MONTGOMERY COUNTY PLANNING DEPARTMENT
THE MARYLAND-NATIONAL CAPITAL PARK AND PLANNING COMMISSION

April 9, 2007

Memorandum

To: Montgomery County Planning Board

Via: Gwen Wright, Acting Planning Director

From: Growth Policy Steering Committee
Khalid Afzal, Community-Based Planning
Melissa Banach, Strategic Planning
John Carter, Community-Based Planning
Mary Dolan, Countywide Planning
Roselle George, Research & Technology Center
Rick Hawthorne, Countywide Planning
Rose Krasnow, Development Review
Karl Moritz, Research & Technology Center

Re: Second Interim Report of the Growth Policy Study

Attached for your review is the second interim report of Planning Department Staff's work on the Growth Policy study. This report will be discussed with the Planning Board at the roundtable on April 12 for transmission to the County Council by April 15.

Second Interim Report of the 2007 Growth Policy Study

Montgomery County Planning Board

April 12, 2007

Introduction

At the direction of the Montgomery County Council, the Montgomery County Planning Board is engaged in a review of the County's Growth Policy. The Council resolution that launched the study requires two interim reports, due February 15 and April 15, and a final report due May 21, 2007. Details of the scope and direction of this study are detailed in the first interim report.

This second interim report reviews the progress made on the study since the February 15 interim report, a more detailed discussion of staff's vision for an improved growth policy, and highlights from each team's work in the past two months. The highlights include some of the team's findings, preliminary recommendations, and other materials expected to be part of the staff draft growth policy report that will be submitted to the Planning Board for review in May.

This report is organized with the following main sections:

- Progress on the Growth Policy Study Since the First Interim Report
- Executive Summary of Team Interim Reports
- Detailed Team Interim Reports

In the presentation to the Board on April 12, Team Leaders will highlight key aspects of their work, and be available to discuss these or other aspects with the Board.

PROGRESS ON THE GROWTH POLICY STUDY SINCE THE FIRST INTERIM REPORT

The Montgomery County Council's ***Planning, Housing and Economic Development (PHED) Committee*** reviewed the first interim report on March 12, 2007. The Committee requested that during the next months they be informed of growth policy-related speakers, and provided with papers, reports, or other study-related information. The Committee also identified additional material that it would like to see in the final report. A copy of the minutes of the meeting is

attached; requests by the Committee have been assigned to Planning Department staff.

Department staff finalized the schedule for the ***Growth Management Speakers Series***. This series is bringing local and national experts to speak on growth management and related issues. Most sessions are scheduled on Thursdays during Planning Board meetings, with public officials and the general public invited to attend. In addition to Jeff Speck, who spoke to the Planning Board on urban design issues in February, recent speakers have included Richard Tustian, County planning director during a period when much of the current growth policy framework was developed, and Chris Nelson, a professor at Virginia Tech who has studied growth management, infrastructure financing, and affordable housing issues. The speakers series continues through June, and a copy of the schedule is attached.

In preparation for Dr. Nelson's talk on April 5, and in response to the PHED Committee's request for relevant papers, staff reviewed ***two papers on growth management and housing affordability***; one by Dr. Nelson with Rolf Pendall, Casey Dawkins, and Gerrit Knaap; the other by Vicki Been. That review, with copies of the papers, was transmitted to the Planning Board on March 28 and to the County Council on April 2.

Department staff met with representatives of ***County Executive agencies*** to brief them on the direction that the growth policy is taking.

Staff updated and expanded ***online information*** about the growth policy study to help the public stay informed. The growth policy web pages include information about the current and past growth policy studies, the adequate public ordinance, and other background information. Staff has also briefed several ***civic, business, and other organizations*** on the growth policy. These include the Greater Olney Civic Association, the Keep Montgomery County Moving committee, representatives of the County's Chambers of Commerce, and representatives of the Maryland-National Capital Building Industry Association. Organizations and individuals are welcome to contact staff to ask specific questions or to arrange briefings.

Staff is scheduling a ***public forum*** on the growth policy. The planned format is to have a short presentation on staff's growth policy proposals followed by a panel of civic and business representatives moderated by Planning Board Chairman Hanson, and wrapping up with questions from attendees. The forum is planned for Saturday morning, May 5th; other details to be announced shortly.

Planning Board worksessions on the growth policy have been tentatively scheduled. Staff has reserved time on the Planning Board's Thursday meeting agendas on May 3, 10, and 17. A special Tuesday evening worksession has been scheduled for May 8. Worksessions are open to public participation.

Of course, each of the growth policy teams has made significant progress toward their final reports. Each team has developed preliminary recommendations on most issues. These preliminary recommendations serve as working hypotheses that allow each team to see how their proposals work with proposals from other teams, to identify additional research and analysis that may be needed, and so forth.

- The ***APFO Reform Team*** has
    - Completed its investigation of public facilities other than transportation and schools: water and sewer, police, fire and rescue, libraries, parks, and public parking facilities.
    - Reviewed and analyzed a wealth of additional material about the adequacy of Montgomery County Public Schools, including material from MCPS staff updating their 2003 report on the factors affecting school enrollment and the results of numerous options for a revised school test.
    - Made significant progress toward completing the model runs and other numerical analysis needed to evaluate options for the transportation test.
    - Explored opportunities for improving the link between the growth policy, the capital improvements program, and master plans.
    - Developed initial recommendations for revisions to the guidelines for administering the adequate public facilities ordinance.
- The ***Infrastructure Financing Team*** (formerly called the Impact Tax Team) has
    - Completed its review of the history and current structure of the County's impact tax, including comparisons to other jurisdictions and the relationship of impact taxes/fees to median housing values.
    - Reviewed statistics and other information related to the issue of apportioning infrastructure financing responsibility to growth, existing development, and other sources. This includes reviewing changes in demographics and other growth trends and estimates of "through" traffic and federal government employment growth.
    - Conducted specific analysis to support recommendations for improving the impact tax structure to meet several goals, including but not limited to generating sufficient revenues more closely match the amounts required.
    - Reviewed some alternative infrastructure financing mechanisms, particularly area-specific taxes.
    - Identified specific short- and long-term next steps to improve infrastructure financing in the County.

- The ***Sustainable Growth Team*** has
    - Continued to expand and refine the definition of sustainability, including reviewing the common themes and elements of “sustainability” as defined and applied by other jurisdictions.
    - Completed an in-depth analysis of the goals and objectives of the County’s General Plan Refinement from a sustainability perspective.
    - Analyzed past and future growth patterns.
    - Identified steps the County can take to move closer to realizing sustainable development: Principles of Sustainable Development to guide future review and revision of regulations, programs, and policies; a toolbox of initiatives to realize these principles; and indicators to provide an understanding of what is working and what is not.
- The ***Design Excellence Team*** has:
    - Addressed the qualitative methods to achieve the objectives identified in the other papers on growth management.
    - Recognized that the discussion of design excellence is limited by tools authorized by the laws and procedures established by the State of Maryland.
    - Focused the on the design excellence of streets and highways, public spaces, and the compatibility of blocks and buildings.

EXECUTIVE SUMMARY OF TEAM PRODUCTS

The four issues addressed by this growth policy study are broad and complex. At each stage of the study, staff has been progressively narrowing the focus of each team's attention to those aspects that will provide the best guidance for growth and land use planning policy in Montgomery County. Even so, the volume of information and analysis is large.

Rather than just provide a cursory overview of everything each team has been doing, this interim report contains selections from the detailed work done by each of the teams. So, for example, even though the APFO Reform Team has been working on options for modifying Local Area Transportation Review, as requested, this report addresses only our work on Policy Area Transportation Review and the public school adequacy test.

APFO Reform Team

The Montgomery County Council's growth policy study resolution directed, among other items, the Planning Board to provide analysis and recommendations on:

- reinstituting a form of Policy Area Transportation Review and
- the current test for public school facilities and alternatives to it.

This interim report focuses on these two adequacy tests.

Staff devoted a couple of pages in the first interim report to a general discussion of growth management in Montgomery County, particularly the role of the growth policy in staging the implementation of master plans. We also briefly discussed the challenge of developing measures of "adequacy" that are practical yet have real meaning. We noted that *"… attempting to quantify 'adequacy' reduces a complex set of expectations to one or two simple variables, so that we can measure it. For example, the adequacy of public schools is a combination of many factors, including curriculum, teaching staff, and other factors – not just the capacity of the school."* The same difficulty applies to measures of transportation adequacy, perhaps even more so given the viewpoint of each individual system user during the day.

Montgomery County has partially addressed this difficulty by restricting the growth policy's responsibility to measuring public facilities *capacity* and private development's demand on that capacity. How well Montgomery County manages growth is also dependent upon other qualities of public facilities and private development, but within the APFO, the issue is balancing capacity and demand. Even that narrower concept is complicated since increased demand is not

always, or in some cases primarily, the result of new development, but new development may nevertheless exacerbate inadequacies.

In an APFO system, after coming to an agreement as to what constitutes "adequacy," the next step is to determine what to do when public facilities are not adequate. The remedies of inadequacy include:

- The public sector halts development approvals until public facilities are adequate,
- The public sector funds, designs, and programs the public facilities needed to restore adequacy,
- The public sector requires the private sector to provide, pay for, or contribute to the public facilities needed to restore adequacy,
- The public sector requires the private sector to reduce its impact on inadequate public facilities, or
- Any combination of these.

Remedies of inadequacy might be judged by the extent to which they result in adequacy being restored, or at a minimum, stop the problem from getting worse.

Staff's goal for Policy Area Transportation Review and the school facilities test are to have *measures of adequacy* that conform as closely as possible to public expectations for transportation and school facilities. The second goal is to develop *remedies of inadequacy* that provide the best chance that adequacy will be restored in a timely manner and correctly reflect new development's role in creating demand for the facility under stress.

Policy Area Transportation Review

"Policy Area Transportation Review" is the growth policy's nomenclature for measuring the adequacy of transportation facilities for large areas of the County. It contrasts with Local Area Transportation Review, which tests new development for its effect on nearby intersections. The Policy Area Transportation Review test was instituted in the 1980s to reflect the fact that the transportation system is an interconnected network, not simply an array of individual intersections. Development approved in one area of the County (or even outside the County) has transportation impacts in other areas of the County, a phenomenon the growth policy has called "upstream-downstream" effect.

Policy Area Transportation Review's main "job" has been to tell the Planning Board if transportation facilities are adequate to support a proposed development project. The APFO requires the Planning Board to find that public facilities are adequate before approving development projects.

Policy Area Transportation Review also had other uses.

- It provided a reported measure for the public to use to gauge the overall quality of the transportation system.
- It helped the County and state direct their transportation expenditures.
- It provided a set of transportation standards that were used as the basis for determining if the proposed land use and transportation in master plans was “balanced.”
- It provided a way to measure whether the provision of transportation facilities has kept pace with growth in demand.

Policy Area Transportation Review has several components. Two of the most important are: what measure of adequacy to use, and how to determine the right standard of adequacy?

Since its inception, Policy Area Transportation Review varied the *roadway level of service standard* so that it was more stringent in lower-density areas with few alternatives to driving (a lower *transit level of service*), and less stringent in urban areas with greater transit options (a higher transit level of service). Since 1994, Policy Area Transportation Review used a *regional transit accessibility index* to measure the transit level of service, but by 2003 staff had recommended that a more reliable approach be found.

Planning Department staff has evaluated several options for reinstating some form of Policy Area Transportation Review. The options that they have identified are:

- **PATR 2003 Using Total Transportation Level of Service and an Average Congestion Index (ACI):** This approach is similar to what was used previously in the PATR with some refinements in accounting for the quality of available transit service.
- **Proportional Staging**: Allow development based on the proportion of the transportation system as a percentage of the master planned development potential (proportional facility staging)
- **Cordon Line Capacity**; The capacities of roadways and transit entering and leaving an area, but not passing completely through, is used in setting the development levels within the area (Such an approach was used at prior times for both the Silver Spring and Bethesda CBD’s for setting the overall development capacity of those areas).
- **Corridor Analysis**: The capacities of parallel roads and transit are taken together to determine the overall system capacity serving specified subareas of the County (Such an approach is used in parts of Florida).
- **Jobs/ Housing Accessibility**: This approach would measure opportunities to match available housing locations with available

employment locations within a given generally acceptable travel time budget.

- **Relative Travel Time and Delay of Highway and Transit Use**: This approach would measure the average travel time and delay on area roads relative to average travel time and delay for similar travel using transit facilities and services, as well as use a Policy Area Group System in setting appropriate standards for highway delay given transit delay.
- **Travel Time Variability**: This approach would consider the consistency of expected travel times from one day to the next with a particular concern for "Travel Time Reliability", which is a measure that is of increasing importance to many transportation service providers, particularly for transit service and goods movement, as well as for most travelers in private vehicles.

Attached to this report as Appendix A is a more in-depth discussion of the options reviewed.

Of course, **in keeping with the Council direction, the staff draft recommendation will be supported with detailed analysis and will include specific recommendations for the policies and procedures that would accompany Policy Area Transportation Review**. These include a method for setting congestion standards by area and the appropriate geographic unit to use. Staff will also recommend whether PATR should be used for information purposes only, to regulate the pace of development, and/or as the basis for assessing financial contributions from developers toward infrastructure.

The School Facilities Test

The County comprehensively reviewed the school facilities test in 2003 and made several changes that, overall, made the test more stringent. The resulting test would have resulted in a finding of inadequacy in at least one area of the County; however, the Council also boosted funding of school facilities, adding the capacity needed to keep all areas of the County "adequate" for growth policy purposes.

Since 2003, the cities of Rockville and Gaithersburg have adopted adequate public facilities ordinances with school adequacy tests that are more stringent than the County's. There is interest in further amending the County's school adequacy test, and the Council directed the Planning Board to examine the issue in the current growth policy study.

Issues

One of the points of contention in the school facilities test is the use of a special definition of capacity for the growth policy. Montgomery County Public Schools does not use the growth policy's definition of school capacity when planning and programming school facilities. Instead, they use a measure called "program capacity" that relates a classroom's capacity to the purpose to which it is being put.. On average, "program capacity" is a lower number than "growth policy capacity." With the advent of class size reduction initiatives, the difference between program capacity and growth policy capacity has increased. The Rockville and Gaithersburg tests use program capacity. In the staff draft growth policy report, we will review the current "state of adequacy" of public school capacity using measures that residents often cite, such as capacity at the individual school level and the number of relocatables. We will also analyze the various options for a revised school test, and the implications of those options, and provide recommendations for remedies when or if school capacity is found to be inadequate.

Another main issue involves current school enrollment trends and the contribution of new development to school enrollment changes. In some parts of the County, new development is a major factor driving school enrollment increases. In other parts of the County, new development's effect is dwarfed by other demographic changes, such as turnover of housing units from households without children to household with children. There are analogous situations with most public facilities, including transportation: the need for new capacity is often not driven solely by new development but also by other factors. There are many tools that a locality can use to limit new development, but few to affect growth in demand because of other factors, such as demographic changes and growth outside the County's boundaries.

Montgomery County Public Schools' staff updated their 2003 report on the factors affecting school enrollment change, and this report is attached in Appendix B. Among the highlights:

- The school system is now experiencing a temporary lull in enrollment but increases are expected to return in 2009.
- The number of students enrolled is only one measure of enrollment change: the composition of the study body continues to become much more socio-economically diverse than in the past.
- County births have been over 13,000 since 2000, which is higher than any previous point in the County's history.
- Total enrollment varies as demographic cycles age through the system. For example, in 1987 the Grade 1 enrollment was the highest of any grade in the system; today, Grade 9 is the largest,
- Movement of households, as evidenced by the turnover of existing housing units and the sale or rent of new units, is a major factor affecting school enrollment change. Records show that 85 percent of all housing sales are resales, and school enrollment increases occur in areas with little new home construction.

Staff is completing our review and will provide specific recommendations our report to the Planning Board in a few weeks. In the meantime, staff is including some background information to help set the stage for future discussion. The information is: is an update of a 2003 report by Montgomery County Public Schools staff on the factors affecting school enrollment change, and results of various options for the school facilities test.

Infrastructure Financing Team

Development impact fees are a charge on new development to pay for the construction or expansion of off-site capital improvements that are necessitated by and a benefit for the new development. Impact fees provide a useful mechanism for financing the development of undeveloped land.

The County Council requested that the Planning Board look at the current impact tax system, and in response, Planning Department staff is looking for options that will improve the synergy between the County's growth management and infrastructure financing systems. Among the aspects of the current system that are worthy of attention: the amount of the rates, the types of infrastructure for which impact taxes are charged, and whether the rates should vary more by location and other factors. The current impact tax system has not met expectations for revenue, especially for schools.

Character of Growth

As the County looks at options for financing the infrastructure needed by new development, the changing character of growth is a relevant issue. The future of the County's growth is: a smaller percentage will be *greenfield* developments on raw land and a greater percentage will be infill and redevelopment. Where former growth was primarily single-family homes on raw land, much of the future growth will be multi-family units in existing developed areas. The number of households in Montgomery County is expected to increase approximately 27% by 2030. It is further estimated that 72% of the growth in residential development for the same time period will be in multi-family dwellings. With respect to schools, this type of growth will result in less revenue as multi-family dwellings are taxed at a lower rate than single-family units. The County needs to look at other financing mechanisms or modify the current system to provide a more robust revenue stream to respond to this future growth and change. The recordation tax has proven to be a more dependable source of revenue for schools.

The General Plan sets forth an overall growth pattern for the County. Impact fee programs that specify variable rates may provide incentives to the market to achieve certain Master Plan and General Plan goals. Therefore, impact fee programs can work synergistically with other growth management tools. As a finance tool, impact fees address the infrastructure burdens of new development. To address the increasing demands being placed on existing infrastructure, the County could consider modifying the current system and/or instituting an alternative one.

Transportation impact fees have provided a more predictable stream of revenue than the school impact tax. Transportation impact tax rates vary by region within the County and across various land uses. These program characteristics are based on the same findings and objectives as the County's growth management systems. The current tax rate structure varies rates by geography and land use, primarily to reflect the variations in auto trip generation that also occur by geography and land use. Rates vary geographically because development in close proximity to Metro generates fewer auto trips, and because in Clarksburg because the amount of needed transportation infrastructure is large. In theory, a variation in impact tax rates can help steer development to lower-rate locations provide an incentive to developers when making location decisions, although it is not clear that the current variation is sufficient to influence developer decisions.

The transportation impact fees could be based on an estimate of growth and transportation system needs through a long-range approach using a more distant horizon year. Predicting revenues from the transportation impact fees is particularly difficult because of developers' ability to take impact fee credits for projects they must construct or contribute to as a condition of a development approval. Although the County assesses a developer the entire calculated impact tax for each unit he builds, his project may also include a requirement to

construct millions of dollars in intersection improvements, which can offset his impact taxes on a dollar for dollar basis.

The goal of analyzing both the school and transportation impact tax programs is to improve our ability to efficiently and equitably fund the infrastructure needs of the County, either by modifying the rates and/or application of the fees for both school and transportation programs. In addition, if improving the revenue raising capacity of the program is also an objective, alternative-financing mechanisms should be considered.

Planning Department staff have pursued the detailed analysis of the County's impact tax programs in their detailed report, which is attached as the Infrastructure Financing Team Report in Appendix C.

Sustainable Growth Team

The Sustainable Growth Team has been working on a few key concepts:

- Definition of sustainability
- Determining the sustainabiltiy of the GPR
- The use of indicators as a means for measuring and evaluating progress

The final report will reflect the full extent of our research and present additional recommendations. This interim report presents some key products of our work to date.

Definition of Sustainability

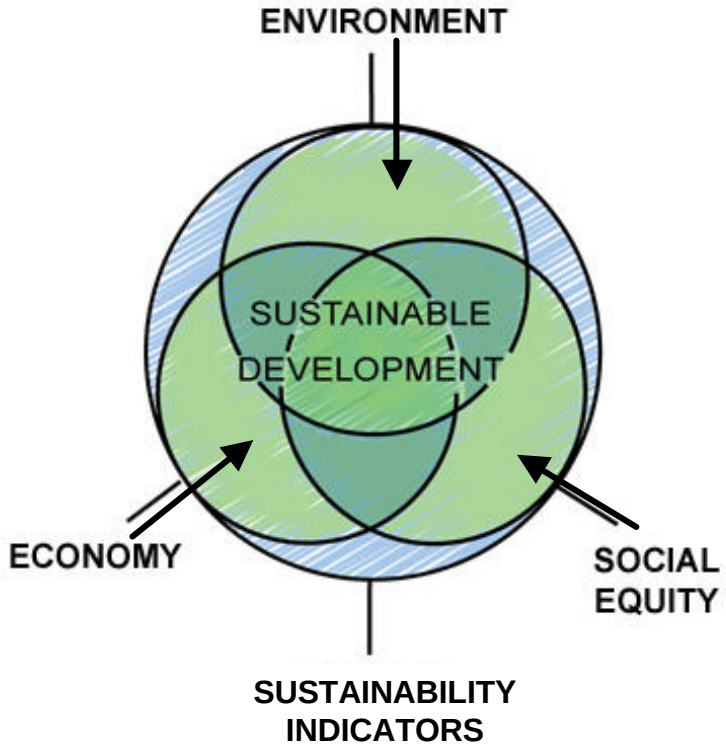
The term sustainability entered into focus through a 1987 United Nation's World Commission on Environment and Development report titled *Our Common Future.* [1] Since its inception, the notion of "Sustainability" has been nothing less than a holistic worldview of how social equity, economic, and environmental forces work together to create the world in which we live and, more importantly, how we may harness these forces to create something better. These three components are referred to as the "Three E's" of sustainability. And in terms of application, to use a culinary metaphor, sustainability is not a seasoning to be added liberally or sparingly to taste, it is a *cuisine* that guides the entire approach to the meal's ingredients, preparation, method of serving, and consumption. This, above all else, is the fundamental premise of sustainability.

With this in mind, we propose this simple definition of Sustainable Development for Montgomery County that builds upon the Brundtland concepts, incorporating lessons learned from jurisdictions around the nation:

> *Sustainable Development meets the needs of the present without compromising the ability of future generations to meet their own needs. It recognizes the fundamental inextricable interdependence between the economy, the environment, and social equity, and works to promote each to the benefit of all.*

This definition highlights the essential elements of economy, environment, and social equity. We can also illustrate the interplay of the Three E's, and the role of sustainability indicators, though the graphic below.

[1] Report of the Brundtland Commission, Our Common Future, Oxford University Press, 1987.



Elements of Sustainable Development (What Success Looks Like)

Though the fundamental basis of sustainable development is the recognition of the interdependence of the three elements, it is helpful to understand some other facets of sustainable development, in order to better understand what success looks like.

Economy	Environment	Social Equity (Community)
A Strong, Diverse, and Responsive Local and Regional Base of Jobs, Wages, and Business	Awareness and Reinforcement of our Ecological Carrying Capacity	Vibrant Communities with Engaged and Empowered Citizens
Convenient and Affordable Housing and Transportation Options	Improved environmental quality (air, water, land, etc.)	Shared Vision of Sustainability within a Cultural Diversity
Animated mixed-use streets that incorporate places to live, work, shop, and play.	Efficient Use of Natural Resources at All Levels	Public Spaces that Facilitate and Inspire Human Interaction
Cutting-edge incubator businesses that support environmental goals	Preserved and Restored Ecosystems and Biodiversity	Choice in Housing, Jobs, and Transportation Options

The concept of sustainability allows the functional areas (transportation, environment, land use, etc.) of policies and plans to be discussed in relationship to one another as development proposals are considered. In this way, we can explore the advantages, conflicts and trade-offs associated with each proposal. Without this examination and measures or targets for sustainability, we will continue to approve development based on the rules it doesn't violate rather than on the goals, objectives and targets it achieves.

The risk of not including sustainability in the growth policy is that growth will continue to be managed only in terms of how and when infrastructure is provided not on how well it serves the county's needs as a whole. In addition, the bigger picture issues related to sustainability, such as those in the table above, are not addressed in any comprehensive way, for instance:

- Will we be able to maintain or reduce our electricity demand in the future to avoid the need for new major transmission lines?
- Can the older infrastructure of the developed areas sustain the increased density needed to accommodate growth? When and where do we reach a tipping point and who pays?
- Can we continue to develop on the edges of the sewer envelope using pressure sewers? Do we want to expand the gravity sewer system into whole new stream valleys?
- Should we be spending money on building a new water supply intake in the Potomac River or cleaning up the tributaries that are causing us to move the intake?
- How can we balance parking and transit in ways that restrict automobile use and still provide accessibility for service vehicles?

Guiding Principles

We found that communities throughout the country now offer sustainability as an overarching vision, an end-state, to which communities strive. That vision addresses all aspects of a community: the built and natural environment, economy and community. These three broad areas provide sufficient breadth to include the multitude of aspects determining community quality of life. But the specific policies and mechanisms to achieve these goals vary and must be tailored to the unique attributes of each community. But while many communities are now embracing sustainability, Montgomery County has in some sense been ahead of the curve. Since the 1960s, and in its more recent refinements, the General Plan the subsequent Master and Sector Plans embody Montgomery County's on-going commitment community development, smart growth, and environmental protection.

Our examination of other jurisdictions shows that many employ indicators to measure progress and encourage discussion about how to improve sustainability. All of these plans employ a strong set of guiding principles that set

forth the basis for sustainability in their communities. The General Plan Refinement provides a set of guiding principles, goals and objectives that could be used as the basis for a public dialogue on sustainability and the development of indicators. This dialogue can inform the process and engage the public, resulting in clear direction for the future.

Indicators of Sustainability

The research also suggests that measurable and incremental indicators play an important role as communities embrace sustainability, providing the opportunity to establish specific targets and evaluate progress in meeting specified goals. Indicators are specific measures of sustainability (see Appendix D for examples of indicators used by other communities). Indicators allow residents and decision makers to track and monitor selected social, economic and environmental conditions. By measuring progress toward specific quantifiable goals or targets, indicators simplify vast amounts of information and data, and thus provide a common ground on which communities create relationships, build trust and consensus, and base decisions. Communities take different approaches in developing suitable indicators, but the dialogue between stakeholders both informs the process and engages the public to offer clear direction for the future. Generating a sustainability indicators program offers a logical compliment to effective growth policy. These tools offer a means to accurately gauge the economic, environmental and social conditions within a community over the long term, allowing for more effective and informed decision-making.

Generating a sustainability indicators program offers a logical compliment to effective growth policy. An indicators program could be used in many different ways including:

- A compilation of information to be used by decision makers on an informal basis
- A process to consider how to achieve the proper balance among the many county plans and policies
- An extension of the Adequate Public Facilities Ordinance to test how well projects achieve public goals
- Provide the Basis for the Environment and Energy Conservation Functional Plan
- Provide the basis for addressing issues of global climate change

Design Excellence Team

The Design Excellence Team report (attached as Appendix E) addresses the qualitative methods to achieve the objectives identified in the other papers included in the Growth Policy Report. Design excellence is not intended as a "stand alone" discussion. As an example, if the report on sustainability identifies a set of objectives for the preservation of the environment, the design excellence report provides the tools to achieve a quality environment – design excellence.

Planning in Montgomery County in the next century will require significant attention to design quality in community building. Directing development to more dense Metro station areas and the I-270 Corridor, and away from rural areas is a hallmark of the General Plan *…on Wedges and Corridors* for Montgomery County. Montgomery County has a limited amount of available land for development. Redevelopment of existing areas including older retail centers could be a focus of development. Preserving the character of the existing rural communities continues to be a challenge. The character of the major transportation travel routes could be significantly improved. From an economic point of view, design excellence should also be part of maintaining the County's competitive edge in attracting quality businesses in the 21st century global market place. These development conditions require attention to design in community building for success as part of a comprehensive growth policy.

This report recognizes that the discussion of design excellence is limited by the tools authorized by the laws and administrative procedures established for the State of Maryland. As an example, existing regulations already provide a bonus density for including moderately priced dwelling units, work force housing, and amenities and facilities as an accepted practice in Montgomery County. Providing bonus densities requires quality design to establish compatibility with existing neighborhoods.

This report provides options for augmenting and enhancing the planning tools and methods authorized for Montgomery County. The discussion of design excellence is concentrated on the following three areas:

- *Streets and Highways* (coordinate with the changes underway to the Road Code)
- *Public spaces* (clarify and enhance the requirements for public use space, green space, and active and passive recreation area identified in the Zoning Ordinance)
- *Blocks and buildings* (coordinate with the finding for compatibility, and the finding for the provision of adequate, safe and efficient layout of buildings and open space specified in the Zoning Ordinance)

The following group of tools could be augmented and enhanced to foster design excellence in Montgomery County:

- *Master Plans and Sector Plans* (review the design guidelines included in these plans)
- *Zoning Ordinance* (enhance the findings for design excellence, and create form-based codes to foster design excellence)
- *Design Guidelines* (provide additional guidelines separate from master plans, and the provisions in the Zoning Ordinance for streetscape standards, urban recreation guidelines, guidelines for town centers and environmental guidelines)

The attached report provides a more detailed discussion of the ideas to improve design excellence in Montgomery County.

Speakers

4 p.m. March 29: *Richard Tustian*, a planner, architect, and educator with 50 years experience in shaping the built environment.

7 p.m. April 5: *Dr. Chris Nelson*, professor and co-director of Metropolitan Institute at Virginia Tech's Alexandria Center.

1 p.m. April 12: *Robert Gibbs*, a pioneer in reviving the community-oriented principles of traditional town planning and smart growth.

4 p.m. April 26: *James Murley*, director of the Catanese Center for Urban and Environmental Solutions at Florida Atlantic University.

1 p.m. May 3: *Richard Heapes*, founder and principal of Street-Works, LLC, a mixed-use development and consulting firm headquartered in New York.

7 p.m. May 17: *Robert Hunter*, president-elect of the American Planning Association.

7 p.m. May 24: *Alexander von Hoffman*, senior research fellow at the Joint Center for Housing Studies at Harvard University. *Lucille Harrigan*, is working on a series of papers on sprawl in the Washington region with Mr. von Hoffman.

7 p.m. June 6: *Edward "Ned" Hill*, professor and distinguished scholar of economic development, the Maxine Levin College of Urban Affairs, Cleveland State University.

7 p.m. June 7: *Ed McMahon*, Charles Fraser Chair on Sustainable Development at the Urban Land Institute.

7 p.m. June 14: *Michael Freedman*, founder of a San Francisco urban design firm specializing in infill development, corridor redevelopment, design guidelines and open space planning.

9:15 a.m. June 21: *Peter Park*, director of Denver's Community Planning and Development Department.

7 p.m. June 21: *Gordon Price*, director of the City Program at Simon Fraser University in Vancouver, British Columbia.

Montgomery County Planning Board
Maryland-National Park and
Planning Commission
8787 Georgia Avenue
Silver Spring, MD 20910
www.mcparkandplanning.org

GROWTH MANAGEMENT SPEAKER SERIES

Public Session 2

DR. ARTHUR C. NELSON

The Infrastructure and Affordable Housing Linkage

April 5, 2007

Montgomery County Planning Board
The Maryland-National Park
and Planning Commission

About the
Montgomery County Planning Board's Growth Management Speaker Series

The public is invited to join the Montgomery County Planning Board throughout the spring to hear a diverse slate of planning experts speak about ways to guide growth while maintaining a vibrant economy and protecting the county's unique natural resources.

The growth management speaker series will inform the Planning Board and planning staff as they update the county's key growth policy, (also referred to as the Adequate Public Facilities Ordinance), which directs growth to areas with the right level of roads, schools and other public amenities. The growth policy will ultimately be reviewed and voted on by the County Council.

As Montgomery County emerges as an economic power center in the state, public officials and planners are working to retain high levels of public service and our historically high quality of life.

The series hosts nationally known experts who will lend insight into such issues as balancing growth and public services; fostering high-quality communities; developing vibrant urban areas and creating pedestrian-friendly environments; among other subjects.

For more information and to view online video footage of the speeches, go to www.mcparkandplanning.org/planning/growth.

Growth Management Speaker Series

Public Session 2

The Infrastructure and Affordable Housing Linkage

The linkage between adequate infrastructure supply and affordable housing seems intuitive but reasons may be elusive. This presentation will review the theory and research on that linkage as a starting point to engage Montgomery County planning officials in discussing policy approaches and implications.

About the Speaker

Dr. Arthur C. Nelson (Chris), is Co-Director of the Metropolitan Institute at Virginia Tech in Alexandria, Virginia. He founded Virginia Tech's planning program in Alexandria in 2002. He is also founder of the Planning Academy at Virginia Tech, the nation's largest professional education operation among planning programs.

Chris is a nationally known expert in both infrastructure planning -- focusing on financing issues and housing production. His clients in these areas have included the National Academy of Sciences, U.S. Department of Housing and Urban Development, Brookings Institution, National Association of Realtors, Urban Land Institute, and U.S. EPA among others.

Chris has published more than 200 works including 15 books. His recent books include *The Social Impacts of Urban Containment*, *Impact Fees: Principles and Practice*, and *Impact Fees and Housing Affordability*. He is the recipient of two teaching awards, and awards for outreach, research, and scholarship. His students have won many awards including several national awards. His Virginia Tech students will be the first to publish their studio project as a book for the American Planning Association.

APPENDIX A
APFO REFORM TEAM REPORT

Policy Area Transportation Review

The Council directed the Board to provide recommendations on the renewed use of a Policy Area Transportation Review (PATR) test. This has been a focus of significant staff efforts in the past months. The section below provides the following:

- Potential approaches to PATR that were considered, with a table summarizing the relative strengths and weaknesses of the approaches based upon a set of relevant criteria.
- Fuller description of each of the approaches.

In the final report, a recommended approach will be described along with the results of applying that approach.

Potential Approaches to PATR

A variety of approaches were considered by staff for reinstating PATR. While shown and discussed here as separate approaches, in the final recommendations it may be feasible to combine various aspects of one or more of them with those of another. Seven such approaches that were considered and are presented in the order shown for ease of discussion. These approaches included:

- **PATR 2003 Using Total Transportation Level of Service and an Average Congestion Index (ACI):** This approach is similar to what was used previously in the PATR with some refinements in accounting for the quality of available transit service.
- **Proportional Staging**: Allow development based on the proportion of the transportation system as a percentage of the master planned development potential (proportional facility staging)
- **Cordon Line Capacity**; The capacities of roadways and transit entering and leaving an area, but not passing completely through, is used in setting the development levels within the area (Such an approach was used at prior times for both the Silver Spring and Bethesda CBD's for setting the overall development capacity of those areas).
- **Corridor Analysis**: The capacities of parallel roads and transit are taken together to determine the overall system capacity serving specified subareas of the County (Such an approach is used in parts of Florida).
- **Jobs/ Housing Accessibility**: Such an approach would measure opportunities to match available housing locations with available

employment locations within a given generally acceptable travel time budget.

- **Relative Travel Time and Delay of Highway and Transit Use**: This approach would measure the average travel time and delay on area roads relative to average travel time and delay for similar travel using transit facilities and services, as well as use a Policy Area Group System in setting appropriate standards for highway delay given transit delay.
- **Travel Time Variability**: This approach would consider the consistency of expected travel times from one day to the next with a particular concern for "Travel Time Reliability", which is a measure that is of increasing importance to many transportation service providers, particularly for transit service and goods movement, as well as for most travelers in private vehicles.

General Comparison of Alternative PATR Potential Approaches

Each of the potential alternative procedures was rated below according to how well it satisfies several characteristics that we judge to be relevant to the Board, Executive, and Council as well as to the broader stakeholder community. These characteristics include the following:

- **Importance** – are the factors measured of interest to constituents (residents, business interests, and decision-makers)?
- **Relevance** – are the factors measured appropriate to considering the transportation effects of growth?
- **Coherence** – are the test results understandable to the constituents and are the results from different scenarios intuitive to the decision makers and stakeholders?
- **Reliability** – does the test measure what it says it does, and can the results be replicated?
- **Availability** – is the data observable and available today for current conditions and can that measure reasonably be forecast to represent future conditions?

Potential Alternative Approaches	Characteristics of Desirable Alternative Approaches					
	Importance	Relevance	Coherence	Reliability	Availability	
					Current	Future
Policy Area Review 2003	Fair	Excellent	Poor	Fair	Good	Good
Proportional Staging	Fair	Poor	Excellent	Poor	Good	Good
Cordon Line Capacity	Fair	Poor	Fair	Excellent	Excellent	Good
Corridor Analysis	Good	Poor	Fair	Good	Fair	Poor
Jobs/Housing Accessibility	Fair	Excellent	Poor	Good	Good	Good
Relative Travel Time and Delay	Good	Excellent	Fair	Excellent	Fair	Good
Travel Time Variability	Good	Poor	Excellent	Good	Fair	Poor

As shown in the table, most of the potential approaches meet several of the indicators in a good or excellent manner, but are fair or poor at one or more of the criteria. Descriptions and the staff review of each of the potential approaches are summarized below.

PATR 2003 using Total Transportation Level of Service and an Average Congestion Index (ACI): This approach is similar to what was used previously in the PATR. The appropriate roadway congestion standard for each area could be defined based upon some refinements in the method for accounting for the quality of available transit service. Some modifications would be needed to the method for determining how levels of average roadway congestion for an area are calculated and what levels of average congestion would be appropriate given different levels of available transit service for the different policy areas. This potential alternative measurement approach would generally follow the Five-Group Framework identified in the *Staff Draft Policy Element* of the *2003 – 2005 Annual Growth Policy Report* that identified five basic types of transit service areas.

The intent would be to have a Policy Area Group System that would be more sensitive to transit availability and have each group be associated with a range of standards of average roadway congestion – the ACI standards. Thus an investment in a sufficient amount of improved transit service could more likely result in an increase in the staging ceiling for an area because the policy area "moved-up" within it's group, rather than needing to move from one group to another in its entirety. The particulars of such an analysis and the results of doing so will still need to be worked out if this is pursued further.

Proportional Staging: This was an option that staff has analyzed in depth in both 2003 and 2005, and the Council has expressed continuing interest in. Proportional staging is attractive because its basic premise – providing planned transportation capacity at the same time as planned development – most closely meets the definition of APF. **However, the rate has a fatal flaw** in that there is truly no "end-state" condition for either development or transportation service in Montgomery County. Adding new projects to plans increases the overall potential system capacity, but immediately reduces the amount of system that is "complete" since the overall is then larger.

The most compelling example of this fatal flaw is that the addition of a new transportation service in the master plan, such as the adoption of a Purple Line alignment east of Silver Spring, would have exactly the opposite effect of that desired. Because the Purple Line would increase the master planned transportation capacity, the current and programmed transportation would immediately be a lower proportion of master planned capacity. Therefore, the adoption of a Purple Line amendment would immediately reduce the current status of any policy areas it affects. The headline might read, "Council adopts Purple Line amendment; places Silver Spring in moratorium". However due to the interest in this procedure in the past, details of the latest analysis using this process are found later in this Section, and it might be useful as an indicator of progress in capital programming.

Cordon Line Capacity measures traffic entering and leaving a policy area compared to the roadway capacity at the policy area boundary, or cordon. Cordon line capacity is a concept that has been applied several times during master plan reviews. In the case of the Silver Spring CBD, the cordon line capacity is a Growth Policy measure. The availability and use of transit is taken into account in an overall manner by the use of mode share and trip generation estimates.

Policy area boundaries often follow natural or manmade features, such as stream valleys or railroad lines, which create transportation capacity constraints. Thus in such cases, the remainder of the traffic volumes crossing into and/or out of these areas may appropriately reflect roadway capacity constraints. In many other cases, however, cordon lines do not reflect roadway capacity constraints and planned congestion relief is not associated entirely with improving capacity at the cordon lines. For instance, in the Fairland/White Oak Policy Area, the ICC will increase cordon line capacity. However, in Eastern Montgomery County traffic congestion is most greatly associated with travel along and across US 29. Even without the ICC, significant improvements in east-west travel within the Fairland/White Oak Policy area are being implemented by building grade-separated interchanges, an improvement that would not be reflected in a cordon line capacity mechanism.

Corridor Analysis is similar to our previous policy area review procedures in that it looks at the average volume to capacity ratio for several combined facilities against a standard. The corridor analysis process has been used in some locations in Florida as part of their "concurrency analysis" of development. The procedure defines the higher classification roadways, the freeways and arterials, in a parallel direction and combines their capacity and demand. In some applications the capacity of nearby transitways are also counted. One problem for this process in Montgomery County is that its easiest application is for radial type situations similar to our Silver Spring and Bethesda CBD's, and other more dispersed areas would not be as easily applicable. It does not seem to offer any advantages over the alternative procedures which use the same approach but on a more general process that can account for travel on all parts of the transportation network.

Jobs/Housing Accessibility measures how many opportunities for matching housing with jobs exist within a given travel time budget (such as a 45 minute trip from any given starting point). From a planning agency perspective, this may be the purest measure of the balance between transportation and land use. Jobs/housing accessibility can be improved by either providing additional transportation system capacity (achieving greater accessibility by increasing the geographic coverage area within the travel time budget) or by reallocating land uses (achieving greater accessibility by increasing the number of destination points within a smaller geographic coverage area).

A primary concern with the accessibility measure, however, is that it is not important to constituents as not all jobs are created equal. While we can reallocate theoretical jobs/housing totals, the jobs that may locate in a housing-heavy area such as Olney may not have the same value to Olney residents as jobs that locate in a jobs-heavy area such as Bethesda. A secondary concern is that the measure is not easily understood. For instance, a typical Montgomery County resident may today reach many thousands of potential jobs within a 45 minute trip. But most residents only want to reach one job, and the job is defined by the type of work it entails, and many other issues not related to transportation. The value, therefore, of increasing the number of potential jobs 20,000 or 40,000 with a new transportation link is of limited importance.

Relative Travel Time and Delay: This potential alternative approach evolved out of staff work with policy areas based using new transit service level definations. It uses new transportation industry measures of transit level of service from the national *Transit Capacity and Quality of Service Manual – 2nd Edition* as the transit component of the Total Transportation Level of Service concept. However, for the roadway component it uses information derived from Exhibit 15-2 of the *Highway Capacity Manual (2000)* that deals with Urban Street Level of Service by Class of Roadway. That reference identifies four classes of arterial roadways and show the typical free flow speeds and speed ranges that

are associated with six different roadway levels of service. A measure of "Average Rolling Delay" is derived by dividing the values of the typical free flow speeds by the speeds in the speed ranges.

The intent of this approach would be to use these two components: (1) the Average Arterial Rolling Delay, and (2) the Average Transit Travel Delay, as the newly defined components of the Total Transportation Level of Service concept. The lower in value the Average Arterial Rolling Delay, the slower and more congested is arterial travel in a policy area with a loss in mobility in using roadways. Conversely, the higher the value of the measure of Average Transit Travel Delay the faster on average are the transit travel times in an area relative to the time on congested arterial roads. This would provide a standard for each policy area against which the roadway network congestions forecasts could be compared, and a finding made on adequacy for any given transportation and land use future.

Travel Time Variability considers the consistency of expected travel times from one day to the next. Transportation system travel time reliability is a measure that is of increasing importance to many transportation service providers (particularly for transit service and goods movement) and for all travelers. Travel time varies based on many external factors. Non-recurring delay is the term often used, where vehicle crashes and other incidents are perhaps the most notable, but other factors of equal importance in determining variability include weather conditions, special events, and system maintenance activities. The transportation service industry continues to improve data collection, analysis, and forecasting tools to assess travel time reliability. However, the information systems in place needed to make decisions based on reliability are still several years away. Further, while travel time variability is of importance to the County, it relationship to growth policy is not very strong. This characteristic is currently reported as part of the Department Highway Mobility Report, and can be a useful indicator of system performance without being the basis for growth policy decisions.

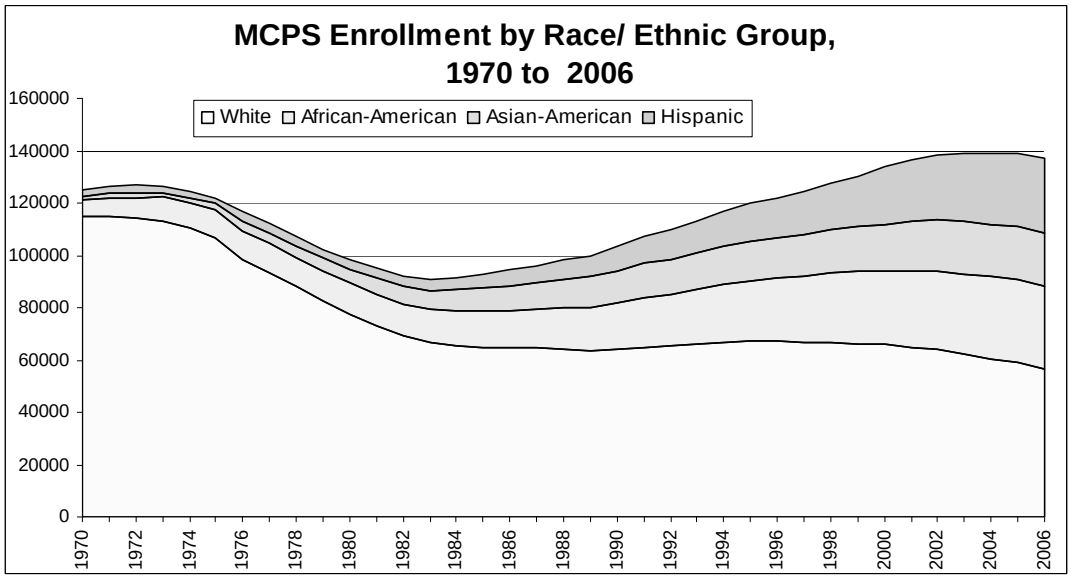
Montgomery County Public Schools Enrollment Change

March 23, 2007

Background

Since 1986, when the Annual Growth Policy (AGP) was first applied, Montgomery County Public Schools (MCPS) enrollment has grown from 94,460 to 137,798 students. This increase of 43,338 students represents nearly a 50 percent increase in the size of the system since the AGP schools test began. From 1986 to the current 2006-07 school year 27 elementary schools, 17 middle schools, and 6 high schools have opened. Numerous additions to schools have also been built over this period. At the same time as space has been added to the system, there has been the need to modernize older schools. From 1986 to the this school year 46 elementary schools, 9 middle schools, and 9 high schools have been modernized. The need for both new schools and modernized schools compounds funding requirements for the MCPS Capital improvements Program (CIP.)

One of the most important characteristics of MCPS enrollment change since 1986 has to do with the race and ethnic composition of enrollment. The entire enrollment increase since 1986 can be attributed to growth in African-American, (+17,278), Asian-American (+10,981), Hispanic (+22,737), and American Indian (+276), enrollment. White (non-Hispanic) enrollment has decreased by 7,934 since 1986.



As changes in race and ethnic diversity have contributed to enrollment growth, so has a more socio-economically diverse student population. In the mid-1980's, participation rates in the Free and Reduced-Price Meals (FARMs) program were at about 12 percent of total enrollment. Today the rate has nearly doubled to 23.5 percent. Enrollment in the MCPS English for Speakers of Other Languages (ESOL) program has seen similar

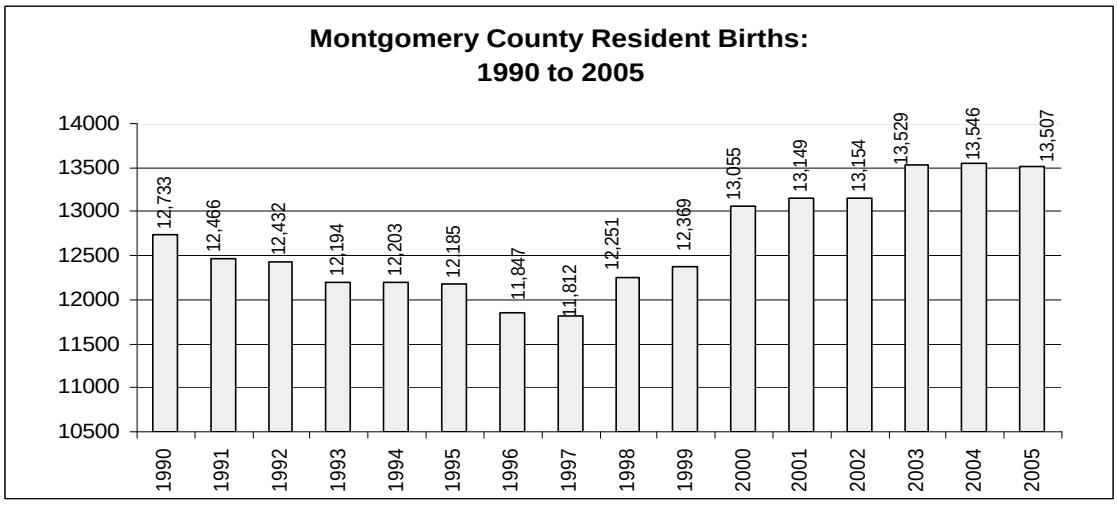
increases. In the mid-1980's about 4.5 percent of MCPS enrollment was enrolled in the ESOL program. Today 10.7 percent of enrollment is in the program.

Factors Affecting Enrollment Change

Enrollment change is the result of the interaction of three factors; births, aging of the school-age population, and migration. Births and the aging of children constitute what may be seen as "natural increase" in enrollment (comparable to natural increase in the total population.) Economic forces tied to job and housing opportunities drive migration, the more variable element of change.

Births

Montgomery County resident births increased from 10,351 in 1986 to 13,507 in 2005. However, between 1990 and 1997 county births trended downward. There was some thought that this presaged a long-term trend for births, and hence for school enrollment. Such a peaking and cycling downward in births and school enrollment would have followed the model of the baby boom – baby bust eras. However, birth counts from 1998 to 2005 more than recovered from the dip in the early 1990's, and have exceeded 13,000 annually since 2000. Birth forecasts from the Montgomery County Department of Park and Planning were raised over this period, to the point where the forecast is for continuing gradual increases in annual births for the foreseeable future. This forecast is in agreement with state and national birth trends.



The upward trend in births is a by-product of a more diverse population with differences in fertility rates, household size, and median age. The 2000 U.S. Census shows that, with 26.7 percent of county population foreign born, trends in the county's diverse population are having a major impact on overall county demographics. In 2000 the White, non-Hispanic population had the lowest average household size, at 2.44, and the highest median age, at 40.8. In contrast other race and ethnic groups had larger household sizes (Hispanic 3.87, Asian American 3.17, and African-American 2.68) and lower median ages (Hispanic 28.5, African-American 32.2, and Asian-American 35.2.) As these trends

have taken hold in the county, births to White, non-Hispanic women have become a decreasing share of total births. Beginning in 2001, White, non-Hispanic, births dropped below 50 percent of total county births for the first time.

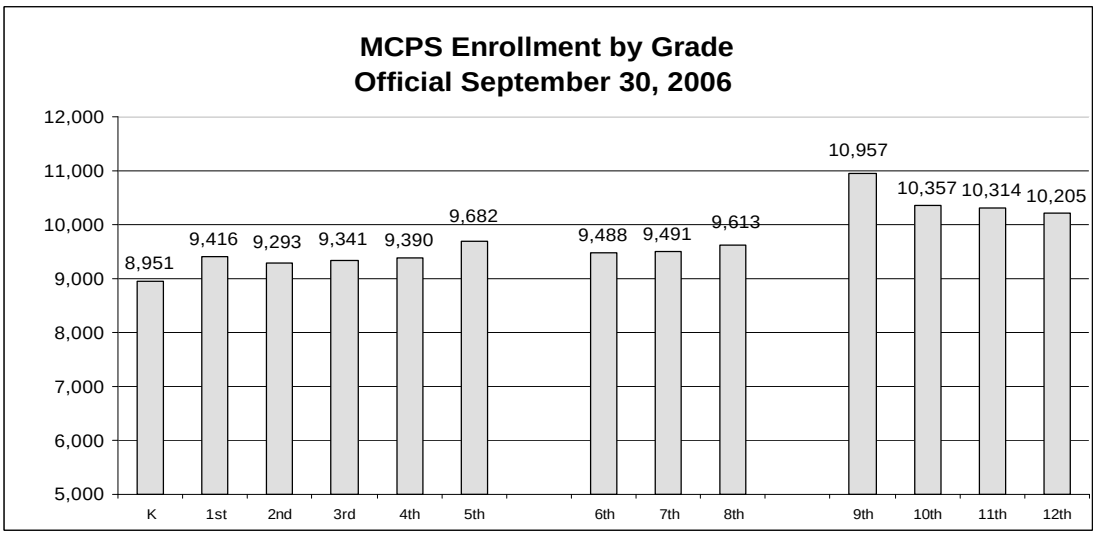
Trends in county births compared to Kindergarten enrollment are assessed every year by MCPS. Kindergarten enrollment in any given year represents about 75 to 80 percent of resident births five years earlier. This relationship makes it possible to fairly accurately project future Kindergarten enrollment based on the latest trends in births, and the forecast for future births. The decline in county births in the 1990's resulted in a decline in MCPS enrollment this year—the first decline since 1983. This decline is also attributable to a change in the age children must be to enroll in Kindergarten. This change moved the age children have to be from 5 years old by the end of December of the year they enroll in Kindergarten, to 5 years old by September 1st of that year. Higher births since 1998, and the completion of the phase-in of the new Kindergarten entry age, indicate that MCPS enrollment will once again increase beginning in 2009.

Aging

Once students are enrolled in Kindergarten, forecasting enrollment by the "aging" of students from Kindergarten through Grade 12 is the simplest and most reliable component of the enrollment forecast. Past records of the rate of change between grades show that at most grade levels a large share of total enrollment can be accurately forecast by simply moving grade cohorts forward one grade for each year of the forecast. There are, however, points in system where this does not apply. Between Kindergarten and Grade 1 a sizeable increase (from 400 to 500) occurs. This is attributed to students entering public school for Grade 1 after attending private Kindergarten programs in nonpublic schools. (This increase was even larger before full-day Kindergarten was implemented at all MCPS schools.) A similar increase occurs between Grade 8 and Grade 9 (from 800 to 1,000) as students enter public high schools from nonpublic schools. After Grade 9 there is some reduction from Grades 10 to 12 as students exit the system prior to graduation.

The consistency of grade cohort movements is dependent on the economic climate. During a period of rapid job growth and housing construction migration to the system will increase and the grade cohort change from one level to the next will increase. During more stable periods, or during recession, fewer students will migrate into the system from outside of MCPS. These factors will be discussed more in the section on migration.

The size of each grade level at any given time in the school system is a good predictor of trends for the next several years. Over the past 20 years growth in elementary school enrollment occurred first, followed by middle school, and then high school increases. In 1987 Grade 1 enrollment was the largest of any grade in the system. Today, in the 2006-07 school year, Grade 9 enrollment is the largest. This trend is now driving facility needs at the high school level. As children from the higher birth years after 2000 enter the public schools another "demographic bulge" will start its' path through the system.



Migration

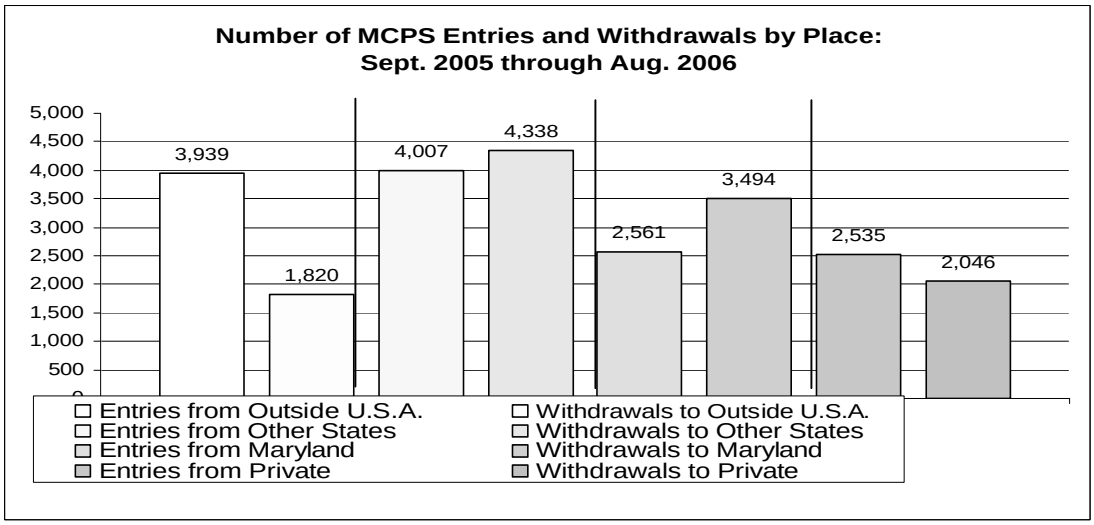
The aging of the student population accounts for a large share of enrollment change in any given year. The vast majority of the students enrolled in the school system next year will be students enrolled in the school system this year. Migration, defined as the movement of students into and out of the school system, is a smaller component of annual enrollment change, but one with long-lasting impact. Over time migration has fundamentally altered the race/ethnic and socio-economic profile of the school system.

Another important impact of migration has to do with its' role in rejuvenating MCPS enrollment. A fact about school enrollment that is obvious, but often overlooked, is the need for the supply of students to be constantly refreshed to maintain enrollment. If the service area of a school was shut down and no new families could move in then eventually the school would empty of enrollment. This extreme example highlights the necessity of migration to sustain enrollment. The process of community turnover and student aging makes it difficult to attribute a school's enrollment level to individual factors. Enrollment change is inseparably tied to the combined affects of births, aging, and migration.

Viewed as a whole, MCPS enrollment appears to change in a fairly smooth and gradual manner. However, below the surface of total enrollment is a student population that has substantial numbers moving into and out of the system on a daily basis. For example, from the fall of 2005 through the summer of 2006 over 14,000 students entered MCPS and over 14,000 withdrew from MCPS. (These figures do not include students entering MCPS in Kindergarten, making the normal grade progression annually, or graduating from MCPS at the end of Grade 12.) This level of student mobility constantly refreshes the student population profile in ways that may not be apparent by just looking at total enrollment at any given point in time.

MCPS records of student entries and withdrawals allow the origins of entering students, and the destinations of departing students, to be known. By far the greatest amount of net

migration into MCPS is from outside the country. In the 2005-06 period, 3,939 students entered MCPS from outside the country, while 1,820 withdrew from MCPS to leave the country. In contrast, net out migration occurred to other Maryland and United States locations—more students left MCPS for these locations than entered MCPS from these locations. This is partly a reflection of increased housing costs in the county. On the other hand, MCPS enrolled more students from private schools than left MCPS to attend private schools. The trend of students entering MCPS from outside the country is long-standing, and has driven diversification of the student population. As the affects of immigration continue to accrue, further shifts in the demographic profile of MCPS can be expected.



Migration to the county and the school system is driven by job opportunities and, in turn, the ability of the housing market to meet the needs of households interested in living in the county. Consequently, the clearest leading indicator of migration is activity in the housing market. Following is a discussion of the relationship between enrollment change and housing.

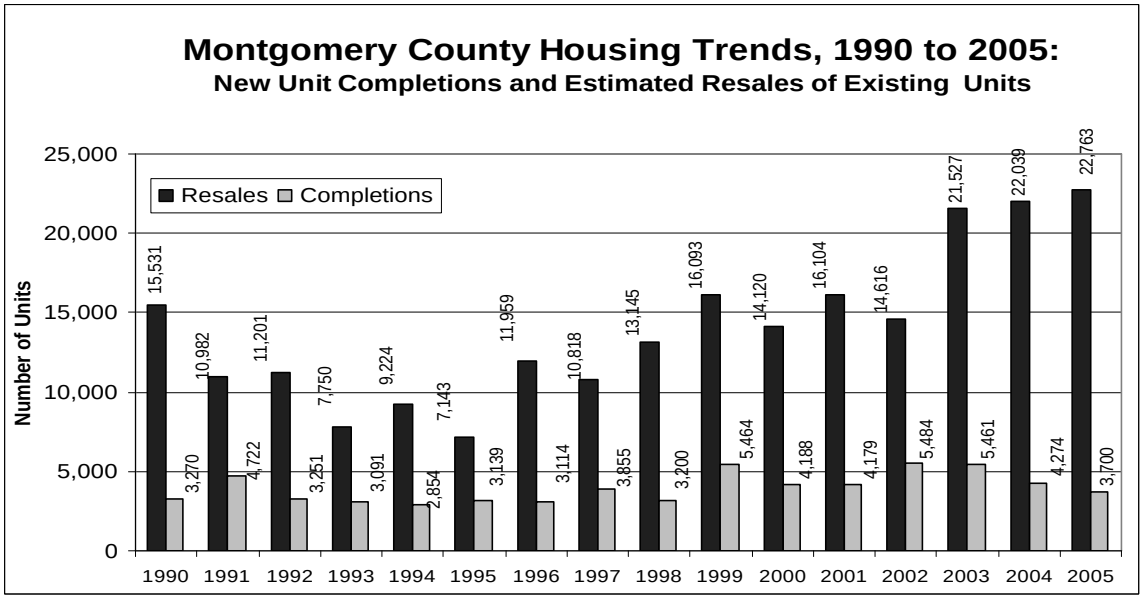
Housing

In 1986, when the AGP was first applied, there were an estimated 259,200 housing units in Montgomery County. By 2000, the U.S. Census reported 334,632 housing units in the county, an increase of over 75,000 housing units. (The number of households in the county in both years was somewhat lower due to about a 3 percent vacancy rate.) Between 2000 and 2015 the Montgomery County Department of Park and Planning projects an additional 66,000 housing units will be built.

The turnover of existing homes and apartments, and the occupancy of new housing, facilitates the migration of households to the county. The larger pool of existing homes available for resale, and rental units for lease—compared to new units— means that turnover of existing residential units has a much greater impact on enrollment change than new home sales and new apartment rentals. Records show that resales of existing housing constitute about 85 percent of sales for all types of housing units (existing and

new.) Therefore, in the past 20 years enrollment has grown throughout the county, even in areas with little or no new home construction.

This is not to say that new home sales and new apartment rentals do not have a significant impact on enrollment. This type of added housing supply is most abundant in the county's growth areas where new communities have been built. In these areas new housing has been the major source of enrollment increases and has driven the need for many more school facilities.



Activity in both housing markets is subject to a great deal of variation year to year. Job opportunities in the county and region, coupled with low mortgage interest rates and a limited supply of new housing, drove a strong market in recent years. In addition, the limited supply of new housing strengthened the resale market and drove up housing costs. More recently the housing market has cooled and buyers have become much more cost sensitive.

Activity in the housing market is factored into enrollment forecasts. In the case of new housing, MCPS tracks subdivision applications and incorporates them in school enrollment forecasts once they have received preliminary plan approval. Developers and builders are contacted regularly to determine build schedules and estimated completion dates. Information on the market demand for projects also is obtained. School enrollment forecasts are constantly adjusted to account for changing home construction schedules. Factors are applied to the different housing types to estimate the number of school-age children that will be generated by a development. One source of these "yield" factors is the Montgomery County Department of Park and Planning Census Update Survey. Shown below are the countywide rates from the most recent Census Update Survey, (2005.)

COUNTYWIDE STUDENT YIELD FACTORS				
	Number of students generated per unit:			
Housing Type	Elementary	Middle	High	Total K-12
Single Family	0.320	0.144	0.131	0.595
Townhouse	0.211	0.122	0.107	0.440
Garden MF	0.153	0.056	0.073	0.282
High/Mid-Rise MF	0.042	0.039	0.033	0.114
Source: 2005 Census Update Survey, MNCPPC				

In addition to these factors MCPS regularly samples housing projects to fine-tune estimated student generation. This sampling has shown that two new types of housing developments have lower student generation than the countywide rates would indicate. In the area of neo-traditional design communities, housing developments like Kentlands, Lakelands, and King Farm have lower student generation rates for single family detached, townhouse, and multi-family units than the county average. The other area where lower student generation rates have been seen are in high density, upscale rental and condo communities. Many of these are underway in the county, especially at locations close to METRO stations and highway access. These high-amenity, high cost communities often have structured parking. Student generation rates for this type of product have been below the countywide rates. While this is the current experience from this new type of product, there is some concern that student generation rates may go up as these apartment and condo communities age.

Estimating the impact of resales of existing homes, and rentals of existing apartments, is not as straight forward as it is for new housing. Since there is no way of knowing when an individual homeowner or renter will choose to move, broader indicators of turnover must be assessed. MCPS monitors enrollment change each year at every school to spot trends in the school's service area. MCPS enrollment constitutes an annual census of the school age population, and shifting trends in school service areas can be detected by analyzing this yearly data. In addition, all school principals in the county are surveyed each year. Principals are asked to identify any trends they have observed in the communities they serve. Finally, activity in the housing market is examined to spot changes in supply and demand.

One area of concern in the housing market is the trend to multiple families occupying a single housing unit. This trend has affected schools in areas of the county with affordable housing and large inventories of rental units. As with turnover of homes, this factor is best perceived, and projected, by studying enrollment trends at schools and discussing community change with principals and community members.

Movement of households into existing and new housing is a complex variable in the forecasting of school enrollment. Variation in this factor is the source of most forecast error, especially for individual school forecasts. Over the course of a six-year enrollment forecast the economic conditions that drive the housing market can change substantially. Lately that change has been to slower sales and less construction. However, research has

shown that the region is behind in the number of housing units available relative to the supply of jobs. This gap is expected to increase greatly over the next decade. This suggests that, barring a major economic disturbance, a strong housing market should return.

Assessing the Impact of Housing Change

The interrelated nature of the factors affecting enrollment change makes it difficult to disaggregate the impact of any single factor. Of interest to the Annual Growth Policy is the impact of new housing. The most dramatic impact of new housing occurs in growth areas of the county, where large communities are being built. Today, Clarksburg is the only part of the county remaining where development of such major magnitude is occurring. In more established areas of the county, where a majority of the housing supply already exists, the impact of infill subdivisions is more modest. Depending on the size of an infill subdivision, turnover of existing housing is likely to have as much, if not a more of an impact, than new housing construction.

Unfortunately there is no reliable way to separate out the impact of housing construction and turnover on school enrollment. Enrollment at a school fluctuates on an almost daily basis as students come and go. School enrollment levels are not static. Enrollment will change in a school even if no migration into the attendance area occurs. This happens simply through the student aging process. For example, in an elementary school where Grade 5 enrollment is the largest of any grade, total school enrollment is likely to decline the following year as that grade cohort moves on to middle school and is replaced by a smaller Grade 5. In instances like this, new home construction and housing turnover may not increase total enrollment. Following are two examples from recent experience that highlight the large degree of variation in the impact of new home construction and enrollment change at schools.

Example 1: New housing construction and no change in enrollment

The phenomenon of a large amount of housing construction and little to no change in a school's enrollment has been illustrated by construction at the King Farm in Rockville. The southern portion of this development is assigned to College Gardens Elementary School and the northern portion to Rosemont Elementary School. Over the past several years approximately 1,300 housing units have been constructed in the southern portion of King Farm, and approximately 1,800 in the northern portion. Records show about 150 elementary students reside in the southern portion and 90 in the northern portion. In spite of these numbers, enrollment at College Gardens and Rosemont elementary schools has remained close to the same level that it was before development began. This illustrates how new development does not necessarily add to a schools' total enrollment. In this case King Farm sustained the same level of enrollment at these schools by counteracting declines in enrollment that would otherwise have occurred.

Example 2: New housing construction and more enrollment than expected

On the other end of the spectrum is the example of Spark Matsunaga Elementary School in Germantown. This is a school dominated by recently completed homes and faster than expected build-out of large subdivisions. In this case there is no older community where

the student population is declining, as was the case at College Gardens and Rosemont elementary schools. During the planning stages for Matsunaga Elementary School developers and builders had estimated a ten year building period for homes surrounding the school. Almost as soon as construction got underway the housing market became much stronger than expected. Consequently, enrollment at Spark Matsunaga Elementary School is higher than originally expected, even with the opening of Great Seneca Creek Elementary School. Eventually, as the community matures, enrollment is expected to trend downward and to be within the school's capacity.

The impact of new housing construction and housing turnover are reflected in the location of schools that have opened in recent years. Almost an equal number of school openings have occurred in traditional, upcounty growth areas as in downcounty established communities. At the high school level, in 2004 Northwood High School reopened in the downcounty, and in 2006 Clarksburg High School opened in the upcounty. At the middle school level, in 2005 Lakelands Park Middle School opened in the upcounty, and Mario Loiederman Middle School opened in the downcounty. Finally, at the elementary school level in 2006 Great Seneca Creek and Little Bennett elementary schools opened in the upcounty, while Roscoe E. Nix and Sargent Shriver elementary schools opened in the downcounty. These school openings clearly show how enrollment increases are equally likely to result from changing demographics in established communities as they are from new housing development.

Forecast Accuracy

MCPS enrollment forecasts, by taking account of the factors described in this paper, have a high degree of accuracy. The total county forecast is typically well within one percent of actual enrollment. Examination of the six year forecast accuracy shows that in most years enrollment is within one to two percent of what was forecast six years prior. More challenging are forecasts for individual school service areas. A forecasting maxim holds that accuracy is greatest the larger the area being projected. At the small level of individual schools, more pronounced variations in enrollment trends result in a larger margin of forecast error. Forecasting schools within five percent of actual enrollment on an annual basis is the desired goal at this geographic level. In most years 75 to 85 percent of schools have fallen within this desired range.

Summary

This description of factors that affect MCPS enrollment change shows them to be highly interrelated. A temporary enrollment lull is now moving through MCPS. However, this lull will be replaced by moderate enrollment growth beginning in 2009. Today, MCPS remains behind in providing adequate capacity at its' schools. As new capital projects come on line the reliance on relocatable classrooms can be diminished. This year the number of relocatable classrooms was able to be reduced, from 719 in 2005-06 to 607 this year. It is anticipated that, with the support of county leaders, the number of relocatables will continue to be reduced in future years.

APPENDIX C
INFRASTRUCTURE FINANCING TEAM REPORT

Background Information and Analysis About Infrastructure Financing in Montgomery County

Problem Statement

Montgomery County finances the provision of infrastructure through several mechanisms. Some infrastructure is funded by the state, some is funded through the Capital Improvement Plan, which is funded by several sources, and some infrastructure is funded through development impact fees. Development impact fees are a charge on new development to pay for the construction or expansion of off-site capital improvements that are necessitated by and a benefit for the new development. Impact fees provide a useful mechanism for financing the development of undeveloped land.

The County Council requested that the Planning Board look at the current impact tax system, and in response, Planning Department staff is looking for options that will improve the synergy between the County's growth management and infrastructure financing systems. Among the aspects of the current system that are worthy of attention: the amount of the rates, the types of infrastructure for which impact taxes are charged, and whether the rates should vary more by location and other factors. The current impact tax system has not met expectations for revenue, especially for schools.

As the County looks at options for financing the infrastructure needed by new development, the changing character of growth is a relevant issue. The future of the County's growth is: a smaller percentage will be *greenfield* developments on raw land and a greater percentage will be infill and redevelopment. Where former growth was primarily single-family homes on raw land, much of the future growth will be multi-family units in existing developed areas. The County needs to look at other financing mechanisms or modify the current system to provide a more robust revenue stream to respond to this future growth and change.

The General Plan sets forth an overall growth pattern for the County. Impact fee programs that specify variable rates may provide incentives to the market to achieve certain Master Plan and General Plan goals. Therefore, impact fee programs can work synergistically with other growth management tools. As a finance tool, impact fees address the infrastructure burdens of new development. To address the increasing demands being placed on existing infrastructure, the County could consider modifying the current system and/or instituting an alternative one.

A typical reaction to impact taxes or fees is that "the developer will just pass these costs on to the homebuyer." A significant body of academic research has been applied to this question and found that it is not true. *Developers are not able to pass impact taxes onto homebuyers* unless they have been underpricing their homes. Typically, home sellers (including home builders) price their homes at the maximum that the market will bear, which is unrelated to the cost of construction. The research shows that impact taxes are *backwards capitalized* into the price of the land – that is, developers adjust to impact taxes by paying less for vacant land.

Housing economics is more complicated than that, of course, and so is the effect of impact taxes on home prices. To help clarify this issue, Planning staff reviewed and circulated research papers in impact taxes and housing in early April.

Direction from the County Council

At the March 12th PHED Committee meeting, the committee requested several items to be included in the April 15th Interim Report. The items pertaining to the Infrastructure Financing section of this report include: a history of impact fees/taxes in Montgomery County including a calculation of the fee to home value ratio for the County and for other local jurisdictions, a summary of the changes in demographics and growth within the County, and an investigation into current changes in legislation at the state level that impact growth policy.

History of Impact Fees in Maryland and Montgomery County

In order to impose a development impact fee or an excise tax in a Maryland jurisdiction, that jurisdiction must have explicit authority from the state's General Assembly to do so. Sixteen Maryland counties, listed on the accompanying table, impose either a development impact fee or an excise tax. These charges support public school construction, transportation, parks and recreation projects, utilities and public safety.

Jurisdictions imposing a development excise tax may set the tax amount at any reasonable level, and a connection, or nexus, between where the money is collected and where it is spent is not necessary. The General Assembly can authorize the amount of the tax and specify activities on which the tax can be imposed.

Impact fees are more complex. Jurisdictions must study the impact of the fees on public services and establish a connection between the amount of the fee and the new development's impact. They must also collect and spend the impact fees in the same place.

Montgomery County and Impact Fees

Montgomery County established an impact fee structure in 1986 for Germantown and Eastern Montgomery County. The Council and the Executive opted for this structure because they believed it could be imposed without state enabling legislation. The fees applied to all development projects except those undertaken by the government, but could be used only for specific transportation projects. The elected officials planned to issue bonds to pay for the projects, then use the impact fee proceeds to pay a portion of the bond debt. They believed that existing residents would benefit from new transportation facilities along with new residents, so impact fees charged as part of development should not represent the entire cost of the new facility. In Germantown, officials expected impact fees to support half the cost of designated projects.

To calculate the fees, which were assessed as building permits were approved, county staff determined, for Eastern Montgomery County and for Germantown, the cost of the designated transportation project and the percentage of development in each area that was yet to occur. This fraction:

$$\frac{\text{Project cost}}{\text{Percentage of remaining development}}$$

allowed for the calculation of a factor used to assess the fees on each unit of a residential development or on the square footage of a non-residential development. Receipts from the impact fees totaled about $1 million a year. The fee structure included credits against the impact fees for improvement projects that were required as conditions of development approvals, this reduced impact fee receipts. The County has since updated the fees every two years.

Developers who objected to the fee took the matter to court, and in 1990, the state Court of Appeals held that Montgomery County had imposed a tax, not a fee, on development, and that the County had no authority under state law to impose the tax. The Council quickly re-imposed the fees under a different section of state law, which grants jurisdictions additional taxing powers, including the right to impose development impact fees. The legislation re-imposing the fees was subsequently upheld by the Court of Appeals, which found that the fees constituted an excise tax, which the county had the right to impose under the law granting jurisdictions additional taxing powers.

The County continued to collect the impact taxes in Germantown and Eastern Montgomery County until the mid-1990s, when the Council expanded the impact taxes to Clarksburg. In 2002, the Council and the Executive expanded both the scope of the impact tax structure and the areas to which it would be applied.

The Council approved the Executive's proposal to expand impact taxes to the entire county over an 18-month period. This legislation created three sets of

districts in which impact taxes would be collected: Planning Policy Areas around existing Metro stations; the Clarksburg policy area; and a general district, which included all areas, including municipalities, not part of the other two categories. The taxes would continue to be collected for transportation projects, but the projects would no longer be specific. Instead, a broader range of projects, including road projects that added capacity; transit centers or park-and-ride lots; new Ride On buses; and transit or trip reduction programs, could be funded using impact taxes. The taxes were lowest in Metro Station Policy Areas and highest in Clarksburg. The taxes are adjusted every two years, based on changes in the Consumer Price Index.

The Council also increased the rate of the County's recordation tax and specified that the increment of the increase would be devoted to school projects that were part of the county's Capital Improvements Program.

In 2003, the Council approved a separate development impact tax for schools, to take effect in March 2004. This tax applied throughout the County to residential development, with a specified rate for each housing type. The taxes could be used to fund new schools or any other project that added teaching stations.

Montgomery County's Impact Tax Structure

The development impact taxes for transportation improvements and for school improvements are similarly structured. The laws recognize that growth must be accommodated through improvements to the County's transportation facilities and its schools and find impact taxes to be a reasonable method of raising funds for those purposes. Each program sets a specific time—the issuing of building permits—for the collection of the fee. Each exempts Moderately Priced Dwelling Units, and other dwelling units meeting standards based on affordability, from the impact taxes. In some cases, the transportation impact tax requires money collected to be spent where it is collected; Metro Station Policy Area funds must be spent in the same Policy Area or an adjacent Policy Area; money collected in Clarksburg must be spent in Clarksburg; and Rockville and Gaithersburg funds must be spent in those cities. General district impact taxes may be spent anywhere in the general district. The schools impact taxes may be used anywhere in the county.

Both rate structures allow developers to apply for refunds of impact taxes if the County has not appropriated the funds for a project within six fiscal years after the fee has been collected. Each impact tax allows credits if the developer constructs or contributes to a specific improvement of the type covered by the taxes (although dedications of land for new schools do not warrant a credit).

The following tables list the transportation and school impact taxes for Montgomery County.

TABLE 1 (A)
Development Impact Tax for Transportation Improvement Tax Rates
Residential Units

	Rates (Prior to 7/01/05)	New Rates (Expire 7/01/07)
General		
Single-family detached	$5,500	$5,819
Single-family attached	$4,500	$4,761
Multi-family residential (except high-rise)	$3,500	$3,703
High-rise residential	$2,500	$2,645
Multi-family senior residential	$1,000	$1,058
Metro Station		
Single-family detached	$2,750	$2,910
Single-family attached	$2,250	$2,381
Multi-family residential (except high-rise)	$1,750	$1,852
High-rise residential	$1,250	$1,323
Multi-family senior residential	$ 500	$ 529
Clarksburg		
Single-family detached	$8,250	$8,729
Single-family attached	$6,750	$7,142
Multi-family residential (except high-rise)	$5,250	$5,555
High-rise residential	$3,750	$3,968
Multi-family senior residential	$1,500	$1,587

TABLE 1 (B)
Development Impact Tax for Transportation Improvement Tax Rates
Non-Residential Units (per square foot of gross floor area (GFA))

	Rates (Prior to 7/01/05)	New Rates (Expire 7/01/07)
General		
Office	$5.00	$5.30
Industrial	$2.50	$2.65
Bioscience facility	$0.00	$0.00
Retail	$4.50	$4.75
Place of worship	$0.30	$0.30
Private elementary and secondary schools	$0.40	$0.40
Hospital	$0.00	$0.00
Other non-residential	$2.50	$2.65
Metro Station		
Office	$2.50	$2.65
Industrial	$1.25	$1.30
Bioscience facility	$0.00	$0.00
Retail	$2.25	$2.40
Place of worship	$0.15	$0.15
Private elementary and secondary schools	$0.20	$0.20
Hospital	$0.00	$0.00
Other non-residential	$1.25	$1.30
Clarksburg		
Office	$6.00	$6.35
Industrial	$3.00	$3.15
Bioscience facility	$0.00	$0.00
Retail	$5.40	$5.70
Place of worship	$0.35	$0.35
Private elementary and secondary schools	$0.50	$0.55

Hospital	$0.00	$0.00
Other non-residential	$3.00	$3.15

TABLE 2
Development Impact Tax for Public School Improvement Tax Rates
Residential Units

	2003 Rates	Current Rates
General		
Single-family detached	$8,000	$8,464
Single-family attached	$6,000	$6,348
Multi-family residential (except high-rise)	$4,000	$4,232
High-rise residential	$1,600	$1,693
Multi-family senior residential	$0	$0

Impact tax for single–family units is increased by $1.00 for each square foot of floor area over 4,500 sq. ft. up to 8,500 sq. ft.

Impact Fees in Other Jurisdictions

The PHED Committee asked for a discussion of impact fees or similar taxes levied by other jurisdictions, and the ability of these programs to generate revenue. In addition, the Committee is also interested in the rate of growth and the characteristics of development of these jurisdictions.

Nationwide, there are 213 jurisdictions that impose a transportation impact fee. The average transportation impact fee across the nation for roads is $2,305 on a single-family unit. On a multi-family unit the average is $1,568, on retail (per 1000 square feet) it is $4,562, on office it is $2,564, and on industrial it equals $1,587. The ratio of impact fee to median home value may provide a better idea of the relative expense of such a fee. Nationally, for single-family homebuyers a transportation impact fee is on average 1.4% of the median home value. In Montgomery County, a transportation impact fee of $5,819 on a single-family unit represents 1.2% of the median home value.

School impact fees, having become increasingly popular in the past decade, can appear to be quite high. Nationally, the average school impact fee is $4,138. This represents a 2.5% fee to home value ratio. Florida and California have the highest number of impact fee programs in the country.

Florida has not only the highest number of jurisdictions that impose a development impact fee for schools, but also the highest fee to home value ratio. In Florida, the impact fee for schools can be as high as $9,981 and as low as $196 per single-family detached unit. Yet, the county with the highest school impact fee in Florida is not the county with the highest fee to home value ratio. The impact fee in Polk County is over $1,000 less than the fee in Osceola, but the fee to median house value in Polk County is 8.1%. In Osceola, the fee to

home value ratio is 4.7%. The average school impact fee for the state of Florida is $4,456, which represents a 2.4% fee to home value ratio, practically equal to the national average.

California has the second highest number of school impact fee programs. But, the state legislature limits the rate of increase in these fees. In California the range in fee to home value ratio is only 0.3% to 2.1%.

Closer to the Washington region, Richmond, Virginia imposes a school impact fee of $2,828, which equals 1.9% of the median home value. In Jefferson County, West Virginia a $9,877 school impact fee represents 6.6% of the median home value.

Locally, several Maryland counties impose school impact fees. Calvert County has the lowest impact fee to home value ratio. In Calvert County, a $3,000 school impact fee represents .9% of the median home value. In Prince George's County, an impact fee of $12,000 represents 4.4% of the median home value. While in Montgomery County, an impact fee of $8,464 represents 1.8% of the median home value. Montgomery County falls below 5 other counties within the State in terms of the relative expense of its school impact fee. Only three other Maryland counties have a fee to home value ratio below Montgomery's.

Table 3.
Ratios of School Impact Fee to Median Home Value
Owner-Occupied Housing Units[1]

	Median Home Value[2]	Impact Fee[3]	Ratio of Fee-to-Home Value
California			
Alameda County[4]	$531,300	$7,300	1.4%
El Dorado County	$497,800	$5,008	1.0%
Kern County	$210,700	$4,480	2.1%
Los Angeles[5]	$273,100	$800	0.3%
San Joaquin	$379,600	$5,460	1.4%
Santa Barbara	$646,300	$3,075	0.5%
Florida			
Brevard County	$193,700	$4,445	2.3%
Citrus County	$127,900	$1,917	1.5%
Hillsborough	$171,100	$196	0.1%
Lake County	$149,000	$7,055	4.7%
Osceola County	$186,900	$9,981	5.3%
Polk County	$106,600	$8,596	8.1%
Seminole County	$213,300	$1,384	0.6%
Volusia County	$159,500	$5,744	3.6%

[1] Selected counties from California and Florida are presented, the counties with the highest and lowest school impact fees are shown, as well as a random sampling of other counties in those states.
[2] Median House Value data is from the 2005 American Community Survey, U.S. Census Bureau.
[3] Impact Fee data is from the 2006 National Impact Fee Survey, Duncan and Associates.
[4] Hayward City, in Alameda County, California.
[5] Lancaster City, in Los Angeles County, California.

Maryland[6]			
Anne Arundel	$329,500	$3,587	1.1%
Calvert County	$349,500	$3,000	0.9%
Carroll County	$313,400	$6,303	2.0%
Charles County	$290,800	$10,247	3.5%
Frederick County	$336,100	$10,868	3.2%
Harford County	$243,700	$7,442	3.1%
Montgomery	$466,100	$8,464	1.8%
Prince George's	$273,600	$12,000	4.4%
St. Mary's County	$265,700	$3,375	1.3%
Virginia			
Richmond	$149,400	$2,828	1.9%
West Virginia			
Jefferson County	$149,500	$9,877	6.6%

Compared to other Maryland jurisdictions charging impact fees, Montgomery County's rate represents a lower fee-to-house value ratio than other comparable jurisdictions, as noted above. For example, Prince George's County charges almost $5,000 more in school impact fees for a single family house outside the Beltway than Montgomery County charges. And, the fee to median house value ratio for Prince George's County is more than three times higher than in Montgomery County. The table below illustrates the total impact fee/excise tax imposed in each Maryland county and the revenue this fee generates.

Table 4
Impact Fee/Excise Tax Rates and Revenues
Maryland

County	Type	FY 2007 Rate Per Dwelling[1]	FY 2006 Revenues
Anne Arundel	Impact Fee	$4,781	$11,127,876
Calvert	Excise Tax	12,950	5,302,300
Caroline[2]	Excise Tax	5,000	966,402
Carroll	Impact Fee	6,836	3,436,236
Charles	Excise Tax	10,859	8,649,532
Dorchester[3]	Excise Tax	3,671	1,265,851
Frederick[4]	Both	11,595	15,064,080
Harford	Impact Fee	7,442	3,400,200
Howard[5]	Excise Tax	*See note.*	13,605,188
Montgomery[6]	Excise Tax	14,283	13,212,000
Prince George's[7]	Excise Tax	19,361	43,102,486

[6] No housing data for Queen Anne County is provided in the 2005 American Community Survey.
[1] Rates listed are generally those applicable to single-family detached dwellings.
[2] A $750 development excise tax for agricultural land preservation is also imposed on single-family lots
[3] A slightly higher rates applies outside of the Cambridge and Hurlock areas.
[4] Roads tax ranges from $0.10/sq.ft. to $0.25/sq.ft.
[5] Roads tax is $0.80/sq.ft. School surcharge is $1.07/sq.ft.
[6] Excise tax is $5,819 for transportation and $8,464 for schools. School rate increases by $1 for each square foot between 4,500-8,500 gross square feet. Transportation rates vary for Metro Stations and Clarksburg.
[7] Excise tax is $13,151 for schools and $6,210 for public safety. School rate is $7,671 inside the beltway, public safety rate drops to $2,070 inside the "development tier".

Queen Anne's	Impact Fee	6,606	2,474,740
St. Mary's	Impact Fee	4,500	3,789,525
Talbot[8]	Impact Fee	5,347	1,378,430
Washington	Excise Tax	13,000	7,745,961
Wicomico[9]	Impact Fee	5,231	96,000
Total			**$134,616,807**

Reviewing Table 4, it becomes apparent that there is not a simple one-to-one correspondence between fee/tax rates and revenue across the region. Although the rates listed are generally those applicable to single-family detached dwellings, the table is followed by eight footnotes that denote program details. Several of the counties have a transportation tax that varies either by size of the dwelling or by location. A few of the school tax rates vary by location as well.

This variation in rates and mode of application has a significant effect on revenue generation. Montgomery County imposes a combined impact tax rate that is 75% of the amount charged per dwelling unit in Prince George's County. Yet, Prince George's County raised almost four times more revenue from its fees in 2006. In Anne Arundel County, the fee is only about 50% of the fee charged in Montgomery County, but the revenue collected there is almost 85% Montgomery County's revenue.

In Montgomery County, the school impact tax does not vary by location, but across dwelling types. Townhouse and multi-family units are charged a significantly lower rate than single-family detached units. Table 5 shows the construction of new housing units in several Maryland counties. Montgomery County built the most units overall, with Prince George's County not too far behind. The striking difference between these two counties is that Montgomery County built the most multi-family units by far, more than 17 times the number of units built in Prince George's County. Prince George's County, in contrast, built the most single-family units overall, almost three times as many units as any of the other counties. In addition, in Prince George's County, the school impact fee is the same across all housing types. Therefore, the level of construction as well as the rate and application of the fees all contributed to the revenue generating capacity of the various impact fee programs.

Additionally relevant is the regional housing market. Not only which jurisdictions are building what type of unit and how many but also the market prices. To compare the regional housing market, we looked at housing sales and construction in the Maryland portion of the Washington region: Anne Arundel, Frederick, Howard, Montgomery, Prince George's Counties, (Table 6). The 2005 housing sales data[1] show that while Montgomery County led this area (and state) in total number of housing sales, Prince George's County had more single family

[8] A lower rate, $4,620, applies to "in-town" development.
[9] Approximate revenue figure. Impact fee in effect for less than 1 month at the end of fiscal 2006.

Source: State of Maryland Department of Legislative Services
[1] Source: Maryland Department of Planning

sales than Montgomery County, while Montgomery County had more townhouse and condo sales than the other jurisdictions. Sales prices in Howard County were very close to Montgomery County prices while Anne Arundel and Frederick County prices were similar. One reason for the large number of condo sales in Montgomery County is that 59% of the multi-family units built in the region were built in Montgomery County (these units could be either *for sale condos* or *for rent apartments*. (Table 5).

Table 5
Housing Unit Growth (2000 to 2006) – Selected Maryland Counties
By County and Unit Type

County	Existing Units (2000)	New Residential Construction Permits								Existing + New	Annual Growth Rate
		2000	2001	2002	2003	2004	2005	2006	2000 to 2006		
Anne Arundel											
Single-Family	151,959	2,470	2,013	2,026	2,164	1,769	1,565	1,115	13,122	**165,081**	**1.19%**
Multi-Family	31,074	608	479	333	837	595	930	319	4,101	**35,175**	**1.79%**
Total Units	**183,033**	**3,078**	**2,492**	**2,359**	**3,001**	**2,364**	**2,495**	**1,434**	**17,223**	**200,256**	**1.29%**
Frederick											
Single-Family	60,483	2,695	1,721	1,352	1,605	1,718	1,414	1,098	11,603	**72,086**	**2.54%**
Multi-Family	11,813	52	262	226	232	55	458	202	1,487	**13,300**	**1.71%**
Total Units	**72,296**	**2,747**	**1,983**	**1,578**	**1,837**	**1,773**	**1,872**	**1,300**	**13,090**	**85,386**	**2.41%**
Howard											
Single-Family	69,313	1,631	1,327	1,341	1,010	1,284	1,340	1,040	8,973	**78,286**	**1.75%**
Multi-Family	21,664	551	-	206	469	553	438	527	2,744	**24,408**	**1.72%**
Total Units	**90,977**	**2,182**	**1,327**	**1,547**	**1,479**	**1,837**	**1,778**	**1,567**	**11,717**	**102,694**	**1.75%**
Montgomery											
Single-Family	231,228	2,931	3,191	2,909	2,339	2,376	1,700	1,240	16,686	**247,914**	**1.00%**
Multi-Family	102,779	2,019	2,058	2,104	2,089	1,445	1,891	1,798	13,404	**116,183**	**1.77%**
Total Units	**334,007**	**4,950**	**5,249**	**5,013**	**4,428**	**3,821**	**3,591**	**3,038**	**30,090**	**364,097**	**1.24%**
Prince George's											
Single-Family	197,254	3,179	3,049	2,485	2,808	1,875	3,255	2,918	**19,569**	**216,823**	**1.36%**
Multi-Family	103,551	277	-	78	130	73	170	115	**843**	**104,394**	**0.12%**
Total Units	**300,805**	**3,456**	**3,049**	**2,563**	**2,938**	**1,948**	**3,425**	**3,033**	**20,412**	**321,217**	**0.94%**

Note: Single-family units include detached single-family homes and townhouses. Multi-Family units include units in buildings with 2-, 3-, 4- and 5+ family units.

Source: Maryland Department of Planning, Planning Data Services.

Table 6
Housing Sales and Values – Selected Maryland Counties (2005)
By County and Unit Type

	Median Sales Price*	Residential Sales*	Median Housing Value**
Anne Arundel County			
All Residential Units	**$319,308**	**12,490**	**$329,500**
Single-family	n/a	11,547	
Detached Single-family	*$370,000*	*7,300*	
Townhouse	*$275,000*	*4,247*	
Condo	$244,450	920	
Howard County			
All Residential Units	**$390,000**	**6,218**	**$425,400**
Single-family	n/a	5,415	
Detached Single-family	*$532,900*	*2,999*	
Townhouse	*$326,600*	*2,416*	
Condo	$231,070	797	
Frederick County			
All Residential Units	**$318,000**	**6,239**	**$336,100**
Single-family	n/a	5,676	
Detached Single-family	*$415,000*	*3,272*	
Townhouse	*$275,000*	*2,404*	
Condo	$211,615	553	
Montgomery County			
All Residential Units	**$419,000**	**21,707**	**$466,100**
Single-family	n/a	16,883	
Detached Single-family	*$560,000*	*10,530*	
Townhouse	*$347,000*	*6,353*	
Condo	$275,000	4,823	
Prince George's County			
All Residential Units	**$281,500**	**18,762**	**$273,600**
Single-family	n/a	16,000	
Detached Single-family	*$325,000*	*11,929*	
Townhouse	*$246,000*	*4,071*	
Condo	$157,000	2,755	

*** Source**: Maryland Department of Planning, Planning Data Services. Mobile homes and unclassified residential units removed.
** Owner-occupied units. **Source**: U.S. Census, *2005 American Community Survey*.

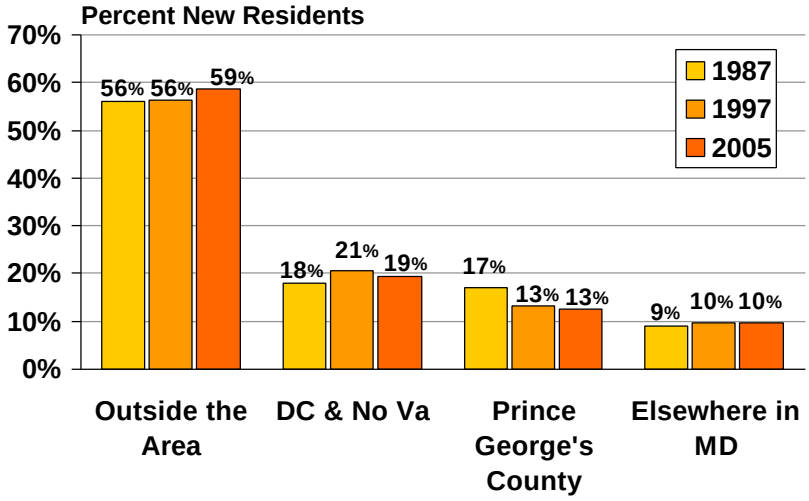
Changes in Demographics and Growth within the County

New Residents to Montgomery County

One out of 5, or approximately 72,000 households, moved into Montgomery County between 2000 and 2005. The majority of newcomers (59%) are from outside the Washington metropolitan region and the remainder, in about equal numbers, hail from elsewhere in Maryland or from the District of Columbia and Northern Virginia areas.

In-movers

More than half from outside the area



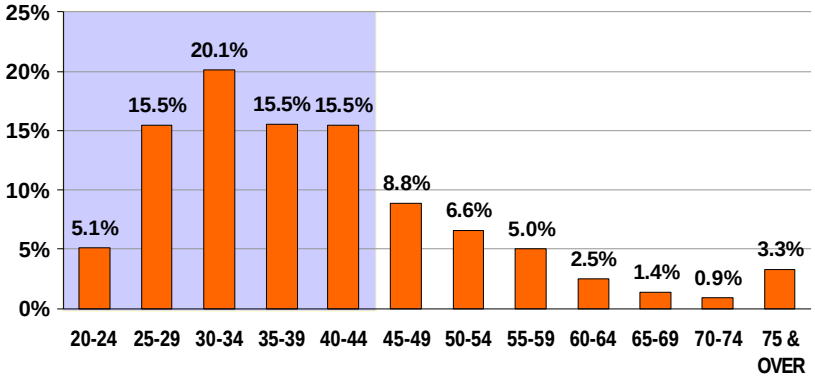
Research & Technology Center

Source: MNCPPC 2005 Census Update Survey

Most of the new households, 37%, choose garden apartments as their first residence with single-family detached houses the second favorite option at 28%. The majority of households new to the area (55%) rent their first home and are twice as likely to rent their dwelling than the County's households overall (26%). The 2004 median household income of the new resident households at $72,035 is about $12,000 below the median for the County ($83,880). This difference may be attributed to the relative youthfulness of the in-comers who have not entered the prime wage earning years of ages 45 and older. The average new householder age is 40 years old compared to 51 across the County.New Residents to Montgomery County

In-movers by householder age

Over 70% of in-movers are under 45

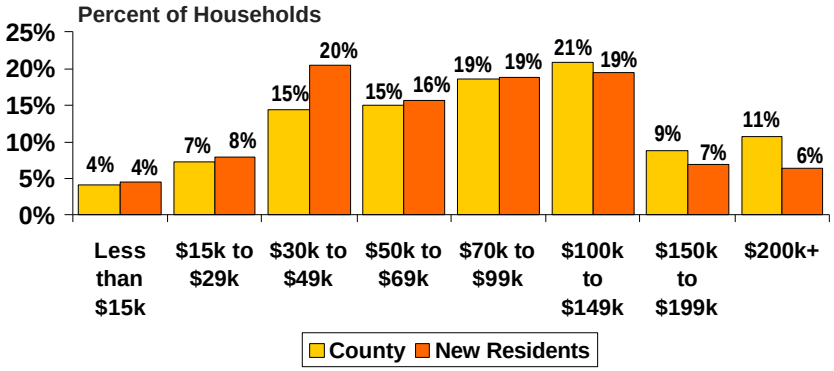


Research & Technology Center *Source: MNCPPC 2005 Census Update Survey*

Approximately 181,000 people, or 20% of the population, are new Montgomery County residents since 2000. Moving, for the most part is an occupation of the young, as the propensity to move decreases with age. This is illustrated in the accompanying chart detailing the age ranges of the in-mover head of household. In the total in-mover population, more than one-third of the newcomers range in ages between 30 and 44 and many are in families bringing toddlers and school age children (respectively, 11% and 17% of the in-movers). Less than 4% of the in-movers are ages 65 and older.

2004 household income

Youthful in-movers yet to enter prime wage earning years



Research & Technology Center *Source: MNCPPC 2005 Census Update Survey*

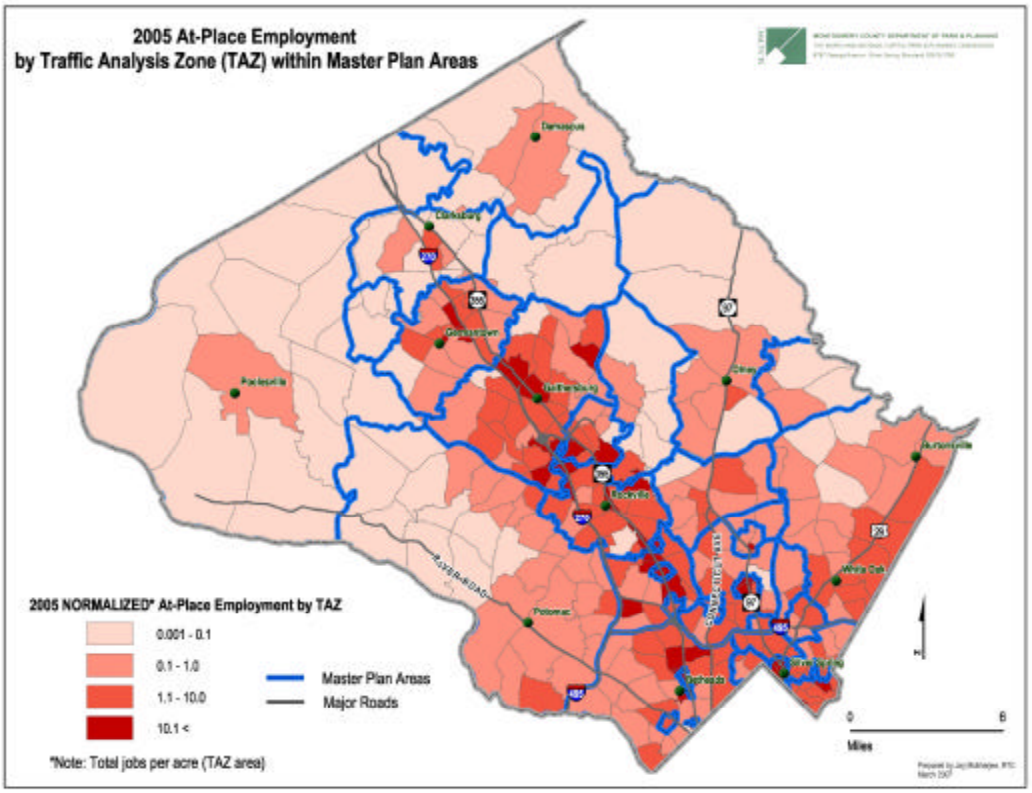
Montgomery County grew increasingly racially diverse during the 1990s and this trend continues into this decade. Of the new residents, 20% are Black or African American, 17% are Hispanic/Latino, and 15% are Asian or Pacific Islander.

These percentages are only slightly higher than what characterizes the County overall (17%, 14%, and 13%, respectively). The new foreign-born residents (and new residents in general) are usually highly educated with 72% of foreign-born adults ages 25 and older having a Bachelor's, Graduate, or Doctoral degree. The 2004 median income for the foreign-born, in-movers is $67,400 compared to $83,880 for the County.

Montgomery County Round 7.0 2005 and 2030 Forecasts by Master Plan Areas

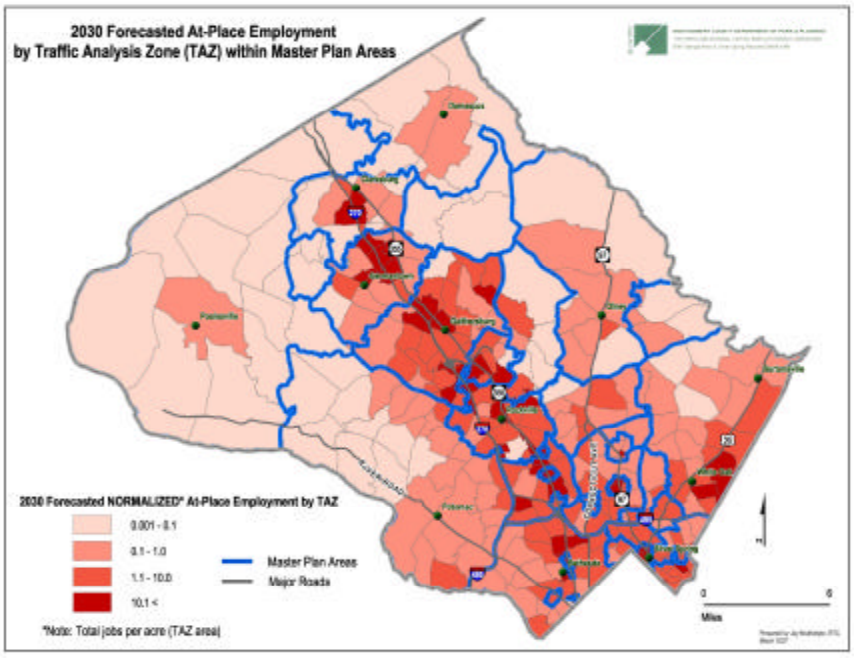
Jobs

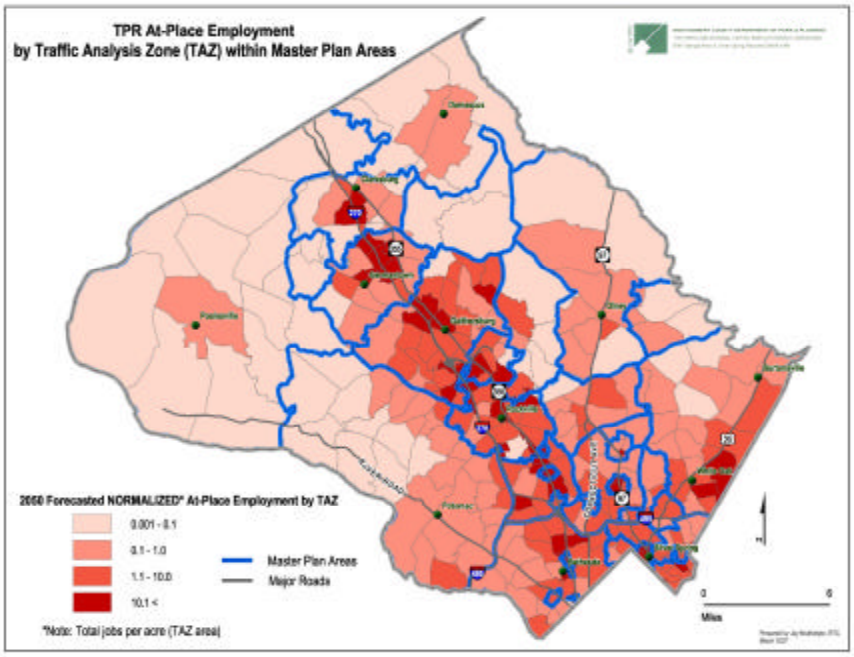
In 2005, there were 500,000 jobs in the County. Almost 70 percent of these jobs were in two planning areas, about 37 percent in the I-270 Corridor and about 32 percent in Bethesda Chevy Chase/North Bethesda.



By 2030 the County's jobs are expected to reach 670,000, an increase of 34 percent or 170,000 jobs compared to 2005. The I-270 Corridor will have 60 percent of this growth, 102,000 jobs. The Bethesda Chevy Chase/North Bethesda Planning Area ranks second with 21 percent of the County's job growth, almost 36,000 jobs. These two areas are projected to have 81 percent of the County's job growth.

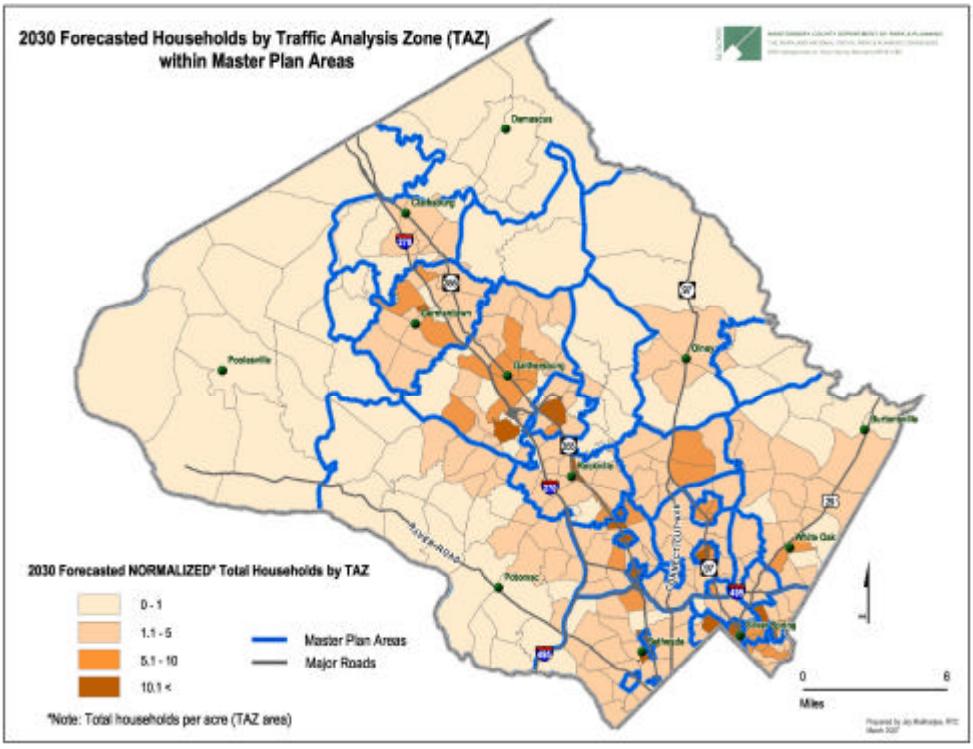
The following maps show jobs per acre in 2030 and as suggested in the Transportation Policy Report.



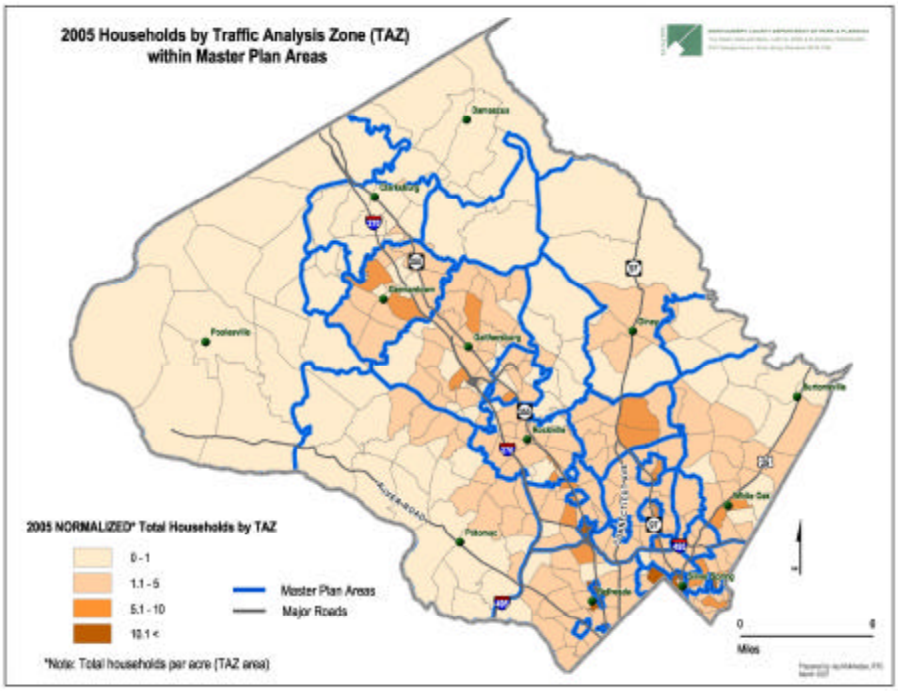


Households

The County's households are not as concentrated as the County's jobs. In 2005, the I-270 Corridor had about 102,000 of the County's 347,000 households, about 29 percent. The Georgia Avenue planning area ranks second with almost 23 percent of the County's households.



Forecasts show the County's households increasing to 441,300 by 2030, an increase of 27 percent or 94,300 households. Most of the County's household growth, 68 percent, will be in the same two areas that will lead in job growth. The I-270 Corridor ranks first with 46 percent of the County's household growth, 43,500 households. Bethesda Chevy Chase/North Bethesda ranks second with 22 percent of the County's household growth, 21,000 households.



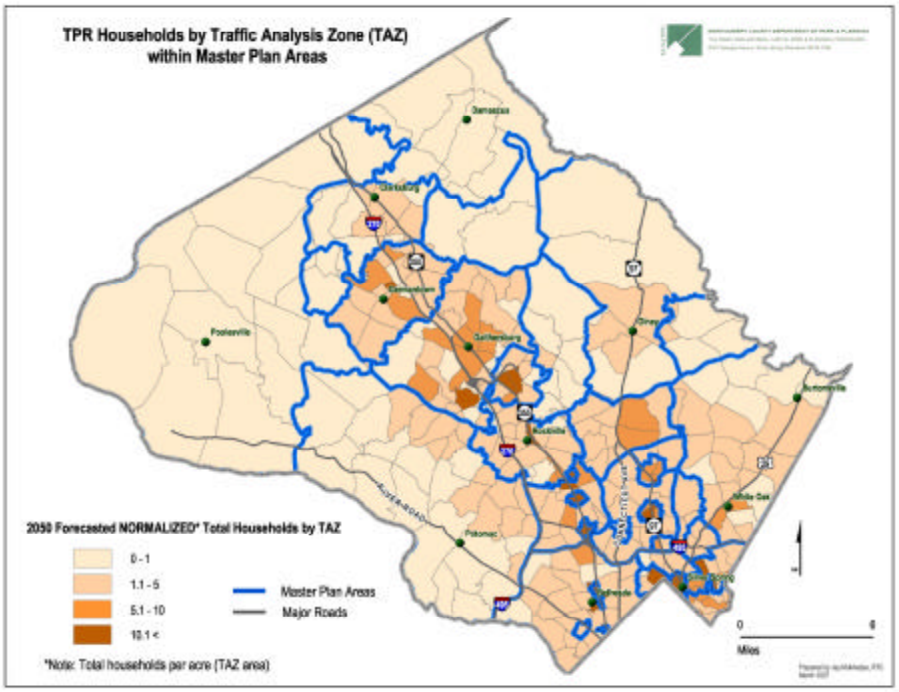


Table 7

Round 7.0 Cooperative Household Forecast for Households

Montgomery County, MD

Household Growth by Unit Type (2000 to 2030)

	2000	2005	2010	2015	2020	2025	2030
Single-Family	226,737	239,321	247,525	256,385	262,610	264,935	265,966
Multi-Family	97,828	107,679	122,475	133,615	145,290	159,865	175,334
Total Households	**324,565**	**347,000**	**370,000**	**390,000**	**407,900**	**424,800**	**441,300**

New Households by Unit Type

	2000	2005	2010	2015	2020	2025	2030	2000 to 2030
Single-Family	-	12,584	8,204	8,860	6,225	2,325	1,031	**39,229**
Multi-Family	-	9,851	14,796	11,140	11,675	14,575	15,469	**77,506**
Total New Households	-	**22,435**	**23,000**	**20,000**	**17,900**	**16,900**	**16,500**	**116,735**

Share of New Households by Unit Type

	2000	2005	2010	2015	2020	2025	2030	2000 to 2030
Single-Family	-	56%	36%	44%	35%	14%	6%	**33.6%**
Multi-Family	-	44%	64%	56%	65%	86%	94%	**66.4%**

Source: Montgomery County Planning Department, Research and Technology Center, July 2005.

Population

The household population forecasts mirror the household forecasts. The I-270 Corridor and Bethesda Chevy Chase/North Bethesda areas are expected to have most of the County's population growth.

Jobs Housing Ratio

A jobs to housing ratio of 1.5 to 1.6 jobs per household is considered balanced. In 2005, the County's jobs to housing ratio was 1.44 indicating that the County is slightly imbalanced toward housing. None of the master planning areas have a balanced jobs to housing ratio. The Bethesda Chevy Chase/North Bethesda and I-270 Corridor are the County's employment areas with jobs housing ratios of 2.76 and 1.84 respectively. Silver Spring/Takoma Park's 1.32 jobs to housing ratio is close to balanced but is more housing oriented. Potomac, Georgia Avenue, and Eastern County all have jobs to housing ratios less than 1 indicating that these areas are serving as a labor force pool for the I-270 Corridor and Bethesda Chevy Chase/North Bethesda employment areas as well as employment areas in other jurisdictions.

Between 2005 and 2030, job growth is projected to exceed household growth enough so that that the County's jobs to housing ratio will be 1.52, a better balance between jobs and housing. In 2030, none of the areas have a balanced jobs to housing ratio. Bethesda Chevy Chase/North Bethesda and the I-270 Corridor remain the employment areas with jobs to housing ratios of 2.48 and 1.99 respectively. The Bethesda Chevy Chase/North Bethesda area is becoming more balanced, its jobs to housing ratio dropping from 2.76 in 2005 to 2.48 in 2030. The I-270 Corridor is expected to become slightly more job oriented going from a jobs to housing ratio of 1.84 in 2005 to 1.99 in 2030. The other areas remain predominately housing areas but in 2030, Eastern County's ratio exceeds 1 indicating it will become more of a job center.

Examining jobs to housing ratios based on the forecast growth between 2005 and 2030 shows that the County's jobs to housing ratio is 1.80. Eastern County and the I-270 Corridor will be adding far more jobs than housing. The Eastern County's is forecast to add 5 times more jobs than households, a jobs to housing ratio of 5.11. Much of this expected job growth is due to the Food and Drug Administration's consolidation in White Oak and the proposed Technology Park near Calverton. The I-270 Corridor is forecast to add more than twice as many jobs as households, a jobs to housing ratio of 2.34. In the northern areas of the I-270 Corridor; Gaithersburg, Germantown, and Clarksburg; housing growth has exceeded employment growth. The 2005 to 2030 forecast expects job growth to catch up to the housing that has already been built in these areas.

Possible Changes in Legislation that Impact Growth Policy

House Bill 1220 – The Chesapeake and Coastal Bays Green Fund

House Bill 1220, creating a Chesapeake and Atlantic Coastal Bays Green Fund, is currently under consideration in the 2007 Maryland State legislative session. The Fund is intended to ensure that the State can, and will, meet its commitments to reduce pollution to the State's rivers, streams, and the Bay, by funding essential Tributary Strategy practices. This bill would establish the Fund and prohibit local governments from granting specified permits for new development until an impervious surface fee is paid. All new impervious surfaces will be subject to the fee, with exemptions for specified projects. Local jurisdictions will be required to collect the tax, based on the imperviousness associated with building permit requests. The bill will require the Comptroller to distribute the Fund to specified units of State government and the Chesapeake Bay Trust, to be made available to local governments through matching grants. In addition, the bill would establish a Chesapeake and Atlantic Coastal Bays Green Fund Oversight and Accountability Committee, made up of state and nongovernmental representatives, which will establish performance benchmarks and monitor financial and other accountability measures.

The Chesapeake and Atlantic Coastal Bays Green Fund is expected to generate, on average, about $130 million per year, providing critical funding for implementing restoration and pollution-reduction practices within the Tributary Strategies. It will also provide critical planning and technical assistance tools, consistent with nutrient pollution reductions and Smart Growth policies. It is intended to benefit all Marylanders, including, but not limited to: farmers, local governments, conservation groups, watermen, citizens, and academic institutions.

HB 1220 has passed the House and is now in the Senate. In its original form, the rate of the impervious surface fee depended, according to a simple formula, on whether new development is in a Priority Funding Area (PFA), or not. The version that passed the House, however, is significantly more complicated in how the fee would be assessed, and in the fee rate structure. Depending on Senate action, it may be modified extensively yet again. Many observers at present, however, do not expect it to pass.

Transportation Impact Taxes

The transportation impact tax rate structure in Montgomery County is generally progressive and most of the general approaches used are also used in other urbanized areas to both raise revenues and guide growth. Some jurisdictions have adopted innovative tools to calculate taxes based on more complex

modeling approaches and focus fee application to specific modal or project initiatives.

In establishing transportation impact taxes, Montgomery County includes certain elements in its program that are commonly used by other jurisdictions:

- The impact fee amounts are considered a pro-rata share of the cost of needed area wide improvements, rooted in an estimate of the costs of unbuilt roadway capacity distributed among estimated development growth.
- Developers are typically required to address localized impacts by providing additional transportation infrastructure and the cost of that infrastructure is counted as a credit against their impact fee payment.

The literature review conducted to date identifies two areas, however, where other jurisdictions are following more aggressive, or progressive, transportation impact fee procedures:

- Many jurisdictions have established rates based on more finely grained vehicle trip generation and or vehicle trip-length assessments, and
- Some jurisdictions have notably higher impact fees than we do, in part due to the fine-grained process noted in the prior bullet.

An August 2006 survey of fees from Duncan Associates contains summary comparisons of impact fees for some 200 jurisdictions nationwide. While Montgomery County's transportation impact tax rates remain higher than the national average, as a percentage of median home value, the rate on single-family detached units was lower than the national average. The survey provides a fairly simplistic comparison of rates across jurisdictions. Most jurisdictions, including Montgomery County, have a more complex impact fee rate structure. Some jurisdictions are shifting to more innovative means for establishing impact fee rates. For instance, Broward County, Florida, has established a separate Transit Oriented Concurrency (TOC) fee in eight of their ten concurrency districts, based on a pro-rata share of implementing a five-year adopted Transit Development Plan.

ISSUES:

The Council has raised a number of interesting questions regarding the proportion of travel in the County due to a variety of causes, including through traffic and federal government facilities. These issues will be addressed first, followed by additional issues affecting the current transportation impact tax program.

Through Traffic

Through traffic consists of automobile trips that pass through a jurisdiction without having either an origin or destination in that jurisdiction. They create a quandary because these trips are beyond the reach of local growth management and infrastructure financing programs. Prior analyses have estimated that about one-third of the traffic entering the County is through traffic, primarily associated with the Capital Beltway. We have not yet created an updated estimate of through traffic, but we are working on an assessment of through traffic not just at the County boundaries, but on all county roadways. Such an estimate will likely result in a lower estimate of the proportion of County travel that is through traffic.

Regardless of the actual amount of through travel in the County, staff finds that there is no effective way other than user fees (such as tolls collected at the County boundary) to reduce the impact of through traffic. Some limits have placed on traffic entering the County through the agricultural reserve by adopting master plans that constrain roadway widening (limiting I-270 to six lanes at the Frederick County line, US 29 to four lanes at the Howard County line, and all other roadways to two lanes). Most techniques to constrain through traffic, however, including capacity constraints and toll facilities, work equally to impede both traffic destined to jobs or housing *within* the County as well as *through* traffic.

Government Employment

Table 8 provides an estimate of the proportion of office employment in Montgomery County due to federal, state, and local government. This estimate is derived by comparing Maryland DLLR government employment data for 2006 to our Cooperative Forecast total office employment for 2005.

As indicated in Table 8, total government employment in Montgomery County accounts for about a third of our office workforce, divided evenly between federal and local government employees. While the combination of these two sources may not be completely accurate, the conclusion remains that we owe a significant portion of our economy to the government workforce.

Table 8
Government and Private Sector Employment
Montgomery County

Office Employment Type	Number	Percent
Federal Government	39,642	16%
State Government	1,006	<1%
Local Government	38,661	16%
Government Subtotal	79,309	32%
Private Sector	168,472	68%
Total Employment	**247,781**	**100%**

The 2006 *Economic Forces* report estimates that the projected growth rate in employment (both federal and civilian contractors) at Montgomery County federal facilities from 2006 to 2020 is 18%. Our estimate of total county employment for the period 2005 to 2020 is 23%. Thus, it appears that the proportion of government employment will remain fairly constant over time. By 2030, the office workforce in Montgomery County may include:

- 19,100 additional federal government employees
- 500 additional state government employees
- 18,600 additional local government employees
- 81,300 additional private-sector employees

Funding Apportionments, Impacts, and Responsibilities

Most local jurisdictions base transportation impact fees on projected demographic growth and the local government share of transportation system capacity expansion. This practice is generally limited by enabling state legislation which generally allows the assessment of an impact fee or excise tax to cover the cost of adequate public facilities, but not to cover operating or maintenance costs or to raise general revenues.

In the 2003 document "A New Vision for Managing Growth in Montgomery County", staff noted that if the total cost for providing master-planned infrastructure in Montgomery County (then estimated at $5.9B) were divided evenly among every new job and new dwelling unit, the cost per job and cost per unit would be about $26,000. However, the delegation of transportation system responsibilities among federal, state, and local agencies is complex. The consideration of how new development impact taxes in Montgomery County might be used to subsidize federal highway system funding or enable renegotiation of the WMATA Compact would be an interesting academic exercise, but probably not very pragmatic.

Therefore, our analysis does not anticipate major changes in the apportionment of transportation system funding among federal, state, regional and local agencies, which reflects existing agreements regarding impacts and responsibilities. Planning staff leaves identifying opportunities to increase state and federal funding to another forum, and focuses on the analysis of the impact tax system that can strengthen local funding of needed transportation system improvements.

Analysis Timeframe

In an effort to "think regionally; act locally", any analyses on impact fees could be based on work prepared for the Metropolitan Washington Council of

Governments (MWCOG) from both the demographic forecasting and transportation system perspectives. Future impact tax rates could be based on an estimate of growth and transportation system needs through the most distant horizon year in the MWCOG Cooperative Forecasting arena, currently 2030. This long-range, regional approach provides several advantages:

- The impact tax rate structure can be revised on a regular, periodic basis to reflect demographic, transportation system, or funding changes that occur on the regional level.
- A long-range perspective means that substantial changes to the six-year capital program (such as the initiation or close-out of a project like Montrose Parkway) would be buffered during the periodic reconsideration of impact tax rates.
- A finite horizon year (rather than a master plan horizon) means that changes in land use, zoning, or master planned transportation infrastructure can be coordinated regionally and that the effects of improved information (such as our residential capacity estimate of 2005) are buffered.

Revision to developer credits for transportation impact fees

Predicting revenues from Montgomery County's transportation impact taxes is complicated by the developers' ability to take impact tax credits for projects they must construct or contribute to as a condition of a development approval. Although the County assesses a developer the entire calculated impact tax for each unit he builds, the Planning Board may also require him to construct specific transportation improvements. A key question is whether these improvements should be instead of, or in addition to, the impact taxes assessed.

The Planning Board referenced this issue in its discussion of the first interim report of the Growth Policy Study. The Planning Board discussed a policy basis for establishing that new development has a responsibility to contribute to the existing network of public facilities. Board members noted that the Washington Suburban Sanitary Commission charges new development a "systems development charge" – a concept that could be applied to other public facilities. That idea recognizes that much of the development potential of any parcel of land is the result of previous, and massive, public investments in infrastructure. Land that is not served by roads, transit, schools, water and sewer, or public safety is land with modest development potential. A development excise tax could be structured as a means of recapturing some of the added land value resulting from previous public investments.

The uncertainty associated with impact tax credits contributed to a Council decision in September 2005 to reduce the revenue projections for the impact tax from $12.5 million in fiscal 2007 to $8 million, and to adjust its projections for the

remaining CIP years accordingly. Planning staff is considering the removal or revision of these credits.

School Impact Taxes

ISSUES:

Funds Generated from Impact Taxes

When the County Council approved the schools impact taxes in 2003, it did so with certain assumptions about how much money the taxes would generate. The Council was advised that the taxes would generate an estimated $24 million in fiscal year 2005 and $28 million annually thereafter. The assumptions were detailed and included estimates of the number of additional units; the percentage of each housing type; the number of units in each of the tax districts; and the percentage of units that would be exempt from the impact taxes.

The revenue assumptions proved to be optimistic. The taxes generated less than $8 million in fiscal 2005 and less than $7 million in fiscal 2006. A *permit rush* in which developers raced to submit building permit applications prior to the effective date of the impact taxes can explain much of the fiscal 2005 shortfall; about 1,700 permits approved in fiscal 2005 were not subject to the impact tax, about half the assumed number of additional units. Of course, this effect does not extend to the fiscal 2006 shortfall.

It is estimated that 72% of the growth in residential development for Montgomery County between 2005 and 2030 will be in multi-family dwellings. This phenomenon will further limit the expected income stream from school impact taxes since multi-family dwellings are taxed at a lower rate than single-family homes.

Other jurisdictions base their impact fee rates differently. Rather than base the rate on the type of dwelling unit (single-family detached, single- family attached, etc.), the rate is based on the number of bedrooms or size of the unit. The literature on impact fees has suggested that there are benefits to using this approach. It allows a closer correlation to actual impact, because student generation does vary by number of bedrooms and size of housing unit, with some manageable limitations (a locality that charged by the bedroom has found an increase in the number of rooms called “dens;” student generation increases as square footage increases, but only up to a point). It is also less regressive.

In addition, the Council could consider the imposition of some type of development related fee on commercial property. This revenue could be used for a variety of programs, including schools. Any development, including infill and

redevelopment, that brings jobs to an area also brings workers. These workers will use the transportation network, their children will go to school, and their families will use parks and libraries and other public services. But, most importantly, employees for the jobs created by development and redevelopment will need housing they can afford.

Funds Generated from the Recordation Tax

The current recordation tax in Montgomery County is applied to the transfer in ownership of residential property. A major source of the pressure on schools comes from changes within a community due to neighborhood turnover whereby the neighborhood evolves from one with an aging population to one with more school age children. For this source of school enrollment change, the revenue captured by a recordation tax appears appropriate to fund school improvements necessitated by the increased pressure on existing infrastructure.

In high growth areas, such as Clarksburg, school population growth is the result of new construction; therefore impact taxes can effectively finance a large proportion of school capacity needs. However, in most of the County, school population growth is due to turnover in existing housing stock and redevelopment of existing homes. The recordation tax does a better job of capturing revenue for schools from this growth and turnover. In recent years, the recordation tax has generated much more revenue than the impact tax; in 2006, the recordation tax generated $44 million compared to $6.9 million for school impact taxes.

The relatively modest revenue raising capacity of impact taxes and the expected future growth within the County attributable to redevelopment or infill suggest that, changes in the recordation tax on residential property transfers should be included among the options for increasing revenues for financing school capacity.

Consideration of Alternative Financing

Two alternative methods for financing infrastructure growth are Tax Increment Financing and Development Districts.

Tax Increment Financing

The Infrastructure Financing team researched literature related to *Tax Increment Financing (TIFs)* and had discussions about *TIFs* with the Montgomery County Department of Finance. *TIF*s are often used to stimulate economic development in blighted urban areas. Capital improvements are financed by selling bonds that are paid off using the additional tax revenue (the tax increment) generated by the improvements. In Maryland, all counties and municipalities, other than Baltimore

City, are authorized by the *Tax Increment Financing Act* to use tax increment financing for the purposes of financing the development of industrial, commercial or residential areas.

The use of *TIFs* seems fairly straightforward. Essentially, the local government determines the property tax revenue it is collecting in a given area before redevelopment occurs. Bonds are issued to the local government, and the proceeds of this are used to improve and redevelop the area. As redevelopment occurs, tax revenue increases, and the excess tax revenue above the pre-redevelopment state is used to pay off the loans or bonds.

However, there are potential problems with *TIFs*. If tax increment financing is imposed where it is not needed to encourage development – where development would have occurred in the absence of the *TIF* – then the tax increment cuts into general tax revenue that the local government would have otherwise received. This is especially true when the program is set up to freeze property valuations for general tax assessment at the pre-*TIF* level. The tax increment also deprives other governmental bodies that receive property tax revenue – school districts, other special districts, and so forth – of the increase they would have otherwise received.

Another potential problem is the possibility that increased development within the district will fail to generate sufficient revenue to retire the bonds, leaving the government with the responsibility of servicing the debt from the general fund.

Development Districts

In 1994 the Montgomery County Council enacted legislation to authorize the creation of development districts and the issuance of County bonds to finance the construction of certain infrastructure improvements in development districts. As stated in the legislation, the purpose of the development district is to create a method to finance infrastructure improvements necessary for the development of land areas of the County identified for new development. The bill authorizes taxes and assessments on the property within the district to pay for the bonds, which finance the construction of the improvements. Development districts have been used in Germantown and in Clarksburg. In Clarksburg, two districts are under review and a third one has been formed, however, the third district has not yet sold any bonds to finance infrastructure improvements.

The development district concept, particularly as it is used to finance infrastructure required by the adequate public facilities ordinance, is typically applied to large areas of mostly-vacant parcels that the owners are ready to develop. It is seen as “fair” if all or most residents within the district are both paying to retire the bonds and also benefiting from the infrastructure that has been built. In areas where new growth is interspersed among existing

development, it can be more problematic to assess some landowners an added increment on their tax bill and not their next door neighbor.

It has become evident that development districts raise a number of other issues, including the transparency of the process and "who pays" for the infrastructure to support growth. Impact taxes are probably more transparent than development districts – developers should be adept at incorporating an impact tax into their construction *pro formas*, but potential homebuyers will have more difficulty comparing the initial price and future tax burden of a home *inside* a development district to the initial price and future tax burden of a home *outside* of a development district. Because of greater transparency, and because of the backwards capitalization effect mentioned at the beginning of this paper, the use of impact taxes are therefore more likely to achieve a result where the "developer pays" rather than the homebuyer. Development districts are, of course, much more complicated to implement than an impact tax.

Although Planning staff is generally less enthusiastic about these two district-level taxing mechanisms (TIFs and development districts) than we are about impact taxes, we note that district-level taxing mechanisms or fee-supported district level programs can be effective. If, for example, the County were considering a new Metro stop somewhere along the Red Line, it could be appropriate to assess an added tax on landowners near the new station that would benefit from it.

Conclusion

The current system of impact taxes is yielding a fairly modest revenue stream – in the case of transportation, modest compared to needs; in the case of schools, modest compared to expectations. Given the forecasts of future growth within the County, revenues from impact taxes will not increase substantially without changes to the program.

The number of households in Montgomery County is expected to increase approximately 27% by 2030. It is further estimated that 72% of the growth in residential development for the same time period will be in multi-family dwellings. With respect to schools, this type of growth will result in less revenue than was once predicted. As stated earlier, multi-family dwellings are taxed at a lower rate than single-family units. Thus school impact fees cannot generate the revenue once predicted whereby many more single-family units were forecast. The recordation tax has proven to be a more dependable source of revenue for schools.

Transportation impact fees have provided a more predictable stream of revenue than the school impact tax. Transportation impact tax rates vary by region within the County and across various land uses. These program characteristics are based on the same findings and objectives as the County's growth management

systems. The current tax rate structure varies rates by geography and land use, primarily to reflect the variations in auto trip generation that also occur by geography and land use. Rates vary geographically because development in close proximity to Metro generates fewer auto trips, and because in Clarksburg the amount of needed transportation infrastructure is large. In theory, a variation in impact tax rates can help steer development to lower-rate locations provide an incentive to developers when making location decisions, although it is not clear that the current variation is sufficient to influence developer decisions.

The transportation impact fees could be based on an estimate of growth and transportation system needs through a long-range approach using a more distant horizon year. Predicting revenues from the transportation impact fees is particularly difficult because of developers' ability to take impact fee credits for projects they must construct or contribute to as a condition of a development approval. Although the County assesses a developer the entire calculated impact tax for each unit he builds, his project may also include a requirement to construct millions of dollars in intersection improvements, which can offset his impact taxes on a dollar for dollar basis.

The goal of analyzing both the school and transportation impact tax programs is to improve our ability to efficiently and equitably fund the infrastructure needs of the County, either by modifying the rates and/or application of the fees for both school and transportation programs. In addition, if improving the revenue raising capacity of the program is also a goal, alternative-financing mechanisms should be considered.

Common Indicators from Around the U.S.

An indicator presents a trend over time to allow residents and decision makers to track and monitor select social, economic and environmental conditions. Indicator programs recognize that communities are complex, dynamic natural and human settlements and, therefore, attempt to measure progress toward specific quantifiable goals or targets. Indicators simplify vast amounts of information and data, and thus provide a common ground on which communities create relationships, build trust and consensus, and base decisions.

Numerous jurisdictions across the county have successful indicator programs, several of which were studied by the sustainable growth team: Sustainable Seattle; King County, Washington; Santa Monica, California; San Mateo, California; and Marin County, California. With the exception of Sustainable Seattle, which is run by a citizen-managed non-profit organization, these programs are operated by government entities.

These programs are successful largely because they represent the values, interests and concerns of key stakeholders in their respective jurisdictions. Redefining Progress, a non-profit organization based in California that tracks indicator programs nationwide, identifies 11 important characteristics of indicators:

1. Relevant. The indicator tells you something about the system you need to know, and it is meaningful to your community.
2. Valid. Understandable rationales exist for using both the specific indicator and for drawing conclusions from it.
3. Credible. Community members must believe it important to measure.
4. Measurable. Data must exist that are relevant and linked to goals/targets.
5. Consistent and Reliable. The data must be available over time.
6. Comparable. Community and civic leaders should be able to use the data to compare progress to other jurisdictions.
7. Understandable. Indicators must be simple and logical
8. Leading. Like the canary in the coalmine, an indicator should forewarn of developing problems.
9. Compelling and interesting. Remember, you must be able to communicate results and grab people's attention.
10. Engaging to local media.
11. Accessible and affordable.

Generating a sustainability indicators program, or at least identifying the framework for developing such a program, offers a logical compliment to effective growth policy. Indicators, developed by stakeholders from the community, business and government, provide an opportunity to clearly measure progress and evaluate success. Ultimately, indicators provide an additional tool for better policy formation, allowing decision makers to establish causal links between planning interventions and outcomes. Any developed indicators would then function as the backbone for the forthcoming Energy and Environment Functional Master Plan Process, during which additional quality of life indicators not necessarily limited to growth policy could be identified.

Common Indicators from Around the U.S.

The indicators included in this table represent those indicators we found most relevant to growth policy issues and for which Planning Board or County Council decisions on growth and development could alter an indicator's progress or trend. We broadly grouped similar indicators based essentially on the pillars of sustainability described above—environment, social/equity and economy—and further subdivided them to improve organization and readability. The table shows which indicators repeat and where categories of indicators are similar and at times identical. With the current county focus on green building, we added the draft Leadership for Energy and Environmental Design (LEED) for Neighborhood Design to illustrate measurable attributes of community design that could support sustainability.

Indicator Category	Sustainable Seattle	King County	Santa Monica	San Mateo County	Marin County	LEED-ND
Environment – Land Use and Transportation						
New Construction in Urban Areas		Urban Center Residential Permits As Percentage of Total Permits	Percent of residential, mixed use projects within ¼ mile of transit nodes			
Land Consumption		Ratio of Land Development and Population Growth Percentage of New Housing Built on Redevelopable Land				A variety of housing sizes and types that achieves 0.5 according to the Simpson Diversity Index
Parks and Open Space	Number of city residents within 1/8 mile of open	Acres Per 1,000 Residents	Acres of public open space by type	Acres per 1000 residents	Acres of county-owned neighborhood parks	Parks, green plazas or squares are at least 1/6 acre in area, and at least 150' in width

Common Indicators from Around the U.S.

Indicator Category	Sustainable Seattle	King County	Santa Monica	San Mateo County	Marin County	LEED-ND
	space		Percent of households and population within ¼ and ½ mile of a park			Active open space (playfields etc): of at least 1 acre lies within ½ mile walk distance of 90% of dus and non-residential projects larger than 7 acres-all parks shall average at least ½ acre in size4
Modes of Travel		Percent of Population By Mode Choice For Work Trips Percent Change In Jobs & Bus Ridership Change In Average Commute Time For County Residents Percent Increase In Use – Commercial vs Non Commercial Vehicles	Number of trips by type Average vehicle ridership Annual bus and transit ridership Average Vehicle Ridership of businesses with greater than 50 employees Percent of residents who have	Commute in County By Mode	Modal travel split Countywide Modal split by County employees	Implement a TDM program that reduces weekday peak period by at least 20% compared without any TMD requirements Sites with transit service of 20 or more accessible transit service per day; in a MPO and transportation analysis zone where VMT per capita or SOV driving mode share is no more than 80% of the average of the metro region as a whole

Common Indicators from Around the U.S.

Indicator Category	Sustainable Seattle	King County	Santa Monica	San Mateo County	Marin County	LEED-ND
			used a sustainable mode in the last month			
Vehicle Miles Traveled		Vehicle Miles Traveled In County – Total & Per Capita	Total VMT	VMT Within County		Development within MPO and within Traffic Analysis Zones where VMT per capita or SOV driving mode share has been demonstrated to be no more than 80% of the average of the region as a whole
Bicycle Lanes and Paths			Percent of arterial streets with bike lanes, Total miles of bike paths		Miles of Class I and Class II bicycle paths	50% of dwelling units and business entrances are within 3 miles of at least 4 or more diverse uses using an existing biking network; or 50% of all buildings are located within ¼ mile walk to multi-use trail or Class I bicycle trail of at least 3 miles in length
Bicycle and pedestrian safety			Annual number of bicycle and pedestrian collisions with motor vehicles			
Traffic Congestion –			Number of		Average	

Common Indicators from Around the U.S.

Indicator Category	Sustainable Seattle	King County	Santa Monica	San Mateo County	Marin County	LEED-ND
Level of Service			signalized intersections and local streets with LOS D or lower		congestion delay	
Residential/Mixed Use Projects in proximity to transit			Percent of Residential/Mixed Use Projects within ¼ or ½ mile of transit			Locate development that is near existing or planned transit service so that at least 50% of dwellings and business entrances are within ¼ mile walk distance of bus or streetcar stops or within ½ mile walk distance of bus rapid transit stops
Environment – Ecology, Energy and Public Health						
Air Quality		Number of Days In A Year In Each Air Quality Category		Number of Days Over California Standard	Greenhouse gas emissions from county government sources	Supports the design and construction of energy efficient buildings to reduce air pollution and environmental impacts from energy production; Demonstrate a minimum 10% of proposed building performance compared to the baseline building performance rating per ASHRAE/IESNA Standard 90.1.2004
Energy Consumption		Per Capita			Fuel	Reduce energy

Common Indicators from Around the U.S.

Indicator Category	Sustainable Seattle	King County	Santa Monica	San Mateo County	Marin County	LEED-ND
		Energy Consumption – BTU's Per Year			consumption by County vehicles Number of zero or low-emission County vehicles Electricity use per employee in County buildings Total MW of County photovoltaic systems	consumption and production by increasing the efficiency of the power delivery system; onsite energy generation system with peak electrical generating capacity of at least 5%; incorporate on-site nonpolluting renewable energy
Water Consumption		Total & Per Capita Consumption – Gallons Per Day		Per Capita Water Consumption	Water usage by County facilities	*Non-residential:* Employ strategies that in aggregate use 20% less water than the water use baseline *Residential:* Average flow rate of all lavatory faucets and shower heads must be <2.0 GPM; landscaping does not require permanent irrigation systems
Surface and Groundwater Water Quality		Proportion of Streams In Each Biotic Status Levels of		Number of and amount of Organic Chemicals Found in Drinking	Water quality (Macro – invertebrate diversity)	

Common Indicators from Around the U.S.

Indicator Category	Sustainable Seattle	King County	Santa Monica	San Mateo County	Marin County	LEED-ND
		Arsenic, Nitrate & Lead		Water		
Impervious and Pervious Surfaces	Percent of land identified as urban or residential		Percent of Permeable land area Percent of open space that is permeable		Percent of land preserved Miles of open space trails	*Non-Roof*: Shade trees; paving materials with a Solar Reflectance Index (SRI) of at least 29; open grid pavement system; place a minimum of 50% of parking spaces *Roof*: Use roofing materials that have a SRI of 29 or 78 depending on the roof slope; Green-vegetated-roof for at least 50% of roof area
Biodiversity				Total Number of Plant and Animal Species Listed as Rare Threatened and Endangered	Presence of key indicator species	Protect species and ecological communities-comply with Habitat Conservation Plan under Endangered Species Act
Tree Protection and Conservation			Percent of tree canopy coverage by neighborhood Percent of newly			Use native trees and plants

Common Indicators from Around the U.S.

Indicator Category	Sustainable Seattle	King County	Santa Monica	San Mateo County	Marin County	LEED-ND
			planted and total trees that meet defined sustainability criteria			
Social Equity						
Supply and Demand for Rental Units		Number of Affordable Rental Units By Income Group				15% of total rental units priced for 50% of area median income; at least 30% of rental units should meet 80% area median income
Home Purchase Affordability	% Market price of housing that is above affordable level	Gap Between Affordable Price For Median HH and First Time Buyer HH Compared To Median Home Value	Average cost of home ownership	Average cost of home ownership		10% of new for-sale housing is priced for households up to 80% of area medial income; 20% of households up to 120% median income
Existing Housing Units Affordable to Low Income Households		% of Countywide Housing Affordable to Low Income Groups	Percentage of households who can afford average cost of housing			

Common Indicators from Around the U.S.

Indicator Category	Sustainable Seattle	King County	Santa Monica	San Mateo County	Marin County	LEED-ND
Economy						
Location of Employment		Percentage of New Jobs Created In Urban Centers	Percent of county employers who live in County			
New Housing Units Built Through Redevelopment						
Balance of jobs and housing		Change In Jobs Per Housing Units In King & Surrounding Counties	Ratio of housing to jobs			Include a residential component equaling at least 25% of the development's total building sq.ft.; locate development within ½ mile walk distance of a # pre-development jobs;
Agriculture	Number of traditional farms Number of organic farms and Number of farmer's markets and vendors Acres in King		Percentage of local produce served at County-owned facilities Annual number of farmers markets			Dedicate permanent and viable growing space and/or related facilities per square feet-related to residential development; alternative is to purchase shares in Community Supported Agriculture program; proximity to a farmer's market-1/4 mile

Common Indicators from Around the U.S.

Indicator Category	Sustainable Seattle	King County	Santa Monica	San Mateo County	Marin County	LEED-ND
	County with Agricultural Zoning					

APPENDIX D
DESIGN EXCELLENCE TEAM REPORT

Achieving Design Excellence in Montgomery County

INTRODUCTION

The following discussion of design excellence is intended to address the qualitative methods to achieve the more specific objectives identified in the other papers included in the Growth Policy Report. Design excellence is not intended as a "stand alone" discussion. As an example, if the report on sustainability identifies a set of objectives for the preservation of the environment, the design excellence report provides the tools to achieve a quality environment – design excellence.

Planning in Montgomery County in the next century will require significant attention to design quality in community building. Directing development to more dense Metro station areas and the I-270 Corridor, and away from rural areas is a hallmark of the General Plan …on Wedges and Corridors for Montgomery County. Montgomery County has a limited amount of available land for development. Redevelopment of existing areas including older retail centers could be a focus of development. Preserving the character of the existing rural communities continues to be a challenge. The character of the major transportation travel routes could be significantly improved. From an economic point of view, design excellence should also be part of maintaining the County's competitive edge in attracting quality businesses in the 21st century global market place. These development conditions require attention to design in community building for success as part of a comprehensive growth policy.

This report recognizes that the discussion of design excellence is limited by the tools authorized by the laws and administrative procedures established for the State of Maryland. As an example, existing regulations already provide a bonus density for including moderately priced dwelling units, work force housing, and amenities and facilities as an accepted practice in Montgomery County. Providing bonus densities requires quality design to establish compatibility with existing neighborhoods.

This report provides options for augmenting and enhancing the planning tools and methods authorized for Montgomery County. The discussion of design excellence is concentrated on the following three areas:

- Streets and Highways (coordinate with the changes underway to the Road Code)
- Public spaces (clarify and enhance the requirements for public use space, green space, and active and passive recreation area identified in the Zoning Ordinance)

- Blocks and buildings (coordinate with the finding for compatibility, and the finding for the provision of adequate, safe and efficient layout of buildings and open space specified in the Zoning Ordinance)

The following group of tools could be augmented and enhanced to foster design excellence in Montgomery County:

- Master Plans and Sector Plans (review the design guidelines included in these plans)
- Zoning Ordinance (enhance the findings for design excellence, and create form-based codes to foster design excellence)
- Design Guidelines (provide additional guidelines separate from master plans, and the provisions in the Zoning Ordinance for streetscape standards, urban recreation guidelines, guidelines for town centers and environmental guidelines)

The following paragraphs provide a more detailed discussion of the ideas to improve design excellence in Montgomery County.

DISCUSSION

Design in the built environment is the tool to create places for living, work, leisure and transportation. A program of needs and constraints guides the design process and sets an objective for the design process. The overarching vision of sustainability is a significant guiding principle and objective for design excellence in the built environment. Before discussing how to achieve design excellence, concrete terms should define the goals of design excellence in Montgomery County under the umbrella of sustainable design, and in ways that are understood by all stakeholders and participants in the development process. Sustainability should be defined at different scales (countywide, neighborhood, streets, block, buildings, and open spaces); and the most sustainable development pattern at each scale. A well-defined and clear set of objectives should set priorities and resolve conflicts among competing and conflicting goals.

Achieving design excellence is a complex and long-term undertaking that involves numerous stakeholders in both the public and the private sectors. This report focuses on how to achieve design excellence mainly through the public review process and better design of the public infrastructure. We propose that the following three principles guide the design excellence initiative in Montgomery County:

- Design excellence is an important value in the process of community building in Montgomery County
- Sustainability is a guiding principle for land use planning and design
- The public realm an important concern for design excellence

The third principle in the list--the public realm--is the area of the focus of this report. The quality of the public realm—streets, sidewalks, parks and open spaces, shopping centers, and all other public places—forms the basis of our perception of a place. Although the quality of the private realm is important in that it impacts the health and welfare of its inhabitants, the use of energy, building materials and other resources, the public realm is the context in which the private realm exists. Design excellence should be focused on the quality of the public realm. The following discussion lays out a framework on how to improve the public realm through the development review process mainly by improving our planning and development tools such as master planning; regulatory planning; public facilities and the CIP; and promotion of good design and staff training.

MASTER PLANS, ZONING ORDINANCE AND DESIGN GUIDELINES

A. Master Plans

The County's master plan, the General Plan *… on Wedges and Corridors*, defines the land use and design vision of the county. This vision is further refined in forty-four area master plans and sector plans. These master and sector plans vary in terms of their style and degree of design guidance - some are very detailed while others are more policy and land use oriented. We need to look at the master plan development process and create a master plan protocol about how much design detail should be included in the master plans.

B. Zoning Ordinance

After the area wide recommendations on land use are set in the master and sector plans, a significant portion of the implementation of the recommendations occurs through the Zoning Ordinance. The design guidance in the Zoning Ordinance varies depending upon when each zone was created and what the prevailing best practice on designing development controls at the time was. Today, new techniques such as form-based codes or smart codes include higher design emphasis than the typical traditional Euclidean zones. The Zoning Ordinance could be revised to include greater emphasis on design guidance as follows:

- Revise the CBD Zones
- Create new zones for Metro station areas, commercial areas and mixed-use areas
- Create new floating zones for commercial areas and mixed-use areas
- Augment the findings for design excellence in project plans, preliminary plans, and site plans

C. Design Guidelines

Design guidelines have been used in Montgomery County to provide more detailed design guidance generally not possible, and sometimes not desirable, through the Zoning Ordinance. Design guidelines to supplement the master plans and the Zoning Ordinance. The Planning Board could approve guidelines for staff use to provide detailed guidance for streetscape, recreational needs, compatibility of buildings and open spaces, and environmental protection.

FINDINGS FOR PROJECT PLANS, PRELIMINARY PLANS AND SITE PLANS

The second set of tools in achieving design excellence in Montgomery County is regulatory processes. It includes project plans, preliminary plans, and site plans. Design excellence for projects going through any of these processes can be achieved by including more focused design guidance. The existing findings required for approval could be expanded to emphasize design excellence. These findings could be tailored to the specific needs of an area starting with two broad geographic categories: inside the Ag Reserve; and outside the Ag reserve.

A. Inside the Ag Reserve

The following considerations could augment the goal of preserving agriculture in the Ag Reserve:

- Is the proposed use consistent with the intent of preserving agriculture?
- Are the proposed uses and structures clustered to save agricultural land?
- Does the proposal preserve rural character of the area by preserving view sheds and unique vistas, rustic roads, historic resources and their settings, and the setting and character of small towns?

B. Outside the Ag Reserve

The areas of high density such as CBDs, Metro stations areas, mixed-use town centers, and other commercial areas could be the focus of design excellence outside the Ag Reserve. For projects going through any of the three regulatory processes (project plans, preliminary plans, and site plans) existing findings should be augmented to include a greater emphasis on design excellence. These findings should focus on three major areas:

Findings:

- Streets and highways (coordinate with the revised Road Code with standards for urban, suburban, rural and rustic roads):
- Public spaces (local parks and open spaces, public use spaces and amenities, spaces between structures); and
- Blocks and buildings

The design excellence findings in the project plans, preliminary plans and site plans could be based on the following considerations that are attributes of design excellence in community building:

Basis for Consideration:

- **Safety:** Crime Prevention Through Environmental Design (CPTED) type review of streets and highways including sidewalks, trails, pedestrian bridges and other pedestrian facilities, individual building sites, and open spaces.
- **Walkability** - interconnected street network with adequate and convenient sidewalks to public facilities, and the surrounding neighborhoods.
- **Identity/character** - Unique design features for various types of streets, buildings and open spaces that give a special character to a place.
- **Sustainability** - Leadership in Energy and Environmental Design (LEED) standards for neighborhood planning, imperviousness caps, forest conservation, street tree standards, stormwater management in high-density areas.
- **Durability** - quality materials and good workmanship.
- **Context Sensitivity** - street design appropriate to its context (rural, rustic, urban, suburban), relationship of buildings and open spaces to their context, setback from adjoining uses and other considerations.

DESIGN EXCELLENCE IN PLANNING FOR PUBLIC FACILITIES

Design excellence can also be achieved by improving the County's infrastructure planning and development process, and the Capital Improvement Program (CIP). This can be done by employing high quality designers, through competitions for major civic projects, adopting stricter design standards for County facilities, and by including design guidance in the mandatory referral process. Another possibility would be to designate one project in each of the following areas in the County's CIP as a demonstration project with the idea of using this exercise to develop a rigorous design excellence program for public projects:

- Office building (Park and Planning headquarter building)
- Urban open space
- Library, recreation center or another community facility
- Road project
- Public parking garage
- Renovation of a county facility

PROMOTION AND TRAINING

A design excellence initiative would benefit from a promotional and training program to raise awareness of good design for developers, elected officials, professional staff, and the community. It could include the following items:

- Annual design awards program (results of project plans, preliminary Plans and site plans)
- Staff training on how to analyze a project from a public interest and regulatory perspective.
- Develop three dimensional design tools and standards for use in regulatory and master planning.
- Study existing projects and learn what works, what doesn't. Analyze built spaces, buildings and open spaces. Create an electronic library of good design in the County and elsewhere

APPENDIX A:
HOW TO MEASURE DESIGN EXCELLENCE

Measuring design quality is somewhat like measuring a community's quality of life. Except for some quantitative indicators, (economic health, affordable housing, average travel times, etc.) the qualitative measures for the design quality of a place, that give a place its local flavor, are specific to each community and are hard to distill and not widely available in the literature. The hard part in developing good design indicators is that it requires that we first define what we are trying to achieve, and what the desired quality of that end product is. Walkability, for example can be measured by measuring just the linear feet of sidewalk in a community, but measuring walkability should also assess sidewalks are lined with retail, building entrances, and open spaces to make walking a safer and more interesting experience.

The following is a list of design measures commonly used to evaluate some aspects of the design quality of the built environment. These and other indicators should be considered as Montgomery County develops its own measures of design excellence.

Measures of Design Excellence

1. Qualitative indicators that can be evaluated:
- a. Quality of life indicators
- b. Polling and sampling data
- c. Public space use
- d. Diversity of architects/landscape architects
- e. Diversity of styles and projects
- f. Recognition and awards by professional organizations

2. Quantitative indicators that can be evaluated:
- a. Quality of life indicators
- b. Walkability indicators
- c. Health statistics
- d. Design review timelines
- e. Travel times
- f. Public transportation use
- g. Public parks use
- h. Standard economic indicators
- i. Diversity statistics
- j. Housing market statistics
- k. Pollution measurements
- l. Environmental measurements
- m. Public art projects

APPENDIX B:
IMPEDIMENTS TO GOOD DESIGN

Bad design does not just happen; it requires a lot of work. It is the result of a series of bad decisions made during a complex process by different participants at various times. These decisions are made not necessarily in bad faith, but they are certainly misguided and controlled by conflicting priorities and requirements of the various parties involved. Since nobody disagrees with the general notion that all developments should be well designed, the fact that there is so much bad design indicates that there must be some impediments to good design in the typical development process. Following are some of the factors that may hinder achieving the best possible design of a development.

1. **Lack of commitment to design excellence.** This impediment exists both in the public and the private sectors. It probably is rooted in the lack of awareness of the costs of bad design and the benefits of good design, especially when some upfront work on design can save significant money and time and create both short and the long-term benefits. On the private side it prevents developers from hiring good designers. On the public side it shows up in public land use policy and CIP process, which sometimes favors initial cost over long-term value.

2. **Upfront Costs**. Creating well-designed buildings, open spaces and public facilities requires higher upfront costs in terms of time, money and resources. In the design phase, the extra cost may come from higher consulting fees from better designers, larger multi-disciplinary design team, and more time needed to study and evaluate various options including new materials and building techniques. In the construction phase, higher cost may be due to better and more expensive materials, shortage of skilled labor for specialized or new construction techniques, and extra time and cost added by a more complex construction process such as saving adjoining trees or wetlands during construction.

3. **Lack of knowledge and design skills**. Designers and those reviewing and approving their projects may not have the knowledge or skills to raise questions that would lead to exploration of better design alternatives.

4. **Lack of a comprehensive design-oriented review process.** The current public review process often does not consider overall design questions and therefore does not require that better design alternatives be explored and evaluated.

5. **Lack of consensus or a shared vision**. The participants and decision makers come to the table with their own vision of what the appropriate form of development is, which creates conflicts in the development process. Most storeowners, for example, want parking right in front of their stores, and for stores to be visible from the highway. The community, on the other hand, may prefer stores more integrated into the community and oriented to pedestrians.

6. **Conflicting priorities of different stakeholders.** A developer may define the problem in terms of maximizing units and profits, while the community planner defines the problem as compatibility and environmental protection. Similarly, the developer's priority may be to deliver the project quickly and cheaply to reduce carrying costs and to capture the market before the demand changes. Achieving better design, however, may require more time to explore other design options.

7. **Regulatory controls and guidelines do not provide adequate checks when short-term market conditions prevail.**
Development based on market economics alone can lead to disposable or short-lived, less sustainable buildings and infrastructure. For example, high density mixed use development is desirable next to metro stations, but market conditions in some areas of the county support medium density townhouses resulting in far less green open space than would be provided with a more compact footprint of a mid to high-rise condominium building pattern.

8. **Lack of good design indicators.** Design by its very nature is subjective, and the results of any effort to achieve design excellence are not easily quantifiable, especially the intangible values of aesthetics, balance, composition and other purely design related components of the built form. The benefits of good design may be more readily apparent in a large signature-type project. But in most cases such benefits are subtler and require a certain critical mass of good examples over a period of time to have a material impact. The difficulties are summarized in "the value of urban design" by the Commission on Architecture and the Built Environment (CABE) as follows:

    a. "The problem of defining urban design on simple scale from good to bad, and within that coping with the fact that urban design is both a product and a process.
    b. The problem that good urban design-even more than good architectural design-generates benefits for adjoining sites and areas; therefore only a proportion of the benefit created by good design is enjoyed by those working in a particular development or visiting it as customers.
    c. Even those benefits enjoyed by workers and customers may not be transmitted as profits to companies, to the rents paid by occupiers, or the valuations placed on buildings by investors.
    d. Different stakeholders have different expectations regarding value."

APPENDIX C:
AIA COMMUNITIES BY DESIGN: 10 PRINCIPLES FOR LIVABLE COMMUNITIES

1. **Design on a Human Scale**
   Compact, pedestrian-friendly communities allow residents to walk to shops, services, cultural resources, and jobs and can reduce traffic congestion and benefit people's health.

2. **Provide Choices**
   People want variety in housing, shopping, recreation, transportation, and employment. Variety creates lively neighborhoods and accommodates residents in different stages of their lives.

3. **Encourage Mixed-Use Development**
   Integrating different land uses and providing a variety of building types creates vibrant, pedestrian-friendly and diverse communities.

4. **Preserve Urban Centers**
   Restoring, revitalizing, and infilling urban centers takes advantage of existing streets, services and buildings and avoids the need for new infrastructure. This helps to curb sprawl and promote stability for city neighborhoods.

5. **Vary Transportation Options**
   Giving people the option of walking, biking and using public transit, in addition to driving, reduces traffic congestion, protects the environment and encourages physical activity.

6. **Build Vibrant Public Spaces**
   Citizens need welcoming, well-defined public places to stimulate face-to-face interaction, collectively celebrate and mourn, encourage civic participation, admire public art, and gather for public events.

7. **Create a Neighborhood Identity**
   A "sense of place" gives neighborhoods a unique character, enhances the walking environment, and creates pride in the community.

8. **Protect Environmental Resources**
   A well-designed balance of nature and development preserves natural systems, protects waterways from pollution, reduces air pollution, and protects property values.

9. **Conserve Landscapes**
   Open space, farms, and wildlife habitat are essential for environmental, recreational, and cultural reasons.

10. **Design Matters**
    Design excellence is the foundation of successful and healthy communities.

APPENDIX D:
THE BUILDING FOR LIFE QUESTIONS
(FROM CABE, THE VALUE HANDBOOK)

Character

1 Does the scheme feel like a place with a distinctive character?
2 Do buildings exhibit architectural quality?
3 Are streets defined by a well-structured Building layout?
4 Do the buildings and layout make it easy to find your way around?
5. Does the scheme exploit existing buildings, landscape or topography?

Roads, Parking and Pedestrianization

6 Does the building layout take priority over the roads and car parking, so that the highways do not dominate?
7 Are the streets pedestrian, cycle and vehicle friendly?
8 Is the car parking well integrated and situated so it supports the street scene?
9 Does the scheme integrate with existing roads, paths and surrounding development?
10 Are public spaces and pedestrian routes overlooked and do they feel safe?

Design and Construction

11 Is the design specific to the scheme?
12 Is public space well designed and does it have suitable management arrangements in place?
13 Do buildings or spaces outperform statutory minima, such as Building Regulations?
14 Has the scheme made use of advances in construction or technology that enhance its performance, quality and attractiveness?
15 Do internal spaces and layout allow for adaptation, conversion or extension?

Environment and Community

16 Does the development have easy access to public transport?
17 Does the development have any features that reduce its environmental impact?
18 Is there a tenure mix that reflects the needs of the Local community?
19 Is there an accommodation mix that reflects the needs and aspirations of the local community?
20 Does the development provide for (or is it close to) community facilities, such as a school, parks, play areas, shops, pubs or cafes?

APPENDIX E:
WHITE PAPER ON DESIGN EXCELLENCE

November 8, 2006

MEMORANDUM

TO: Montgomery County Planning Board

FROM: John Carter, Chief
Community-Based Planning Division

PARTICIPANTS: Khalid Afzal, Marion Clark, Marilyn Clemens, Robert Kronenburg, David Lieb, Michael Ma, Calvin Nelson, Mary Beth O'Quin, Margaret Rifkin

SUBJECT: Design Quality in Community Building

PROBLEM STATEMENT

Planning in Montgomery County in the next century will require significant attention to design quality in community building. Directing development to more dense Metro station areas and the I-270 Corridor and away from rural areas is a hallmark of the General Plan …on Wedges and Corridors for Montgomery County. Montgomery County has a limited amount of available land for development. Redevelopment of existing areas including older retail centers is a focus of development. Preserving the character of the existing rural communities continues to be a challenge. The character of the major transportation travel routes could be significantly improved. These development conditions require attention to design in community building for success.

Existing regulations already provide a bonus density for including moderately priced dwelling units, work force housing, and amenities and facilities as an accepted practice in Montgomery County. Providing bonus densities requires quality design to establish compatibility with existing neighborhoods.

AUTHORIZATION IN THE ZONING ORDINANCE

The Montgomery County Zoning Ordinance provides some authorization for the Planning Board to address design issues. The CBD Zones provide the most significant opportunity for the review of buildings in central business districts. The Montgomery County Zoning Ordinance also provides authorization in select zones for the review of the layout of buildings, structures, and open spaces as part of the compatibility finding necessary during the review of site plans. The development standards (e.g. standards for building height, setback and open space) specified in all the zones provide another more limited method to address design standards.
The following paragraphs summarize the existing authorization in the Montgomery County Zoning Ordinance for the Planning Board to review design issues.

1. Section 59-C-6.212. Intent of the CBD Zones

(c) To encourage designs which produce a desirable relationship between buildings in the central business district, between buildings and the circulation system and between the central business district and adjacent areas.

2. 59-D-2.42. Findings for Approval of Project Plans

(b) It would conform to the approved and adopted sector plan or an urban renewal plan approved under Chapter 56.

(c) Because of its location, size, intensity, design, operational characteristics and staging, it would be compatible with not detrimental to existing or potential development in the general neighborhood.

3. 59-D-3.4 Action by the Planning Board Concerning Site Plans

(a) (3) The locations of the buildings and structures, the open spaces, the landscaping, recreation facilities, and pedestrian and vehicular circulation systems are adequate, safe, and efficient

(4) Each structure and use is compatible with other uses and other site plans and with existing and proposed adjacent development

(b) The Planning Board shall not approve the site plan if it finds that the development would not achieve the maximum of compatibility, safety, efficiency and attractiveness; and the fact that the site plan complies with all the stated general regulations, development standards or specific requirements of the zone shall not, by itself, be deemed to create a presumption that the proposed site plan is, in fact, compatible with the surrounding land uses and, in itself, shall not be sufficient to require approval of the site plan.

4. Development Standards in all Zones

The Development Standards for setback, building height, green space, public use space, and pedestrian facilities in the existing zones provide a limited set of design standards.

OTHER TECHNIQUES AND AUTHORIZATION

The following paragraphs summarize the techniques established by the Planning Board to address design issues outside the Zoning Ordinance.

Guidelines Established by the Planning Department

The Planning Department has addressed design quality by providing design guidelines for public art in central business districts, establishing guidelines for the provision of streetscape in central business districts, and guidelines for development in areas such as the Germantown Town Center. The Planning Department has also provided design services to other departments including the design for the relocation of Montgomery College in Silver Spring, and the selection of sites for public facilities.

Standards for Streets and Highways and Other Requirements
The approved Road Code with the Published Design Standards establishes the requirements for streets and highways in Montgomery County. In addition, standards for stormwater management facilities, forest conservation, and the preservation of historic structures and environmental settings have also been established.

DISCUSSION AND RECOMMENDATIONS

The following recommendations are intended to augment and enhance design quality in community building in Montgomery County.

1. Master Plan Recommendations

The master plan process provides a significant opportunity for the Planning Department to emphasize design quality in community building. The next set of master plans include portions of two corridor cities, three Metro station areas, and three neighborhoods. These small area plans need a significant emphasis on design quality. These master plans should include extensive use of design guidelines, and reliance on the use of three dimensional visualization techniques. The master plan outreach process could be supplemented by establishing advisors or focus groups from the design fields to assist the Planning Board and staff in preparing design recommendations.

2. Create New Zones with Expanded Design Expectations

To implement the recommendations in the new set of master plans, new zones should be created. These new zones would replace the existing TS-M and TS-R Zones at Metro stations with four Euclidean zones with expectations for high quality design. In addition, a new floating zone could be created for use in large commercial areas. The new zones include the following:

- Create one mixed-use floating zone for large, commercial centers with requirements and standards based on design (form based codes and performance zoning (0.5 to 3.0 FAR)
- Create four Euclidean Zones for transit station areas with the use of a Project Plan with specific requirement for consistency with master plan recommendations concerning quality design (0.5, 1.0, 2.0 and 3.0 FAR)

3. Design Guidelines

The Planning Department could expand the use of streetscape standards. Bethesda, Friendship Heights and Silver Spring have long established streetscape standards. Streetscape standards will be necessary for the Shady Grove, Twinbrook and White Flint areas to allow the use of special street lighting, special sidewalk paving, closely spaced street trees and other elements that will substantially improve the character of these areas. Streetscape standards should also be considered for other areas in Montgomery County.

4. Expanding the Site Plan Review Process

The site plan review process is authorized to consider compatibility. The use of

the compatibility finding could be used in appropriate cases to consider building materials, location of windows in addition to the more traditional reliance on massing of buildings, setback and building height.

5. Design and Performance Measures Included in Master Plans

Specific design and performance measures could be included in master plans. Examples of performance measures include the following:

- Amount of open space and public use space
- Imperviousness
- Number of trees planted
- Length of streetscape

5. Community Design Presentations to the Planning Board

Recent presentations of the status of public and private development in Clarksburg and Silver Spring provided the Planning Board with an opportunity to assess the quality of design in community building. This post planning and post occupancy evaluation practice should be extended to other areas.

6. Expanded Visualization Techniques

An emphasis on quality design will require extensive use of visualization tools including the following:

- Three dimensional computer techniques
- Computer animation
- Rendering and delineation
- Photo library of high quality public and private projects
- Public use space examples and evaluations
- Documentation for the public art program

7. Newspaper Articles by Staff Members Concerning Community Design Issues and Ideas

The staff could be encouraged to prepare articles concerning community design issues to be included in both national and local publications. These articles could be used to both advocate and publicize high quality design in Montgomery County.

8. Community Design Awards Program

A design awards program could be established to publicize private projects approved by the Planning Board. A list of approved projects would include participating architects, landscape architects and planners involved in the design.

9. Create a Design Summit

A design summit could be established to review the authorization, techniques and approach to improving the design quality in community building for Montgomery County. This summit could be a joint effort with a respected design organization such as the American Institute of Architects or a university such as the College of design of the University of Maryland.