
ANNUAL REPORT ON THE ENVIRONMENT

CHAPTER VIII

LAND USE AND TRANSPORTATION

VIII. LAND USE AND TRANSPORTATION

A. ISSUES AND OVERVIEW

This Chapter considers the environmental aspects of land use and transportation, both separately and as they relate to each other from an environmental perspective.

According to the Fairfax County Comprehensive plan, “If current trends continue, the supply of land presently planned for residential development will be all but exhausted shortly after the turn of the century [2000].”¹ As we approach this “buildout,” the focus of land use across the County is shifting from new development to revitalization and redevelopment. Each acre in the county becomes more valuable every day. The desire to maximize land utilization or productivity puts a strain on all types of land, from residential to commercial to parkland.

At the same time, transportation systems across the County and metropolitan region are becoming increasingly congested. During rush hour, most highways in the County receive a failing grade for peak hour level of service. Over the past 15 years, highway construction in the Washington area outpaced population growth². This per capita vehicle mile increase puts severe strains on the transportation infrastructure. The cost of congestion in the region is estimated at \$667 per person in 2001, up from \$320 in 1991.³

The same study estimates that, without the Metro system, each person would incur an additional 13.7 hours of congestion/year. Metro carries nearly 20% of all rush hour trips in the Metropolitan area, with a carrying capacity equivalent to 1,400 miles of roads, or roughly 11% of the road capacity.⁴ The limiting factors to expanded Metro service are convenient access to Metro stations and train capacity. Currently most Metro parking lots in Fairfax County are full by 8:00 A.M.

The buildout of our land use plan combined with the overload of our transportation infrastructure will continue to increase as the County population increases. Fairfax County is currently home to over one million people. It is projected to increase by another 15 percent between 2000 and 2010, and yet another five to seven percent between 2010 and 2020. This growth will present a challenge to the Comprehensive Plan goals of maintaining an “attractive and pleasant quality of life.”

As noted throughout this Annual Report, pressures from growth throughout the County directly effect our environment and consequently affect our quality of life,

¹ Fairfax County Comprehensive Plan, Policy Plan Volume, 2003 Edition, Land Use Chapter

² “Where We are Growing”, Southern Environmental Law Center, 2002

³ Texas Transportation Initiative, 2003 Urban Mobility Study

⁴ Washington Metropolitan Area Transit Authority,
www.wmata.com/about/metromattersfactsheet.pdf

health, and natural experiences. The Comprehensive Plan specifically calls out strategies and patterns that can address land use and transportation together. Mixed-use development is an important tool to combine residential and commercial development to “enhance the sense of community” and to “increase transportation efficiency.” It provides an opportunity for residents to live and work in the same area, thus reducing transportation needs while increasing the population density to support local businesses and mass transit.

1. Trends and Concepts

Other concepts that begin to combine land use and transportation are sprawl, smart growth, and new urbanism. Sprawl is the unrestricted growth out from the core of a city or a County. In the 1970s, Fairfax was one of the nation’s fastest growing counties. Today that growth that is happening beyond Fairfax County in Loudoun and Prince William. Loudoun County is now the second fastest growing county in the nation, averaging 12.6% growth.

Smart growth is the antithesis of sprawl; it is the planned development of the same land with an overall plan in place. The Coalition for Smarter Growth lists the following principles for Smart Growth:

- Mix land uses;
- Take advantage of compact building design;
- Create housing opportunities and choices;
- Create walkable communities;
- Foster distinctive, attractive communities with a strong sense of place;
- Preserve open space, farmland, natural beauty, and critical environmental areas;
- Strengthen and direct development toward existing communities;
- Provide a variety of transportation choices;
- Make development decisions predictable, fair, and cost-effective; and
- Encourage community and stakeholder collaboration in development decisions.

Reston and the Orange Line corridor through Arlington are good examples of smart growth.

New Urbanism is a design movement that is going beyond smart growth into community building based on traditional urban centers. New urbanists are working to improve land use by focusing on walkable communities and town centers.⁵

Other concepts that combine land use and transportation provide less dramatic changes to traditional subdivision development. **Clustering** provides residential

⁵ Charter of the New Urbanism at: <http://www.cnu.org/about/index.cfm>.

development that allows several homes to be built close together with the remaining acreage left as open space in perpetuity. The challenge with clustering is the lack of public trust that the open space will remain open. **Low Impact Development** (LID) is an approach that reduces the impact of development on a site. For example, LID will reduce the amount of impervious surface on a site and reduce the impact on trees and natural features. **Infill** is the process of filling in larger lots with multiple or larger housing.

2. Macro Considerations

The concepts above focus on density and impact of development. Non-development oriented concepts provide options by changing how the transportation system is used. **Telecommuting**, or **telework**, is an example that reduces or eliminates the traditional commute to the office. Teleworkers work from home or at local work centers that provide infrastructure for a community of workers. **Affordable housing** provides an option for low-income workers to live closer to their jobs. This becomes increasingly important as property values continue to rise and large numbers of County workers seek housing options outside the County. Analysis of commuting patterns shows that workers coming into the County are primarily arriving from the outer counties. This incoming work force puts a strain on our transportation system. Conversely, residents who work outside the County are primarily commuting into Washington, D.C.⁶ and have the option of using Metro.

B. LAND USE

A prerequisite to understanding the interrelationship between land use and transportation is to first examine them separately. This section describes land use and land use decision-making in Fairfax County.

1. How is Land Used in Fairfax County?

Fairfax County has 228,242 total acres of land, excluding areas in roads, water, or small areas of land unable to be zoned or developed. Those acres are organized into the following broad categories:

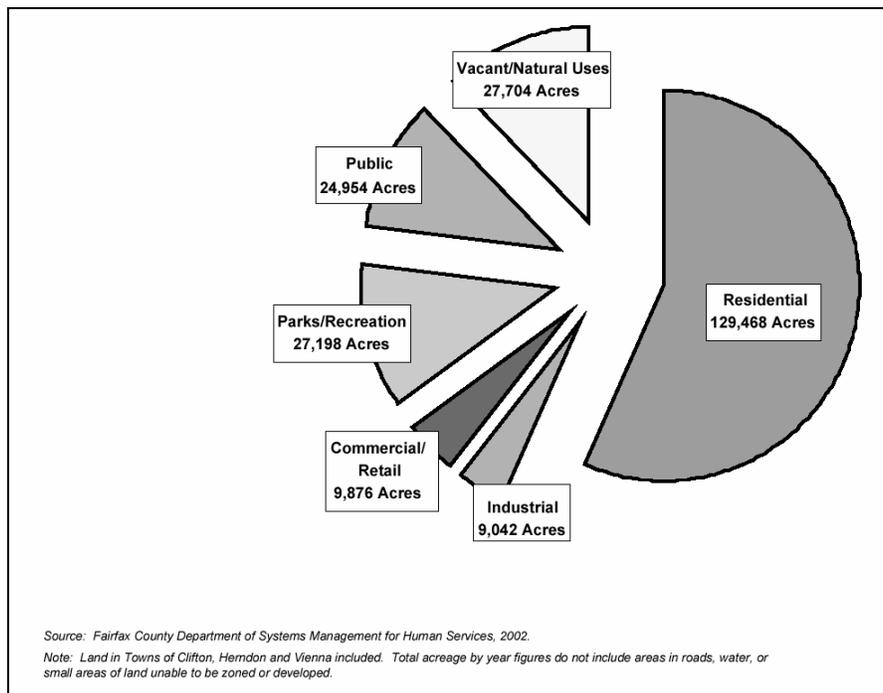
- Residential—acres dedicated to living. Residential acres are measured by the number of dwelling units per acre (DU/AC). For example, a low-density neighborhood has a DU/AC from .1 to .5, a suburban neighborhood ranges from 1-20, and an urban center has a core DU/AC of 35-60.

⁶ U.S. Census Bureau Commuting Patterns

- Commercial/Retail—acres developed for people to work or shop. Commercial space is measured by looking at the Floor Area Ratio (FAR), which is the maximum ratio of gross floor area to the size of lot. For example an FAR of 0.5 means that a single story building can cover half the lot, a 2-story building can cover ¼ the lot, and a 4-story building can cover 1/8 of the lot. FAR does not include other impervious surfaces, such as parking lots.
- Industrial—acres zoned for industrial use. Industrial space is also measured by looking at FAR.
- Parks and Recreation—acres dedicated to public enjoyment and recreation.
- Public—acres owned by the public but not for parks or recreation, this includes: Fort Belvoir, Dulles Airport, the campus of George Mason University, County government facilities such as fire stations, landfills, police stations, training facilities, schools, and government centers; and other publicly-owned properties.
- Vacant—acres currently unused, either natural or vacant, but zoned for Residential, Industrial, or Commercial uses.

The acreage of land in Fairfax County in each the above uses, as of January, 2002, is illustrated in Figure VIII-1.

Figure VIII-1: Existing Land Uses in Fairfax County



2. Land Use Planning

The Fairfax County Comprehensive Plan is a guide for making land use decisions in Fairfax County. It consists of the Policy Plan plus the Area Plan for each of the four planning areas. The Plan was adopted in 1975 and revised in 1988 around 18 Goals for Fairfax County. The Area Plans are regularly updated, with the next round of the Area Plan Review (APR) process to start in 2004.

In 1990, the County Concept Map for Future Development (Figure VIII-2) was developed that identified 31 mixed-use centers. While the Concept Map was not formally adopted, it is an integral part of the Area Plans.

In 1995, a study of the Plan was prepared entitled: State of the Plan, An Evaluation of Comprehensive Plan Activities Between 1990-1995 with an Assessment of Impacts Through 2010. This study outlined a series of recommendations for the County to improve its ability to meet the Plan goals.

3. Land Use Monitoring

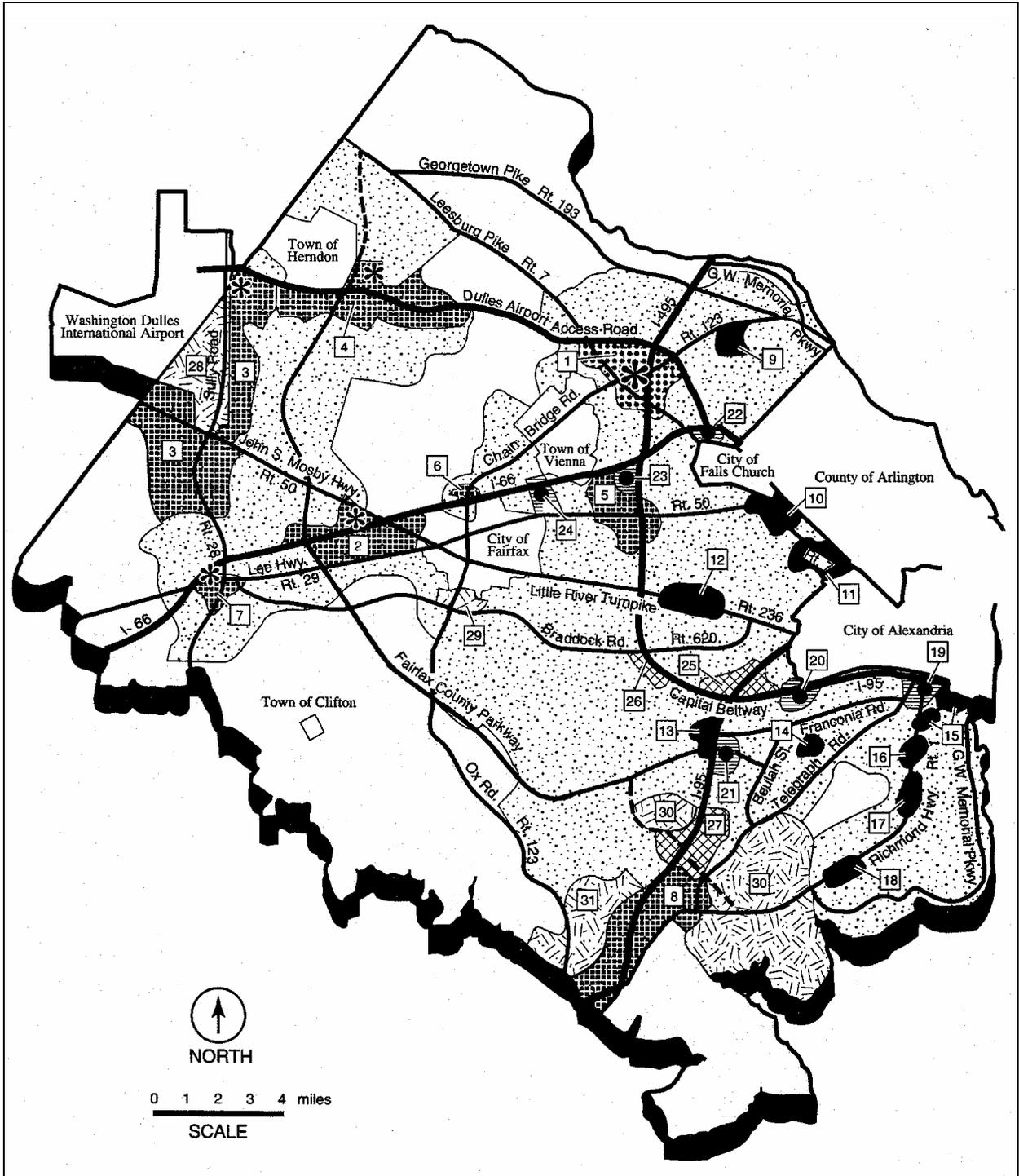
Information on land use is primarily tracked using the Urban Development Information System (UDIS), which was developed in the 1970s. Background information on UDIS from the 1995 State of the Plan explains, “the Comprehensive Plan had detailed guidance for residential development, with a dozen residential density ranges, but lacked guidance for the appropriate intensities (FAR) for non residential development... Since the 1970’s UDIS has remained relatively unchanged with regard to Plan quantification capability. The Plan has, however, become increasingly complex, with intensity recommendations for most non residential areas.”

Recommendations to improve UDIS from the 1995 State of the Plan have not been implemented, and it is still the basis of the County’s land use information as presented in *Demographic Reports* for 2002.

4. Land Use History and Buildout Projections

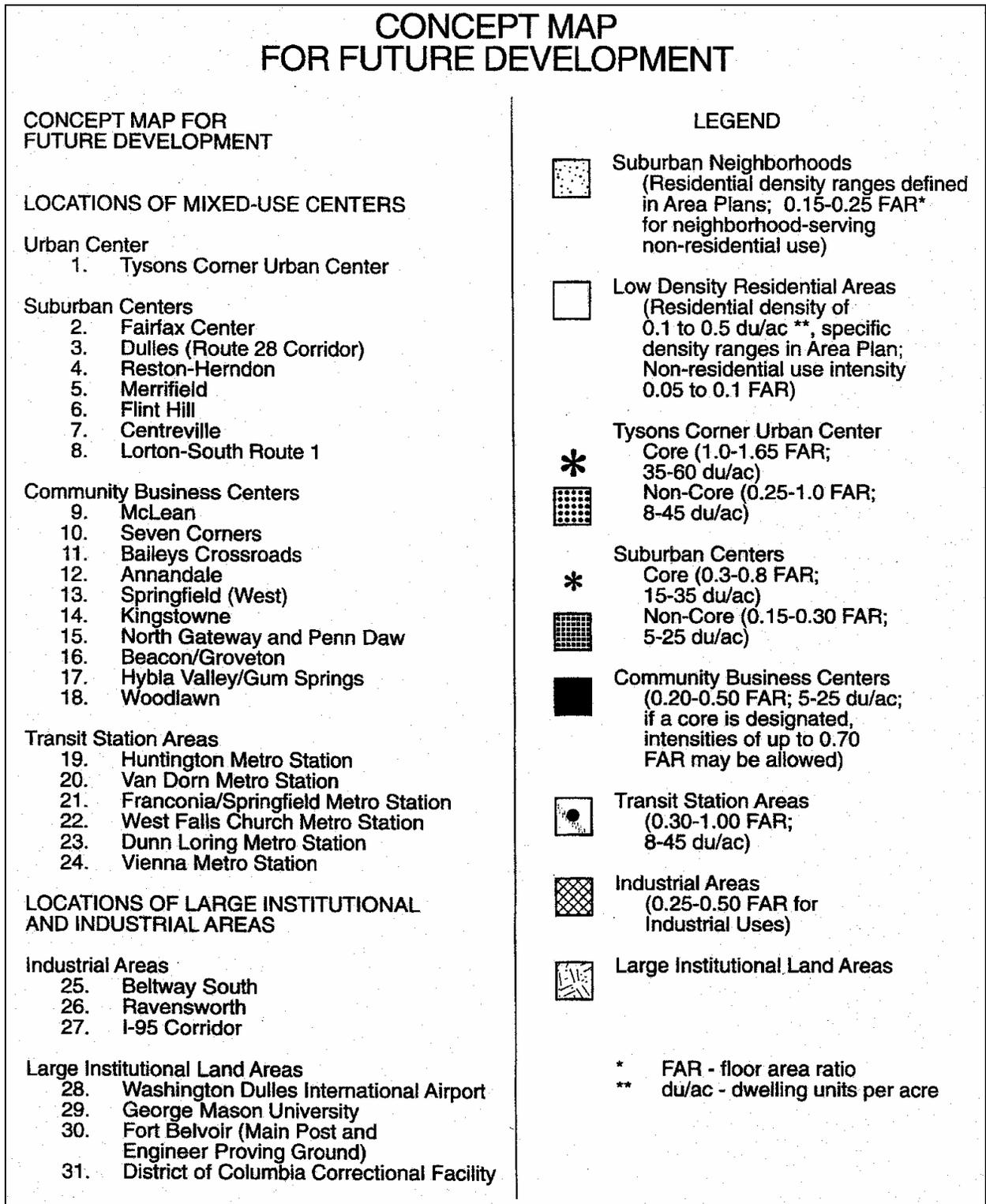
The Comprehensive Plan contains land use recommendations for all of the County’s land. As a practical tool, however, it is most effective when there is significant vacant land to be developed. That vacant land has been steadily decreasing as shown in Table VIII-1.

Figure VIII-2: Concept Map for Future Development



Source: Fairfax County Comprehensive Plan

Figure VIII-2 (continued)



Source: Fairfax County Comprehensive Plan

Table VIII-1 Vacant Land in Fairfax County			
Year	Vacant Land (acres)	Total Planned Land (acres)	% Vacant
1980	75,550	234,744	32%
1985	66,685	232,941	29%
1990	45,042	230,678	20%
1995	37,006	229,366	16%
2000	29,529	228,541	13%
2002	26,258	228,242	12%
Planned land does not generally include public roads and water			

Source: Fairfax County *Demographic Reports*, 2002

In 1990, when the Concept Map was created, approximately 20% of the County was vacant. This gave some flexibility to the planners. In 2002, with only 12% vacant and much of that fragmented, the decisions are much more constrained. Significant planning changes require interventions that will most likely effect existing developed land.

The current land use categories are shown in Table VIII-2.

Table VIII-2 Existing Land Uses		
Land by existing use	Acreage	Percent of total
Residential	129,468	56.7%
Industrial	9,042	4.0%
Commercial/ Retail	9,876	4.3%
Parks and Rec	27,198	11.9%
Public	24,954	10.9%
Vacant & Natural	27,704	12.1%
Total	228,242*	100.0%
*Does not generally include public roads and water		
Source: Fairfax County <i>Demographic Reports</i> , 2002		

Currently, 56% of the County land is developed for residential use with 4.3% for Commercial/Retail. These numbers show the footprint of each use type, but they do not show the corresponding density. Commercial/Retail acreage in the County has a higher density than residential. It is difficult to determine the footprint of mixed-use acreage given the current data. It is also difficult to

determine mixed-use density, and whether it is a function of DU/AC or FAR, or both.

As the current Plan is exercised and the County reaches build-out, the planned land use acreage is shown in Table VIII-3.

Table VIII-3 Planned Land Uses				
<u>Land Use</u>	<u>Planned Acreage</u>	<u>Percent of Total Land in the County</u>	<u>Vacant/Underutilized Land</u>	<u>Vacant Land as a percentage of Planned Acreage</u>
Residential	143,493	62.9%	24,225	17%
Industrial	8,310	3.6%	2,511	30%
Commercial	5,282	2.3%	804	15%
Public Facilities	27,225	11.9%	1,733	6%
Parks, Recreation, and Floodplains	43,788	19.2%	3,929	9%
Vacant and Natural	-	0.0%		
TOTAL	228,098	100.0%	33,202	15%

Source data were taken from the Fairfax County *Demographic Reports*, 2002

All vacant and natural land will be developed or become parkland. The ratios between the types will change with the residential increasing to 62% overall.

The table also includes an estimate of the vacant or underutilized acreage within each type. “Because of the complexities involved in determining whether nonresidential land is underdeveloped, estimates of underdeveloped acreage are only made for residential land.”⁷

C. TRANSPORTATION

1. How do People and Things Move About Fairfax County?

a. Transportation Components that Impact the Environment

- Private, motorized transportation is one of the most significant elements of transportation that has a major effect on the environment and is most closely related to land use and development. In modern times people have become more reliant on the use of automobiles for business,

⁷ Fairfax County *Demographic Reports*, 2002

pleasure, and various daily functions and activities. The urban sprawl we have experienced in Fairfax County has greatly influenced this problem, causing major congestion on roadways, particularly during rush hour as many individuals are commuting long distances to their jobs.

- Rail and rapid bus transit has long been looked upon as a means of reducing traffic congestion and thereby creating a positive impact on pollution and air quality. It also has a direct relationship to land use planning and development because rail transport centers are ideal locations for business, commercial and housing developments. There are numerous projects that have long been in the planning phase but, due primarily to budget restraints, virtually none of them have reached the actual development phase.
- Commercial vehicular transportation, mainly trucks and buses are another serious factor impacting our environment. Trucks, both local and inter-county as well as interstate, are serious contributors to our environmental crisis. In addition to many of them using “dirty” diesel fuel, they also have a negative impact on traffic congestion. Bus traffic includes school buses, most of which are transporting students during rush hour periods. Many of these buses are old and are a hazard to the environment, again because of the type of fuel they use.
- Non-motorized transportation, namely walking and biking, have been looked upon as viable alternatives for reducing traffic congestion and improving air quality. Not having sufficient infrastructure for walking and biking is a major deterrent to that form of transport, not to mention the frame of mind of the general public that has become automobile-dependent over the years, even for short trips. This component has an important relationship to land use planning and development in order to ensure that adequate facilities (walking and biking trails) are included in the plans.
- “Virtual transportation” has surfaced in recent years as another viable alternative to motorized transportation. Modern technology has created opportunities for people to work out of their homes using computers for telecommuting and e-commerce to perform their jobs. If these techniques become more widely accepted means of performing one’s job, it would have a significant positive impact on reducing pollution and improving air quality.

Fairfax County a leader in this field by establishing the Fairfax County Government Telework Program. It appears to be a very successful program that will be discussed in later in this chapter.

b. Fairfax County Volume to Capacity Maps

Vehicle congestion on roadways is typically measured by volume to capacity (V/C) ratios. The Fairfax County Department of Transportation created maps for this report that show the current and projected V/C ratios on major Fairfax County roadways. As V/C increases from zero to one, the volume approaches the road capacity. When V/C exceeds one, there is more volume than the road can support. The Level of Service (LOS) is a measure of congestion--once V/C reaches one, the road is fully saturated, and the LOS is graded an F for failing.

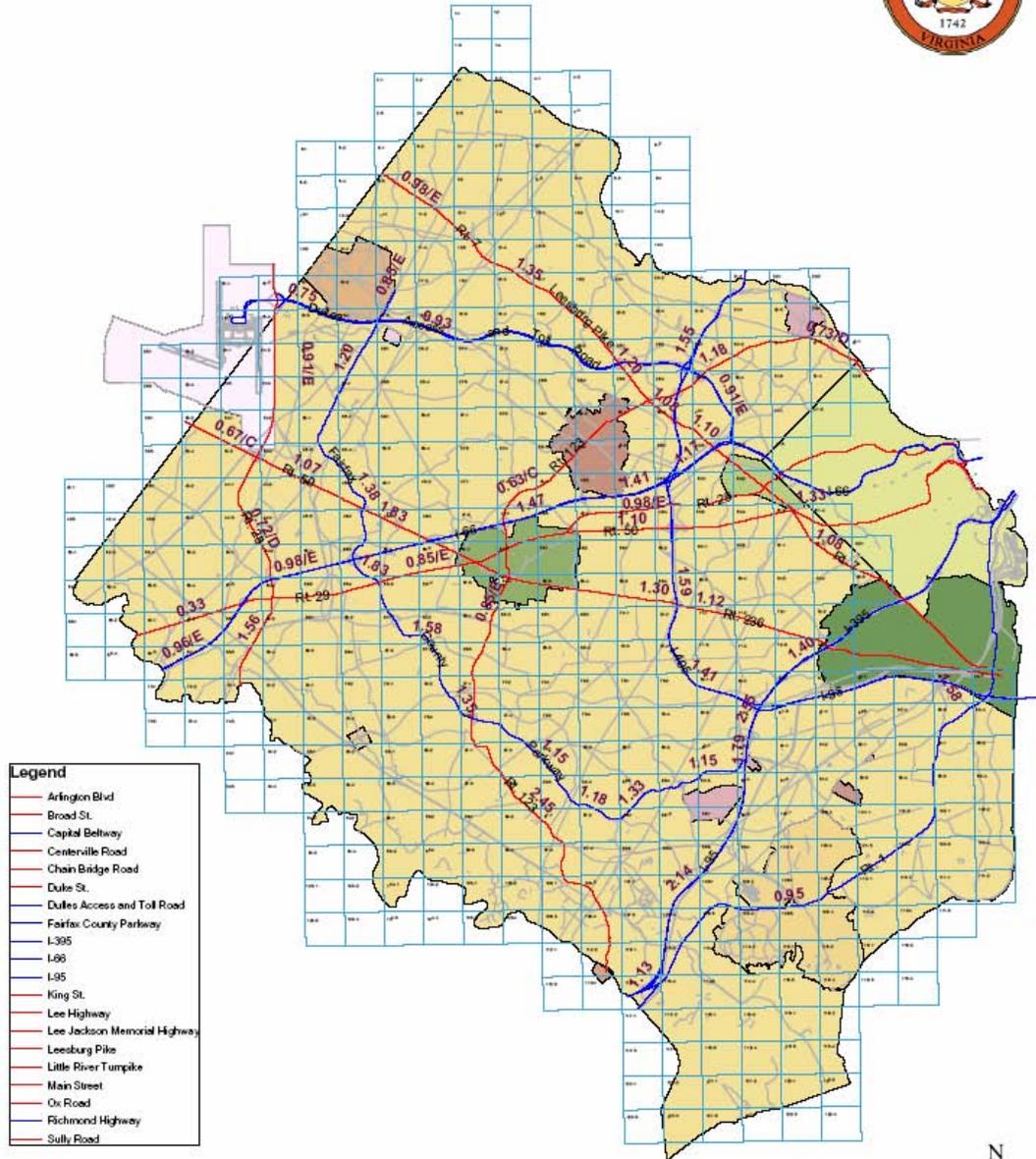
The current V/C ratios are shown in Figure VIII-3. Major portions of the Capital Beltway, I-66, and the Fairfax County Parkway already have a failing LOS. The projected V/C ratios for 2025 are shown in Figure VIII-4. These ratios account for population growth and settlement projections. Comparing the current conditions with future conditions provides many insights into how the transportation infrastructure grows with population. Some observations:

- (i) The Interstate highways that are currently failing will still be failing, with some being much worse and with others actually being better:
 - The portion of I-66 between the Capital Beltway and the City of Fairfax is expected to become less congested, while the portions of I-66 in Fairfax County that are inside the Beltway and that are in the Centreville area will get more congested.
 - The Beltway will become considerably more congested, with V/C ratios increasing from roughly 1.5 to over two. I-95 outside the Beltway is expected to stay the same in some segments and get less congested in others.
- (ii) Major roads are expected to remain basically as congested in 2025 as they are now. This includes Routes 1, 7, 29, 50, and 123. The exception is that portion of Route 123 in southern Fairfax County is expected to become less congested.

The reasons for these changes are many and varied, as are the conclusions that can be drawn. The reason for highlighting this in the EQAC report is to show that transportation changes with land use and other factors, but it is not always a direct correlation.

Figure VIII-3

Average Volume/Capacity V/C Ratios - Existing Peak Hour Conditions (2002)



- Legend**
- Arlington Blvd
 - Broad St
 - Capital Beltway
 - Centerville Road
 - Chain Bridge Road
 - Dulles St
 - Dulles Access and Toll Road
 - Fairfax County Parkway
 - I-395
 - I-66
 - I-95
 - King St
 - Lee Highway
 - Lee Jackson Memorial Highway
 - Leesburg Pike
 - Little River Turnpike
 - Main Street
 - Ox Road
 - Richmond Highway
 - Sully Road

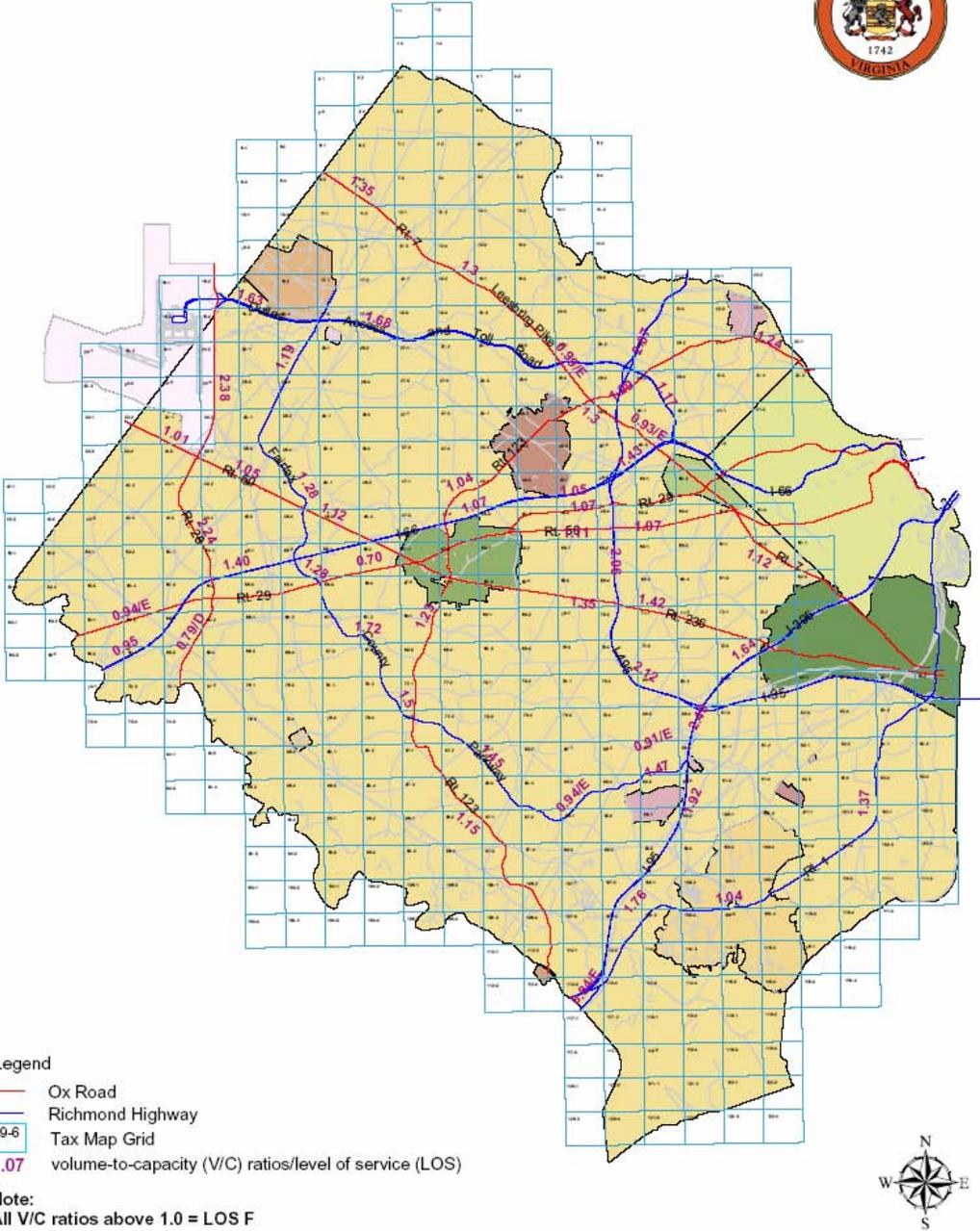
Note:
 0.00/A: volume-to-capacity ratios/level of service
 All V/C ratios above 1.0 = LOS F



Source: Fairfax County Department of Transportation

Figure VIII-4

Average Volume/Capacity V/C Ratios -
Future Peak Hour Conditions (2025)



Source: Fairfax County Department of Transportation

c. Residential Commuting

An interesting statistic on commuter patterns is that over 50% of the residents in Fairfax work in Fairfax, with another 17% working in the District of Columbia (Table VIII-4).

Table VIII-4 Where do Residents of Fairfax County Go to Work?		
Destination	Number of Commuters from Fairfax County	Percent of Total Commuters from Fairfax County
Fairfax County, VA	278,064	52.72%
District of Columbia	88,908	16.86%
Arlington County, VA	48,670	9.23%
Alexandria City, VA	27,641	5.24%
Montgomery County, MD	16,943	3.21%
Loudoun County, VA	16,420	3.11%
Fairfax City, VA	15,741	2.98%
Prince George's County, MD	9,594	1.82%
Prince William County, VA	7,013	1.33%
Falls Church City, VA	4,061	0.77%
Source: U.S. Census Bureau, Commuting Patterns of Fairfax County, Virginia Residents, 2000 ⁸		

Similarly, most of the workers in Fairfax County live in Fairfax County; however over 80,000 workers commute to jobs in Fairfax County from Prince William and Loudoun Counties. Only 12,000 workers commute to the County from the District of Columbia (Table VIII-5).

2. Transportation Decision Making

Management of transportation to maximize its usefulness and minimize its adverse impact on the environment is made very difficult because of the complex interrelationships of Federal, State, Regional, Sub-regional, and local entities that are all involved in Fairfax County transportation planning and funding. Local initiative in addressing transportation needs is further limited because the State of Virginia owns and maintains every road in the County. Even subdivision cul-de-sacs are State roads.

⁸ <http://www.co.fairfax.va.us/comm/demogrph/publist.htm>

Table VIII-5 Where do Workers in Fairfax County Come From?	
<u>Origin</u>	<u>Number of Commuters</u>
Fairfax County, VA	278,064
Prince William County, VA	44,322
Loudoun County, VA	35,933
Montgomery County, MD	22,148
Arlington County, VA	20,476
Prince George's County, MD	18,258
Alexandria City, VA	14,643
District of Columbia	12,244
Stafford County, VA	7,249
Fauquier County, VA	5,499
Manassas City, VA	5,145
Source: U.S. Census Bureau, Commuting Patterns of Fairfax County, Virginia Residents, 2000	

The complexity of solving transportation problems in Fairfax County and mitigating the adverse environmental impact of inadequate or less than optimum projects can be better visualized by reading the Northern Virginia Transit Funding Resource Guide issued by the Northern Virginia Transportation Commission. This Resource Guide describes the many sources of funds that are available for transit projects and lists over 50 federal and 30 state and local funding programs. However, with governments at all levels being faced with a severely reduced capability to fund projects, they cannot provide funding levels to qualify for matching grants of funds from many of these sources.

A variety of funds are available from the Federal Government, but they all come with strings attached. Federal regulations, standards, and guidance must be met before consideration will be given as to whether Federal share contributions will be made available toward transportation needs.

In Virginia, the Commonwealth Transportation Board (CTB) has final approval authority over the six Year Transportation Program for the entire State. Under guidance of the CTB, the Virginia Department of Transportation (VDOT) is responsible for building, maintaining, and operating the State's roads, bridges, and tunnels.

For Fairfax County, the transportation goals are included in, and promulgated through, the Fairfax County Comprehensive Plan. Those projects that are to be funded by County resources are included in the County Capital Improvement

Program. However, transportation projects that are to be funded through State and Federal funding are included in the VDOT Six Year Transportation Program.

The Northern Virginia Transportation Coordinating Council has developed a Northern Virginia 2020 Transportation Plan, which is a comprehensive study identifying a multi-modal transportation solution to provide safe, efficient and economical choices for travel and transport of goods. The Plan has become part of the broader planning effort of the Transportation Planning Board of the Council of Governments (TPB of COG). Specific projects will be submitted by the Commonwealth of Virginia for inclusion in Washington region's financially Constrained Long Range Plan (CLRP) as funding streams open up.

A further description of the interplay of planning and funding of projects between agencies in the Metropolitan Washington area can be found in A Citizens Guide to Transportation Decision-Making in the Metropolitan Region, which is available from the TPB of COG.

3. Programs, Projects, and Analyses

a. Walking and Biking Trails

There are many potential environmental improvements that can be brought about by providing greater opportunities for non-motorized means to commute, travel, or obtain recreation. They include reducing air pollution caused by traffic congestion; reducing water pollution caused by roadway and parking lot construction made necessary by traffic demands; reducing noise pollution caused by on-road vehicles; and reducing energy consumption required to operate motorized vehicles.

Improved non-motorized transit access by connecting hike/bike paths to the Metro stations and bus stops was one of the major considerations for the 2002 update of Fairfax County's Countywide Trails Plan. The Non-Motorized Transportation Committee continues to improve the trail connections to transit facilities by working with Metro (WMATA), the Virginia Department of Transportation (VDOT), and the County's Department of Transportation (FCDOT), and will review and provide comments during the Dulles Corridor rapid transit stations access planning process. In addition, the FCDOT is conducting a study to inventory and improve bus stop access and safety. The County Pedestrian Program Manager should review and comment on Metro station studies and the related rezoning and special exception applications to improve the pedestrian access and safety to those facilities. Convenient and safe pedestrian access will encourage more people to use transit facilities, therefore reducing vehicular usage and related pollution in the environment.

The Countywide Trails Plan added on-road bike routes as a new category of trails. They are proposed along routes suitable for commuting, and for travel to places for recreational purposes. It is expected that the planned on-road bike routes will be installed with future highway improvements according to the Trails Plan. Currently, there are on-road bike lanes located on Dranesville Road and sections of Beulah Road and Telegraph Road.

The Countywide Trails Plan is developed to provide the general locations of the proposed trails. It does not provide details such as intersection design or mid-block crossing of the street. Those details are examined during the site plan or subdivision plan review process. The site reviewer may need additional training to better detect more of the needs for safe crossing, or seek advice from the County Pedestrian Program Manager.

The Non-Motorized Transportation Committee has been severely hampered in carrying out its mission by lack of funding. \$1,000,000 was authorized for Trails and Sidewalks improvements by the Board of Supervisors in FY 1998, but nothing was provided in FY 1999. In FY 2000 the Board authorized \$2,500,000, then funding went down to \$1,000,000 for FY 2001 and was cut to zero for FY 2002, 2003 and 2004. The program requires regular funding in order to assist the County in meeting its environmental goals.

b. Employer Services Program

Fairfax County has a teleworking option for the County staff. An even more significant application of teleworking or telecommunication is part of the County's Employer Services Program. The Fairfax County Employer Services Program (ESP) was established in 1997; its basic purpose is to work with employers to provide alternative means of commuting to their places of employment. These alternatives include Metro/rail, bus services, carpooling, vanpooling, telecommuting, bicycling, and walking. ESP provides various services to employers to enable them to implement any of the above-mentioned alternatives.

ESP is funded by a grant from the state Department of Regional Public Transportation (DRPT) that is funneled through the Metropolitan Washington Council of Governments (COG). COG provides the guidelines for the basic mission of ESP, which then reports back to COG, on a monthly basis as to goals and objectives and the achievement of those goals. At the present time, participation by employers is on a volunteer basis and the services are provided to employers with 100 or more employees. Some specific programs and goals of ESP are as follows:

- Regional Commuter Surveys;
- Vanpool Coordination;

- Transportation Information Centers;
- Transportation fairs;
- Metrocheck Benefit/SmartBenefits Programs;
- Guaranteed Ride Home Program; and
- Referrals for Ridematching.

Employer Services Participation is measured on four levels, each of which has numerous functions that can be performed by the employer. The first three levels include basic steps that an employer can take to promote alternatives to mobile commuting. Achieving level four involves the implementation of two or more of the functions included in level three and the active promotion of these programs and alternative commuting. At the present time, seven employers have achieved level four participation and 30 are at level three. The goal established by COG was 40 employers participating in levels three and four, a goal that appears to be well within the reach of ESP.

Any employer (for profit or not for profit) can benefit in a number of ways in addition to assisting Fairfax County and the region in improving the environment and participating in achieving the attainment requirements established by the EPA. One of the major benefits of participating in the program is improvement of employee morale and, most importantly, productivity. Recent surveys conducted in the County, the region, and even nationwide found that, by removing the pressure of commuting alone by car in heavily congested roadways, employee performance improves. Cost implications are minimal, and in some of the components of the program, ESP provides some financial assistance as well. In addition, all expenses incurred by the organizations related to assisting employees in participating in the various components of the program are tax deductible. Finally, there can be some direct financial gains resulting from the possible reduction in workspace created by employees telecommuting and the reduction in parking spaces by virtue of employees' car or van pooling or using other means of commuting.

D. THE INTERRELATIONSHIP BETWEEN LAND USE AND TRANSPORTATION

1. How are Land Use and Transportation Interrelated?

The above discussion presented land use and transportation as separate environmental issues. This section outlines projects that have combined elements of both via special studies or revitalization districts that incorporate mixed use.

2. Programs, Projects, and Analyses

Fairfax County has adopted numerous overall objectives and policies for implementing the interrelated goals it has established for land use and transportation. The establishment of Urban Centers, Suburban Centers, and Transit Station Areas in critical locations in the County is a fundamental prerequisite to achieving many of those objectives. Beginning with the establishment of the Tysons Corner Urban Center and continuing through the recent establishment of the Reston-Herndon Suburban Center and Transit Station Areas and the Merrifield Suburban Center, the County is making some progress toward the ultimate achievement of its interrelated transportation and land use goals.

a. Tysons Corner Urban Center

Over the last several decades, Tysons Corner has evolved from a rural crossroads into a substantial suburban business center. The Comprehensive Plan recognizes Tysons Corner as the only area in Fairfax County that is classified as an Urban Center. The Comprehensive Plan envisions a Tysons Corner Urban Center that contains a mixture of high density office, retail, and residential uses and parks (including urban parks and active recreation facilities) in a pedestrian-oriented urban environment. As envisioned in the Comprehensive Plan, the highest development intensities and the most “urban” areas of Tysons Corner will be located within walking distance of future rail stations. Under the Comprehensive Plan, locating rapid rail transit stations in Tysons Corner will allow increased intensity for non-residential and residential development for areas in proximity to each station.

The Dulles Corridor Rapid Transit Project is discussed in Section d. Alternatives evaluated in the Draft Environmental Impact Statement for that project would place none, three, four, or six rail stations in Tysons Corner. The Comprehensive Plan acknowledges that road improvements alone are not adequate to achieve the urban design goals established for Tysons Corner. Rapid rail transit, circulation systems to interface with rail transit, high occupancy vehicle (HOV) facilities, and transportation demand management are all critical to developing Tysons Corner. While it is obvious that Tysons Corner is yet to fully achieve the urban environment that is envisioned, the integration of land use and transportation planning that is reflected in the Comprehensive Plan provides the means by which that vision might be realized. That vision will not be realized if rail service is not brought to Tysons Corner.

b. Reston-Herndon Area Suburban Center and Transit Station Areas

On May 21, 2001, the Board of Supervisors adopted an amendment to the Comprehensive Plan that created the Reston-Herndon Suburban Center and Transit Station Areas. The Reston-Herndon Suburban Center surrounds the Dulles Airport Access Road from Hunter Mill Road to Centerville Road. The Suburban Center includes three of the four Transit Station Areas in the Dulles Corridor (i.e., the Wiehle Avenue Station, the Reston Parkway Station, and the Herndon-Monroe Station). As set forth in the Comprehensive Plan, the concept for future development of this Suburban Center envisions a mixed use employment center. The purpose of the new plan for the Suburban Center area is to encourage a more urban and transit-oriented development pattern. The objective is to create, at each Transit Station Area in the Suburban Center, a pedestrian-oriented core area consisting of mixed-use development that includes support services while maintaining transitional areas at the edges of the Transit Station Area.

Options for development in the Transit Station Areas allow higher intensities based upon compliance with specified conditions. Those options are designed to be site specific. Agreement on funding to design and build the Bus Rapid Transit phase of the Dulles Corridor Rapid Transit Project, including funding for construction of transit stations in the median of the Dulles Airport Access Road, will allow consideration of the transit-oriented options. The rail-oriented mixed-use options, which allow the highest intensities in the Transit Station Areas, may be considered once a Full Funding Grant Agreement or comparable funding agreement to design and build the rail phase of the Dulles Corridor Rapid Transit Project has been executed. The three transit stations in this Suburban Center are located in the median of the Dulles Airport Access Road. The physical locations of these stations provide a unique opportunity to bring people and activities into closer proximity to the transit station platforms by developing mixed use projects in the air rights over the stations. The Comprehensive Plan does not include any specific land use recommendations for air rights development. It does, however, recognize the potential value of such development and recommends that appropriate level of land use planning for future air rights development be explored.

c. The Merrifield Suburban Center

On June 11, 2001, the Board of Supervisors adopted an amendment to the Comprehensive Plan that created the Merrifield Suburban Center. The area of the Merrifield Suburban Center is located approximately south of I-66, north of Woodburn Road, west of Holmes Run, and east of Long Branch Stream Valley and Prosperity Avenue. The area is served by the Dunn Loring – Merrifield Metro Station and has regional and local access from I-66, I-495, Route 29, Route 50, and Gallows Road. As set forth in the

Comprehensive Plan, the vision for the Merrifield Suburban Center includes two core areas: one focuses on development near the transit station and the second is planned to evolve into a town center. A new “Main Street” would connect the two core areas. The interrelationship of transportation and land use is evident in the Comprehensive Plan for this Suburban Center, particularly in the following planning objectives for the Suburban Center:

- (a) *Encourage revitalization and redevelopment of portions of the Merrifield Suburban Center to create more attractive and functionally efficient commercial and residential areas with pedestrian-friendly and transit-oriented environments.*
- (b) *Encourage mixed-use development that includes pedestrian and auto circulation systems that integrate the development both internally and externally, resulting in transit-oriented and pedestrian-friendly environments.*
- (c) *Encourage the development of additional housing (including affordable dwelling units) in the Merrifield Suburban Center so that employees may live near their workplace and transit services, in order to reduce the number and length of commuter auto trips.*
- (d) *Develop a cohesive roadway system that provides a more extensive grid of streets to serve the town center, Transit Station Area, and the area between.*
- (e) *Develop a cohesive pedestrian circulation system linked to open spaces such as plazas, courtyards, greenways, and parkland in order to facilitate walking and reduce reliance on private automobiles.*
- (f) *Develop mass transit options, transportation strategies and planned highway improvements to mitigate traffic impacts in the Merrifield Suburban Center and in adjacent residential neighborhoods.*

d. Dulles Corridor Rapid Transit Project

Rail service has been envisioned in the Dulles Corridor since construction of Washington Dulles International Airport in the late 1950s, when the right-of-way for future rail was reserved in the median of the Dulles Airport Access Road. As discussed earlier in this section of the report, the Fairfax County Comprehensive Plan integrates land use and transportation planning for the area from Tysons Corner to Dulles Airport based on the expectation that rail service through Tysons Corner to Dulles Airport will be constructed. It is critical that the Dulles Rail project be funded and constructed if those plans are to be realized.

The Draft Environmental Impact Statement for the Dulles Corridor Rapid Transit Project includes an option to commit to rail service in the corridor without interim steps including bus service in lieu of rail. The Draft EIS also includes options for serving Tysons Corner with rail, while the bus rapid transit options would bypass Tysons Corner. It is essential that, if the

land use and transportation objectives for this critical corridor are to be realized, rail service must be provided and Tysons Corner, as the designated urban center of Fairfax County, must be served by that rail service. While it is important to implement rail service in the corridor, it is also important that issues that were overlooked or not fully evaluated in the Draft EIS be considered and resolved in a manner consistent with the goals and objectives of the Comprehensive Plan. The issues that need further evaluation and consideration include: (a) the noise that will be generated from rail service, especially at elevated tracks, as well as from the additional vehicular traffic that will be generated along the corridor; (b) the increased need for feeder bus service centering on the transit stations; (c) the impact on surrounding neighborhoods of increased densities that can be granted in the vicinity of rail stations; (d) the increased traffic, and its impact, from development generated by the availability of rail service; and (e) adequate provision for pedestrian access to transit stations.

E. RECOMMENDATIONS

1. Land Use

- a. As the County approaches build out, it is important to review the goals and direction of land use policies as directed in the Comprehensive Plan. EQAC recommends that the County produce an updated version of the State of the Plan, An Evaluation of Comprehensive Plan Activities between 1990-1995 with an Assessment of Impacts through 2010 (originally published in 1996) to reflect current population shifts, build-out, and infill development.
- b. EQAC recommends that the County upgrade or replace the Urban Development Information System (UDIS), which was developed in the 1970s and is still the primary information system for mapping land use. The new system should apply current technology in a manner that will improve the County's ability to evaluate planning and development issues, to better account for Comprehensive plan options, to capture real time plan changes, and to include additional data to plan and manage development and growth, such as:
 - i. Existing and Planned Commercial and industrial intensity;
 - ii. Existing and Planned Mixed-use types and intensity;
 - iii. Vacant and underused lots with redevelopment potential; and
 - iv. Environmental data such as impervious surfaces.
- c. EQAC recommends that the Board of Supervisors and County Department of Planning and Zoning continue to consider land use AND transportation together

when revising the Comprehensive Plan. To start this process the County should develop and collect data that allows analysis of the macro effects of land use and transportation decisions.

These data should support models that integrate congestion, air quality, commuting patterns, and health effects for use in future decisions.

- d. EQAC recommends that the Board of Supervisors consider mixed-use principles when locating future public facilities such as libraries and recreation centers, so they are within walking/biking distance of major population centers.

2. Teleworking

- a. EQAC commends the Board of Supervisors for actively supporting teleworking among the County staff. We are encouraged that the County is steadily increasing participation to twenty percent. We urge that the Board continue funding the program and to increase the goal to a total of 50% of the eligible workforce.
- b. EQAC recommends that the Board of Supervisors take a leadership role in improving the environment through greater use of teleworking by establishing an aggressive program directed at convincing each employer in the County to achieve a minimum "Level 3" Employer Services Participation Program.
- c. EQAC recommends that the Board of Supervisors work with the Federal government to encourage an increase in teleworking. Further, we recommend the Board work closely with the Federal Congressional Delegation to secure resources to establish teleworking sites within the County.

3. Transportation

- a. EQAC recommends that the Board of Supervisors provide annual funding to the Non-Motorized Transportation Committee to implement those projects that have the greatest potential for increasing non-motorized methods of transportation within the County.
- b. EQAC recommends that the Board of Supervisors work with Metro and the Fairfax Connector to increase the number of stops available within communities, to explore a multiple size fleet that could penetrate further into communities, and to increase the number of runs per day on existing routes during peak hours.
- c. EQAC recommends that the County instruct the Health Department and the Public Affairs Office to produce and disseminate brochure(s) explaining the interrelationship between commuter choices and public health. This should include information about the various alternatives discussed in this chapter.

- d. EQAC recommends that the Board of Supervisors urge the State Police to fully enforce HOV restrictions and to increase the penalty for HOV violations. EQAC recommends that the Board request that HOV fines be increased to \$500 for the second offense, with 50% of the fine returned to the respective County.

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www.smartergrowth.net/smartgrowth/alternatives.php.

Texas Transportation Institute, 2003 Urban Mobility Study at
http://mobility.tamu.edu/ums/mobility_data/tables/washington_dc.pdf.

The Washington Metropolitan Area Transit Authority Fact Sheet at
<http://www.wmata.com/about/metromattersfactsheet.pdf>

Others

Fairfax County Citizens Handbook
<http://www.walkable.org/>
<http://www.lendleaserei.com/>

Braddock District workshops:
<http://www.co.fairfax.va.us/gov/bos/bd/commdialogintro.htm>

An excellent bibliography of additional resource materials on the land use and transportation can be found at www.washingtonregion.net/html/furtherreading.html