ANNUAL REPORT ON THE ENVIRONMENT

CHAPTER II

LAND USE AND TRANSPORTATION

I. LAND USE AND TRANSPORTATION

A. OVERVIEW AND ISSUES

This chapter considers the environmental aspects of land use and transportation, both separately and as they relate to each other from an environmental perspective. As detailed in this chapter, the county has very little vacant land left. As the county approaches "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.

While the amount of available land has decreased, the Plan potential has been increasing. The potential is the number of units that can be built in the county according to the current Plan. It changes as requests are evaluated and adopted by the board. Since 1989, there have been over 124,500 new townhouses and multifamily units and over 8,000 single family homes added to the Plan. This clearly demonstrates the increased intensity planned for the county.

In May 2012, the county issued a new report entitled *State of the Plan—An Evaluation of Comprehensive Plan Activities Between 2000-2010*[1]. This report describes changes that have been happening in our approach to planning as the county transitions over time. Excerpts are included in this chapter, but the full report provides details beyond the summaries referenced herein.

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 growth[2], yet congestion has still increased. This is due to increased per capita vehicle mileage that puts severe strains on the transportation infrastructure. According to the Texas Transportation Initiative, our region is the most congested in the country. In 1982, the average metropolitan resident spent 16 hours in congestion; by 2011 that ballooned to 67 hours wasted in congestion. That can be translated into $3.8 billion, 179 million hours and 85 million gallons of gas in lost productivity and wasted fuel.[3]

During 2012, much progress was made on transportation mega-projects, including the Dulles Rail, I-495 Express Lanes and I-95 high-occupancy toll lane expansion, also known as the 95 Express Lanes project. These projects are visible to anyone who moves about the county. The impact they will have on transportation is still to

[1] http://www.fairfaxcounty.gov/dpz/projects/state_of_the_plan.pdf
[2] "Where We are Growing", Southern Environmental Law Center, 2002
[3] Texas Transportation Initiative, 2012 Urban Mobility Report

be seen, but they have potential to transform how large numbers of people move about the county. The intersection of Metrorail and the new Tysons Corner plan are examples of transitional thinking[4] that combines land use and transportation into a new planning paradigm for the county. Tysons Corner will soon have four new Metrorail stations in an urban core that has plans to increase the number of residents from 17,000 to 100,000 and double the number of jobs from 100,000 to 200,000.

The I-495 Express Lanes, which are now open, and the future I-95 Express Lanes are a more traditional approach to increase capacity of highways. The unique aspect of these projects is congestion demand pricing to control the amount of congestion on express lanes. There is a potential to get environmental benefits by providing transit options using the express lanes, because transit moves more people per vehicle and the congestion pricing should allow transit to run on a predictable schedule. On the other hand, the extra capacity down I-95 may induce development outside the county with the associated commuting to the county that increases the vehicle miles traveled, which is a negative environmental impact.

Public transportation systems are becoming increasingly important to the county and region. Metrorail is the second largest rail transit system and Metrobus is the fifth largest bus network in the nation. Every day Metro carries nearly 20 percent of all rush-hour trips in the metropolitan area, carrying as many people each day as 1,400 miles of new traffic lanes — equivalent to an 11 percent expansion of the region's road system. From a purely environmental standpoint, Metrorail and Metrobus eliminate more than 10,000 tons of pollution each year and save the region from using 75 million gallons of gasoline each year.[5] Public transit is clearly an important part of the future.

The buildout of the county's land use plan combined with the overload of the transportation infrastructure will continue to increase as the county population increases. In 2006, the county released a comprehensive demographic study, *Anticipating the Future: A Discussion of Trends in Fairfax County.* The report presents much needed data to plan for the future and incorporate future population and trends. It clearly points out that higher density residential development in Fairfax County and its neighboring jurisdictions will increase traffic congestion. This density, however, will make public transportation alternatives more viable.

As noted throughout this Annual Report, pressures from growth throughout the county directly affect the environment and consequently affect quality of life, health and natural experiences. The Comprehensive Plan specifically provides strategies and practices 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

[4] Doug Carter citing Rick Smyre's term at the Evolution of Fairfax Lecture, June 27, 2012.
[5] Washington Metropolitan Area Transit Authority, http://www.wmata.com/community_outreach/kids_zone/

area, thus reducing transportation needs while increasing the population density to support local businesses and mass transit.

The Board of Supervisors highlighted the effects of growth and congestion in its vision paper: *Environmental Excellence for Fairfax County, A 20-Year Vision.* A variety of tools were emphasized, including mixed use development and low impact development. In addition, problems that at first seem tangential to the environment, such as neighborhood disruption through tear-down development and low income housing, were raised. Teardowns are becoming more common across the county, as single family homes are replaced with larger homes. The lack of low-income housing means workers cannot afford to live and work in Fairfax County and need to commute from outside the county, which exacerbates problems of both pollution and congestion. Furthermore, this situation skews the affordable housing debate, because it undercounts the number of households needing affordable housing across the metropolitan region.

The county faces great challenges from the combined effect of:

- Land use constraints that result from reaching build-out and transitioning from a growth focus to redevelopment.
- Transportation systems strained by congestion and getting further constrained by sprawl beyond the county.
- Population growth that will require additional residential and commercial facilities and transportation options.

Over the past 10 years, the county has made great strides in integrating land use and transportation planning and decision making, as evidenced by many of the programs and projects detailed in this chapter. The challenge will always remain, however, in part because the county and individual landowners have primary authority for land use while the state has primary authority for transportation. The issues stemming from state control over practically all of the roads in the county will remain a major stumbling block. The challenge will also remain as an effect from the necessity of breaking down complex issues in order to manage them, to the point of establishing organizational structures based on the pieces, but not having the resources or authorities to put them back together in a comprehensive manner. The I-95 Express Lanes introduce yet another wrinkle, with a private corporation building a significant for-profit component to our infrastructure.

Environmental stewardship and high quality of life demand a holistic systems approach to the inevitable urbanization of Fairfax County. The silver lining is that urbanization, to be sustainable – environmentally, socially and economically – demands the same.
This chapter provides:

- Background on current trends and concepts.
- An overview of planning technology.

- A discussion of county land use characteristics and planning tools.
- An overview of major transportation programs.
- A section that demonstrates the county's integration of land use and transportation through ongoing projects and programs.

The chapter closes with sections on environmental stewardship, accomplishments and EQAC's comments and recommendations.

1. Trends and Concepts

The Department of Planning and Zoning has the lead responsibility for land use planning in the county. Over the past several years, there has been a concerted effort to improve how the county plans for development and redevelopment. This culminated in 2012 with the Fairfax Forward[6] project to modernize the planning process. In the past, the Comprehensive Plan was updated every several years through a process known as the Area Plans Review. The APR process reviewed new changes to the plan initiated by private parties. Over time, the APR process was augmented by special studies that addressed the full array of changes necessary to revitalize a neighborhood. The special studies were much more effective, and running both processes was a burden on our professional resources.

The most significant special study covered Tysons Corner. The Board of Supervisors appointed the Tysons Land Use Task Force in 2005 with a very ambitious charge to consider the redevelopment of the "downtown" for Fairfax County. The task force met for over five years and published "Transforming Tysons: Vision and Area Wide Recommendations" in 2008. The vision was assigned to the Planning Commission, which, in turn, appointed a special task force to craft language for a Comprehensive Plan Amendment. The task force worked with staff, the Tysons Land Use Task Force and the community to propose an amendment that was formally adopted by the board in June 2010.

The scope of Tysons Corner required new and creative approaches. The task force consisted of appointees who represented a wide swath of stakeholders. It included developers, landholders and residents, as well as advocates for neighboring communities, distant communities, affordable housing, the arts, the environment, transportation, biking, accessibility and others. The task force worked together with professional assistance from county staff, a world-recognized urban design firm, experts in transportation and modeling and advisors on communications.

Technology was incorporated throughout the process with models and digital mockups that showed massing and expected growth projections. These were shared with members of the community to help them visualize the proposed vision. With the plan approved, new mechanisms will need to be adopted that

[6] http://www.fairfaxcounty.gov/dpz/fairfaxforward.htm

encourage and monitor the vision and provide the ability to monitor the macro effects and provide mitigation options to make sure the reality aligns with the vision.

Fairfax Forward is a much needed program to address the transition from build-out to revitalization. Several essential concepts that may be incorporated are described in the following sections. These concepts reflect the interconnections of land use and transportation, as well as factors such as housing, economic development and quality of life.

a. Sustainability

The most holistic of the concepts is *sustainability*. The U.S. Environmental Protection Agency's website[7] defines sustainability as follows:

> *The traditional definition of sustainability calls for policies and strategies that meet society's present needs without compromising the ability of future generations to meet their own needs.*
>
> *The 1970 National Environmental Policy Act (NEPA) formally established as a national goal the creation and maintenance of conditions under which humans and nature "can exist in productive harmony, and fulfill the social, economic and other requirements of* ***present and future generations of Americans****"* [emphasis added].
>
> *The concept of sustainable development was described in a 1981 White House Council on Environmental Quality report: "The key concept here is sustainable development. If economic development is to be successful over the long term, it must proceed in a way that protects the natural resource base of developing countries."*
>
> *Over the past 30 years, the concept of sustainability has evolved to reflect perspectives of both the public and private sectors. A public policy perspective would define sustainability as the satisfaction of basic economic, social, and security needs now and in the future without undermining the natural resource base and environmental quality on which life depends. From a business perspective, the goal of sustainability is to increase long-term shareholder and social value, while decreasing industry's use of materials and reducing negative impacts on the environment.*

Sustainability harmonizes the concepts of *Sprawl* and *Smart Growth*. Sprawl is the very evident 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 rapid growth is happening beyond Fairfax County, in

[7] http://www.epa.gov/sustainability/basicinfo.htm

Loudoun and Prince William counties. As of 2003, Loudoun County was the fastest growing county in the nation, averaging 12.6 percent growth per year. This outer county sprawl directly affects Fairfax County through increased road congestion, changing property values and inefficient use of Fairfax County's infrastructure.

Establishing a community definition of sustainability can focus understanding of the concept. The City of Alexandria has a detailed plan that it is currently executing--it is the model that Reston is currently following. Supervisor Hudgins has pointed to the sustainable communities program developed by the Obama administration. The program livability principles are available at: http://www.sustainablecommunities.gov/aboutUs.html.

Smart growth is the antithesis of sprawl; it can be defined as environmentally-sensitive land development with the goals of minimizing dependence on auto transportation, reducing air pollution and making infrastructure investments more efficient. 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.
- Encourage community and stakeholder collaboration in development decisions.

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

b. New Urbanism

New Urbanism is a design movement that is going beyond smart growth into community building based on traditional urban centers. New Urbanists strive to improve land use by focusing on walkable communities and town centers.[8] A walkable community reduces the distance between where people are and where they want to go.

[8] Charter of the New Urbanism at: http://www.cnu.org and http://www.cnu.org/charter

An important New Urbanist concept to encourage consistent planned development in a community is called **Form Based Codes**. These codes define an appropriate form of development, that is, how it should look rather than function (for example, how a building looks rather than its use for commercial or residential purposes). Such codes also provide incentives for developers to adopt them. They have been successfully adopted as part of the Columbia Pike revitalization in Arlington County. The community worked through a series of **charrettes** with a planning consultant to create a vision for the new "pike." Form Based Codes provide clear direction on the adopted vision, while incentives encourage developers to adopt the form as the Pike is redeveloped. In particular, developers who follow the codes have an expedited review and approval process.

The county has been adopting the use of **facilitated planning** for many of the special studies. The Tysons Corner Task Force utilized a private consultant, PB Placemaking, to facilitate community sessions. The Urban Land Institute has been assisting with the several other studies.

c. Development concepts

More specific concepts apply to particular situations. **Infill** and **Clustering** are ways to increase density in a neighborhood. Infill is the process of filling in larger lots with multiple or larger housing and is a technique to reduce urban sprawl.[9] Infill development can provide new housing or commercial development on vacant or underutilized sites within developed areas, taking advantage of existing infrastructure. While infill provides increased land utilization, it also has the potential to increase the environmental impact upon the infilled community. Particular concern should be paid to the impacts of infill, such as increased stormwater runoff and heating due to additional impervious surface and loss of tree canopy.

Clustering provides residential development that allows homes to be built close together with the remaining acreage left as open space in perpetuity. Generally, homes are sited on smaller lots, with the remaining land dedicated to open space. In most cases, the density of homes in a cluster development is the same as what would have been built on the entire site; the development is just configured differently. The challenge with clustering is the lack of public trust that the open space will remain open.

Multimodal transportation refers to a transportation strategy that incorporates multiple forms of transportation. Multimodal transportation encourages the use of walking, biking or public transit for transportation instead of the sole use of the automobile. The use of multimodal

[9] Greenbelt Alliance, Smart Infill; Creating More Livable Communities in the Bay Area, at http://www.greenbelt.org/research-news/publications/smart-infill/

transportation involves an increase in the accessibility of all transit options as well as the increase in transportation options.

Transit Oriented Development or Design is another approach to creating walkable, livable communities. TOD encourages increased multi-use density around transit centers. The goal of TOD is to promote walking, biking or transit as a means of getting to work or the store instead of by car. By focusing development around transit centers, ideally communities will have increased transit ridership, less traffic, reduced pollution and a better quality of life.

Transportation Demand Management is typically associated with a TOD proposal. TDM is a plan to reduce automobile trips that cause congestion. Some elements of a TDM plan include easier and safer pedestrian access, local amenities, and shuttle service.

Low Impact Development is an approach that reduces the impact of development on a site. The goal of LID is to better integrate the natural environment with the built environment. LID techniques are intended to mimic an area's natural hydrology to manage stormwater on site, thereby reducing adverse downstream impacts.[10] For example, LID will reduce the amount of impervious surface on a site and reduce the amount of stormwater runoff leaving the site. LID tends to be relatively economical and is flexible enough to be applied to different types of landscapes.

Green Building is another approach to lowering the impact of development by designing structures to conserve resources and using technology that is more efficient. Green roofs can be built with succulent plant gardens that absorb water during rain storms and gradually release it back to dramatically reduce runoff and stream pollution. One of the first green projects in the county was the green roof at the Providence District Supervisor's office.

High Occupancy Toll Lanes are a tool to ease traffic congestion in urban areas. The idea behind HOT lanes is to open High Occupancy Vehicle lanes up to single occupant vehicles that pay a toll. The price of the toll varies, depending on the time of day and amount of traffic. An additional benefit of HOT lanes is that they can provide additional revenue to pay for other transportation improvements[11], such as rebuilding aging bridges over the Beltway.

[10] Low Impact Development Center at: http://www.lid-stormwater.net/background.htm
[11] U.S. Department of Transportation, Federal Highway Administration, A Guide for Hot Lane Development at http://ntl.bts.gov/lib/jpodocs/repts_te/13668.html

2. Macro Considerations

Many decisions in the county that affect land use and transportation are made on a micro level. That is, they affect a single parcel or neighborhood. The macro effect of many small changes has a great impact on the county environment. These macro consequences are lost in the day-to-day planning and construction that happens across the county. As higher densities and infill occur, their effects are cumulative and significant. For example:

- Small neighborhoods with stable environmental footprints are being transformed with larger houses. These newer houses bring additional impervious surface through larger roofs and additional pavement. They also displace trees that protect the parcel with a green canopy, which provides shade, air cleansing and light dampening, and provide haven for birds and wildlife. While the effect of a single home is small, the macro effect on community channels more runoff and pollution into the watershed, increases the ambient temperature and displaces wildlife.

- Large scale development, such as that contemplated by the ongoing special studies, brings additional residential and commercial density to a region. By including all facets of a large scale development impact into a special study, the increased density can be combined with infrastructure investments that improve the community and environment.

a. Understanding Macro Changes

These macro effects are going to become more pronounced with the county build out and change from development to redevelopment. The lessons learned from special studies and from the results of similar projects across the nation need to be incorporated into our planning process. Up to now, regional aggregations and averages were sufficient to predict development impacts. The Concept Map for Future Development, included in the Comprehensive Plan, has done a good job guiding decisions and projecting impact at a broad macro level. Moving into the future, tools are necessary to provide a finer resolution of real time changes that can be quickly aggregated into a macro view.

These new tools should combine the county's geographic information system capability with the existing planning and zoning databases. The data are readily available at a parcel level, but the ability to view the data and use the data to model macro effects is not possible. Understanding and modeling the macro changes happening across the county will help provide insight to the Board of Supervisors and Planning Commission as they deal with micro decisions.

b. Creative approaches

The county also needs to consider creative approaches to address these macro effects. One way to avoid macro consequences is to reduce the impact of micro decisions. For example:

- Modifying the Public Facilities Manual to encourage Low Impact Development can protect streams and mitigate the micro impact of infill development.

- Providing incentives for green roofs can protect streams and decrease heat generation from asphalt roofs. This encouragement will be a win-win for the county and for developers.

- Utilizing Transportation Demand Management plans can mitigate unforeseen impacts of development. The TDM plan included in the Fairlee/Metro West rezoning set the standard for TDM in the county. As this development is completed and fully occupied, the results of the TDM plan will be monitored and adjusted as necessary.

- Continuing to develop comprehensive plans for multi-modal transportation alternatives can reduce transportation impacts of additional density. The pedestrian and bicycle programs are excellent examples of building a long term strategy that can be implemented as opportunities arise.

These creative approaches begin to mitigate micro changes that combine into unexpected and often unintended larger problems.

c. Additional Macro Considerations

The sections above focus on changes caused by development and redevelopment. There are also macro effects generated by non-development changes, such as work patterns, mixed-use opportunities and economic considerations that affect the county environment.

Telecommuting, or **telework**, 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. This reduces pressure on the transportation network without building physical infrastructure. The county has an aggressive telework program in place for county employees.

Mixed-use development brings work, play and home closer together, reducing the distance for trips and commutes. Mixed use is proliferating across the county, providing economic growth with less congestion than traditional separated communities.

Economic factors, such as increasing or decreasing property values, also affect the overall county environment. Low-income residents are struggling to find affordable housing near their jobs in the county and frequently choose to live outside the county. This negatively impacts the transportation system. As property values rise, homeowners choose to expand their residences rather than relocate. As they decrease, the tax base shrinks, adversely affecting such quality of life factors as a healthy environment, excellent schools and functional transportation systems, which may send communities into decline.

The Board of Supervisors has specifically raised **affordable housing** and **infill development** as an environmental concern in its Environmental Vision.

Macro considerations need to be better understood and modeled as the county increases in density. Traditional models did not need to consider macro changes, and the resolution and quality of data is insufficient for planning and protecting the environment. Dealing with the proliferation of small changes across the county will take creative approaches using all available tools, including the Comprehensive Plan, the Public Facilities Manual, special ordinances and public outreach.

B. TECHNOLOGY TO UNDERSTAND THE COUNTY

Fairfax County is a recognized leader in utilizing technology to better understand, explain and predict changes within our borders. The centerpiece of the technology is its Geographic Information System managed by GIS & Mapping Services, which is a branch of Fairfax County's Department of Information Technology. It is tasked with developing, maintaining, coordinating and distributing GIS/mapping data and technology to Fairfax County government agencies and residents. GIS provides a capability to "see" the county through maps, imagery and other geospatial data and helps analysts discover relationships between and among sets of computer-readable, geographically referenced data. To complement the GIS, the county has assembled a comprehensive digital inventory of the 395 square miles within our borders. These investments in information technology and GIS are paying dividends in increased staff productivity using more and better data.

The **Virtual Fairfax** 3-D application is a wonderful example (http://www.fairfaxcounty.gov/gis/virtualfairfax/) of the power of digital technology. EQAC strongly applauds the county for making Virtual Fairfax available to residents on the Internet. Virtual Fairfax has been upgraded to support new enhancements to 3-D building and terrain rendering. Besides being fascinating to fly through our neighborhoods, it is very practical for boards and commissions to visualize proposed changes and make more informed decisions and

recommendations. One new feature includes the inclusion of Tysons Corner comprehensive plan intensity zones.

Another example of Fairfax County success is in providing Internet mapping and information reporting applications is My Neighborhood (http://www.fairfaxcounty.gov/gisapps/myneighborhood/default.aspx) Its intended use is to let users know what features and facilities are available in and around their neighborhoods. Through the My Neighborhood application, you can find information about parks, schools, libraries, fire stations and other public facilities in your neighborhood. Map types allow you to see different layers of information about the same area, and reports contain detailed information about a specific area.

Over the past several years, EQAC has advocated for an enhanced IT capability for managing and monitoring land use. Our original recommendations in this area focused on updating the 1970s mainframe-based Urban Development Information System. In 2005, the Integrated Parcel Lifecycle System debuted--IPLS combines parcel based information from various county agencies with the GIS. Many agencies work on parcels for a particular period, but IPLS allows that full lifecycle to be captured across agencies. Layering these data on the GIS allows for a visualization of how land in the county is used and how it changes over time. Through work with the county's Department of Information Technology, EQAC has become more familiar with capabilities and possibilities for using GIS. There are three attributes that must be in place for the technology to be effective:

- The GIS and IPLS capability—these are the technical systems that gather, move, manipulate and display information based on geographic location.

- Data that are geographically located, also called spatial data—this is an expensive component that needs to be constantly updated as the county changes. There are many sources of data, from aerial imagery to U.S. census data to county records, which need to be transformed into useable information.

- Models and applications that can use the data to prepare for future scenarios and advanced visualization tools to help with decision making. The Visual Fairfax 3-D application is an example that leverages the GIS and data to help make informed decisions.

The next sections cover each of these topics in more detail.

1. GIS and Integrated Parcel Lifecycle System

The IPLS is now available and staff has been doing outreach to train users across agencies on how to leverage the capability. IPLS data are accessible to all county staff via GIS clients (ArcMap) and Oracle clients (SQLplus, Toad, SAS, etc.). The main transformation is that IPLS provides users with GIS data

that can be used for customized analysis. Prior systems would produce a report that summarized the data. This opens new possibilities for understanding and innovating with information.

The current parcel data include:

- Housing Units.
- Households.
- Population.
- Development Pipeline.
- Gross Floor Area.
- Housing Value.
- Existing Land Use.

Data are spatially enabled and can be analyzed with the GIS tools. The information managed by IPLS is used by the county to help determine services and service provision levels, respond to state and federal reporting requirements and respond to regional initiatives such as transportation planning, air quality modeling and other programs of regional significance. One example of the increased resolution the system provides is enhanced demographic forecasts that take advantage of parcel characteristics such as age of structure, location, steepness and other features. County staff can evaluate 30-year demographic forecasts including low, high and "most likely" estimates. Staff is also able to produce reports in a GIS environment using user-defined geographies. Reports can be generated for population density, population forecasts, housing starts and completions, vacant land and underutilized land.

The uses of these data clearly go beyond the scope of EQAC but illustrate the interconnectedness of the systems. EQAC's recommendation was narrowly focused on improving the county's land use planning capability to enable better integration of land use and transportation. It turns out that many other organizations and departments also benefit from this capability.

EQAC commends the Department of Neighborhood and Community Services for its leadership and advocacy on the IPLS. EQAC also congratulates its predecessor agency, the Department of Systems Management for Human Services, on receiving the 2007 GIS Excellence Award for the Best GIS Integration or Application Development.

One of the benefits of tracking information at the parcel level is that very detailed analysis can be accomplished. However this granularity highlights the fact that the existing categories are no longer appropriate, especially as the county adopts more transit-oriented designs that incorporate mixed use development. Parcels in a mixed use development cross categories and parcels with multiple stories of mixed use further complicate simple analyses.

With IPLS in place, the county needs to develop an updated reporting methodology to accurately reflect the land use across the county. IPLS provides a base to analyze parcel information, but there is a considerable task remaining to synthesize that information and turn it into useful land use reports.

2. Data

The GISs are only as reliable as the data they process. The county has acquired significant data and maintains these data on a regular basis. Prior EQAC recommendations focused on enhancing different types of data, and the following in particular:

- Planimetric data—features you can see, such as buildings, driveways, pools, railroads, ponds and trees.

- Oblique imagery—creating three-dimensional images and incorporating them into the planning process.

- Natural Resource data – identification of resources that should be considered during environmental and conservation planning efforts.

a. Planimetric Data

"Planimetric data" are features of the built and natural environment visible in aerial photography, including impervious surfaces. Planimetric map data provide information on the topographic features such as roads, buildings, and water bodies that are visible and identifiable on aerial photographs, which can be compiled into map features through photogrammetric or surveying procedures. Typical map features include roadway feature details as roads, sidewalks, streets, highways and alleys including curb lines, edge of paved surfaces and general feature details such as building footprints, building types, etc.

Prior to initiating a project to update the planimetric data layer, an informal survey of the county's GIS users identified a wide range of needs for updated planimetric data, including public safety, planning, transportation, public facility and park purposes. Therefore, this is far greater than an "environmental" initiative. The implications and benefits of this action are manifold and cut across numerous agency and disciplinary lines.
In 2013, the county completed a four-year effort to update the planimetric data in the county's GIS. The previous update took place in 1997. For this project, 15 planimetric data features, locations, and attributes were updated:

- Airports.
- Buildings.
- Building Additions.

- Hydrography areas and edges.
- Sidewalk centerlines.
- Recreational features.
- Storage tanks.
- Major Transportation areas and edges.
- Minor Transportation areas and edges.
- Contours.
- Spot elevations.
- Digital Terrain Models.

Below are project statistics on features added or updated:

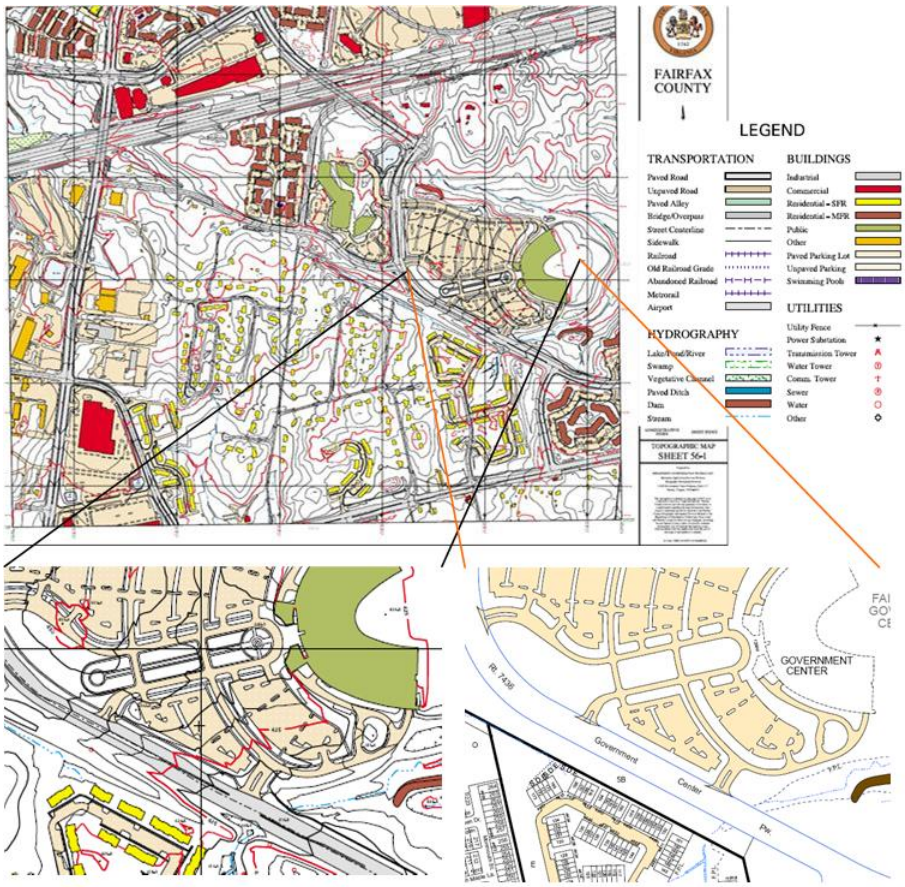
- 120,880 buildings (76 percent are residential)
  - 308 are multi-story garages (new feature)
- 262,851 paved driveways (new feature)
- 5,618 unpaved driveways (new feature)
- 4,083 miles of sidewalks
- 258,229 building additions (deck, patio, pool, other) (new feature)
- 6,300 recreational features (tennis, basketball courts, other) (new feature)
  - 1,318 Tennis courts
- 248,601 new spot elevations
- 136,357 miles of 2' contours (new feature. Previously had 5' contours)
- 5,190 linear miles of hydrography
- 703 storage tanks were added (new feature).

The total features in all the planimetric layers combined (including DTM) is 17,642,802. The 1997 version contained 3,771,137 features.

b. Oblique Imagery

Oblique imagery is taken from an aircraft at an angle rather than straight down. The images can then be processed by software to show the sides of buildings and structures and measure their heights. The primary users of the oblique imagery are agencies such as the Department of Public Works, the Department of Tax Administration and public safety agencies to reduce field time in assessing and planning. Figure II-2 is a sample oblique image of the Government Center. Figure II-3 shows the results of converting these images into 3-D models using the Virtual Fairfax 3-D viewer.

Figure II-1. Planimetric Information—
Fairfax County Government Center



Planimetric data—building outlines, road centerlines, utilities

Map data—streets and addresses

Oblique imagery begins to enable three-dimensional models and can have wide applicability beyond the county operations to public participation. In particular, the reviews of site- and area-specific Comprehensive Plan Amendments can benefit from better understanding three-dimensional areas around sites subject to proposed amendments.

Looking into the future, it could be possible to accept land-use proposals with three-dimensional Computer-Aided Design and Drafting data. The CADD models can be combined with 3-D buildings derived from oblique data to provide accurate 3-D representations of the changes. In effect, the county could begin examining proposals using fly-through technology overlaid on ground truth. This would be much more illustrative than artistic interpretations.

Figure II-2: Oblique Imagery—Fairfax County Government Center

[

Figure II-3: Virtual Fairfax 3-D Model—Fairfax County Government Center

The county has oblique imagery collection in the current information technology plan. There is a new oblique imagery contract in place, replacing the one that expired in August 2012. EQAC recommends that the county continue to gather these data and to expand the use of 3-D analysis in planning.

c. Natural Resource Data

County staff held a series of discussions to determine which agencies currently possess ecological data and whether or not other agencies could utilize various ecological data as a shared resource. These data include Resource Protection Areas, wetlands, vegetative communities, hydric soils, tree cover and open space as well as archaeological and cultural resources. The Fairfax County Park Authority has spearheaded the effort to identify data resources and to develop analysis models to evaluate these data. Once appropriate models and protocols have been developed, they may be used in the future to identify areas that could be targeted for conservation or protection. Currently, the final product of this endeavor is envisioned as a model that will allow county staff to evaluate ecological resources. Also included will be a detailed report listing data sources needed and a plan to consolidate these data and recommendations on the applicability and appropriateness of the model and its limitations.

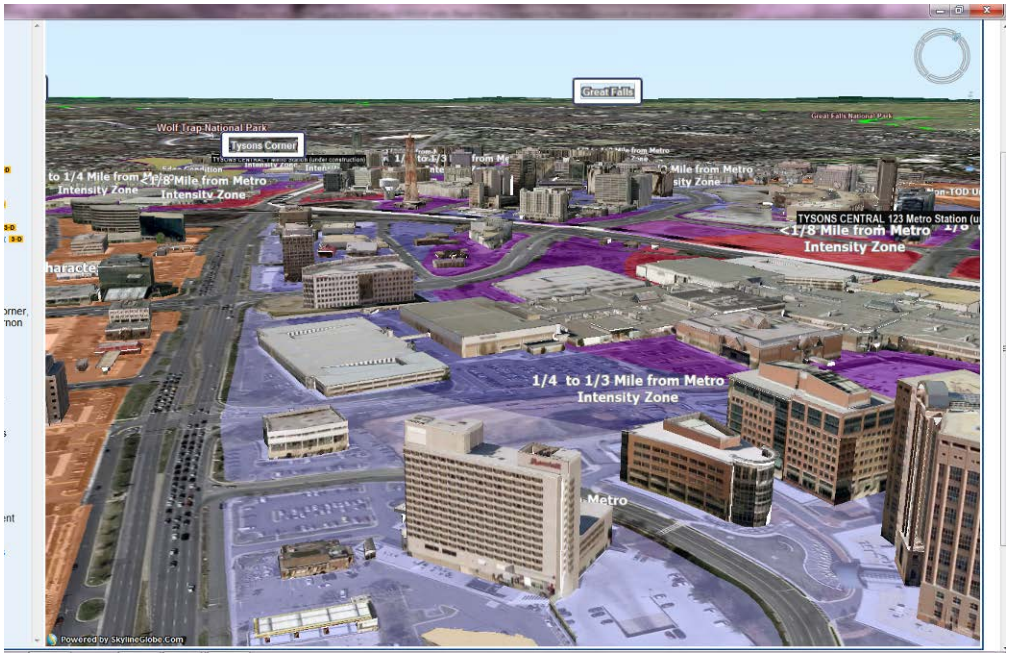
3. Models and Visualization

While the GIS and new data provide valuable insight by which to view the county, they do not necessarily provide new information. Models are computer programs that analyze the data and create reports or projections of future scenarios. The county regularly uses transportation and traffic models to analyze congestion. Some of this information is reviewed in this chapter.

Computer models are complicated and expensive. However their use is becoming more important and expected for the special study planning approaches that are under way. The Tysons Land Use Task force relied on traffic projections for several development scenarios, and the results of these models weighed heavily in the decision to adopt the 2010 Comprehensive Plan for Tysons Corner.

The county made great strides in visualization tools available to the public with the Virtual Fairfax 3-D application. EQAC expects this application to greatly enhance the work of Area Plans Review task forces and encourages all new development proposals to include data sets compatible with Virtual Fairfax. Some sample screenshots of the Tysons Corner area are shown in Figure II-4 below. The second figure shows the proposed new density overlain on the existing conditions. Note that the 2-D screenshots are a poor substitute for the actual 3-D application.

Figure II-4: Virtual Fairfax--Tysons Corner Area



C. LAND USE

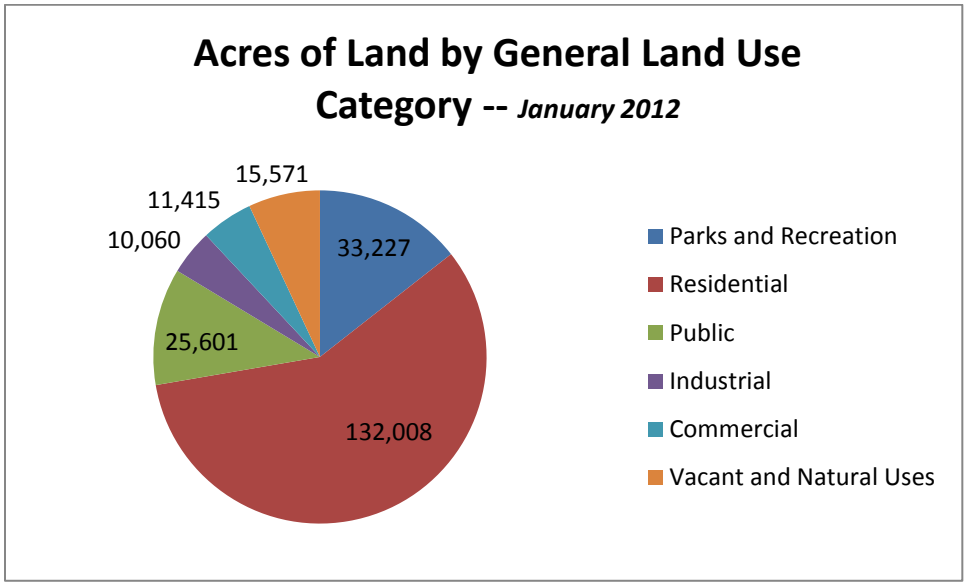
Land Use and Transportation will be examined separately in this and the next section; they will then be discussed with respect to their systemic interrelationships in section E. The information for this section was identified in the Fairfax Forward work program and presented to the public through the *State of the Plan—An Evaluation of Comprehensive Plan Activities Between 2000-2010* and the Plan amendments that updated the Comprehensive Plan and the Concept for Future Development Map.[1] The underlying data are primarily stored in the Integrated Parcel Lifecycle System.

1. How Is Land Used In Fairfax County?

Fairfax County has 227,929 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 broad categories identified in Figure II-5.

- Residential—acres dedicated to living. Residential acres are measured by the number of dwelling units per acre. 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.

Figure II-5: Existing Land Uses in Fairfax County



Source: Fairfax County Department of Neighborhood and Community Services, 2012 http://www.fairfaxcounty.gov/demogrph/Lusebut.htm . Note: Land in Towns of Clifton, Herndon and Vienna included. Total acreage figures do not include areas in roads, water or small areas of land unable to be zoned or developed.

[1] Staff Report for Plan Amendment S11-CW-2CP, April 26, 2012

- Commercial/Retail—acres developed for people to work or shop. Commercial space is measured by looking at the Floor Area Ratio, which is the ratio of gross floor area to the size of the lot. For example, an FAR of 0.5 means that a single story building can cover half the lot, a two-story building can cover 1/4 of the lot and a four-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 measured by 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.

2. Land Use Planning

The Fairfax County Comprehensive Plan is required by state law to be used as a guide in decision-making about the built and natural environment. Sections of the Comprehensive Plan are updated periodically to incorporate amendments adopted by the Board of Supervisors. The Web edition of the Comprehensive Plan is the most up-to-date:
http://www.fairfaxcounty.gov/dpz/comprehensiveplan/

Major Plan revisions took place in 1975 and 1991. The 1991 Plan, which was the foundation for the current 2013 edition, was developed around 18 Goals for Fairfax County (a 19th goal was added later). The 2011 edition of the Fairfax County Comprehensive Plan consists of the Policy Plan, four Area Plans, the Plan map, and the Transportation Plan map. The Policy Plan has eleven functional sections plus a Chesapeake Bay Supplement. The functional sections, with links to their websites, are:

- Land Use
- Transportation
- Housing
- Environment
- Economic Development
- Heritage Resources
- Public Facilities

- Human Services
- Parks & Recreation
- Revitalization
- Visual and Performing Arts
- Chesapeake Bay Supplement

a. Concept Map for Future Development

In 1990, the county's Concept Map for Future Development was developed to guide projects. The map was revised in 2012 to reflect changes in the Plan potential and align with amendments since 1990. This updated map identifies 30 mixed-use centers, which are the focus for change in the county (Figure II-6).

Currently, the Policy Plan is reviewed by functional sections. The Parks and Recreation section was reviewed in 2003. The Transportation Section was reviewed in 2005 with recommendations presented in 2006. A comprehensive review of the complete Policy Plan is not anticipated in the future due to the overall complexity of the complete document.

b. Area Plans Review

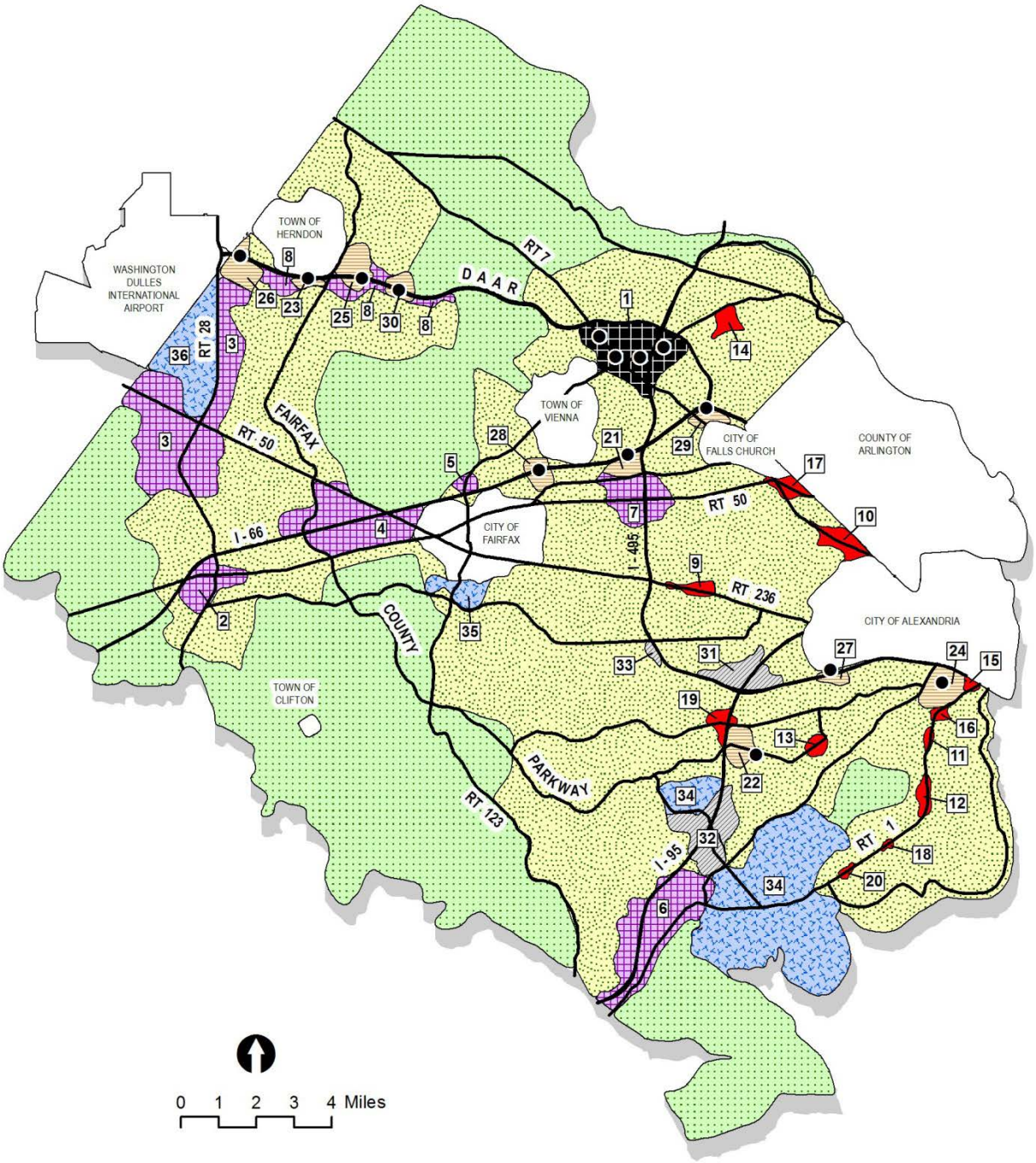
The Area Plans Review process, which has been supplanted by the Fairfax Forward effort (see the discussion below), was a community-wide review of site specific changes proposed to the Area Plan volumes of the Comprehensive Plan. The APR process was organized by the supervisor districts.

The APR task force for each district was appointed by the district supervisor. Each task force reviewed proposed changes at a public meeting and submitted a recommendation to the Planning Commission. This was accompanied by a staff recommendation that may or may not have concurred with the task force recommendation.

APR nominations spanned the county. Whereas the plans for Urban Centers, Suburban Centers and Transit Station Areas are comprehensive in scope, the APR nominations were opportunistic. Each nomination was analyzed thoroughly by staff to consider factors such as impacts on transportation, education and environmental resources of the individual nominations. The cumulative effects--the macro considerations, however, were not analyzed.

Such a concern was the motivation to defer nominations in Tysons Corner and appoint a task force to look at comprehensive changes.

Figure II-6: Concept Map for Future Development



CONCEPT FOR FUTURE DEVELOPMENT MAP

LOCATIONS OF MIXED-USE CENTERS

Urban Center
1. Tysons Corner

Suburban Centers
2. Centreville
3. Dulles (Route 28 Corridor)
4. Fairfax Center
5. Flint Hill
6. Lorton-South Route 1
7. Merrifield
8. Reston-Herndon

Community Business Centers
9. Annandale
10. Baileys Crossroads
11. Beacon/Groveton
12. Hybla Valley/Gum Springs
13. Kingstowne
14. McLean
15. North Gateway
16. Penn Daw
17. Seven Corners
18. South County Center
19. Springfield
20. Woodlawn

Transit Station Areas
21. Dunn Loring
22. Franconia/Springfield
23. Herndon-Monroe
24. Huntington
25. Reston Parkway
26. Route 28/CIT
27. Van Dorn
28. Vienna
29. West Falls Church
30. Wiehle Avenue

LOCATIONS OF LARGE INSTITUTIONAL AND INDUSTRIAL AREAS

Industrial Areas
31. Beltway South
32. I-95 Corridor
33. Ravensworth

Large Institutional Land Areas
34. Fort Belvoir (Main Post and North Area)
35. George Mason University
36. Washington Dulles International Airport

LEGEND

- Tysons Corner Urban Center
- Suburban Center
- Community Business Center
- Transit Station Area
- Industrial Area
- Large Institutional Land Area
- Suburban Neighborhood
- Low Density Residential Area
- Major Road
- Metro Station

The northern portion of the county, which includes Dranesville, Hunter Mill, Providence and Sully districts, was reviewed in 2009. The South County APR was reviewed in 2010.

c. Fairfax Forward

EQAC's 2012 *Annual Report on the Environment* recommended that "the county prioritize the Fairfax Forward Work Plan" and that "the county establish a stakeholder task force to work with the Fairfax Forward team to build familiarity and support for the new approach." This recommendation has been addressed, although through a different means than that suggested by EQAC last year.

On July 9, 2013, the Board of Supervisors adopted the Fairfax Forward process to supplant the previous Area Plans Review process. The centerpiece of this new process is a Comprehensive Plan Amendment Work Program through which current and future planning studies will be considered. The initial three-year work program that was adopted by the board is considered to be a "Pilot Comprehensive Plan Amendment Work Program." A multi-year calendar identifies planning activities that are contemplated beyond the three-year work program; this calendar will help inform future reviews of the work program. Per the board's action on July 9, there will be a review, after two years, of the efficiency, effectiveness, accessibility and impact of the new process and the pilot work program.

While the Area Plans Review process for consideration of amendments to the Comprehensive Plan is no longer available, the new process continues to provide the Board of Supervisors with the option to authorize the consideration of amendments that are not identified on the work program. This process will also be reviewed after two years.

The process leading to the adoption of Fairfax Forward included considerable public outreach efforts. While a stakeholder task force was not established, the extensive outreach efforts that were pursued ensured that there was ample opportunity for all interested parties to gain an understanding of, and contribute to, the development of the work program. Public outreach included community meetings (generally one in each supervisor district) at significant milestones in the process. Staff also met with: Planning Commission members; the Planning Commission's Policy and Procedures Committee; members of the Board of Supervisors; and board-appointed advisory committees, including EQAC and the Community Revitalization and Reinvestment Advisory Group. A community focus group met in May 2013 to discuss public outreach in the new process and will be convened in the future to continue work on this topic. Information about Fairfax Forward was made available, and continues to be available, at the Fairfax Forward website (www.fairfaxcounty.gov/dpz/fairfaxforward),

and resources were made available for any interested party to submit comments electronically through the website and email (DPZFairfaxForward@fairfaxcounty.gov).

The adopted Comprehensive Plan Amendment Work Program and Estimated Long Term Plan Review Schedule are available for review at www.fairfaxcounty.gov/dpz/fairfaxforward, as is additional information about Fairfax Forward.

d. Recent Special Studies and Selected Amendments to Area Plans

Plan Amendments that have been recently adopted by the Board of Supervisors can be found at http://www.fairfaxcounty.gov/dpz/comprehensiveplan/planadopted.htm.

e. District Planning Processes

Several supervisor districts have advisory boards or committees to advise on changes to the Plan within the district. One of the most unique is the Lee District planning process that has been in place since 1976. This interjects a step before the public hearing at the Fairfax County Planning Commission. All land use cases (rezonings, special exceptions and changes to the Comprehensive Plan) are presented to the Lee District Land Use Advisory Committee. The committee asks questions, makes comments, etc. When all the information is available, the committee votes to either recommend approval or denial of the application. The Lee District Planning Commissioner participates in these meeting and typically supports the committee decision at the Planning Commission public hearing.

3. Land Use History and Buildout Projections

The Comprehensive Plan contains land use recommendations for all of the land in the county. When the concept plan was conceived in 1990, there was a significant amount of vacant land, so it could address changes across the county. That vacant land has been steadily decreasing as shown in Table II-1. In 2012, with only approximately 6.2 percent vacant and much of that fragmented, the decisions are much more constrained. Significant planning changes require decisions that will most likely affect existing developed land.

4. The State of the Plan, 2000-2010

The aggregate acreage available in the county is relatively constant, with occasional changes as land is converted to other uses, such as roads and drainage ponds. The Comprehensive Plan capacity, however, is constantly increasing as new density is allocated across the county. This occurs primarily by increasing the Floor Area Ratio and allowing higher buildings to be built that have additional capacity in the same acreage.

Table II-1 Vacant Land in Fairfax County			
Year	**Vacant Land (acres)**	**Total Planned Land (acres)**	**Percent Vacant**
1980	75,550	234,744	32.2 percent
1985	66,685	232,941	29.2 percent
1990	45,042	230,678	19.5 percent
1995	37,006	229,366	16.1 percent
2000	29,529	228,541	12.9 percent
2007	17,117	228,240	7.5 percent
2010	14,943	227,228	6.6 percent
2012	13,972	226,991	6.2 percent

Source: Fairfax County Department of Systems Management for Human Services (IPLS), 2007 and Fairfax County Department of Neighborhood and Community Services, 2010 and 2012

Planned land does not generally include public roads and water

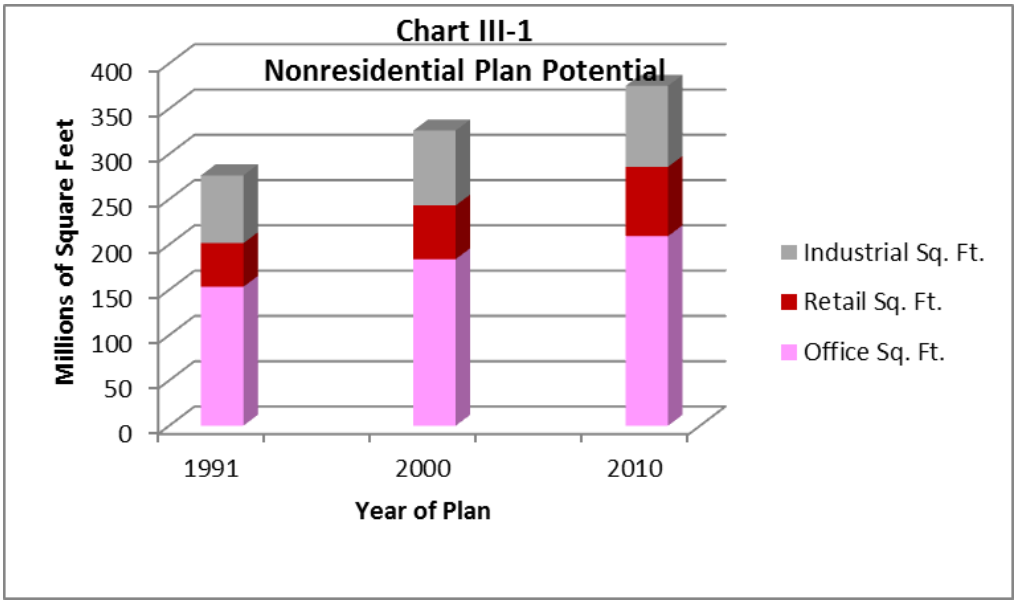
Note: Some of the decrease in vacant land between 2000 and 2007/2010/2012 is due to a change in the definition of vacant land. Areas previously classified as vacant but owned by tax exempt entities such as houses of worship and private schools are no longer included as vacant land.

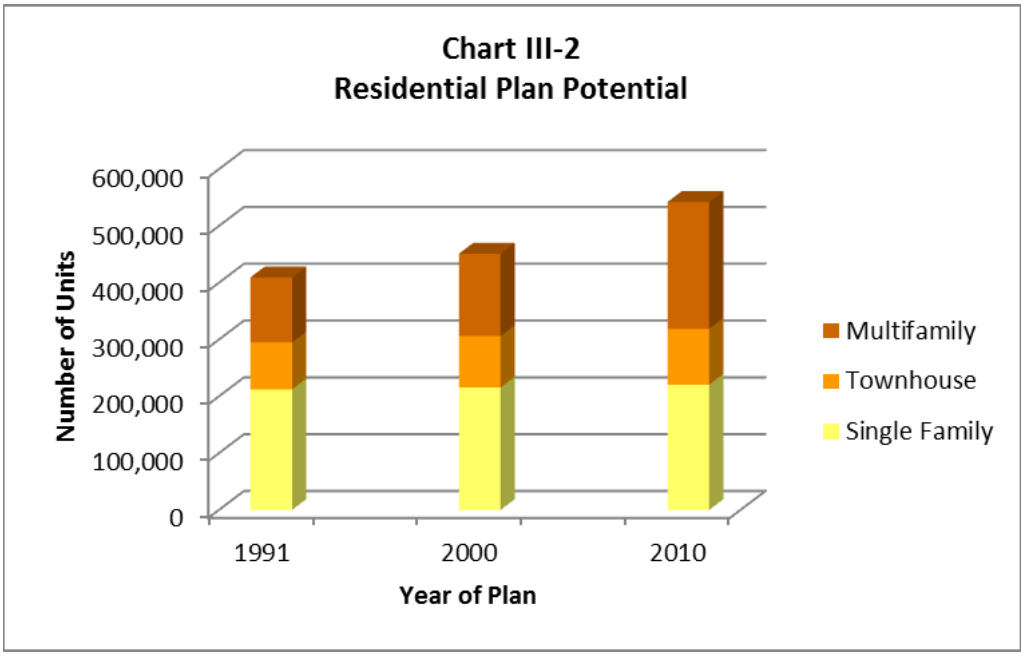
In 2012, the county published a comprehensive review of changes to the Plan over the past 10 years. The study notes that "Between 2001 and 2010, there were a total of 284 amendments adopted to the Area Plans. Of these, 221 or 78 percent were located in the county's activity centers." As changes are made to the Plan, the key metric available for growth is the ***Plan potential***. This tracks the amount of space that can be built. The increase over the past 20 years is shown in Figure II-7. With the observation that the county is close to build-out, with only 6.2 percent vacant space available, the Plan potential increases through redevelopment that allows bigger and taller buildings that are closer together. In the residential sense, this means more multi-family complexes. In the nonresidential space, it means higher office buildings with multiple uses.

As part of the State of the Plan review, the authors identified several themes that emerged from all 284 Plan amendments. These themes are:

1. *Encouragement of Intensity and Land Use Flexibility in Mixed Use Centers.*
2. *Protection of Low Density Residential Neighborhoods.*
3. *Avoid Re-Planning Industrial Areas.*
4. *Expansion of Medical Facilities.*
5. *Revision of Policy Plan Regarding Acquisition of Land for Public Parks.*
6. *Environmental Policy Issues in Area Planning Process.*

Figure II-7: Nonresidential and Residential Plan Potential





Source: *State of the Plan—An Evaluation of Comprehensive Plan Activities Between 2000-2010.*

The themes and trends clearly show that Fairfax County can continue to grow and accommodate new population and businesses into the future. But as we grow, important values are reflected in how and where that growth occurs. The most valuable areas for growth are mixed-use centers. These have been identified in the plan and infrastructure has been planned to support these areas. At the same time, we are focused on protecting residential neighborhoods. The ability to have high density development in close proximity to low density

residential is an emerging pattern that is very effective when planned near Metrorail stations. The area most adjacent to the Metrorail stations is ideal for high density. Surrounding neighborhoods have the advantage of a vibrant neighborhood that is nearby while residents of high density developments can adopt a more urban lifestyle that has amenities and opportunities within walking distance. Examples of this pattern are nearby in the Arlington Orange Line corridor, but they are also happening in Fairfax County.

Industrial and medical themes highlight different priorities. Medical services are desired by the population as it grows both in number and age. Industrial areas are important to support the infrastructure; these include landfill, quarry and other uses. By focusing development in the mixed use areas, it is possible to maintain industrial uses in the face of increasing Plan potential. The amendments to the Plan allow industrial uses to be viable as growth continues, without many of the conflicts that happen when residential uses encroach on industrial areas, which otherwise would force industry to relocate further out.

Parks and environmental themes reflect the value that the residents place on these resources. The Fairfax County Park Authority has and deserves a place in comprehensive planning. Among the important environmental initiatives over the past 10 years were the adoption of the county's watershed management plans and the augmentation and clarification of the Environmental Quality Corridor policy to preserve ecologically sensitive habitats.

5. A Fairfax County Example: Merrifield Suburban Center

The Merrifield Suburban Center is just starting to emerge as a vibrant transit-oriented place in the county. An EQAC member who is a co-author of this chapter used to live near the Gallows Road and Lee Highway intersection; he reports that the changes in Merrifield have created a new destination, a new place that he looks forward to visiting. The area boasts a new urban scale Target store (the nation's first with a fourth floor) that is surrounded by a new arts-focused movie theatre, bubbling fountains and retail shops.

The transition from a sleepy intersection to a transit oriented center has, however, been a long journey. After several uncoordinated amendments were passed in the 1990s, a visioning workshop was convened on June 10, 1998, followed by a formal task force that created the Merrifield Concept of Future Development. Over the next 14 years, this vision was doubted and debated, but over time it gained momentum and has persevered. Merrifield, like all suburban areas, has unique challenges and, in this particular case, significant advantages, including:

- A Metrorail station that serves as the as the infrastructure foundation for the area. The value of a Metro stop cannot be overstated as an anchor for a new suburban area.

- Close proximity to the Beltway and U.S. Route 50 to augment the transit anchor.

- A committed district and supervisor (actually two supervisor champions over the 14 years) with commitments to the long term vision.

- Large property tracts that are the basis for large scale projects. Other areas face fragmented land ownership that requires additional cooperation.

- Development of a street grid. This is essential to build the urban connections and cross connections between parts of the community.

These challenges and advantages have combined to create a transformed place with new residents and amenities. The lessons of Merrifield should be captured to help repeat this success across the rest of the county.

D. TRANSPORTATION

This section examines transportation, transportation decision making in Fairfax County, and significant transportation trends and projects. Discussions of transportation and the environment typically start with automobiles and the negative environmental impacts of cars. As congestion and density increase, however, single occupancy cars cannot be packed densely enough to move everyone about effectively. This is happening in Fairfax County, where the transportation discussions are increasingly focused on multi-modal and public transit options that provide a better balance of options suited for particular needs.

The transition towards multi-modal and public transit options brings many environmental improvements. They include: reducing air pollution caused by automobiles and traffic congestion; reducing water pollution caused by roadway and parking lot runoff and construction; reducing noise pollution caused by on-road vehicles; reducing energy consumption required to operate motorized vehicles; and the healthy sensation of personal mobility.

Since 1999, there has been a procession of large transportation projects (the “mega projects”) across the county. The Wilson Bridge replacement was the first mega project, followed by the I-95/I-495/I-395 “mixing bowl,” then the combination of the Silver Line Metrorail extension and the I-495 Express Lanes. The mega-transportation projects are expensive, designed for a long time, and impact many constituents. The agencies responsible for building the mega projects have delivered them on time and budget with the promised improvements in both capacity and safety.

These mega projects, however, need to be balanced with regular maintenance of the existing infrastructure. An important policy identified by the Coalition for Smarter

Growth is "fix-it-first," to ensure that all state maintenance needs are met and to direct funding to fixing problems on existing roads and transit prior to funding new construction.[13] This policy highlights the competition among transportation funding priorities. Projects that were once new require ongoing maintenance. New projects need to be judged by their ability to enhance the existing network and to maximize their potential to support comprehensive plans for the growing into the future. Some of these factors include:

- Does the project address an engineering necessity, such as the Wilson Bridge replacement?
- Does the project fix a design or congestion problem, such as the mixing bowl and changes to the I-66/I-495 interchange?
- Does the project add capacity to the core of the network, such as the Beltway express lanes and the Silver Line?
- Does the project encourage or induce new development, such as the original Beltway and Dulles Toll Road that focused new growth further out in the county.

Induced development is an important concept, especially as the county addresses redevelopment and buildout. Induced development happens when transportation capacity is added to an undeveloped area and consequently encourages growth in that area. In Fairfax County, the objective is to increase density in the mixed use centers, not to add new growth to stable areas outside of the growth centers. This means providing transportation options and dense networks like a street grid that allow better flow within the centers. By aligning transportation and land use, the system becomes more efficient and effective.

Many resources illustrating a move towards multi-modal transportation projects and principles are available:

- Wiehle Avenue/ Reston Parkway Metrorail Station Access Management Study: http://www.fairfaxcounty.gov/fcdot/sam_study.htm.
- Tysons Station Access Management Study.
- Fairfax Connector ten year Transit Development Plan (which serves as the main guide for service expansion and changes in Fairfax County): http://www.fairfaxcounty.gov/fcdot/tdp.htm/.

[13] http://www.smartergrowth.net/news-parent/press-releases/joint-statement-in-support-of-a-fix-it-first-jobs-first-sustainable-stimulus/

- The Countywide Transit Network Study is looking future transit needs for the entire transit network, connecting present/future destinations and determining what type of transit best serves different areas: http://www.fairfaxcounty.gov/fcdot/2050transitstudy/.

- A seven-minute video presentation has been prepared on sustainable transportation in Tysons. http://www.youtube.com/watch?v=4xAPeDF5veo&feature=youtu.be

Resources listing important trends and experiences from other jurisdictions are also available:

- The Institute of Transportation and Development Policy has created a scoring system to rate Transit Oriented Development: http://www.itdp.org/library/publications/the-tod-standard-draft .

- Fairfax Advocates for Better Bicycling is focusing on the need for good bicycle infrastructure in mixed-use, transit-oriented developments. The county is going through a difficult transition, in that it is promoting this type of development in the context of big suburban roads. A prime example is the Mosaic District surrounded by Lee Highway and Gallows Road. Both of these roads are not friendly for pedestrians or bikes. http://www.fabb-bikes.org.

- The National Complete Streets Coalition has provided a wealth of information regarding the complete streets concept. http://www.smartgrowthamerica.org/complete-streets

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

There are numerous options for people and things to move about the county.

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

- Rail and bus transit via Metro and connector services 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 and housing developments. Bus traffic includes school buses, most of which are transporting students during rush hour periods.

- Commercial vehicular transportation, mainly trucks and buses, are another serious factor impacting the environment. Trucks, whether they are local, inter-county or interstate, are serious contributors to the environmental crisis. In addition to many of them using "dirty" diesel fuel, they also have a negative impact on traffic congestion.

- Non-motorized transportation opportunities, 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 impediment to expanding non-motorized options. Over the past several years, these options have started to become more common in urban areas, notably in the District of Columbia. 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 a 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 is a leader in this field with the Fairfax County Government Telework Program.

While there are many options, they are not equally utilized. The U.S. Census tracks the modes used by people to get to work each day. The 2011 data show that of the 580,430 workers, 16 years and over, who live in Fairfax County:[14]

- 73.4 percent drove alone to work in a car, truck or van. (single-occupant vehicles)
- 8.9 percent of those workers commuted via carpool or vanpool. (high occupancy vehicles)
- 9.9 percent used Public Transportation (excluding taxicabs).
- 1.8 percent walked to work.
- 1.1 percent used other means.
- 4.8 percent worked at home. *(This number may not fully represent the true number of teleworkers in Fairfax County.)*

[14] *Source: 2011 American Community Survey 1-year estimate. Area: Fairfax County.*

Across all modes, the mean travel time to work is 32.9 minutes. The Metropolitan Washington Council of Governments has noted [1]:

> *"Nearly three-quarters of Fairfax County resident workers commute to work by driving alone, compared to 68 percent of the Washington region's workers. Seven percent of Fairfax County's resident workers use public transportation, compared to 11 percent of the Washington region's workers. Thirteen percent of resident workers of both Fairfax County and the Washington region use car pooling as a means of transportation to their jobs.*
>
> *Of the 350,714 owner-occupied housing units in Fairfax County, 4% (14,207 housing units) do not have vehicles. For renter-occupied housing units, approximately 9% do not have vehicles."*

An interesting statistic on commuter patterns is that over 50 percent of the residents in Fairfax County work in Fairfax County (see Table II-2), with another 16 percent working in the District of Columbia. Similarly, most of the workers in Fairfax County live in Fairfax County (see Table II-3); 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 II-2
Where Do Residents of Fairfax County Go to Work?

Workplace	Number of Commuters from Fairfax County	Percent of Total Commuters from Fairfax County
Fairfax Co, VA	302,425	54.76%
District of Columbia	90,207	16.33%
Arlington Co, VA	48,242	8.74%
Alexandria City VA	31,716	5.74%
Montgomery Co, MD	16,722	3.03%
Loudoun Co, VA	21,041	3.81%
Fairfax City, VA	17,904	3.24%
Prince George's Co, MD	9,948	1.80%
Prince William Co, VA	9,620	1.74%
Falls Church City, VA	4.446	0.81%

Source: http://www.census.gov/population/metro/data/other.html -- Residence County to Workplace County Flows for the United States and Puerto Rico Sorted by Residence Geography: 2006-2010

[1] *Source: January 2006 publication "Fairfax County and the Washington Region: A Look at Economic and Demographic Characteristics" (p.5)*

Table II-3 Where Do Workers in Fairfax County Come From?		
Residence	**Number of Commuters to Fairfax County**	**Percent of Total to Fairfax County**
Fairfax Co, VA	302,425	58.32%
Prince William Co, VA	55,692	10.74%
Loudoun Co, VA	55,044	10.61%
Montgomery Co, MD	21,585	4.16%
Arlington Co, VA	22,064	4.25%
Prince George's Co, MD	17,861	3.44%
Alexandria City, VA	15,028	2.90%
District of Columbia	12,777	2.46%
Stafford Co, VA	8,005	1.54%
Fauquier Co, VA	5,542	1.07%
Manassas City, VA	2,528	0.49%
Total	518,551	100.00%
Source: *Residence County to Workplace County Flows for the United States and Puerto Rico Sorted by Residence Geography: 2006-2010*		

Electric Vehicles

Electric vehicles offer an alternative to traditional gasoline vehicles. In August 2011, the MITRE Corporation, per a proffered commitment to sustainability-related work for the benefit of Fairfax County, completed a report titled "Electric Vehicle Charging Infrastructure Recommendations to Fairfax County." The report included several recommendations, with a particular focus on electric vehicle charging-related opportunities associated with redevelopment in Tysons Corner. The MITRE report was transmitted to the Board of Supervisors, which, in turn, referred the report to the Planning Commission for its review and recommendation.

Per that report, *"Plug-in vehicles feature prominently in the vision for a livable, sustainable Tysons Corner. They promise cleaner, quieter transportation that is less dependent on the political stability of other parts of the world, but they come at the price of being a fundamentally different way of powering the automobile fleet. Charging will largely be done over long periods of time at distributed locations, rather than at particular fueling stations. As Tysons Corner evolves from a suburban office park to an urban center, the evolution to an electric automotive fleet will affect urban layout, building design, and utility services."*

The report recommends that the county encourage developers to build the infrastructure to support electric vehicle charging, then phase in the actual devices and parking reservations as the technology becomes accepted.

2. Transportation Decision Making

Fairfax County's transportation decisions are complicated by the interrelationships of federal, state, regional, sub-regional and local entities involved in transportation planning and funding. Local initiative in addressing transportation needs is further limited because the Commonwealth of Virginia owns and maintains every public road in the county, even subdivision cul-de-sacs. These roads are maintained by the Virginia Department of Transportation.

In 2013, a new transportation funding plan was approved in Virginia. This action increased funding for transportation from an additional $392 million in FY 2014 to $817 million in 2018, for a total of almost $3.3 billion. In addition, the regional funding has been provided for Northern Virginia ($1.6 billion over five years) and Hampton Roads ($1.1 billion over five years). In Northern Virginia, 30 percent of funds go to localities and 70 percent of funds are for regional projects approved by the Northern Virginia Transportation Authority. Funds can be used for road construction, projects that reduce congestion and public transportation projects that expand capacity.

In Virginia, the **Commonwealth Transportation Board** has final approval authority over the six-year transportation program for the entire state. Under guidance of the CTB, the Virginia Department of Transportation is responsible for building, maintaining and operating the state's roads, bridges and tunnels.

The **Northern Virginia Transportation Authority** is charged by the Virginia General Assembly with preparing a regional transportation plan for Northern Virginia, including transportation improvements of regional significance. NVTA published TransAction 2040—Northern Virginia Transportation Plan, November 2012[16] with the following goals:

- Provide an integrated, multimodal transportation system.
- Provide responsive transportation service to customers.
- Respect historical and environmental factors.
- Recognize the linkage between transportation and land use.
- Incorporate the benefits of technology.
- Identify funding and legislative initiatives needed to implement the Plan.
- Enhance Northern Virginia relationships among jurisdictions, agencies, the public, and the business community.

[16] http://www.thenovaauthority.org/trans2040overview.html

The goals require balancing of various interests, but the priority of multi-modal systems and respecting environmental factors highlights the importance of integrating transportation with land use and environmental quality.

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," (May 30, 2008), which is available from the Transportation Planning Board of the Metropolitan Washington Council of Governments.[17]

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's Capital Improvement Program. However, transportation projects that are to be funded through state and federal funding are included in the Virginia Department of Transportation's six-year transportation program.

The Fairfax County Department of Transportation is re-starting the "County Dialogue on Transportation" to get public input regarding the transportation projects now that state funding is available. Currently, there are several public meetings to be scheduled at which a list of projects for consideration, along with an information sheet for each project, would be discussed. It is likely that there will be an on-line survey provided. FCDOT intends to present a report and program recommendation to the Board of Supervisors' Transportation Committee for discussion.

a. Urban vs. Rural standards

An example of decision making can be seen in the designation of urban street standards and applying them in county urban centers. EQAC supported such a principle in a formal memo earlier in 2013 (see Appendix B of this report). Overall, the community has been advocating for a series of improvements that include narrower lanes, pedestrian/bicycle paths on either side of the road, tree buffers between the street and path, reduced speed limits and safe crossings. The county has had success using road diets, which slim down roads to make them more appropriate for urban traffic. These were implemented on Lawyers Road in Reston.

The Virginia Department of Rail and Public Transportation has developed statewide guidelines for multi-modal planning and design at the regional, community and corridor scales.[18] The guidelines are now in final draft form and can be downloaded from DRPT's website at: www.drpt.virginia.gov/activities/MultimodalSystemDesignGuidelines.aspx.

[17] http://www.mwcog.org/store/item.asp?PUBLICATION_ID=82

Correspondence from William C. Cuttler, PE, VDOT District Construction Engineer, 7/9/13

Fairfax County staff has been meeting with VDOT and with DPRT for the past 13-14 months to develop formal urban street standards. VDOT created an appendix to its road design manual that will adopt state-wide urban design standards. Concurrently, DRPT is working towards adoption of its Multimodal System Design Guidelines. VDOT is adopting the DRPT guidelines into the Road Design Manual by reference. The county is developing its multimodal system map and identifying urban activity centers in accordance with the draft DRPT guidelines. The end result will be a multimodal system plan for Fairfax County that will be reviewed by DRPT and approved by VDOT; this plan will allow for implementation of the VDOT Road Design Manual urban design standards for areas that qualify as urban activity centers per the DRPT guidelines. This work is expected to be completed by early 2014.[19]

b. Comprehensive Transit Plan/Transit Development Plan[20]

In 2008, Fairfax Connector completed a ten year Transit Development Plan, which has served as the main guide for service expansion and changes in Fairfax County. Fairfax Connector is currently working on the follow up document, which will be heavily affected by the changes in the Dulles Corridor (Reston, Tysons, and Herndon) and growing population in the southern portion of the county.

In February 2013, FCDOT released a Request for Proposals for the Comprehensive Transit Plan, a five-year update to the 10-year aspirational TDP. The RFP included the development of a financially-constrained six-year TDP as required by the Virginia Department of Rail and Public Transportation, as well as the development of an updated compliance program to meet the revised Title VI compliance requirements released in October 2012 by the Federal Transit Administration. FCDOT recommended awarding the contract to the team led by TranSystems, Inc. and a purchase order was issued in June 2013. The CTP/TDP update will include:

- Data collection: Review relevant prior and current studies; collect and analyze current operating data; collect and analyze stop-by-stop bus boarding and alighting counts.

- Public opinion research: Conduct on-board passenger attitudinal survey; conduct telephone survey of county residents, primarily non-users of bus service; utilize other research tools such as focus groups.

[19] Transportation Information for EQAC 2013, Kris Morley-Nikfar, FCDOT & Updated June 8, 2011, Dan Southworth, FCDOT
[20] Ibid

- Public outreach: Conduct meetings with elected officials; conduct meetings with public advisory groups; conduct meetings with local civic, business and residential groups; conduct meetings with the general public; maintain the project Web page on the county website; utilize other Web-based tools.

- Service recommendations: Review service changes since completion of 2009 FCDOT TDP; review performance of current services; recommend changes to current services as appropriate; recommend new services as appropriate.

- Capital project/asset recommendations: Review current capital projects and assets; recommend new capital projects and assets to support service recommendations.

- Implementation plan and TDP: Develop a financially constrained implementation plan for service and capital recommendations; draft the TDP for DRPT based on DRPT requirements.

- Updated Title VI Compliance Program: Develop a revised Title VI program for Fairfax Connector that would comply with new FTA guidance in this area.

3. Non-motorized and Public Transportation[21]

The following sections describe FCDOT programs related to multimodal and public transportation.

a. Walking – the Pedestrian Program

The board has directed FCDOT to lead the effort to improve bicycle and pedestrian safety and mobility, including constructing bicycle and pedestrian improvements in high-priority areas of Fairfax County.

Fairfax County's Pedestrian Program was started in 2002, following a spike in pedestrian fatalities. Through FY 2016, the board has designated over $110 million in federal, state and county funding to construct over 300 high-priority bicycle and pedestrian improvement projects throughout the county. These include projects on major roadways, in activity centers, providing access to Metro stations and completing neighborhood missing links. From FY2008 through FY2013, the county has completed construction on 92 sites/segments; nine are under construction and another 70 are under design.

[21] Ibid

Major sidewalk projects are complete along Route 1, Route 29 and Route 236. Pedestrian intersection improvements are complete along Route 7, Route 28, Route 29, Route 50, Route 123, the Fairfax County Parkway and Old Keene Mill Road. Pedestrian and bike access are being constructed on most of the bridges crossing the I-495 Express Lanes project and will improve some of the worst barriers to pedestrian and bicycle movement in Fairfax County.

The Pedestrian Program also has a role in pedestrian education and outreach in Fairfax County. Fairfax County is the local government funding leader for regional Street Smart Pedestrian and Bicycle Safety Media campaigns, which have used television, radio, print and bus advertising to promote safety awareness responsibilities of drivers and pedestrians. The Pedestrian Program Manager, Bicycle Program Coordinator, Bus Stop Coordinator, Pedestrian/Bicycle Planner and Pedestrian Outreach Coordinator are all involved in community outreach. The Fairfax County Department of Transportation coordinates with other facility resources and departments as appropriate.

The Fairfax County Police Department conducts pedestrian safety enforcement in high pedestrian crash areas countywide. In addition, Fairfax County is one of the few jurisdictions in Virginia permitted to install "Yield to Pedestrians in Crosswalk $100 - $500 Violation Fine" signs. Fairfax County has installed and maintains over 1,800 of these signs at 455 intersections.

VDOT administers the Transportation Alternatives Program (formerly the Transportation Enhancement Program) for qualifying activities. At its June 2013 meeting, the Commonwealth Transportation Board allocated FY2014 funds to sponsors in Fairfax County:

- $400,000 to Fairfax County for the continuation of the Mason Neck Trail along Gunston Road to connect Pohick Bay Golf Course and the Mason Neck State Park main entrance.

- $119,347 to Fairfax County for construction of Cross County Trail to connect Occoquan Regional Park and the Laurel Hill Greenway.

- $172,000 to the Town of Vienna for pedestrian improvements at the Vienna station and W&OD trail.

- $281,000 to the Town of Clifton for streetscape and pedestrian safety improvements on Main Street.

- $150,000 to the Town of Herndon for streetscape and pedestrian improvements in Historic Herndon.[22]

b. Biking --The Fairfax County Comprehensive Bicycle Initiative

The county's Comprehensive Bicycle Program is managed through the Department of Transportation. The program's primary goal is to make bicycling a viable transportation mode and to make Fairfax County bicycle-friendly and safe.

The Bicycle Master Plan and the bicycle parking guidelines are both important. The parking guidelines need to expand on the success of the county's new secure bicycle parking facilities at Silver Line stations and other county park-and-ride/transit facilities. Funding for implementation of both capital and non-capital elements of the county's bicycle master plan is required. The county should consider implementation of "Bike Fairfax!"--a program for encouraging/promoting bicycling as a transportation mode, education and outreach.

As directed by the Board of Supervisors, a major goal was the development and printing of the first "Fairfax County Bicycle Route Map," issued on May 16, 2008, "Bike to Work Day." The map defines a network of preferred as well as less preferred on-road bike routes that enable bicyclists to traverse the county. The county printed about 6,000 copies in the initial print job and another run of approximately 41,000 as a result of demand for the maps. The Fairfax County Department of Transportation was also awarded a transportation enhancement grant for fiscal year 2010 to complete a bicycle map that highlights a route along historic Civil War sites in Fairfax County. An electronic "Bike Fairfax Interactive Map" can be accessed at http://www.fairfaxcounty.gov/fcdot/bike/bikemap/.

Major activities and achievements include:

- Fairfax County Bicycle Master Plan: Approved in 2010 by the Board of Supervisors, work began in August 2010 to create a bicycle master plan for Fairfax County. This study will provide guidance for the planning and implementation of bicycle facilities as well as policies and programs influencing cycling in the county and increasing the cycling modal split.

  In order to address the accelerated comprehensive planning efforts in Tysons Corner, the project was broken into two phases. Phase I focused on the greater Tysons area including segments of McLean, Merrifield and Vienna; Phase II will encompass the rest of Fairfax County. Phase I

Correspondence from William C. Cuttler, PE, VDOT District Construction Engineer 7/9/13

was completed in early 2011; Phase II began in April 2011 and is currently scheduled to go before the Board of Supervisors in early 2014.

- Enhanced Bicycle Parking: Efforts to expand and enhance bicycle parking countywide are continuing. Installation of 150 new bicycle racks is almost complete. Ten new bicycle lockers were recently installed at the Reston Town Center transit center and ten lockers were installed at the courthouse complex and made available to employees who bike to work. Bicycle lockers are currently located at the following transit facilities: Sunset Hills Park and Ride; Herndon-Monroe Park and Ride; Reston Town Center Transit Center; and Reston South Park and Ride.

  As part of the Silver Line expansion of Metrorail, staff is working closely with WMATA and developers on bicycle parking facilities at the new stations. The Reston-Wiehle station will include a secure bicycle parking room capable of parking over 200 bicycles, including space for bicycle-related retail use and future bicycle sharing.

  Work was initiated on the expansion of the Stringfellow Road Park and Ride Lot. This expansion will include new secure and covered bicycle parking facilities as well as enhanced trail and sidewalk connections.

  FCDOT bicycle staff provides technical assistance to schools, shopping centers and commercial property owners on the proper installation/location of bicycle racks. Draft Fairfax County bicycle parking guidelines, standards and specifications will be released soon, providing additional guidance to both the development community as well as government agencies responsible for the design, installation and maintenance of bicycle racks and bicycle parking facilities.

- On-Road Bicycle Lane Initiative: FCDOT has teamed up with VDOT's Traffic Engineering and Maintenance to retrofit roadways with new on-road bicycle facilities. Most of these new segments of bike lanes are accomplished as part of VDOT's summer repaving program. Roadways recently completed include: Soapstone Drive; Sleepy Hollow Road; Lewinsville Road; Sully Park Drive; Dolly Madison Boulevard (southbound only); and Gallows Road Phase II.

- Connecting the County: As part of the original four priorities established by the Board of Supervisors, several projects were completed or initiated during 2010. Projects that were completed this year include:

  - Construction was completed in May 2012 on the Pohick Stream Valley Rail-Trail, a joint project of FCDOT and the Fairfax County

Park Authority. This 1.5 mile segment of shared use path connects the Burke Virginia Rail Express Station to the Burke Village area. The next phase (designated the Liberty Bell Trail) is funded and currently in the design phase and will extend this trail to Burke Road and the Rolling Road VRE Station.

- Construction was completed on the Trap Road Bike/Pedestrian Bridge over the Dulles Toll Road. This was a joint project among Fairfax County, VDOT, and the Federal Highway Administration.

- Bike the Sites Bicycle Route Map: In late 2010, FCDOT received authorization to create a bicycle route map defining a family friendly bicycle route centered on historically significant sites in the western area of Fairfax County. The map will provide information about these sites and define public parking where bicyclists can begin their journey. The project was funded with a Federal Transportation Enhancement grant and projected to be complete in April 2014.

c. VDOT Pedestrian/Bicycling Facilities and Safety[23]

VDOT administers the Safe Routes to School Program, a federally funded program to promote safe walking and bicycling to school by students, including those with disabilities. The SRTS Program offers funding grants for three different project types: (1) Infrastructure Projects; (2) Activities and Programs Projects; and (3) Quick Start Non-infrastructure Activities. On the latter funding program, 16 elementary schools in Fairfax County have received grants. More information is at: www.virginiadot.org/programs/ted_Rt2_school_pro.asp.

VDOT continues to ensure that biking remains an integral component of Virginia's multimodal transportation system and is proud to be a local sponsor of Bike to Work Day events promoted by the Washington Area Bicyclist Association and Commuter Connections.

In collaboration with county staff and partnering organizations, several initiatives have been implemented affecting bicyclists and pedestrians:

- Funding and support has been provided to the county's Department of Transportation for upgrading existing, or constructing new, bus shelters at various locations in the county.
- New and improved bike and pedestrian facilities have been provided on nine reconstructed bridges for the I-495 Express Lanes Project to connect with existing bike/pedestrian facilities.

[23] Ibid, 26

- A new Telegraph Road to Eisenhower Path connector over I-95/I-495 was constructed as part of the I-95/Telegraph Road interchange reconstruction project.
- A separated path crossing of I-95 will be included with I-95 Northbound Flyover Ramp to Fairfax County Parkway (presently in design).
- Counts are being taken of non-motorized crossings over interstate highways; this information can be used to justify pedestrian bridges or the addition of sidewalks, paths and shoulders on new or reconstructed bridges on the interstate highway system.
- Bicycle signal detection has been implemented at the intersection of Soapstone Drive and South Lakes drive in Reston.
- Bicycle lockers are available for an annual rental fee at several VDOT park-and-ride lots to assist with bicycle parking for commuting.
- Two percent of the VDOT's road paving funds is dedicated to adding shoulders on northern Virginia roadways at locations that will improve bicycle safety and travel. VDOT also collaborates with Fairfax County to identify pavement striping and bike-lane signage opportunities to add on-road bicycling facilities.

Additional resources about bicycling and walking are available at: www.virginiadot.org/travel/nova-mainBicycle.asp.

d. Bus Stop and Shelter Improvement Programs

A comprehensive inventory and study of all bus stops in Fairfax County identified undesirable bus stop conditions for priority action. The board identified $2.5 million from the general fund and $7.75 million in the 2007 Transportation Bond for improvements to the priority stops identified in the study. A total of 272 sites have been completed since the bus stop improvement program began. There are currently 122 sites in project development, 78 in design/land acquisition and10 under construction.

FCDOT is engaged in a public/private partnership to improve bus stops and increase the number of bus shelters in the county. This program is expected to raise $50,000 (less shared construction cost) in FY 2014 through the sale of advertising space on bus shelters. The contractor sells advertising space to subsidize construction, maintenance, and operation of bus shelters and will share a percentage of the surplus revenues with the county. Sixty-five existing bus shelters have been retrofit with advertising, and 36 newly installed sites have been completed. There are currently 63 sites being scoped for new shelter and infrastructure improvements for FY 2014. The program has raised $103,815 in revenue to date.

e. Express (HOT) Lanes Bus Service

In January 2013, FCDOT implemented the first of three new express bus routes to Tysons Corner, beginning with Burke Centre-Tysons Route 495. The second two Express routes, Route 493 from Lorton, and Route 494 from Springfield, launched in March 2013. All three routes operated free of charge for their first four weeks of operation. Additionally, free-ride coupons were mailed to households in Burke and were published in local newspapers. Accompanying the launch of all three routes was an aggressive marketing campaign designed to target employees in Tysons who live in Burke, Lorton and Springfield, as well as to target local homeowners' associations and community groups. Staff made a recommendation to the board to temporarily reduce the fares on the routes from the express fare of $3.65 to the base fare of $1.60, effective July 1, 2013. In addition, staff will, at the end of 2013, be redesigning the circulation patterns in Tysons to accompany the new Metrorail service and will be closely monitoring ridership and performance data until that time.

4. Transportation Demand Management, Alternatives and Outreach[24]

The county has integrated Transportation Demand Management strategies into the land development process and has standardized this program. TDM proffers promote alternatives to single occupant vehicle trips. These proffers contain commitments to provide TDM services, goals for percentage trip reduction, and remedies or penalties for non-attainment of proffered goals. The TDM proffer coordinator negotiates proffers and monitors implementation and performance of existing proffers. A comprehensive and standardized program for TDM was endorsed by the Board of Supervisors in the past year. In FY 2013, TDM proffers were committed for new developments in Reston, Fairfax, Tysons, Merrifield, Huntington and Mount Vernon. Proffer monitoring continues for properties throughout the county. The implementation of this new effort has been going smoothly, particularly in Tysons Corner. Overall, the standardized agreements for TDM proffers have been seen as a benefit by all involved parties when compared to the previous method of securing TDM commitments.

As of summer 2013, 523 Fairfax County employers have implemented Transportation Demand Management programs; 244 of those are at level three or four, which means they have implemented benefits or programs that significantly help to reduce single-occupant vehicle trips. Outreach to businesses to encourage employee transportation benefits programs this year reached 651 new employers, impacting thousands of employees and commuters.

[24] Ibid

Arlington County uses Mobility Lab to operate its Transit Demand Management programs; surveys with the local business community are conducted regarding the transportation networks and the perceived benefits: http://mobilitylab.org/2013/04/30/2012-arlington-business-leaders-study/

a. Transportation Services Group Programs and American Community Survey Data

The combined transportation demand management programs and outreach efforts of the FCDOT Transportation Services Group, along with programs sponsored by the Metropolitan Washington Council of Governments Commuter Connections program, have allowed the county in fiscal year 2013 to continue to reach tens of thousands of people who live or work in Fairfax County with messages about environmentally friendly transportation options.

A description of the Employers Service Program can be found on the county's website at: http://www.fairfaxcounty.gov/fcdot/Employer.htm.

- The RideSources program received 945 on-line applications from commuters looking for car- or vanpool matches last year. Over 240 program participants were registered. RideSources staff assisted the regional Guaranteed Ride Home program by adding 348 commuters.

- Within Fairfax County government, 209 employees participate in the Commuter Benefits Program, taking public transportation to work, and 1,665 eligible county employees teleworked at least one day a week. The county also provides reserved parking spaces for carpools and vanpools at some facilities.

- Information about transportation options such as the HOV and Express Toll lanes, RideSharing, Guaranteed Ride Home, car sharing, using bus and rail and teleworking is disseminated at outreach events throughout Fairfax County. In total, FCDOT-TSG participated in over 60 events within the community, such as town fairs, employer fairs, and public meetings.

- FCDOT's- Transportation Services Group, in partnership with the Center for Urban Transportation Research, has designated seven additional Fairfax County employers and three new sites as "Best Workplaces for Commuters" in FY 2013. This raises the total number of recognized sites in Fairfax County to 29. The employers were recognized by the Board of Supervisors in December 2012 for the broad range of transportation options offered to their employees. The "Best Workplaces for Commuters" program, managed by the National Center

for Transit Research at the University of South Florida, provides employers who meet the National Standard of Excellence in commuter benefits with national recognition and an elite designation for offering outstanding transportation options to employees.

- The Fairfax County Transportation Services Group also continues outreach efforts, including congestion mitigation and support for BRAC construction and relocation efforts.

- Fairfax County is working with the VDOT Mega Projects and the Employer Solutions Team to provide transportation alternatives to employers impacted by I-495 and I-95 Express Lane and Rail to Dulles construction. These ongoing activities have given the Employer Services and RideSources teams additional exposure to decision makers with many of the top corporations and organizations in Fairfax County.

- The Fairfax County Community Residential Services Program, recently re-branded as the Commuter Friendly Communities Program, has partnered with over 230 multi-family complexes, area developers and civic organizations to promote telecommuting and the use of mass transit, carpools, vanpools, biking and walking instead of drive-alone commuting.

- The Fairfax County Transportation Services Group also supports Transportation Management Associations and other organizations that assist commuters and the community, including the Dulles Area Transportation Association, LINK of Reston Town Center, TyTran in Tysons Corner and the Transportation Association of Greater Springfield.

- The Fairfax Connector has made several improvements to reduce emissions: reducing auto shutdown from 10 minutes to five minutes; switching from tires filled with air to nitrogen; reducing the average age of the Fairfax Connector fleet to 2.8 years; and purchasing Mini-hybrid buses (all buses purchased since 2009 are classified as Mini-hybrids for a total of 148 Mini-hybrids). The Maintenance and Service buildings at West Ox have been converted to Landfill Gas for heat.

b. Fairfax County Telework Initiative and Employer Services Program[25]

Fairfax County has a teleworking option for the county staff. Increased interest in telework is evident in the number of employees who participate in training sessions, ask for information via email and phone and sign up for telework. Managers have expressed an interest in telework as a way to continue business operations during inclement weather or emergencies. The

[25] E-mail from Catherine Chianese, Assistant Fairfax County Executive, Sept 7, 2011

county's active partnership in regional efforts to expand telework keeps it current on best practices and identifies the county as a resource for businesses on teleworking.

With respect to the county's telework program, the number of participants has increased from 138 in December 2001 to over 1,000 by 2005 (thereby meeting a goal that was set based on the Metropolitan Washington Council of Governments' goal of having 20 percent of the regions' eligible workforce teleworking by 2005). There are currently 1,665 participants in 2013. Based on information provided to EQAC previously regarding the 2005 telework goal, it is estimated that county teleworkers potentially saved roughly 80,000 commuting hours and 2.5 million commuting miles in a year. The county will continue to emphasize telework as an important component of its Continuity of Operations Planning, in order to ensure that county workers have the tools to work from remote sites.

c. Tysons Metrorail Station Access Management Study

In order to create a multimodal access management plan for the soon-to-open Metrorail stations in Tysons Corner, as well as to get the public to begin thinking about how they will reach the stations, the Board of Supervisors approved funding for the Tysons Metrorail Station Access Management Study project on June 1, 2009. The ultimate objective of the study was to create a document that can be used as a tool for the board to make funding decisions on multi-modal transportation improvement projects, specifically to access the Metrorail stations in Tysons Corner, as funding becomes available.

A TMSAMS Advisory Group was formed to guide the study through its completion, determine what information to present to the public, how best to present the information and how to collect public input. Representing a broad spectrum of interests, the TMSAMS Advisory Group consisted of: representatives from each of the BOS district offices that include and encompass Tysons Corner; residents from each of these districts; bicycle advocates; representatives from the business and development community; and staff from the Fairfax County Park Authority, the Fairfax County Office of Public Affairs and the office of the Chairman of the Board of Supervisors. It was staffed by the Fairfax County Department of Transportation. Along with the Comprehensive Plan for the Tysons Corner Urban Center, the TMSAMS Advisory Group selected three recently completed Fairfax County Department of Transportation studies to provide the basis for recommended alternative mode transportation improvements in the TMSAMS effort. These studies are: the Fairfax County Transit Development Plan; the Tysons Corner Sidewalk Analysis; and the Tysons Corner Bicycle Master Plan.

The Perspectives Group, a private public-outreach consulting firm with extensive Tysons related experience, conducted a comprehensive public involvement process for TMSAMS. This public involvement process included a total of four initial public meetings, approximately 20 key stakeholder interviews and the development of a TMSAMS website with an online survey. This highly successful public involvement process resulted in over 250 people attending one of the four public meetings and over 1,900 people participating in the TMSAMS online survey.

After this extensive public involvement process was complete, The Perspectives Group compiled the results of the input collected and produced the TMSAMS Final Report, including summaries from all areas of the outreach effort. Section six of the report highlights the top ranked bus transit, pedestrian and bicycle facility improvement recommendations (specifically improving access to the four new rail stations) from the Comprehensive Plan for the Tysons Corner Urban Center, the Fairfax County Transit Development Plan, the Tysons Corner Sidewalk Analysis and the Tysons Corner Bicycle Master Plan. A final public meeting, with over 95 people in attendance, was held on October 4th, 2011 to present the findings of the TMSAMS public outreach effort.

Also included in this report are recommendations from the TMSAMS Advisory Group for additional improvements, additional analysis and increased use of technological innovations to address transportation related issues not covered by the FCDOT studies that were incorporated into the TMSAMS effort. As previously stated, the ultimate objective of this study is to create a document that can be used as a tool for the Fairfax County Board of Supervisors to make funding decisions on multi-modal transportation improvement projects to access the Metrorail stations in Tysons Corner. In order to reach this objective, FCDOT staff conducted a thorough assessment of the priorities and recommendations contained in the TMSAMS Final Report and developed the "FCDOT Staff Recommend List of TMSAMS Projects and Associated Cost Estimates" document as well as the "Staff Responses to TMSAMS Advisory Group Recommendations" document. These documents were approved by the Board of Supervisors during the board's May 22nd, 2012 meeting and are available on the TMSAMS website by using the following link: http://www.fairfaxcounty.gov/fcdot/tmsams/.

5. Major Transportation Projects[26]

The following section provides updates on the major transportation programs across the county in 2013.

[26] Transportation Information for EQAC 2013 Kris Morley-Nikfar, FCDOT

a. Status of Dulles Rail Project

The Dulles Corridor Metrorail Project has completed over four years of construction along the extension between I-66 at the Dulles Connector Road and Wiehle Avenue in Reston. Approximately 93 percent of the construction activity is complete, with major work efforts on the alignment along the entire line, tunnel construction along Route 123 between International Drive and Route 7 in Tysons Corner, and at all five stations. The date of Silver Line, Phase 1 passenger service will be determined by the Washington Metropolitan Area Transit Authority. As of summer 2013, passenger service is projected to start in late December 2013.

The DCMP has been working closely with landowners in Tysons Corner to accommodate requests by landowners to provide for direct connections to the Metrorail system. At Spring Hill Station, the entry pavilion on the east side of the station will be relocated into the proposed development by Cherner at the intersection of Route 7 and Spring Hill Road. An SAIC request for a direct connection to the entry pavilion on the east side of Greensboro Station has been approved. An agreement has been reached with Tysons Corner Center to adapt the south side entry pavilion at Tysons Corner Station to accommodate the development conditions placed in its approved rezoning.

The transit oriented, mixed use development adjacent to Wiehle-Reston East Station is continuing on schedule. The excavation for the commuter parking garage began in April 2011 and was expected to have concluded in July 2013. Coordination with MWAA occurs on a bi-weekly basis to ensure the Wiehle development and the rail station construction and pedestrian bridge will open on time and without issue. Comstock Partners is completing construction on the mixed-use development as well as a below-grade 2,300 space commuter parking garage, 12 bus bays, 45 kiss-and-ride spaces and 150 secure bicycle spaces for the Metrorail station. The project will include approximately 1.3 million square feet of office, retail and residential uses; 19.5 percent of the residential units will be affordable dwelling units. The Metrorail facilities will be operational when the DCMP opens for passenger service. The commuter parking garage will be owned and maintained by Fairfax County with operational support by WMATA.

The Metropolitan Washington Airports Authority has completed 100 percent Preliminary Engineering and the Independent Cost Estimate for Phase 2 of the Dulles Corridor Metrorail Extension (Wiehle-Reston East Station west to Dulles International Airport and Loudoun County). Fairfax County, Loudoun County and MWAA have committed to participate in Phase 2. Phase 2 will be constructed for MWAA by Capital Rail Constructors, a joint venture between Clark Construction and Kiewet International. The Phase 2 contract was awarded in May 2013 with Notice

to Proceed anticipated in July 2013. Completion of Phase 2 of the Silver Line is expected in summer 2018, with passenger service beginning in late 2018.

On February 23, 2010, the Board of Supervisors approved a Special Exception Amendment for expansion of the West Falls Church Service and Inspection Yard to accommodate rail car storage and maintenance for Phase 1 of the DCMP extension to Wiehle Avenue. The amendment approved the expansion of the yard capacity by 42 rail cars and the addition of more maintenance bays in a new annex building. As part of the approval, MWAA and the WMATA constructed a new storm water management detention pond and rehabilitated the existing stream traversing the property. In addition, a $10 to $12 million sound cover box in under construction over the eastern most curved track in the yard to reduce 'wheel squeal' that occurs as rail cars are moved within the yard. These improvements will be implemented to coincide with the initiation of Silver Line, Phase 1 passenger service.

A Silver Line Phase 1 bus service coordination plan is being developed and coordinated by staff from the various service providers impacted by the DCMP: Fairfax Connector; Metrobus; the Potomac and Rappahannock Transportation Commission; Loudoun County Transit; and MWAA – Washington Flyer. Staff is coordinating bus routes, bus bay assignments and other operational elements related to bus service to and from Phase 1 stations.

Fairfax Connector Dulles Rail Bus Service Plans: Between January and May 2013, FCDOT staff conducted a significant public outreach effort to gather input on the Silver Line Bus Service Plan. In June 2013, FCDOT finalized the bus service plan to support the opening of Phase I of the Silver Line; the plan was approved by the Board of Supervisors in June 2013. The service changes are expected to take place concurrently with the opening of the Silver Line, which is currently anticipated for December 31, 2013. A substantial part of the plan is the implementation of a short-term circulator bus system within Tysons, called the Tysons Circulator (routes 422, 423 and 424), which will provide a frequent bus connection from the new Silver Line stations in Tysons to the employment centers. These circulator routes will connect to the new stations in Tysons, as well as to the feeder bus service from McLean, Vienna and the Route 7 corridor. Another major component of the Silver Line bus service plan is the redesign, modification and addition of new routes in the Dulles Corridor, feeding the Wiehle-Reston East Metrorail Station. In total, approximately 40 percent of all Fairfax Connector bus service will change in FY2014.

b. I-95 Express Lanes

The Virginia Department of Transportation is partnering with Fluor-Transurban to develop a new I-95 Express Lanes project that will run from Garrisonville Road in Stafford County to Edsall Road in Fairfax County.

This new project will create approximately 29 miles of Express Lanes on I-95. This project will add capacity to the existing HOV Lanes from the Prince William Parkway to the vicinity of Edsall Road and will improve the existing two HOV lanes for six miles from Route 234 to the Prince William Parkway. A nine-mile reversible two-lane extension of the existing HOV lanes from Dumfries to Garrisonville Road in Stafford County will help to alleviate the worst traffic bottleneck in the region. As a separate project, plans are also being advanced to construct a direct ramp from the existing HOV lanes on I-395 to Seminary Road, which will connect the Mark Center site to this expanded regional transit and HOV network. The ramp will be restricted to transit and HOV use only.

VDOT held the Design Public Hearings for the I-95 Express Lanes between Edsall Road in Fairfax County and Garrisonville Road in Stafford County on September 26, 28, and 29. VDOT has responded to all comments received. The Federal Highway Administration issued a finding of no significant impact on December 5, 2011. VDOT and Fluor-Transurban have come to a principle agreement and have finalized the agreement with the Concessionaire. The design of the project is complete, and VDOT has approved a noise wall study. Construction on all four phases of the project is ongoing and is 33 percent complete.

The Express Lanes project will directly link the I-95 HOV lanes to new express lanes on the Capital Beltway, creating a free-flowing network spanning more than 40 miles and providing direct HOV and transit service to major Virginia-based employment centers including Tysons Corner, Merrifield, Fort Belvoir and Quantico. The project will also relieve one of the worst traffic bottlenecks in the region, where the existing HOV lanes currently end at Route 234 in Dumfries. Carpools with three or more people, vanpools and transit vehicles will have free access to the express lanes network. The express lanes will keep traffic moving by using dynamic tolling that will adjust tolls based on real-time traffic conditions, video technology to identify accidents, a series of electronic signs to communicate with drivers and state troopers to ensure enforcement. These strategies will help maintain travel speeds, make travel times more predictable and significantly reduce the number of violations. Construction of the project is expected to support more than 8,000 jobs.

c. Express Lanes on the Beltway

Completed in November of 2012, this project includes fourteen miles of new high-occupancy toll lanes (two in each direction) on I-495 between the Springfield Interchange and just north of the Dulles Toll Road. These HOT lanes allow the Beltway to offer HOV-3 connections with I-95/395, I-66 and the Dulles Toll Road for the first time. Buses, carpools and vanpools with three or more people, and motorcycles can ride in the new lanes for free. Vehicles carrying one or two people can either travel for free in the regular lanes or pay a toll to ride in the HOT lanes. Tolls for the HOT lanes change according to traffic conditions, which will regulate demand for the lanes and keep them congestion free - even during peak hours.

In addition to providing new travel choices, this project also makes a significant contribution to the Beltway's 45-year-old infrastructure, replacing more than 50 aging bridges and overpasses, upgrading 10 interchanges and improving bike and pedestrian access. This project was made possible through a public-private partnership between the Virginia Department of Transportation and Fluor-Transurban.

d. Columbia Pike Streetcar Project

Fairfax and Arlington Counties undertook the Pike Transit Initiative to consider the development of an advanced transit system connecting the Pentagon/Pentagon City area with Baileys Crossroads. In May 2006, the Fairfax County Board of Supervisors endorsed the "Modified Streetcar Alternative" recommended in the Columbia Pike Transit Alternatives Analysis as the preferred transit alternative for the Columbia Pike corridor. The endorsement allowed the project to advance to the next phase of project development in which the project team developed a financial strategy. The project team decided to enter the New Starts/Small Starts program (through the Federal Transit Administration) to assist with financing the construction of the project.

Currently, the Pike Transit Initiative (also known as the Columbia Pike Streetcar Project) has entered the environmental documentation stage. A letter from the FTA agreed with the initial recommendation by the counties and its consultants that the environmental documentation needed for this project is an Environmental Assessment. As part of the EA, the project team also evaluated four alternatives. There is an Alternatives Analysis that was combined with the EA. The four alternatives are: no build; enhancing the existing bus service with additional buses; replacing some of the existing buses with articulated buses; and replacing some of the existing buses with a streetcar system. As part of the combined AA/EA document, the EA will determine the environmental impacts, ultimate alignment, minor preliminary engineering, a financial strategy and a project sponsor/operator that will

advance the project through full engineering, construction and operation. The 2005 total capital costs and operating costs for the board-adopted modified streetcar alternative have been updated in the AA/EA document. The capital cost (in 2016 dollars) ranges from $242-$261 million and the annual operating cost (in 2016 dollars) ranges from $22.5-$29.6 million. The draft AA/EA was approved by the FTA to be released for public comment. Funding for this project is anticipated from FTA, local and state transportation fund fees and taxes, as well as other options. The public comment period went from May 22, 2012 to June 21, 2012 with two public meetings: June 6 (in Arlington County) and June 7 (in Fairfax County). A final determination on the environmental impacts is not expected to be issued until preliminary engineering has been completed and FTA has selected the project to receive federal funding.

The Arlington and Fairfax County boards reaffirmed the modified streetcar alternative as the preferred alternative and accepted the Alternative Analysis/Environmental Assessment on July 24, 2012 and July 31, 2012, respectively. In September 2012, Arlington and Fairfax Counties submitted an application to enter the FTA Small Starts program. Arlington County submitted the application on behalf of both counties, as there can only be one project sponsor. Fairfax County is a partner with Arlington County on the project. In April 2013, the FTA notified Arlington County that the project was not approved into the Project Development phase at this time, for two reasons:

1) The project was likely to exceed the $250 million threshold that is the upper limit for a Small Starts project. Therefore, this project should be judged as a New Starts project.

2) The introduction of a new transportation authorization act: Moving Ahead for Progress in the 21st Century (MAP-21). This changed the funding program for major transit investments.

The counties were notified that that project would need to be evaluated under the MAP-21 requirements, which went into effect in October 2012, after the application to enter the Small Starts program had been submitted.

Currently, and during the review period by the FTA, the counties are working on a memorandum of agreement that would allow for additional planning and environmental work to continue. This is to complete the planning phase, and environmental work, that are still outstanding so the project can receive a Finding of No Significant Impact, meaning there are no significant environmental impacts as documented in the AA/EA. Additionally, the MOA will also contain a modified split in the costs between the counties to complete the planning, environmental and subsequent engineering work. Fairfax County's commitment under the old

MOA and environmental phase was 20 percent, with Arlington County covering the remainder. Fairfax County's commitment for capital and operating expenses will be determined at a future date. The MOA was approved by the Fairfax County Board of Supervisors in July 2013.

Updates on the Columbia Pike Streetcar project can be found on the following link: http://www.columbiapikeva.us/streetcar-transit

e. Richmond Highway Widening through Fort Belvoir

Richmond Highway will be widened to six lanes between Telegraph Road and Mount Vernon Memorial Highway (approximately 3.4 miles, including the segment within Fort Belvoir). The project will include intersection improvements and provisions for bicycles, pedestrians and current transit; right of way will be reserved for future high-quality transit. The Federal Highway Administration completed National Environmental Policy Act compliance through preparation of an Environmental Assessment, with Fairfax County preparing Preliminary Engineering documents in support of the EA. The Design-Build project, administered by FHWA in cooperation with the county, VDOT and U.S. Army Garrison Fort Belvoir, issued a Request for Qualifications in April 2012 and issued a Request for Proposal for a design/build contract to qualified contractors upon completion of the NEPA documentation (July 2012). The Design-Build contract was awarded in April 2013. Target completion of the project is mid-2016.

f. Roadway Improvement Program and Four-Year Transportation Program

In 2004 and 2007, voters approved bond referenda totaling $165 million for roadway, transit, pedestrian and bus stop improvements throughout Fairfax County. Approximately $71 million in bond funds were directed to roadway improvements, and the county initiated a Four-Year Transportation Program. In addition, funds raised through the Commercial and Industrial Revenue Tax are utilized for transportation and transit improvement projects. Significant bond and C&I funds have been utilized to supplement federal and VDOT-managed projects in order to move them to construction. These include the Stringfellow Road widening, the Fairfax County Parkway/Fair Lakes Parkway/Monument Drive interchange, Route 29/Gallows Road intersection improvements, Centreville Road widening and BRAC-related roadway improvements, such as the extension of Mulligan Road and widening of Telegraph Road.

Through FY2013, all major and spot roadway improvement projects noted in the first 4YTP, managed by the county, have been completed. Of the major and spot roadway improvement projects noted in the second 4YTP which are managed by the county, two have been completed and six are

under design. Lorton Road, the largest of these projects, is scheduled for bid advertisement in October 2013. Additionally, five major and spot roadway improvement projects, funded by C&I revenue, are currently under design, four are under construction and three are complete

The first 4YTP (2004 to 2007) included several major roadway projects that are being managed by VDOT, which are not yet complete. The Beltway Express Lanes project was completed in December 2012; the Route 29/Gallows Road Intersection Improvement was completed in November 2012; the Stringfellow Road widening project is under construction and is scheduled for completion in December 2014.

The second 4YTP (2008 to 2011) included three VDOT-managed projects that are still in construction: the Springfield Interchange Phase VIII (part of the Beltway Express Lanes project) was completed in December 2012; the Telegraph Road interchange (part of the Woodrow Wilson Bridge project) was completed in March 2013; and the Fairfax County Parkway/Fair Lakes Parkway/Monument Drive interchange project was nearing completion as of the date of preparation of this report.

6. Mitigation of Highways to Wetlands and Streams[27]

Due to the linear nature of highway construction projects, the presence of environmental resources varies from project to project. Impacts to stream and wetland resources on a given project are minimized to the extent feasible. For unavoidable impacts, federal/state water quality laws and regulations may require compensatory mitigation. Wetlands creation is one form of compensatory mitigation for wetland impacts. For stream impacts, stream restoration is a compensatory mitigation; natural stream channel design principles are utilized to the extent possible

Within Fairfax County's watersheds, VDOT has created approximately eight acres of wetlands (seven acres non-tidal and one acre tidal) and restored 2,635 linear feet of streams as compensatory mitigation for unavoidable construction project impacts. These were from the Fairfax County Parkway, the Route 28 widening, the Roberts Parkway bridge overpass, the Springfield Interchange Improvements, the Route 29 bridge replacement over Big Rocky Run, the Richmond Highway widening and the Woodrow Wilson Bridge Replacement. On the recently completed I-95/ Telegraph Road interchange improvement project, VDOT finished creation of 1.71 acres of tidal wetlands and 0.63 acre of non-tidal wetlands near the confluence of Taylor Run and Cameron Run (in the City of Alexandria). Additionally, 0.36 acre of stream restoration of relocated tributary to Cameron Run was completed. As required under the water quality

[27] Ibid, VDOT 26

permits authorized for this project, these mitigation sites will be monitored for five years to ensure their successful establishment.

On April 10, 2008, the Environmental Protection Agency and the U.S. Army Corps of Engineers jointly issued a Federal Mitigation Rule giving preference first to mitigation banks, second to in-lieu funds and third to permittee-responsible mitigation as compensatory mitigation for minor impacts to aquatic resources. The Virginia Department of Environmental Quality also recognizes this preference hierarchy presented in the rule. VDOT now purchases wetland and stream credits from approved mitigation banks to compensate for unavoidable impacts to wetlands and streams in lieu of constructing mitigation sites. To date, VDOT has purchased slightly more than 30 wetland mitigation credits and 2,085 linear feet of stream credits.

County staff has previously expressed preferences for compensatory mitigation to be within Fairfax County; however, the opportunity for VDOT to purchase approved credits is limiting. The county can explore strategies with federal and state regulators for establishing mitigation banks to sell approved credits for public works projects.

Since 1990, VDOT has been meeting its stormwater requirements by treating 858.55 acres of impervious road surface area through a system of 190 stormwater basins throughout the county. This acreage for treatment is expected to increase when new stormwater regulations become effective in 2014.

E. THE INTERRELATIONSHIP BETWEEN LAND USE AND TRANSPORTATION

The above sections presented “Land Use” and “Transportation” as separate environmental issues. The focus of this section is on the interrelationship between land use and transportation. Throughout this chapter, three fundamental challenges are addressed:

- The county is rapidly approaching build-out and is transitioning from a growth focus to redevelopment.
- The county transportation systems are strained by congestion and getting further constrained by sprawl beyond the county.
- The county will continue to grow in population and prosperity, putting more pressures on the environmental quality and quality of life, which are underpinnings of that growth and prosperity.

The concentration of development according to the Concept Map for Future Development necessitates that land use and transportation planning and policies evolve and interrelate together. New places will need to provide residential, commercial and transportation options for more people, under challenging constraints, while increasing environmental stewardship. These places will enable future growth through denser and mixed use development, efficient transportation options, such as Metrorail and HOV and lifestyle options such as telecommuting and flex-work.

Throughout the world there are examples of large cities that have managed to continue growing without sacrificing the environmental quality that we treasure. But to do so requires sophisticated planning that combines many facets of the community. Conversely, when land use and transportation decisions are made in isolation, they will exacerbate the problems of build-out and congestion and negatively impact quality of life.

Growth/ redevelopment is a long term process. Planning is the first step, and the county has made great progress improving the tools and processes for decision making and bringing systems into near-real time thought the GIS. The next step is the laws governing development through the zoning ordinance. The ordinance needs to be continually updated to incorporate new technologies and better practices for building high quality and efficient structures. This includes standardizing practices, such as Transportation Demand Management proffers, and incorporating urban focused zoning regulations, such as maximal parking restrictions in transit station areas. The final step is active encouragement of development where it is most appropriate.

Fairfax County's role in the redevelopment and reinvestment of the older commercial areas specifically supports environmental goals by reusing previously developed land, utilizing and enhancing existing services and utilities, and reducing development pressure on the county's remaining greenfields. Redevelopment provides an opportunity to replace or upgrade existing land uses and transportation networks with modern efficient systems that often have less environmental impact. The Comprehensive Plan and the Sustainable Development Policy for Capital Facilities provide guidance for incorporating the U.S. Green Building Council's LEED® standards in the design and construction of buildings and landscapes. These encourage efficient use of energy and water resources to minimize short and long term impacts on the environment and building occupants.

1. Zoning Ordinance Amendment Work Program

In the past, EQAC focused on planning, but zoning is an important factor in the overall development process. Zoning defines the requirements that affect all aspects of a development, including land use and transportation. This section reviews environmentally-focused aspects of the Zoning Ordinance Amendment Work Plan.

- Open Space. Staff is reviewing the open space definition to determine if clarification is necessary and whether the methodology used in open space calculations should be modified. Full open space credit is currently given for all stormwater ponds, but it may not be appropriate to give full credit for an unenhanced dry pond, as these facilities are generally considered undesirable from a usable open space and visual perspective. In addition, staff is considering requiring more detailed information on the type and location of the proposed open space in conjunction with zoning application and site plan submissions.

- Planned Development Districts. A number of issues pertaining to the planned development districts are under consideration, including additional submission requirements to obtain more detailed information on the existing site, proposed development and the surrounding area. In addition, the purpose and intent sections and general and design standards would be modified to place a greater emphasis on environmental protection and tree preservation.

- Parking Reductions in Transit Oriented Areas. In order to reduce energy consumption, improve air quality, reduce the amount of impervious surfaces and encourage the use of mass transit, there is an item on the 2013 Priority 1 ZOAWP to consider applying parking maximums and a reduction of the minimum parking requirements due to transit oriented areas and/or transportation demand provisions. This item has been addressed in the Tyson Corner area with the adoption of the new Planned Tysons Corner Urban District on June 22, 2010 and will be addressed in other areas as part of the PDC and PRM District Amendment that is tentatively scheduled for public hearings in early 2014.

2. Encouraging Redevelopment and Revitalization

The Comprehensive Plan recognizes that reinvestment in communities is necessary to maintain their vitality. The Fairfax County Office of Community Revitalization facilitates strategic redevelopment and investment opportunities in older commercial activity centers and across the county. In general, recent revitalization plans support compact, walkable, mixed-use centers which reduce the need for automobiles, increase access to transit and support other modes of transportation like bicycling and walking. For more information, go to www.fcrevit.org. Much of the discussion below regarding revitalization projects has been taken from this website and from guidance provided to EQAC directly from OCR.

3. Revitalization Projects

Tysons Urban Center

By 2050, the 2,100 acre Tysons Urban Center will be transformed into a walkable, sustainable, urban center that will be home to up to 100,000 residents and 200,000 jobs. Tysons is envisioned to become a 24-hour urban center where people live, work and play; where people are engaged with their surroundings; and where people want to be. There are economic costs and benefits associated with the redevelopment of Tysons; there are also non-monetary benefits such as cleaner air, better water quality, sustained economic vitality and improved quality of life that will result from the implementation of the Tysons vision. To achieve this vision, it will be necessary to implement strategies that will reduce resource use and dependency, decrease detrimental environmental impacts and enhance the environment. Effective land use and transportation policies create the basic foundation for the sustainable Tysons, and redevelopment efforts will provide opportunities to build upon this foundation.

The concept of transit-oriented development is being promoted for Tysons. TOD is a land use pattern which emphasizes compact, dense, walkable neighborhoods focused around transit stops. National studies have shown that TOD provides increased transit ridership. TOD also improves the efficiency and effectiveness of transit service investments significantly and has proven to lower annual household rates of driving for those living, working and/or shopping within transit station areas. By providing safe and easy pedestrian access to transit, TOD has produced lower rates of air pollution and energy consumption. TOD can also reduce rates of greenhouse gas emissions. Further, aggressive transportation demand management programs, including parking management, are critical to achieving goals in the reduction of vehicle miles traveled.

The redevelopment of Tysons is being pursued in a manner that should reduce greenhouse gas emissions in accordance with the Cool Counties Climate Stabilization Initiative adopted by the Fairfax County Board of Supervisors. Innovative energy efficiency and conservation strategies are being incorporated into all redevelopment projects. Tysons has a unique opportunity to become a leader in environmental stewardship through protecting and improving the existing man-made and natural environments. Improvement through enhanced stormwater management and promotion of green buildings and a green network of parks and open spaces will all contribute to this stewardship.

Stormwater Management - The Fairfax County Comprehensive Plan calls for the use of Low Impact Development techniques such as rain gardens, vegetated swales, porous pavement and vegetated roofs. It also calls for the retention of the first inch of rainfall on-site and for stormwater management measures equivalent to the current LEED stormwater design credits.

Green Buildings - The Plan calls for all new residential buildings to achieve LEED certification, or an equivalent green building standard. Office and other nonresidential buildings are expected to achieve the higher standard of LEED Silver or equivalent.

Green Network - As new development occurs, a variety of urban parks, plazas, open spaces and recreational facilities will be created. These will be connected by a "greenway" - a network of trails for pedestrians and bicyclists. The park plan includes a central signature park, a large multipurpose park, multiple urban parks, stream valley parks and trails.

Policies, experiences and lessons from Tysons are anticipated to be used as models for other portions of the county.

Tysons Partnership

In 2010, OCR worked with stakeholders in Tysons to form the Tysons Partnership. The Tysons Partnership is dedicated to an inclusive and collaborative process to achieve the successful redevelopment of Tysons into a pedestrian-oriented and economically vibrant urban place. The Tysons Partnership is a membership organization representing employers, landlords and developers, retail and hospitality representatives and resident organizations; it also has non-voting participation from the county, professionals/consultants and neighborhood organizations. The Tysons Partnership is organized into six councils: Marketing and Branding; Transportation; Public Facilities and Community Amenities; Urban Design and Planning; Finance; and Sustainability Initiatives. Since its incorporation in 2011, the Tysons Partnership has continued to focus efforts on transportation (circulator, grid of streets), transportation infrastructure financing, urban design and the provision of public facilities.

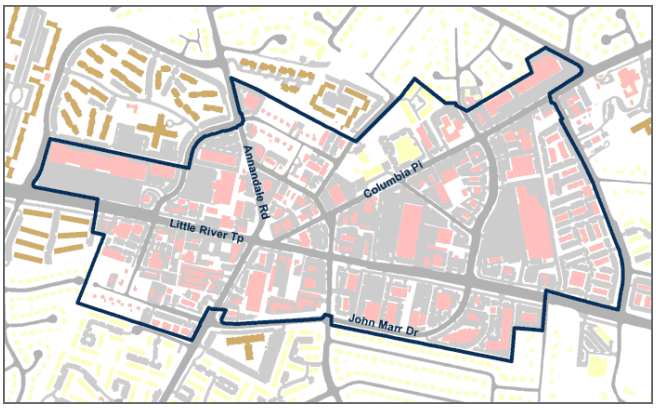
Tysons Corner Urban Design Guidelines

In January 2012, the BOS endorsed the Tysons Corner Urban Design Guidelines that provide area-wide recommendations to transition from an auto-oriented suburban location into a cohesive, functional, pedestrian-oriented and memorable urban destination. Grounded in the Comprehensive Plan core principles, the guidelines address the pedestrian realm, building and site design and interim conditions to define distinct identities and characteristics for the various neighborhoods. The guidelines have been used successfully by each of

the pending and approved applications to inform the siting, building design and master planning of each project.

As projects move into the site planning phase, OCR is reviewing site plans for conformance with the urban design elements of the proffered development plans, including streetscapes, building design and materials, site furnishings, signage, street lighting and other pedestrian realm elements.

Annandale CRD



The 200 acre Annandale CRD is located around the junction of Columbia Pike and Route 236. The Annandale business core is a culturally diverse hub that contains more than two million square feet of commercial space, including shops, restaurants and service businesses that draw customers from throughout the Washington, D.C. metropolitan area.

Annandale Community Business Center Comprehensive Plan Amendment

Informed by previous analysis and the May 2010 Annandale Transportation Study that provided transportation plan recommendations, the Fairfax County Comprehensive Plan, adopted in July 2010, outlines several objectives related to future redevelopment of the Annandale CBC, including all of the Annandale CRD. The Plan uses a new form-based approach that provides flexibility by using building form and height to guide development instead of the more traditional floor area ratios. The land use guidance recommends a proactive and comprehensive transformation of the existing, suburban form into a walkable, urban and active mixed-use center. Innovative urban design, streetscape, placemaking and context-sensitive techniques are also included. These techniques will enhance the pedestrian presence, integrate a diversity of land uses and create a distinct built form that better relates to the streetscape. The built form will relate to a network of usable and public urban plazas and parks at a variety of scales and functions and to planned transit services and facilities. These design and transportation elements will contribute to and establish a cohesive and unique identity; together they will support revitalization efforts in Annandale.

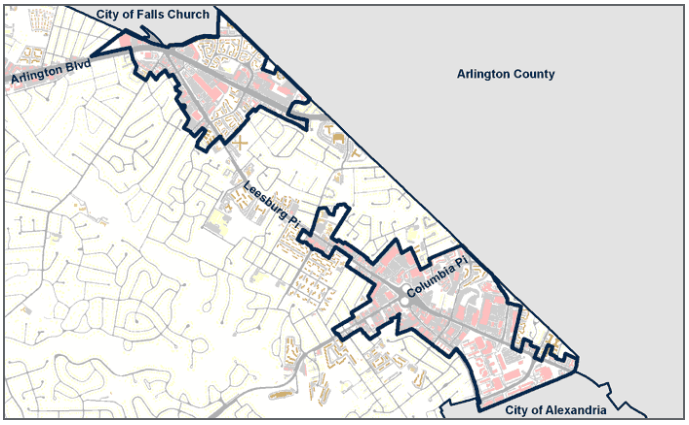
Annandale Urban Design Guidelines

In May 2011, OCR, in collaboration with the Annandale Central Business District Planning Committee, produced the Annandale Urban Design Guidelines

to provide design direction to enhance the visual quality of the Annandale CBC. The guidelines will be primarily used by an owner or developer of a property within the CBC who is considering developing a new building or improving an existing building. The organization of the guidelines corresponds to the two elements of Plan's urban design concept: 1) Building and Site Design; and 2) Streetscape Design. The guidelines expand upon the urban design concept by breaking down these two elements into their individual components and by providing specific design suggestions for incorporating each component into development proposals.

The guidelines conclude with a list of resources that should be referenced during the design, development review and permitting processes.

Baileys Crossroads/Seven Corners CRD



The 700-acre Baileys Crossroads/Seven Corners CRD is located at the eastern edge of Fairfax County. The Baileys Crossroads/Seven Corners CRD includes two dynamic business centers which capitalize on their close proximity to Arlington County, the City of Alexandria and downtown Washington, D.C. Commercial and retail activity is concentrated along Columbia Pike (Route 244) and Leesburg Pike (Route 7). The core of the district includes Skyline Center, national chains and a diverse array of locally owned stores and restaurants. Neighborhoods of single-family homes and apartments house the diverse population. Great redevelopment opportunities exist for Baileys Crossroads and Seven Corners; a more urban character that is more pedestrian and transit-accessible is envisioned.

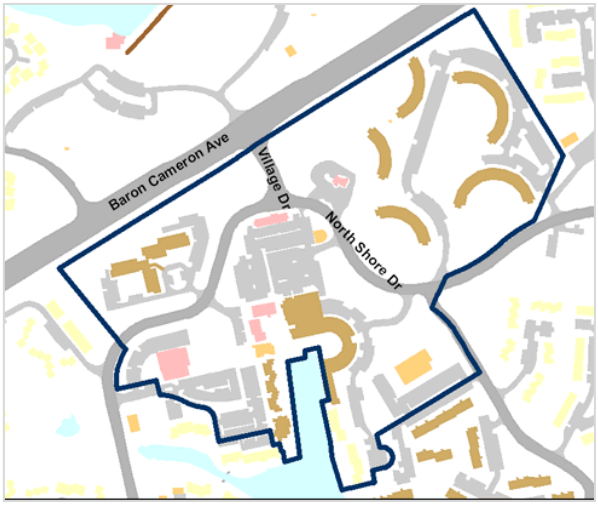
<u>Baileys Crossroads Community Business Center Comprehensive Plan Amendment</u>

On July 13, 2010, the Board of Supervisors approved the Baileys CBC Plan Amendment, which covers approximately 530 acres, including portions of the CRD. This Plan Amendment sets forth a concept for future development that encourages a transition from a predominately retail environment to one that balances retail, office, residential, civic uses and open space. The plan also supports redevelopment of a "Town Center" to take advantage of the proposed transit stops for the Pike Transit route from the Pentagon to Skyline. The recommended transportation improvements are intended to balance land use with infrastructure and to provide intermodal connectivity. Guidance regarding open space and urban design is also provided in the new plan.

Seven Corners

Fairfax County is undertaking a re-assessment of the Seven Corners area. A planning process is under way that provides the community with an opportunity to develop a vision for the future and to formulate recommendations and strategies for achieving the vision. After a series of public workshops in spring 2012, the Mason District Supervisor's office formed a community Task Force in fall 2012 to assist in the development of recommendations. It is envisioned that these recommendations will ultimately be incorporated into the Comprehensive Plan. The Task Force is expected to complete its final land use and transportation recommendations by spring 2014.

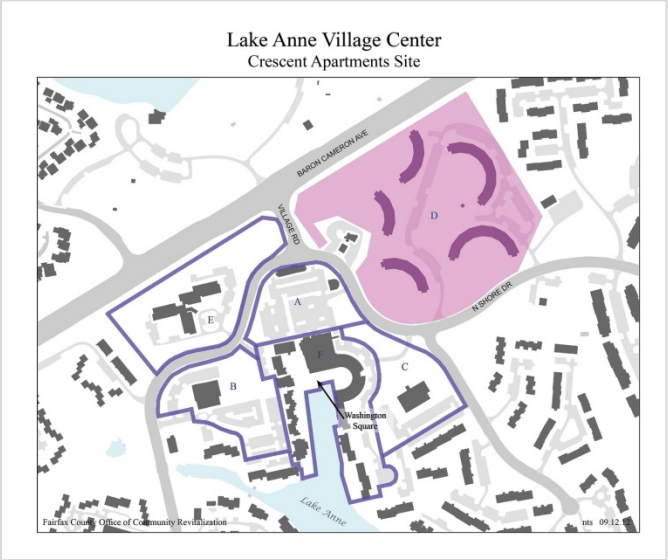
Lake Anne Village Center CRA



The 45-acre LAVC CRA, which includes the Historic Overlay District, is bounded by Baron Cameron Avenue (Route 606) to the north, Lake Anne to the south, North Shore Drive to the west and Moorings Drive to the east.

Crescent Apartments Property Redevelopment

The 16.5-acre Crescent Apartments property is located within the LAVC CRA on Cameron Crescent Drive. In February 2006, the county purchased the Crescent property as part of the efforts to encourage and guide the revitalization of the LAVC and to preserve affordable housing. In 2009, the Board of Supervisors adopted an amendment to the Comprehensive Plan that provides guidance on the mix of uses and intensities recommended to foster the redevelopment of the LAVC.



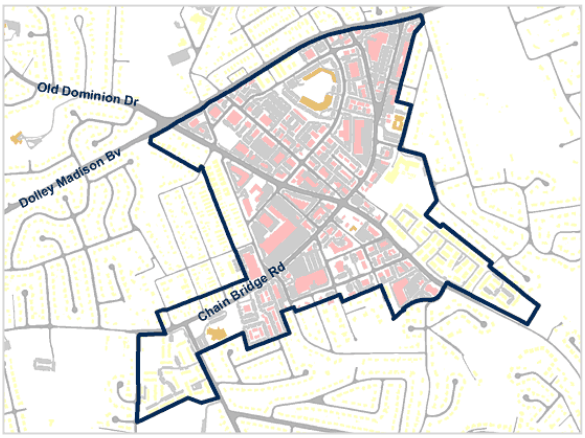
On February 9, 2012, the county released a Request for Proposal under the Public-Private Education and Infrastructure Act of 2002 for the redevelopment of the Crescent Apartments property. The RFP encouraged potential offerors to partner with owners of adjacent land units within the LAVC to achieve a comprehensive redevelopment plan that aligns with the vision as set forth in the Comprehensive Plan, including the preservation of affordable housing,

the creation of additional workforce housing and an innovative development that would serve as a catalyst for the revitalization of the LAVC. It is anticipated that a developer will be selected in 2013, followed shortly thereafter by a zoning application to effectuate implementation of the vision for the LAVC.

Commercial Reinvestment Plan

Completed in April 2011, the Commercial Reinvestment Plan provides short and long term reinvestment strategies for LAVC non-residential uses, which are intended to increase the viability of the LAVC as a mixed-use center and to facilitate the longer-term community goal of redeveloping the property adjacent to Washington Plaza with compatible mixed-use development. CRP recommendations pertaining to administration, organization and marketing events and promotions are being successfully implemented by stakeholders.

McLean CRD



The 265-acre McLean CRD is centered at the intersection of Chain Bridge Road and Old Dominion Drive in Fairfax County, Virginia.

McLean Utilities, Streetscape, and Gateway Signage

Focused around the key intersection of Chain Bridge Road and Old Dominion Drive, the McLean Utilities project will remove overhead utility lines along Chain Bridge Road to Laughlin Avenue, and extending along Old Dominion Drive to Center Street. In 2013, the ductwork and installation of utility provider cable was completed. The utility providers are in the process of changing over services to the underground system and removing the overhead lines and poles. The project, which will improve the physical character and reliability of service within the McLean CRD, is anticipated to be complete in 2013.

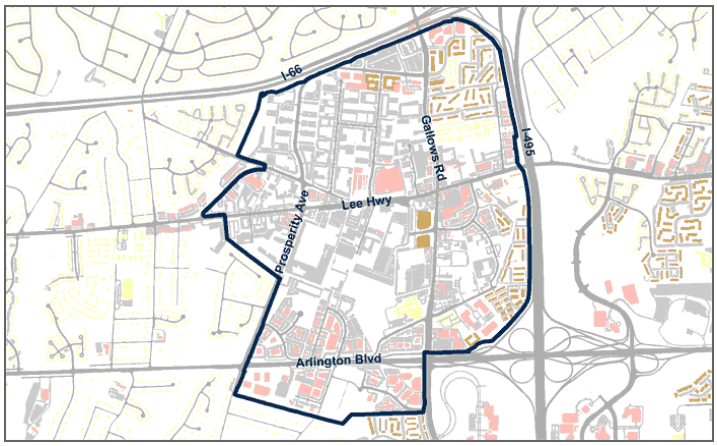
The McLean Streetscape Project, along Chain Bridge Road from Redmond Drive to Curran Street, is being coordinated with the Chain Bridge Road Corridor Enhancement Project, which will redesign the Chain Bridge Road/Old Dominion Drive intersection and construct pedestrian and streetscape improvements; it is also being coordinated with the McLean Signal Replacement Project. Anticipated to be completed in 2015, the streetscape projects will include new pavers, lights and landscaping, all in accordance with the McLean Design Standards. New mast arms and signals, which will be installed at the intersection of Chain Bridge Road and Old Dominion Drive, as part of the McLean Signal Replacement project, are now under design.

Current Conditions

McLean Utilities and McLean Signal Replacement Projects Concept

The installation of a of a McLean gateway sign, and landscaping within the median along Old Dominion Drive at the entrance to the McLean downtown Area, are also anticipated to be complete in 2013.

Merrifield CRA



With the Dunn Loring-Merrifield Metrorail station and regional and local access from I-66, I-495, Route 29, Route 50 and Gallows Road, the 775-acre Merrifield CRA is one of the most centrally located and easily accessible areas in Fairfax County.

<u>The Merrifield Suburban Center</u>

On June 11, 2001, the Board of Supervisors adopted an amendment to the Comprehensive Plan that created the Merrifield Suburban Center. The vision for the Merrifield Suburban Center includes two core areas: one focuses on development near the transit station and the second a town center south of Route 29. A new “Main Street” would connect the two core areas.

Merrifield is envisioned to be a thriving mixed-use area attracting new residents, while also supporting the surrounding existing neighborhoods. This evolution is under way as recent mixed-use developments have brought additional residential, retail and office space while also providing amenities such as improved pedestrian connections and open space with the construction of several projects near the Dunn-Loring Metro Station. These include Halstead II, Avenir Place, Square 1400 and Vantage. On April 27, 2009, the board

created the county's first Community Development Authority for the proposed Mosaic at Merrifield development.

Mosaic District CDA

In 2011, OCR continued to lead a county staff and consultant team that partners with the developer (Edens) of the Mosaic at Merrifield development. The Mosaic District CDA is the first and only CDA in the county.

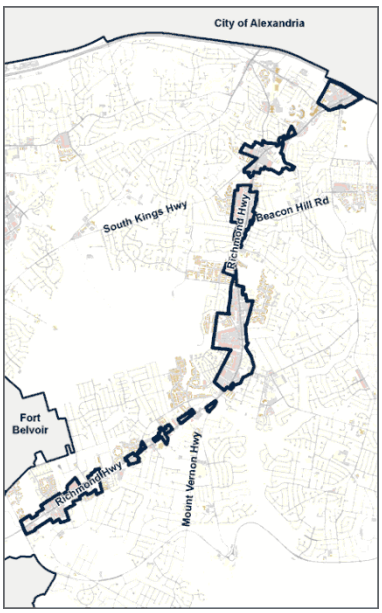
In June 2011, bonds were sold to:

- Fund a 30 million dollar portion of the public facilities to be constructed on the site through a 30-year bond to be issued by the CDA, whose debt service will be paid by a self-assessment.
- Fund a 42 million dollar portion of the public facilities to be constructed on the site (road improvements, parks and a small portion of the parking garage) through a 22-year bond also issued through the CDA whose debt service will be paid through incremental real estate tax revenues. Liability for the debt service will be secured by the CDA, not the county.

Construction of the first phase of the project was completed in fall 2013 with the successful opening of an urban-model Target, a movie theatre, a hotel, a variety of retail, a new park and townhomes. Second and third phases of the project are currently under construction and include apartments, condominiums and additional retail.

Richmond Highway Corridor CRD

The Richmond Highway CRD is located along a 7.5-mile segment of Richmond Highway from the Capital Beltway in the north to Fort Belvoir in the south. The Richmond Highway CRD, which encompasses 700 acres, is not continuous; it consists of six CBCs which include: North Gateway; Penn Daw; Beacon/Groveton; Hybla Valley/Gum Springs; South County Center; and Woodlawn. Each commercial area can generally be characterized as predominately local-serving retail, with a mix of stand-alone retail as well as strip commercial centers.



Southeast Fairfax Development Corporation

Since 1981, the SFDC has had a Memorandum of Understanding with the Fairfax County Board of Supervisors; the MOU outlines the goals of the SFDC and the terms and conditions for its receipt of funds from the BOS. The SFDC is a public/private non-profit economic development corporation established to guide and assist businesses with locating or expanding onto the Richmond Highway corridor and to work with county efforts to facilitate revitalization of the Richmond Highway corridor. The SFDC is focused on three key areas: marketing; economic restructuring; and urban design.

Penn Daw Comprehensive Plan Amendment

On April 10, 2012, the BOS adopted an amendment to the Comprehensive Plan for a 15-acre land area west of North Kings Highway and south of School Street, as well as the adjacent triangular-shaped land area located east of North Kings Highway and west of Richmond Highway.

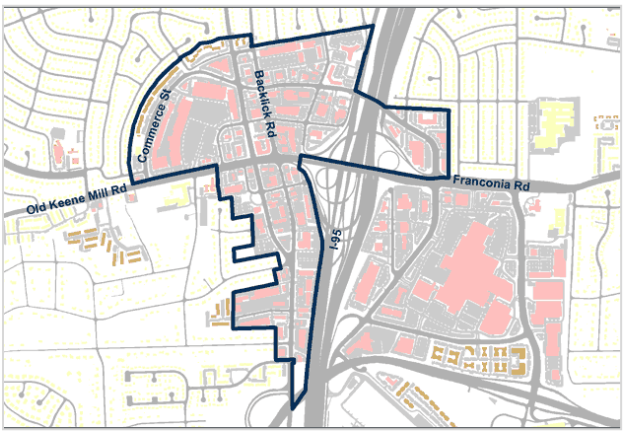
The amendment added an option that provides for a maximum of 735 dwelling units and a minimum of 40,000 square feet of retail. The redevelopment option supports the goal of directing growth along the corridor of the CBC and limits commercial encroachment into the surrounding stable neighborhoods. The BOS adopted another amendment to the Comprehensive Plan for the Penn Daw CBC on December 10, 2012, for the parcels bounded by North Kings Highway, North Shields Avenue and Jamaica Drive (except for a few parcels on Richmond Highway at the northeast portion of the land-unit) that provides an option for mixed-use development up to 1.8 FAR.

As a result of these Plan amendments, three rezonings have been filed; two have been approved by the BOS and one is pending. The City View project, located at North Kings Highway and Poag Street, was approved on July 7, 2012 for 245 multi-family residential dwelling units. This project is currently under construction. Across the street from the City View project where the Fast Eddies restaurant is located, is the site of the Grand at Huntington project. The BOS approved the rezoning on June 4, 2013, which will result in the redevelopment of the existing retail uses and four single-family homes into 275 multi-family dwelling units and 18,000 square feet of retail. The third rezoning is for the Penn Daw Shopping Center. The applicant seeks to redevelop the existing 132,000 square foot shopping center with 397 multi-family and 34 townhouse dwelling units and 31,000 square feet of retail for a total FAR of 1.4 over the 10.45 acre site.

The Beacon at Groveton development opened in September 2012. It contains 290 multi-family dwelling units and 10,000 square feet of retail, and there is a later phase of office development planned. Currently, approximately 50 percent of the residential dwelling units have been leased. This development represents

the first mixed-used development of its type to occur on the Richmond Highway Corridor.

Springfield CRD



The 250-acre Springfield CRD consists of a variety of retail, commercial, office and residential activities clustered at the Franconia Road - I-95 Interchange, accessed via the Old Keene Mill Road, Backlick Road and Commerce Street roadway network. The rebuilt I-95 Interchange, ramps and Metro access at the Franconia-Springfield Transit Station provide the Springfield CRD tangible market benefits attributed to its prime location and regional transportation advantages.

New vision and redevelopment opportunities were adopted in the Springfield Connectivity Plan Amendment, which was approved in January 2010. The Comprehensive Plan changes included raising planned land use intensities within the CRD to spur redevelopment, new transportation infrastructure improvements and detailed guidance with respect to urban design, streetscape and placemaking concepts. The transformation of the central business area into a walkable village town center convenient to well-located and maintained neighborhoods continues to advance.

A number of older and/or vacant retail structures have been removed and replaced with new uses or updated structures, such as a Homewood Suites as well as a new commuter parking facility. In coordination with the Lee District Supervisors Office and the Greater Springfield Chamber of Commerce, a number of pedestrian improvements are being made to increase the safety and functionality of roadways in the CRD, including providing a pedestrian refuge area across Commerce Street, correcting safety concerns at two intersections, improving trail connections for bicyclists and replacing non-compliant bus shelters.

<u>Springfield Mall</u>

Redevelopment plans to transform the Springfield Mall into a mixed-use town center were approved by the Board of Supervisors in 2009. The first phase of construction is currently under way and includes: renovation of the interior retail

space; significant structural changes to the exterior façade facing Loisdale Road; repair and improvement of existing surface and structured parking; and improvements along Frontier Drive to improve pedestrian, bicycle and vehicular movement between the Mall and the Franconia-Springfield Metro Station.

The projected 20-year build out of the approximately 80-acre site includes the renovation of the 2.1 million square foot Springfield Mall as well as the addition of over 2,000 residential units, office, retail and hotel uses throughout the site. The vision for the Springfield Town Center is for a walkable community where people can live, work, shop, and enjoy entertainment and community activities.

4. Region Forward Coalition

In 2011, the Metropolitan Washington Council of Governments' Board of Directors established the Region Forward Coalition to replace the Metropolitan Development Policy Committee. The coalition is charged with the implementation of the goals, targets and indicators of the Region Forward report. That report sets forth regional goals, a compact agreement and targets and indicators to measure success related to accessibility, sustainability, prosperity and livability. The coalition is comprised of: elected officials from each of COG's member local governments; senior local government staff members; and representatives of business, civic, advocacy and philanthropic organizations.

During calendar year 2012, the region's planning directors and the Region Forward Coalition worked to complete the new regional map of activity centers. This was the second major update to the centers map, which was last approved in 2007. The previous map was the technical basis for several targets to support Region Forward – specifically the amount of commercial and residential development foreseen in the centers – and is widely used by the Transportation Planning Board and other key transportation partners in the region such as WMATA. The new Activity Centers map was adopted by the COG Board in January 2013 and identifies a total of 141 centers, including 26 in Fairfax County. COG staff, a consultant team and members of the Region Forward Coalition are also currently completing work on the Activity Centers Strategic Investment Plan which analyzed 95 of the centers to develop place and people typologies and recommendations.

The new activity centers map is available at: http://www.mwcog.org/store/item.asp?PUBLICATION_ID=455.

In February 2013, the planning directors and the Cooperative Forecasting Subcommittee completed the compilation of the draft Round 8.2 Cooperative Forecasts of employment, population and household growth to 2040. The draft 8.2 Forecasts will be used by the National Capital Region Transportation Planning Board in this year's Air Quality Conformity Analysis of the

Financially Constrained Long-Range Transportation Plan and Transportation Improvement Program.

5. Summary

Ensuring that the activity centers are vital and that they attract investment and growth is critical to the success of Fairfax County's growth strategy. This is reflective of concern for sustainability and efficiencies in the provision of infrastructure and facilities and consistent with the Washington Council of Governments' Region Forward 2050 plan.

Fairfax County is expected to increase both population and jobs by about 225,000 over next 20 years, and new infill development and redevelopment will be much more complicated to effectuate than the initial development within the county. There will be changes imposed on existing residents and businesses and impacts that are both real and perceived. By continuing to integrate land use, transportation and sustainable planning, the county can change and grow without sacrificing our quality of life.

F. ACCOMPLISHMENTS

As the chapter authors have participated in land use and transportation discussions over the past 10 years, the county has continuously impressed us with consistency, foresight and progress in the face of economic and political challenges. While there is still much to be done, we are pleased to recognize that several recommendations have been completed at the same time that several very long term projects are coming to fruition.

1. State of the Plan and the Evolution of Fairfax

EQAC has long advocated for an update to the *State of The Plan, An Evaluation of Comprehensive Plan Activities between 1990-1995 with an Assessment of Impacts through 2010* (published in 1996). The update was published this year. Notable is the process by which data were gathered for the report using applications that leveraged IPLS and GIS. This report summarizes the changes to Plan potential that enables the county to continue growing beyond build-out.

In 2012, the Chairman of the Board of Supervisors, the Fairfax Federation and the Chamber of Commerce hosted a fascinating lecture series on the Evolution of Fairfax: changes to the county in the past, present and the future. The series is available for replay at: http://www.fairfaxcounty.gov/chairman/evolution.htm.

In 2013, the same hosts followed with an Evolution of Transportation evening. Together, the events provide a valuable archive and prediction of the future for

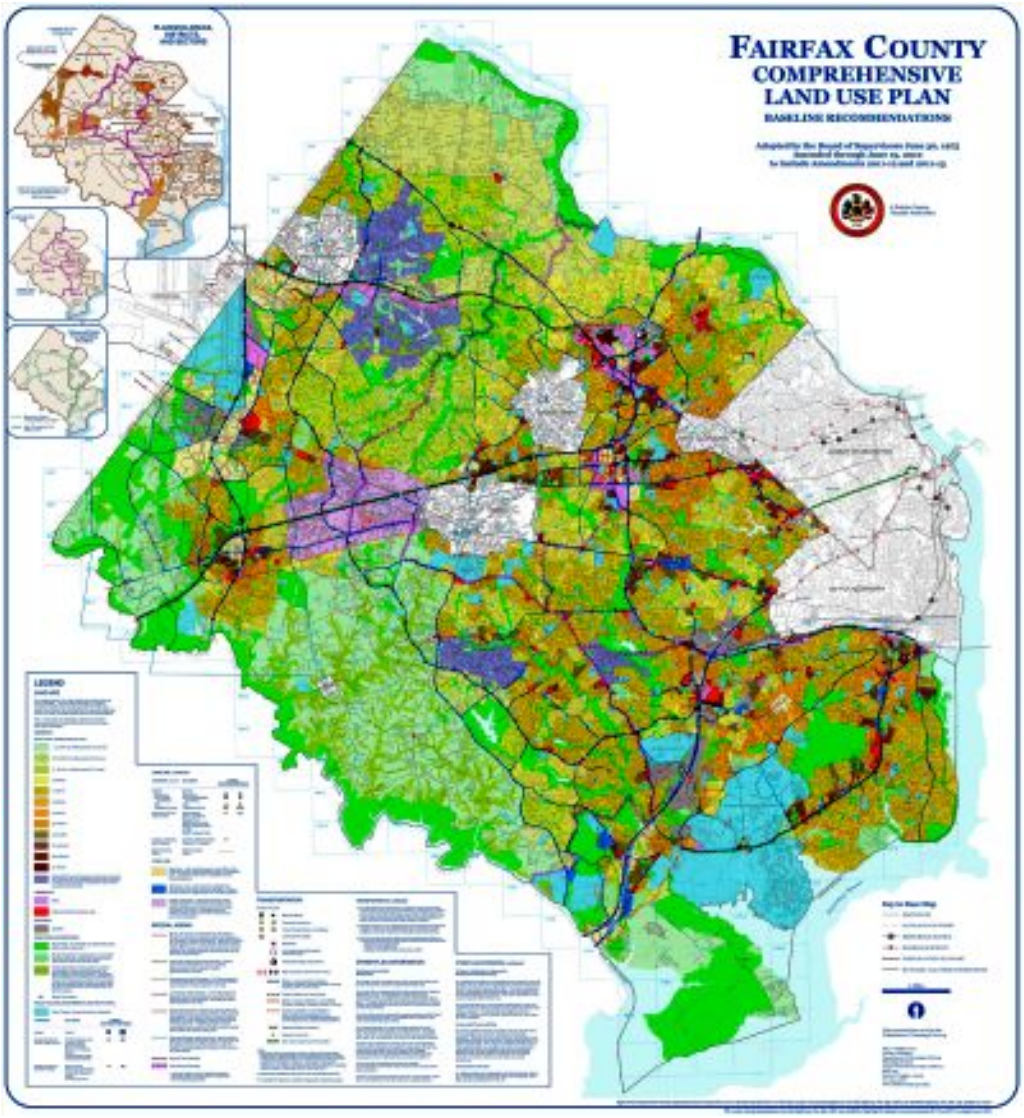
land use and transportation in Fairfax County. The evening is available for replay at:
http://www.fairfaxcounty.gov/chairman/evolution-of-transportation.htm

2. Update to the Comprehensive Plan Map

The Comprehensive Plan map was updated by the Board of Supervisors on June 19, 2012 and is available on the Internet at:
http://www.fairfaxcounty.gov/dpz/comprehensiveplan/compplanmap.htm.

A copy of this map is shown as Figure II-8.

Figure II-8. Comprehensive Plan Map



Last year, EQAC recommended that changes to the Comprehensive Plan be quickly incorporated on the Plan map. This update and the timely publication of approved amendments make it easier and faster to find the latest information about the Comprehensive Plan. The Plan map is now an electronic document, and it will be updated on-line as amendments to the Plan are adopted.

3. Merrifield Town Center Opening

This year saw the Merrifield Town Center continue to expand. The first concept planning for the new projects occurred nearly 18 years ago as a mixed-use transit oriented barbell. The new Mosaic development along with the Halstead Complex and the Trammel Crowe development at Dunn Loring Metro are the anchors for an exciting community. EQAC commends the county and its partners for revitalizing this community from a sleepy intersection into a modern transit oriented development.

4. Green Buildings

The county is becoming a leader in building green buildings and has adopted Comprehensive Plan policy that includes broad support for green building practices and establishes linkages between the incorporation of green building/energy conservation practices and the attainment of certain Comprehensive Plan options, planned uses and densities/intensities of development, particularly in the county's growth centers.

EQAC commends the county for its commitment to green buildings and the Sustainable Development Policy for Capital Projects that requires building to achieve LEED certification. As of May 2013, the county had a total of 31 green building projects, 14 of which attained certification (12 under the LEED program and two under the Green Globes program). The other 17 projects, all of which have a goal of LEED Silver, are in design or are under construction. In addition, the county managed the LEED Gold Virginia Department of Transportation Administration Building. We are also encouraged to see seven complete projects exceeding the sustainability goal—these were awarded LEED Gold certification. We hope that the county will further its leadership with some projects striving for Platinum certification.

G. COMMENTS AND ONGOING CONCERNS

1. Progress on Major and Mega Projects

The county continues to see progress on mega projects. These include the I-495 Express Lanes and Beltway widening, the Dulles Corridor Rail Project. EQAC has made recommendations in the past expressing concern about the complexity and interaction of these efforts and the impact on localities. To date they have

kept on schedule and will provide new options for transportation across the county. We remain concerned that all mitigations promised for these projects be completed to restore the environment to pre-construction conditions and replace the canopy that was removed during construction.

EQAC encourages continued funding for studies on improving transportation and multi-modal options within and between urban centers, especially along the Richmond Highway corridor.

2. Improve Transit Utilization

EQAC encourages the county to continue working to improve transit utilization through a systematic plan that includes multiple options within a community. For example, the Virginia Railway Express Burke Centre EZ Bus provides a convenient alternative to commuting to the Burke Centre VRE station. This can be combined with pedestrian improvements, more connector bus options and biking trails that together provide a diverse transportation plan.

3. Affordable Housing

EQAC commends the Board of Supervisors for adopting "The Housing Blueprint: A Housing Strategy for FY 2011 and Beyond." There are many land use and transportation efforts under way with significant relevance to the county's housing goals. EQAC suggests that the county:

a. Continue to expand options for affordable housing by investing and partnering appropriately in locations that will need increased affordable options as the economy rebounds.

b. Identify vacant offices and homes in locales with good transit options and coordinate with the real estate industry to aid in marketing those properties, thereby supporting new tenants with quality of life perquisites, improved commuting options and better residential/commercial or mixed use utilization.

c. Coordinate with agencies and businesses to inform prospective/new workers of opportunities for desirable commutes and local housing amenities.

H. RECOMMENDATIONS

1. Comprehensive Planning

Background

The Fairfax County Comprehensive Plan is a fundamental document for Fairfax County that has been continuously updated as the county has grown and transitioned from a rural/suburban county to a mixed-use urbanizing community. There have been two comprehensive plan reviews, first the "*State of The Plan, An Evaluation of Comprehensive Plan Activities between 1990-1995 with an Assessment of Impacts through 2010*" (published in 1996) and more recently the "*State of the Plan, An Evaluation of Comprehensive Plan Activities between 2000-2010*" (published in 2012). These documents explain the changes happening over the past 37 years and how the county has responded to the changes and expanded our potential to continue growing into the future.

In particular, the summary and conclusions of the latest report bear repeating:

Future planning challenges are likely to continue to become more complex. The Comprehensive Plan will need to balance new development and redevelopment with maintaining and improving the quality of life for all residents. In terms of the environment, improving the quality of life will include implementation of countywide stormwater management plans and recommendations. In terms of the economy, continued efforts to increase the supply of housing in activity centers are needed to improve the jobs/housing balance. Lastly, in terms of the community, challenges include continuing to extend the county's system of trails, parks and recreational facilities."

EQAC endorses the conclusions of the evaluation. EQAC also endorses efforts to focus on revitalization through the Office of Community Revitalization (established in 2007) and the Fairfax Forward project that succeeds the APR Retrospective as a new, holistic, and integrated approach to plan future development. These changes address the complexities of build-out and redevelopment and bring together the best information and tools to make wiser and more effective decisions.

Recommendations

a. The new Fairfax Forward planning process is the right step forward to update our planning practices. With Fairfax Forward being such a new process for the county, EQAC recommends that:

   (i) Fairfax Forward be identified as the preferred long term process to update with Comprehensive Plan and completely replace the APR process.

(ii) All the processes necessary to sustain Fairfax Forward be established now, rather than waiting for the current Work Program to be completed. This includes:

- The mechanisms to continuously update and improve the Fairfax Forward program.
- The process for identifying and prioritizing future work programs.
- The means of engaging the public and encouraging meaningful public participation in the program.

b. EQAC recommends that the county work to integrate social media into the planning process and other outreach efforts. This allows community participation through the Internet technologies and is more cost effective and far reaching then traditional media and outreach. The concept of a virtual town-hall meeting with community participation and instant feedback is now possible. Social media is very powerful for encouraging and educating people about alternative transportation options.

c. EQAC recommends that the county leverage the geographic information system in comprehensive planning, that GIS technology be incorporated directly into the planning process and that the use of modeling be expanded to help understand future conditions and scenarios.

d. EQAC recommends that the county continue to refine and formalize the process for revitalization, especially in mixed-use centers. There are several success stories across the county, such as Merrifield, that have been through a sustained transformation and have a wealth of lessons learned. Topics such as transportation modeling, land consolidation, public/private partnerships, mixed use development and transit connectivity apply across the county. Capturing these techniques into processes to reapply will increase the success of the new revitalization efforts. EQAC supports an evaluation of revitalization incentives and better understanding of incentive effectiveness.

e. This year EQAC submitted a resolution urging that urban design standards be applied to mixed-use centers; EQAC reiterates this recommendation. The urban standards are driving the potential in Tysons Corner and can apply equally well to all transit areas, as well as Suburban Centers and Community Business Centers. Urban standards are designed to improve the environment, quality of life, balance and safety of a well-planned mixed-use place.

2. Data and Modeling

EQAC is an advocate of the county GIS and the Integrated Parcel Lifecycle System. These applications have proven their value in understanding the county and providing quantitative information to a variety of users.

a. EQAC recommends that nonresidential data be comprehensively integrated into a GIS based life-cycle system. Residential data are effectively captured and available for many applications via the Integrated Parcel Lifecycle System. Nonresidential data exist in disparate systems, such as zoning and site planning, but have not been fully brought into the lifecycle planning process and cannot be used for applications such as forecasting or plan revisions.

b. EQAC continues to recommend that the Comprehensive Plan be reflected and modeled in the GIS. Applications such as the internal Comprehensive Plan Potential and the Comprehensive Plan Amendment applications (used to gather data for the State of the Plan report) are very useful for understanding the real time status of the Comprehensive Plan. These applications should be available to the public on the Comprehensive Plan website.

c. EQAC recommends that the county acquire new data sources and incorporate them into the business process. Planimetric data have proven to be both cost effective and transformative. The county has an opportunity to acquire multi-spectral imagery which also has the potential to greatly enhance our knowledge of the county for answering questions such as tree species identification and tree canopy density.

3. Transportation

This year the General Assembly passed legislation raising additional revenue for transportation. As the county enters a community dialogue to prioritize the allocation of these funds, EQAC recommends that the county provide priority for non-motorized/multi-modal transportation options. The county has been developing a comprehensive bicycle master plan that is ready for implementation. This complements requirements for pedestrian facilities in mixed-use centers. Proper implementation of the non-motorized/multi-modal master plan needs to include:

- Implementation of the bicycle master plan. Bicycle paths provide healthy and effective options to move about the county and between connected destinations.
- Expanded bicycle parking guidelines modeled on successful programs such as the new secure bicycle parking facilities at Silver Line stations and other county park-and-ride/transit facilities.

- Funding for implementation of both capital and non-capital elements of the county's bicycle master plan.
- Implementation of an outreach and education program for encouraging/promoting bicycling as a transportation mode. This could be called "Bike Fairfax!"
- Engagement of the private sector. One example of this can be seen in New York City, where CitiBank underwrites 100 percent of the cost of a bikeshare program. This could work today in several suburban and transit centers.

LIST OF REFERENCES

A Network of Livable Communities, Evaluating Travel Behavior Effects of Alternative Transportation and Community Designs for the National Capital Region; Chesapeake Bay Foundation and Environmental Defense Fund, 1996.

Chesapeake Bay Foundation and Environmental Defense Fund, May 1996- A Network of Livable Communities, May 1996.

Coalition for Smarter Growth, Blueprint for a Better Region--Policies for Implementing Smart Growth Solutions to Traffic Congestion in the D.C. Region http://www.smartergrowth.net/news-parent/press-releases/joint-statement-in-support-of-a-fix-it-first-jobs-first-sustainable-stimulus/

Columbia Pike Transit Initiative--Columbia Pike Transit Alternatives Analysis, July 2005 http://www.piketransit.com/downloads/PTI-Final-Rpt-Cover.pdf

E-mail from Catherine A. Chianese to Noel Kaplan, September 7 , 2011.

Fairfax County, Virginia, Policy Plan: The Countywide Element of the Comprehensive Plan, 2013 Edition.

Fairfax County, Virginia, Tysons Corner Urban Center, Fairfax County Comprehensive Plan, 2013 Edition.

Fairfax County, Virginia, Upper Potomac Planning District (Reston-Herndon Suburban Center and Transit Station Area), Comprehensive Plan, 2013 Edition.

Fairfax County, Virginia, The Merrifield Suburban Center, Fairfax County Comprehensive Plan , 2013 Edition.

Fairfax Plan Monitoring, State of the Plan, An Evaluation of the Comprehensive Plan Activities between 1990-1995 with an Assessment of Impacts trough 2010, May 1996

McLean Citizens Association, Resolution on the Dulles Corridor DEIS, August 14, 2002.

Washington Regional Network for Livable Communities, Making the Most of Metro: Community Building Through Transit, undated.

Metropolitan Washington Council of Governments, "Fairfax County and the Washington Region: A Look at Economic and Demographic Characteristics," January 2006.
Northern Virginia Transportation Commission, Northern Virginia Transit Funding Resource Guide, Revised Sept 2003.

Steven R. Suder, Memorandum to the TCC Technical Committee, Expanded Technical Committee, and Citizen Advisory Committee and attachment regarding Draft Land Use and Transportation Study, January 26, 2001.

Texas Transportation Institute, 2012 Urban Mobility Report,
at: http://mobility.tamu.edu/ums/

The Washington Metropolitan Area Transit Authority Fact Sheet at:
http://www.wmata.com/community_outreach/kids_zone/
Transportation Coordinating Council of Northern Virginia, Task Force on Land Use and Transportation, "The alternative transportation and land use activity strategies study." March 28, 2001.

Virginia Department of Rail and Public Transportation and Washington Metropolitan Transit Authority, Draft Environmental Impact Statement and Proposed General Plans for the Dulles Corridor Rapid Transit Project, June 2002.

OTHERS

Walkable Communities:
www.walkable.org/

Virginia Bicycling Federation:
www.vabike.org/