of place and overall quality of life. Large scale retail centers that, by their nature, draw shoppers from a wide market area act as economic assets that augment and diversify the local tax base. For these reasons, the County intends to provide a full range of shopping opportunities within its boundaries to meet the consumer needs of its citizens.

Since there are differences of scale and function between retail uses that serve an immediate area and those that depend on a wider market, the County has divided retail activities into two broad categories that reflect these fundamental differences: Corridor Based Retail and Service Area-Based Retail. Corridor-Based Retail uses are automobile oriented and require a supporting road network that can accommodate high traffic volumes. Corridor-Based Retail activities will be directed to non-residential areas in existing and planned principal arterial corridors. Service Area-Based Retail will be designed and scaled for the intended service population and will act in a support capacity to the residential or employment area it serves.

1. Loudoun County seeks to maintain a robust retail sales sector to meet the needs of the growing population, while mitigating impacts on residential areas, traffic, and other forms of economic development.

2. The County seeks to capture 100% of Loudoun's retail sales expenditures.

3. Retail commercial development in the Eastern Urban Growth Area includes a variety of retail types divided into seven broad functional classifications. Four of these retail types are community serving, or Service Area-Based Retail and will be designed to respond to the particular characteristics of the residential or employment community being served: Neighborhood Convenience, Neighborhood, Community, and Employment Supportive. The other three retail types are broadly described as Corridor-Based Retail Uses. Destination, Freestanding, and Flex Retail uses are oriented along, but will not have direct access to, principal arterial corridors since they are auto-oriented. The Retail Types matrix on p. 22 provides a broad overview of these retail classifications. More specific descriptions, policies relating to each type of retail, and criteria for evaluating retail proposals by retail type are included on pp. 7-18.

4. Each application for a commercial retail rezoning must include a statement describing the catchment or market area to be served and a statement of justification that contains an analysis by the applicant of existing and proposed competing projects.

5. The County seeks to differentiate between Service Area-Based retail uses that serve specific residential or employment communities and Corridor-Based Retail which provides locations for destination retail. The size, format, and tenant makeup of retail uses will depend on the size of the catchment area and the characteristics of the site
(i.e., access, type of community, location, function) as well as the nature of existing and planned retail uses serving the catchment area. The Retail Types Matrix (p. 22) summarizes guidelines for evaluating retail use proposals. The individual components of the matrix should be used as general guidelines for future retail development in conjunction with the policies contained herein. The text of these policies controls in cases of differences between the policies and the matrix.

6. The County seeks to prohibit strip commercial development. Strip commercial development is characterized by multiple entrances serving individual uses, minimal setbacks and landscaping, multiple signs and structures without a unified design scheme.

7. The County may consider rezonings of properties in the Village of Ashburn, the Village of Arcola, and the Old Sterling mini-plan area to allow for individually owned, small scale specialty or local commercial and business uses provided that the proposed use is designed to be compatible with the character of the village or the Old Sterling area.

III. CORRIDOR-BASED RETAIL POLICIES

Large scale retail uses demand a regional market, relying almost solely on automobile access. Therefore, they will be located outside of Residential Communities along planned and future principal arterial corridors where the County’s transportation network can best accommodate auto intensive retail uses (see maps pp. 23-26). Corridor-Based Retail uses include Destination Retail Centers, Freestanding Retail uses and Flex Retail uses, all of which act as destinations that attract customers from a regional market. Policies pertaining to Corridor-Based Retail uses are focused on mitigating the negative impacts of large scale retail development, accommodating new retail forms such as big box retail and warehouse clubs, and expanding opportunities for appropriate retail development in industrial areas.

A. General Policies

1. Corridor-Based Retail uses will not be permitted outside the County's designated Eastern Urban Growth Area.

2. Corridor-Based Retail uses will be prohibited in Residential Communities in the Eastern Urban Growth Area.

3. Corridor-Based Retail uses will be located in existing and planned principal arterial corridors subject to specific location, transportation, design and development criteria set forth below:

   a. Appropriate transportation infrastructure is or will be available to minimize disruption of traffic flows on principal arterials;

   b. The negative impacts of Corridor-Based Retail uses will be minimized;
c. Development of Corridor-Based Retail uses will be promoted at appropriate sites as designated on the maps on pp. 23-26.

B. Destination Retail

1. Destination Retail uses should be clustered to achieve a pattern of coordinated and complementary retail areas offering a wide range of retail services. Destination Retail areas offer a variety of comparative and specialty retail shopping goods and may include an entertainment component such as theaters. Destination Retail areas may include a variety of building configurations including multi-tenant shopping centers, enclosed malls or freestanding large superstores and big box retail uses. Destination Retail centers (generally ranging from 250,000 to 1.5 million square feet) typically serve a market area of 5,000 to 30,000 households that may include communities within or outside the County.

2. The Destination Retail land use designation specifies those areas where the development of Destination Retail uses can occur. (See the maps on pp. 23-26). Destination Retail areas overlay the existing land use designations of the General Plan (as amended), and applicable area plans (as amended) providing development options for properties located within the destination retail areas. For example, a property located in the Destination Retail overlay may be developed either in Destination Retail uses or in a use that conforms with the land use designation underlying the Destination Retail use designation.

3. The County encourages the clustering of Destination Retail uses in locations where planned and existing intersections and interchanges can support high traffic volumes.

4. The transportation implications of Destination Retail development will be evaluated on a site specific, corridor specific basis. However, all new Destination Retail uses must meet the following minimum criteria:
   a. No direct access to a principal arterial will be permitted. Access will be provided via major or minor collector roads or minor arterials.
   b. A minimum of two ingress and egress access points with two in-out bound lanes will be required. Additional access points may be required depending on the size of the proposed Destination Retail Center.
   c. Transportation impacts attributable to the proposed use need to be mitigated.

5. Destination Retail Centers will be designed and sited to mitigate impacts on adjoining land uses. Destination Retail Center traffic will not be routed through a residential development.

6. Buildings visible from principal arterials will incorporate recesses, off-sets, and other architectural details and building materials, and the like to avoid presenting blank walls to the roadway.

7. The County should consider the following criteria in the review of a Destination Retail Center application:
a. The proposed use respects the ultimate arterial or major collector road proposed in the Countywide Transportation Plan.

b. Utilities are available to accommodate the use.

c. Detrimental impacts on adjoining residential communities are mitigated.

d. The use does not interfere with the function of adjoining light industries or offices.

C. Corridor Policies

The Route 28 Corridor

1. All retail development within the Route 28 Corridor will conform to policies contained in the Route 28 Corridor Plan in Chapter 6 of the Revised General Plan. Retail proposals in the Route 28 Business areas will comply with the design guidelines contained herein.

The Route 7 Corridor

1. A node of Destination Retail is located at the southeast quadrant of the Route 7/ Cascades Parkway interchange.

2. The Route 7 corridor, west of Route 28, is intended to develop as the County's premier keynote office corridor. Therefore, no new Destination Retail uses will be permitted west of Route 28 in the Route 7 corridor.

3. No new direct access to Route 7 west of Route 28 will be allowed for any type of retail uses.

4. Provisions should be made for construction of the planned Route 7 north and south parallel roads (Riverside Parkway and Russell Branch Parkway) for Service Area-Based Retail Center applications. Primary access with connections to other arterial and collector roads should be provided.

5. The first occupancy permit for the Destination Retail center on Tax Map 80, Parcel 102 shall not be issued until after the issuance of the first occupancy permit for Phase I (which includes the 3 anchor stores) of the Dulles Town Center Regional Mall.2

6. A 150’ building setback will be established along the Route 7 frontage of the Destination Retail center site unless the Applicant shows and the County agrees that allowing buildings within the 100’ to 150’ setback is permissible. The setback will be measured from the Route 7 six-lane right-of-way.

7. A 100’ landscaped buffer will be established along the Route 7 frontage. The buffer should include trees, shrubs, and berming that will effectively and reasonably minimize the visibility of the Retail center and associated parking areas, dumpsters, and loading areas from Route 7.

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2 A definition and clarification of what Phase 1 entails will be provided by the property-owner.
8. Adequate building and parking setbacks, and buffers will be provided along the Algonkian Parkway interchange and/or ramps to shield the site from Algonkian Parkway.

9. Any side or rear building elevations which have their surface area parallel to Route 7 will have the facade covered generally with the same building materials as those used on the front of the building.

10. Dumpsters will be enclosed and the enclosures should be constructed of building materials that are compatible with the main structures.

11. Loading areas will be oriented to reduce their visibility from public roads and will be shielded by architectural features, walls, fences, or landscaping to minimize their visibility.

12. The site design and architecture of the Destination Retail center will be generally compatible with the planned Town Center adjacent to it. They will be generally compatible in setbacks, massing, height, scale, materials, facade treatments, landscaping, and signage. Sidewalks and street trees should be incorporated into the site design.

13. The additional trips associated with converting the land use on the Destination Retail site from planned office uses to retail will be mitigated, requiring improvements beyond those already proffered for the approved Dulles Town Center.

14. The ultimate planned road network may not accommodate the traffic generated by adding Destination Retail uses to the uses currently approved on the entire Dulles Town Center property. In which case, improvements beyond those currently included in the Countywide Transportation Plan will be required.

The Dulles Greenway Corridor

1. Destination Retail uses will be located in the eastern end of the Dulles Greenway corridor, extending east from the Route 772/Dulles Greenway interchange to the Dulles Airport property as depicted on the map on p. 25. Destination Retail uses will be located within approximately 2000 feet of the Toll Road interchanges in the area designated as Business Community and Business Employment Community on the Toll Road Plan land use map. Destination Retail uses will be located outside of potential node zones and will be subject to the land use, design, and transportation policies of the Toll Road Plan.

2. Destination Retail Centers will have access to a through, parallel, major collector road which connects to an arterial and/or major collector road.

3. Improvements and upgrades to the existing and planned Dulles Greenway interchanges should be provided by the applicant through the retail application process as warranted by the applicant’s pro-rata share of such improvements or upgrades.
D. Freestanding Retail Policies

1. Freestanding Retail uses are comprised of single-tenant, individual stores larger than 50,000 square feet and located on individual parcels not part of a retail center. Freestanding Retail uses will be located in areas the County has designated for Destination Retail Centers and share similar characteristics with such uses, including access points, market area, land use compatibility and floor area ratios, as described on the Retail Types Matrix on p. 22.

2. Freestanding Retail uses will be subject to the transportation policies for Destination Retail uses outlined on p. 8, and will be located in areas identified for Destination Retail as specified in the maps on pp. 23-26.

IV. SERVICE AREA - BASED RETAIL POLICIES

Service Area-Based Retail uses are located within or between the neighborhoods or the employment centers they serve and are not intended to attract customers from outside that area. They provide a community focus while fulfilling the convenience or routine shopping needs of the County's residents and workers. Service Area-Based Retail uses include Neighborhood Convenience, Neighborhood, Community, and Employment Supportive Retail centers located in Residential Communities, and Employment Supportive Retail centers located in Business and Industrial Communities. Policies pertaining to Service Area-Based Retail uses focus on the relationship of the retail use to the surrounding community,

A. General Policies

1. Service Area-Based Retail uses, including Neighborhood Convenience, Neighborhood, Community, and Employment Supportive types, will be located in the areas they serve since they are not intended to attract "drive-by" shoppers or function as destination retail.

2. Service Area-Based Retail uses will not have direct access to a principal arterial.

3. Service Area-Based Retail uses will be designed at a pedestrian-friendly scale, providing convenient internal pedestrian access for neighborhood residents or workers. Safe pedestrian access will be provided on-site with a clear separation between vehicular and pedestrian traffic.

4. Service Area-Based Retail uses will be separated from each other to prevent strip commercial development. Neighborhood Convenience and Neighborhood Retail Centers must generally be separated by a minimum distance of 4000' from any other Service Area-Based Retail Center to prevent the consolidation of centers into a larger commercial complex. Community Retail Centers must generally be at least 10,000 feet away from another Destination or Community Retail Center. The separation distance shall be measured between the two closest points. This distance may be reduced where a permanent natural or man-made barrier provides clear visual separation and eliminates the potential for retail uses to merge.
5. The General Plan, the Toll Road Plan, and the Dulles South Area Management Plan include land use ratios defining the mix of uses to be incorporated into the development of mixed-use communities. The percentage of commercial retail and service uses included in the land use mix ratios should generally guide the amount of commercial retail and service uses appropriate to develop in mixed use communities. However, the Service-Area Based retail policies included in CPAM 1996-0001, Countywide Retail Policy Plan Amendment define the characteristics of the commercial retail and services component of the land use ratio and may limit the commercial retail and service component in order to achieve the County’s retail development objectives.

B. Neighborhood Convenience Retail Centers and Neighborhood Retail Centers

1. Neighborhood Convenience and Neighborhood Retail Centers will be located in Suburban, Traditional, Urban, and High Density Residential Communities generally internal to the residential neighborhood being served.

2. Neighborhood Convenience Centers are intended to serve immediate, convenience (sporadic or as needed) shopping needs for a limited variety of items or personal services. Although Neighborhood Retail Centers may also service convenience needs, these centers are intended to fulfill the planned routine daily and weekly shopping needs of neighborhood residents for items such as groceries as well as personal services. Neighborhood Retail Centers will be larger than Neighborhood Convenience Centers (generally 30,000-150,000 sq. ft.), but will offer limited comparative goods shopping. Specific characteristics defining the County's objectives for the development of Neighborhood Convenience and Neighborhood Retail Centers are included on the Retail Types Matrix on p.22.

3. There are a few differences between the two neighborhood retail types. For example, Neighborhood Convenience Centers can be comprised of an individual, freestanding store (generally not over 5,000 sq. ft.) or a group of small stores (generally up to 30,000 sq. ft.) and typically serving a market area of between 500 and 3,000 households. Only carry-out or delivery restaurants will be permitted in Neighborhood Convenience Centers. Pad sites, full service fast food establishments and restaurants will be permitted in Neighborhood Retail Centers. Neighborhood Retail Centers (generally serving up to 3,000 households) will be developed as a focal point of the neighborhood, providing services that reinforce the neighborhood identity and may include civic uses.

4. Neighborhood Convenience and Neighborhood Retail Centers can include such uses as convenience stores, restaurants, gas stations, drycleaners, banks, medical offices and similar uses.

5. The design and siting of Neighborhood Convenience and Neighborhood Retail Centers will mitigate the impacts of parking, signs, lighting, waste storage, and loading on the adjacent neighborhood.

6. Access to Neighborhood Retail Centers will be provided by means of a minor collector or major collector road. Access to Neighborhood Convenience Centers
will be provided via major collector roads, minor collector roads and major subdivision streets.

7. All new Neighborhood Convenience and Neighborhood Retail Centers must meet the following minimum transportation criteria:
   a. Access will be provided at existing and planned median breaks, intersections or at consolidated access points, where appropriate.
   b. Entrances on undivided roads will be located at least 250 feet away from the centerline of the nearest arterial or collector road unless otherwise approved by VDOT.

8. Neighborhood Convenience and Neighborhood Retail Centers will be visually and acoustically buffered from the surrounding residences and traffic volumes and accessibility requirements will not conflict with residential vehicular and pedestrian traffic.

9. The retail component of a Neighborhood Core as described in the *Dulles South Area Management Plan* will be consistent with the primary characteristics of Neighborhood Commercial Centers outlined in the Retail Types Matrix, p. 22.

C. **Community Retail Centers**

1. Community Retail Centers are envisioned as focal points for civic and commercial activities serving several residential neighborhoods with a market area generally ranging from 2,000 to 8,000 households.

2. Community Retail Centers, which generally range from 100,000 to 400,000 square feet are intended to address a wide variety of daily and weekly shopping and personal needs (such as grocery shopping, drycleaning, video rental). However, these centers will also offer opportunities for comparison goods shopping such as clothing, household items, shoes and books. These centers may include pad sites such as banks, gas stations, etc. Specific characteristics defining the County’s objectives for Community Retail Centers are included in the Retail Types Matrix on p. 22.

3. Community Retail Centers will be permitted in Residential Communities and in mixed use Business and Industrial Communities that include residential development. Community Retail Centers will generally be encouraged to locate at the edge of residential neighborhoods or between residential and non-residential areas to minimize potential land use conflicts and maximize convenient access from surrounding areas that will provide the market for such centers.

4. The transportation implications of Community Retail Centers will be evaluated on a site specific basis. However, all new Community Retail Center proposals must meet the following minimum criteria:
   a. No direct access to a planned or existing principal arterial will be permitted. Access will be provided via major or minor collector roads at existing and planned median breaks and/or intersections.
b. A minimum of two points of access will be required to better disperse traffic.

5. The retail component of a Town Center as described in the General Plan, the Toll Road Plan, or a Community Core as described in the Dulles South Area Management Plan will be consistent with the primary characteristics of Community Retail Centers outlined in the Retail Types Matrix, p. 22.

6. The retail component of a Node as described in the Toll Road Plan and urban center and Transit-related Urban Center as described in the General Plan will be consistent with the primary characteristics of Community Retail Centers outlined in the Retail Types Matrix (p. 22) and with the design policies included in the Toll Road Plan and the General Plan.

D. **Employment Supportive Retail Centers**

1. Employment Supportive Retail Centers are generally intended to provide convenient retail and personal support services such as office supply stores, copying/mailing facilities, restaurants, daycare centers, drycleaners, banks and similar uses to employees and businesses in adjacent office and industrial parks. Destination Retail and Free standing Retail uses will not be permitted in Employment Supportive Retail Centers. Pad sites may be included in an Employment Supportive Retail Center. Specific characteristics defining Employment Supportive Retail Centers are outlined in the Retail Types Matrix on p. 22.

2. Regional Office Community and Business Employment Communities may include a retail component. The retail component will be limited to 5% of the gross floor area (measured in square feet) of the non-residential uses in the development.

3. The retail component of a Regional Office or Business Employment Community will be developed on a pro-rata basis in proportion to the nonresidential development as construction occurs. For example, for every 100,000 square feet of office space constructed, 5,000 square feet of retail space may be constructed.

V. **EXISTING RETAIL AREAS POLICIES**

Established shopping centers in Sterling Park, at Herndon Junction, CountrySide and individual retail establishments in the Route 28 and Route 7 corridors have served the shopping needs of eastern Loudoun residents for years. These older commercial areas will remain a visible and viable part of Loudoun's retail future, particularly if these areas are improved and well maintained. The County will provide incentives to encourage improvements that enhance the appearance of existing commercial areas and that keep these areas competitive in a changing retail environment. Where retail commercial development has occurred in a linear pattern along major transportation corridors, the County will encourage public and private investments to improve transportation safety.

1. Existing retail commercial areas will be protected and reinforced by County plan and practice where such uses are compatible with existing and planned land uses.
2. The County will implement a multi-faceted incentive program to encourage owners of existing retail commercial centers and businesses to renovate facilities on a routine basis and to add amenities that will modernize and improve the appearance and function of older retail centers and businesses. The incentive program will include:

   a. Waiving site plan requirements for retail commercial centers and businesses seeking improvements such as additional landscaping, treed islands in parking areas, street trees along sidewalks and roadways, and retrofitting parking lots with pedestrian walkways, sidewalks and similar features that will make older centers more attractive and pedestrian oriented.

   b. Encouraging new pedestrian-friendly, small scale, personal service and local office uses to locate in conjunction with established commercial centers where such improvements would enhance the function and appearance of the center and better serve the community. New structures should be located at the perimeter of existing parking areas to reduce the visual impact of large parking lots. The County will consider modifications of parking standards with appropriate justification (for example, reduced standards, shared parking) to facilitate such development.

3. The County will consider reducing or waiving rezoning application fees for owners of undeveloped commercially zoned property if the landowner desires to rezone the property to another non-residential use that is compatible with surrounding planned and zoned uses and that better implements the County's Comprehensive Plan goals (i.e., from CLI to PD-1P or from PD-SC to PD-OP). The County's intent is for less viable existing commercial sites to be re-evaluated at the owner's request for conversion to a more appropriate land use that expands the County's tax base.

4. The County will encourage existing retail centers and individual retail establishments to consolidate access points and share entrances and exits where feasible to minimize traffic congestion and conflict.

5. The County will encourage developers of non-retail projects, adjacent to established retail commercial areas, to consider the presence of the existing centers/businesses in the design of their projects by meeting with business owners and landowners from the adjacent retail area to discuss the proposed project. Additionally, the applicant shall address how the new project relates to the existing commercial area in terms of pedestrian access (if appropriate); providing buffers to reduce the potential for incompatibility between land uses and nuisance complaints; and coordinating and consolidating access points where appropriate.

VI. DESIGN GUIDELINES

The following guidelines apply to the development of any retail center. The guidelines are intended to emphasize the site development of retail uses that accommodate the customer, the retail business, and the adjoining land uses. They are also intended to
enhance the physical development of the County’s principal transportation corridors as well as the County’s neighborhood and office centers.

A. Building Placement and Design

1. All retail centers should include a site design that is compact and makes buildings the prominent feature of the site as viewed from adjoining roads.

2. It is desirable to have a green space to separate parking lots from sidewalks.

3. Buildings within a multi-building retail center should exhibit a unity of design through the use of similar elements such as rooflines, materials, window arrangement, sign location and architectural details.

4. Large freestanding stores, retail centers and restaurants should be encouraged to provide usable outdoor spaces.

5. Required drainage and stormwater management facilities, such as holding basins, drainage swales and culverts should be incorporated into the site design of the project. Natural drainage features should be conserved to the greatest extent possible.

6. Building massing should be varied to break down the scale of large buildings and retail centers. Long, flat facades are strongly discouraged. It is desirable that building facades should incorporate recesses, off-sets, angular forms or other features to avoid presenting a "blank side" to neighboring properties.

7. Pitched, mansard and other distinctive roof forms are strongly encouraged.

8. Rooftop mechanical equipment should be screened. Preferably, screening should be incorporated into the roof form. Ground mounted mechanical equipment should be screened.

9. Retail buildings should incorporate continuous arcades over the front walkway to provide weather protection for shoppers and create a pedestrian-oriented environment.

B. Circulation, Parking, and Loading

1. Pedestrian traffic, internal to the retail center, should be provided with a safe travel route from the parking area to the building with a demarcated pathway and clear directional signage. Trees and other plantings should be provided along the walkway.

2. Sidewalks should be provided to Neighborhood Convenience and Neighborhood Retail Centers to accommodate benches, bikes, strollers, and planters.

3. Parking areas should be visually screened from adjacent streets and residential areas by heavy landscaping, depressing the parking area and/or by constructing earthen berms.
4. All loading and storage areas must comply with Zoning Ordinance regulations and must be screened from adjacent residential areas by earthen berms, masonry walls, permanent wooden fencing, or dense landscaping.

C. Landscaping and Buffer

1. Large parking areas should be landscaped with trees and shrubs to reduce the visual impact, provide shade, and reduce the heat absorption of the parking area.

2. The street frontage of retail centers should be landscaped with trees to help create a green edge on both sides of the street.

3. Existing natural environmental features such as hedgerows, mature trees, and berms should be integrated into the landscape plan for retail centers, when feasible.

4. Retail buildings and parking areas should be sufficiently screened and buffered from adjoining residential areas by distance, transitional uses, landscaping and/or natural vegetation to mitigate the effects of noise, lighting and traffic on the surrounding residences.

5. Residential areas should be buffered from adjacent retail uses by trees, fences and hedges.

D. Signs and Lighting

1. Signs for retail centers should be developed as an integral part of the overall center design. A unified graphic design scheme is strongly encouraged.

2. Lighting should reduce glare and spillage of light onto adjoining properties and streets. Fixtures should be attractive site elements that are compatible with the architecture of the retail center.
Note: The individual components of this matrix should be used as general guidelines for future retail developments in conjunction with the polices contained herein.

<table>
<thead>
<tr>
<th>Characteristics</th>
<th>Neighborhood Convenience</th>
<th>Neighborhood</th>
<th>Community</th>
<th>Employment Supportive</th>
<th>Destination (Regional)</th>
<th>Freestanding</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>1. Function</strong></td>
<td>Serves immediate, convenience shopping needs for a limited variety of items (such as milk, bread, gas) and personal services (such as dry cleaning). Fulfills sporadic or as needed shopping needs. Can be a stand-alone use such as convenience store, bank, gas station, etc.</td>
<td>Serves routine (generally planned) daily &amp; weekly shopping needs for items such as groceries as well as personal service needs. May also serve convenience needs. Offers little or no comparative goods shopping. Fulfills daily shopping needs. May include pad sites such as banks, gas stations, convenience stores, etc.</td>
<td>Serves a wider variety of daily &amp; weekly shopping and personal service needs, but also offers some comparative goods shopping for items; such as, apparel, shoes, and books. Fulfills weekly shopping needs. May include pad sites such as banks, gas stations, convenience stores, etc.</td>
<td>Serves convenience retail and personal service needs of employees in adjacent business or industrial parks/ areas. May include pad sites such as banks, gas stations, convenience stores, etc.</td>
<td>Offers the widest variety of comparative and specialty goods and may offer an entertainment component. Not intended to fulfill daily or convenience shopping needs. Fulfills comparative or entertainment shopping needs. May include pad sites such as banks, gas stations, convenience stores, etc.</td>
<td>A single tenant individual store of 50,000 sq. ft. or greater that is located on a separate parcel of land that is not part of a shopping center.</td>
</tr>
<tr>
<td><strong>2. Center Size Range</strong></td>
<td>Generally stand alone uses up to 5,000 sq. ft.; multi-tenant center up to 30,000 sq. ft.</td>
<td>Generally 30,000 - 150,000 sq. ft.</td>
<td>Generally 100,000 - 400,000 sq. ft.</td>
<td>Square footage depends on total non-residential square footage.</td>
<td>Generally 250,000 - 1.5 million sq. ft.</td>
<td>Not applicable.</td>
</tr>
<tr>
<td><strong>3. Location</strong></td>
<td>Generally internal to Residential Neighborhood being served.</td>
<td>Generally internal to Residential Neighborhood that is being served.</td>
<td>Generally at the edge of or between Residential Neighborhoods or between a Residential and Non-Residential Community.</td>
<td>Generally internal to Business or Industrial Community being served.</td>
<td>In existing and planned principal arterial corridors, outside of Residential Community (see maps and corridor specific policies).</td>
<td>In existing and planned principal arterial corridors, outside of Residential Community (see maps and corridor specific policies).</td>
</tr>
<tr>
<td><strong>4. Transportation Access Points</strong></td>
<td>Via minor collector, major collector roads, and major subdivision streets at a median break. No direct access to minor arterials or principal arterials.</td>
<td>Via minor or major collector roads at a median break.</td>
<td>Via minor or major collector roads or minor arterials at median break.</td>
<td>Via access points serving the Business or Industrial Community.</td>
<td>Along a principal arterial, but accessed via major collector roads or minor arterials at a median break proximate to a planned or existing interchange (see maps pp.18-19).</td>
<td>Along a principal arterial, but accessed via major collector roads or minor arterials at a median break proximate to a planned or existing interchange (see maps pp.18-19).</td>
</tr>
<tr>
<td><strong>5. Market Area Size</strong></td>
<td>Immediate Residential Neighborhood generally 500 - 3,000 households.</td>
<td>Immediate Residential Neighborhood generally less than 3,000 households.</td>
<td>Several Residential Neighborhoods generally 2,000 - 8,000 households.</td>
<td>Surrounding Business Community.</td>
<td>Several communities within County as well as communities outside County; generally 5,000 - 30,000 households.</td>
<td>Several communities within County as well as communities outside County; generally 5,000 - 30,000 households.</td>
</tr>
<tr>
<td><strong>6. Compatibility with Surrounding Land Uses</strong></td>
<td>Suitable as a component of Residential Community.</td>
<td>Suitable as component of Residential Community.</td>
<td>Suitable as component of Residential or mixed use community.</td>
<td>Suitable as component of Business or Industrial Community.</td>
<td>Incompatible in Residential Community.</td>
<td>Incompatible in Residential Community.</td>
</tr>
<tr>
<td><strong>7. Floor Area Ratio (FAR)</strong></td>
<td>.2 - .3</td>
<td>.2 - .3</td>
<td>.2 - .3</td>
<td>.2 - .3</td>
<td>.2 - .3</td>
<td>.2 - .3</td>
</tr>
</tbody>
</table>

Note: for the purposes of the matrix, 50-100 sq. ft. of retail is assumed for each household.
Retail Plan
Destination Retail
Greenway

Legend
- Existing Roads
- Streams
- Parcels
- Town & Airport
- Destination Retail
- Proposed Two Lane Section
- Proposed Four Lane Section
- Proposed Six Lane Section
- Proposed Eight Lane Section

Note: The Destination Retail designation around the Dulles Greenway has changed: this map has been superceded by the Planned Land Use map in the Revised General Plan (adopted 7/23/01).

Map Number: 196 0011
1:36,000
1 inch = 3,000 feet
Retail Plan
Destination Retail
Route 7

Legend
- Existing Roads
- Streams
- Parcels
- Town & Airport
- Destination Retail
- Proposed Two Lane Section
- Proposed Four Lane Section
- Proposed Six Lane Section
- Proposed Eight Lane Section

*Note: Cascades Town Center, as currently zoned, is a hybrid retail center and includes Destination Retail uses, Community Center Retail uses, Town Center uses, and civic and public uses.

Map Number: L98-0011
1: 36,000
1 inch = 3,000 feet
CPAM 1992-0010
Greenways and Trails Policies

Adopted September 21, 1994
CPAM 1992-0010

GREENWAYS AND TRAILS POLICIES

ADOPTED SEPTEMBER 21, 1994

SECTION I: BACKGROUND

A. INTRODUCTION

Greenways are areas of open space, usually linear, which connect and protect various natural, recreational, and cultural resources. They often follow linear landscape features such as streams, ridges, or abandoned railroads. Greenways can be publicly or privately owned, and may be open or closed to visitors. They are not necessarily parks or public land. Parts of a greenway may be a scenic resource or an important wildlife habitat, owned and maintained by a private landowner, with no public access. Other parts may include public trails for hiking, bicycling, or horseback riding. Greenways that include trails provide linkages for people to natural and community resources. They enable citizens to travel without motor vehicles to schools, community centers and parks.

Greenways serve a variety of functions, including recreation, alternative transportation, wildlife habitat, water quality protection, flood hazard reduction, aquifer recharge, erosion prevention, property value enhancement, economic development and scenic beauty.

The Loudoun Greenways plan encourages pathway connections which would provide our own residents with alternative transportation corridors, independent of car ownership. It is a comprehensive plan which takes a "big picture" look at Loudoun's future development. It recognizes the need for Loudoun's existing communities to develop resource corridors which unify the County, creating an amenity for the benefit of business and residential communities as well as the tourist industry.

B. CONTEXT AND PURPOSE

Loudoun County and its county seat, the Town of Leesburg, border the Potomac River in northern Virginia approximately 35 miles northwest of Washington, D. C. The County as a whole offers a wealth of historic and natural features and a blend of urban amenities, rural landscapes, and small communities.

Proximity to Washington and the presence of a major international airport, Dulles, in the southeast part of the County stimulate strong growth trends. While development provides welcome economic opportunities, many citizens are concerned about the effects of growth and the potential for loss of local recreational opportunities and valuable natural, scenic and historic resources. Greenways and trails are one method of preserving some of these features unique to the County.

The purpose of this plan is to acknowledge a commitment to the establishment of a county-wide system of greenways and trails. This system should link people and resources, put open space within a short walk of people's homes and connect major regional and national trails. Greenways can protect natural resources and do not necessarily contain trails or have public access.
Greenways Policies

trails provide a link between home and work, an alternative to auto dependent transportation can be provided.

C. RELATIONSHIP TO OTHER COUNTY DOCUMENTS

Loudoun County's Comprehensive Plan consists of several related documents with the General Plan performing the function of an "umbrella" document which establishes county-wide goals and policies. Chapter 8 of the General Plan addresses implementation as a continuing process with future actions which should be undertaken to implement the Plan.

County-wide Recommendation #21 is the action of adopting CPAM 1992-0010, Greenways Plan, as an element of the General Plan. The Greenways Plan would also add one more building block toward implementing policy recommendations for Water Quality Buffers (#5), Scenic River Corridors and Potomac Shoreline Protection (#10), Protection of Endangered and Threatened Habitats (#23), and Rural Transportation Strategies for Bicycle Routes (#18).

In recognition of existing County policy and public testimony which encourage a viable agricultural community, the following goals and policies will apply only to the rapidly developing areas of the County described in the following area plans: Eastern Loudoun Area Management Plan, Dulles North Area Management Plan, Dulles South Area Management Plan, Cub Run Area Management Plan, Leesburg Area Management Plan, and the adopted plans for the Urban Growth Areas of the western towns.

D. COMMUNITY PLANNING PROCESS

The documentation for the greenways and trails system is contained in the 1993 Greenways and Trails Master Plan for Loudoun County and Leesburg, Virginia. This plan was developed by a citizen-government partnership, through an open public process. As a result of a Memorandum of Understanding signed by the County of Loudoun, the Town of Leesburg, the directors of the Leesburg and Loudoun County Parks and Recreation Departments, representatives of the National Park Service's Rivers, Trails and Conservation Assistance Program, and the Northern Virginia Regional Parks Authority, a citizens' advisory committee was formed in the fall of 1989. The group represented the interests of businesses, development, landowners, conservationists and recreationists. The Plan was developed over a two year period and was based on regular public input from public workshops, presentations and public meetings. Documentation of specific public outreach is contained on page 69 of the 1993 Greenways and Trails Master Plan for Leesburg and Loudoun County, Virginia.
SECTION II: COMMUNITY GOALS

A. MISSION STATEMENT

The purpose of a greenways and trails system is to preserve the County’s essential natural and historic resources as the County passes from rural to suburban, to provide recreation for a growing population, and to provide alternative transportation corridors.

B. GOALS OF THE GREENWAYS AND TRAILS SYSTEM

- Link neighborhoods and communities including schools, shopping areas, community centers, parks and other public facilities
- Link towns in Loudoun County.
- Provide recreational opportunities and alternate transportation corridors for foot traffic, cyclists and horseback riders.
- Protect historic resources.
- Protect rivers, streams, and drainage basins.
- Protect ecologically critical and sensitive areas.
- Maintain and link wildlife habitats.
- Provide natural flood and erosion control to discourage channelization.
- Include scenic roads.

SECTION III: POLICIES

A. RESOURCES

A sound greenways and trails system depends on the identification of the County’s significant natural, cultural, recreational and community resources. The Citizens’ Committee dedicated the first year of its effort to identifying and mapping those resources, using a variety of existing data and the knowledge of local citizens. These resources contribute greatly to the distinctive character of the County. They can serve as the hubs and spokes of a greenways and trails network and can provide a basis for making decisions on where greenways should be located. Listed below are the county resources agreed to by the Committee as significant features of the County. These resources are contained in the Geographic Information System Map created by the citizens. (resources described on pages 14, 15, and 16 of the Greenways and Trails Master Plan for Leesburg and Loudoun County, Virginia.)

- State Scenic Rivers
- Perennial Streams
- Floodplains
- Ridges
- Natural Heritage Sites
- Existing and Planned Parks
Greenways Policies

- Existing and Planned Trails
- Historic Sites and Districts
- Historic Settlements
- Schools
- Community Centers
- Discontinued Roads
- Scenic Roads
- Incorporated Towns

POLICIES

1. The inventory of cultural, historic and natural resources should be maintained with the County GIS and should be used for reference in greenway and trail planning.

2. Greenways should be a mechanism to protect important or sensitive resources.

B. PUBLIC PARTICIPATION

The process of turning a plan for greenways into a reality will require a cooperative effort involving many people and organizations. While the total land area of any proposed greenways network is relatively small, its benefits will be widely felt and its many parts varied in terrain, ownership, and proposed use. The County will play an integral role in establishing the system although it is unlikely that a single entity would have the means to acquire or manage an extensive system. Therefore, it is recommended that a network of greenways and trails be owned and managed through a partnership effort, rather than by a single agency organization. The system could be established piece by piece by a number of different entities using a variety of public and private conservation methods. Public agencies, private organizations, businesses, civic groups, clubs and individuals should participate in the creation and management of the system. It is assumed that exact locations of greenways and trails will be determined by the communities of interest.

POLICIES

1. Inform and educate the public about the opportunities generated by the greenways and trails system.

2. Encourage public involvement in the planning and development of the greenways and trails system.

C. DEVELOPMENT STRATEGIES

Members of the community have expressed concern about the loss of open space and the changing character of the County resulting from increased development. Greenways are a way to retain some rural landscapes and incorporate open space within developments. Citizens also
expressed a desire for trails between adjacent developments to allow walking and/or biking to neighbors' houses or other parts of the community. The greenways concept is a mechanism to guide the development process to create useful areas of open space.

POLICIES

1. Incorporate greenways and trails plans into the land development process and land use decisions. Creation of greenways and trails should occur primarily in the developing areas of the County with initial effort focused on the rapidly developing areas of the eastern portion of the County and around the western towns.

2. Create options and incentives which will encourage landowner participation in the establishment of greenways and trails.

3. Coordinate the establishment of greenways and trails with landowners using a variety of conservation methods. Three categories of landowners should be encouraged to participate in the greenways and trails system:
   
   - The development community: proffers of greenways and trails should be encouraged and referrals administered by the Planning Department with input from impacted agencies and citizens as needed.
   
   - Private landowners: voluntary donations, conservation easements, bequests, leasebacks, remainder interest and other non-coercive methods should be facilitated to encourage participation by private landowners.
   
   - Public land: negotiations of right-of-ways through land already dedicated to public benefit including, but not limited to, County, State and Federally owned land, utility easements, and roads discontinued for public maintenance.

4. Parcels under consideration as greenways or trails must meet one or more of the following criteria

   a. **Linkage:** The identified parcel will provide linkage between or to a significant natural, cultural or historic resource as defined on pages 14, 15, 16 of the Greenways and Trails Master Plan for Leesburg and Loudoun County and listed in Section III.A above.

   b. **Resource Protection:** The parcel contains an identified natural resource or species of value.

   c. **Recreation Enhancement:** The parcel will enhance recreational opportunities either by providing a connection to an existing park or recreational facility or providing in and of itself opportunities for hiking, biking or horseback riding.
d. **Economic Enhancement:** The parcel provides increased access to local business and shopping areas including but not limited to bed and breakfasts and tourist sites.

**D. TRANSPORTATION**

Greenways and trails that are designed to link communities and commercial areas can encourage some people to travel without motor vehicles, thus reducing traffic congestion on roadways. Planning for alternative transportation and recreational opportunities for foot traffic, cyclists and horseback riders is an important public responsibility to provide for increased user safety on transportation corridors. A greenways master plan can be an important element of compliance with the Clean Air Act of 1991.

**POLICIES**

1. Multi-use trails should be encouraged within major road corridors as shown in Appendix G of the Greenways and Trails Master Plan for Leesburg and Loudoun County, Virginia. Portions of this trail system should be incorporated as an element of the regional COG Bicycle Plan.

2. Loudoun County review of applications for discontinued roads should encourage appropriate conversions to the greenways and trails system.

3. Loudoun County should pursue grant funding of greenway and trail projects which can be combined with other transportation goals and policies.

**E. FUNDING, ADMINISTRATION AND MAINTENANCE**

Financial and management issues are critical to both the initial establishment of greenways and their long-term vitality. Local government funds for greenways may be scarce and greenways frequently must compete for funds with other uses such as developed parks. The mechanisms used for protecting land or securing public access can be a major factor determining the cost of implementing greenways. Public land purchase, the most expensive technique, is only one of a variety of possible techniques. Others include land donations, purchases or donations of easements, landowner agreements and acquisition by nonprofit groups.

Maintenance is one need that is often overlooked; greenway interests may focus on the establishment of the greenway and neglect to consider long-term maintenance. Long-term greenway success will require careful planning for funding and maintenance. Administrative overhead might be reduced if the system were managed by a private organization focused only on the greenway system.
POLICIES

1. Require that established greenways and trails adequately provide for long-term funding, maintenance, and administration for the implementation of the greenways and trails system through public-private partnerships.

2. When possible the County would jointly hold easements to guarantee long-term protection of land.

3. Assure that right of eminent domain is not utilized to establish greenways and trails.

F. ECONOMIC DEVELOPMENT

The Greenways Master Plan recommends the creation of a comprehensive greenways and trails system primarily based on such natural landforms as valleys and ridges. Other elements are based on an assemblage of linear open spaces of various kinds to create a green infrastructure for the County. Like other forms of infrastructure necessary for development, greenways are part of a good business plan. These key elements of a community's memorable image are increasingly becoming today's marketing tools for economic development.

Few communities today can ignore the economic benefit of tourism. Loudoun's primary tourist attractions are its natural and historic resources. The greenways could include a foot path, a horse path, a bike path or none of the above, simply providing visual respite to the urban resident. The W&OD Regional Trail is an example of a greenway which attracts visitors, businesses and residents to Loudoun. One such business, the Cornerstone Bed and Breakfast near Paeonian Springs derives as much as 50 per cent of its clientele from cyclists who ride out from Washington and Maryland to tour the Loudoun area.

In order to attract a balanced variety of businesses, provide housing options with desirable amenities for all income levels, and assist government in managing the resources of Loudoun County, it is time to plan for a greenway system.

POLICIES

1. Loudoun County should incorporate greenways and trails in economic development planning and promotion.

2. Coordinate with an overall tourism plan for Loudoun County.