



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

October 26, 2007

**MEMORANDUM**

**TO:** Montgomery County Planning Board

**FROM:** John A. Carter, Chief *JAC*  
Community-Based Planning Division

Sandy Tallant, Planner Coordinator *SLT*  
Community-Based Planning Division

Dan Hardy, Planner Supervisor  
Countywide Planning Division

Marion Clark, Planner Coordinator  
Countywide Planning Division

**SUBJECT:** Discussion  
Progress Draft: 355/270 Corridor Project

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**RECOMMENDATION**

The Progress Draft: 355/270 Corridor Project with the attached PowerPoint Presentations is enclosed for review.

**DISCUSSION**

The purpose of the presentation on October 29, 2007, is to discuss the Progress Draft prior to completing the final project. The enclosed Progress Draft: 355/270 Corridor Project is not intended as the final document. This Progress Draft includes the forces and themes identified in the discussions during the PowerPoint Presentations. It is also intended to incorporate the modifications requested by the Planning Board.

During the summer of 2007, the Planning Board discussed each of five PowerPoint presentations (Work, Access, Life, Health and Design) concerning the 355/270 Corridor Project. The Planning Board provided comments and suggestions during each of the PowerPoint presentations. Written comments were also received from the Planning Board. Since the last presentation on October 4, 2007, the staff has incorporated the comments and suggestions into the Progress Draft and PowerPoint Presentations. A summary of the major modifications follows.

**Progress Draft: 355/270 Corridor Project** - The Project Draft was significantly revised to include the following:

- Provide a set of the themes
- Add a new chapter that incorporates the key items from the PowerPoint Presentations into a new Past, Present and Future section
- Add a series of short-term, mid-term and long-term actions
- Incorporate comments from the Planning Board that occurred both during and after the last discussion

**PowerPoint Documents** - The following modifications were completed:

- Reorganize the document to begin with the Work Chapter
- Incorporate comments from the Planning Board that occurred both during and after the last discussion
- Revise the chapters (Work, Access, Life, Health and Design) to emphasize the issues, challenges and actions

This entire project is intended to be transmitted to the County Council before the Twinbrook Sector Plan, White Flint Sector Plan, Germantown Employment Corridor Master Plan, and Gaithersburg Vicinity West Master Plan are completed. The staff will continue to outreach to the community to prepare for future work sessions on individual master plans.

JAC:ha: G:\Carter\Final Memo 355

Attachments:

- Correspondence
- Project Draft: 355/270 Corridor Project
- PowerPoint Presentations 355/270 Corridor

MONTGOMERY COUNTY CIVIC FEDERATION

TRANSPORTATION POLICY FORUM

APRIL 23, 2003

MONTGOMERY COUNTY'S MAIN STREET

Stan Schiff

A Main street with four names along its 27 mile length. Wisconsin Avenue, Rockville Pike, Hungerford Drive and Frederick Ave. And as it traces its path through the county, the road is subject to the whims and wishes of three separate political jurisdictions -- the county and the municipalities of Rockville and Gaithersburg. Its only unifying element is its numerical identity, 355.

In many ways, it symbolizes much of what is wrong with the county's approach to our ailing transportation system. Taken for granted, reflecting an assumption that its absorptive capacity is virtually unlimited, performing its assigned functions but with diminishing efficiency, most of all, viewed as so many disconnected segments rather than an entity. In the midst of our collective frenzied brainstorming over what it will take to fix a somewhat broken transportation system, it's time to give serious attention to this road which has a legitimate claim to uniqueness.

As one of the main entrances into the County and into the District, 355 is a critically important commuter passage. It is also home to a large and still growing retailing sector, a prominent employment center, including the National Institutes of Health, the National Naval Medical Command Center as well as the Uniformed Services Medical School and the major campus of Montgomery Community College, an expanding residential center -- and coming soon, a concert hall, a conference center, and massive mixed use developments in close proximity to two of the metro stations along this route. A Champs Elysee it is not.

355 desperately needs a new vision, not as so many arbitrarily segmented sections, but as an entity. Much of it is aesthetically ugly, highly congested seven days a week and at all hours, and regrettably, a lamentable object lesson in unplanned and uncoordinated development. Major projects are proposed without any attention being paid to their cumulative impact before consequential decisions are made. These projects

can not be addressed in isolation; their impact is not limited to the area immediately surrounding their particular sites.

Such a study by the Planning Board we are glad to report is now underway with the approval of the Council. It is overdue, and we strongly recommend that it be given the priority attention it warrants.

Of crucial importance is a coherent vision of the entire corridor from the County's northern boundary to Friendship Heights. The Planning Board has initiated a "framework study" of the entire I-270 corridor of which 355 constitutes a major part. What is encouraging about this initiative is the intention to use its findings and recommendations in shaping the individual master plans that lie along the route -- the Shady Grove Sector Plan, the Gaithersburg vicinity and Germantown Master Plans and the Twinbrook Sector Plan.

Indispensable in the planning process will be the real integration of major components -- transportation, economic development, land use, housing, parks and open space and where appropriate, public safety and schools. In brief, it is essential the strategy be comprehensive and stretch the length of the 355 corridor from its northernmost boundary to Friendship Heights.

Transportation improvements will obviously be a key component in any strategic plan for the corridor, although not the only one.

In light of the lessons learned from the Task Force experience, it will be important to confront the question of the growth of traffic. Will it be feasible to reduce congestion? Is holding it at its current level practicable; or do we have to resign ourselves to further increase in traffic and finding ways of accommodating it? What will be the cost of these alternatives -- in dollars to be sure, but in other ways as well.

Another of the lessons from the Task Force experience is that we can't rely on engineering as the sole solution. That underlines the importance of a multi-dimensional approach to the problem. Given the key role played by growth, it will be critical to establish an overall target of jobs and housing for the entire corridor, and related to it, a realistic goal for traffic relief -- in other words, growth management on a corridor basis. One of the first things that needs to be done is an inventory of major projects under construction, approved or included in master plans together with an assessment of their cumulative impact on

traffic and on land prices and rents.

When it comes to deciding on transportation project priorities in the distribution of funds, the interchanges proposed by the Task Force and endorsed by the Civic Federation, which are so badly needed, should be right at the head of the line. One caveat with graded intersections. Special attention needs to be given to pedestrian safety; getting across our Main street is often a hazardous venture. A significant reduction in risk should have a prominent place in the design of these interchanges.

Unless these intersections are imaginatively designed, they may become even more formidable barriers to pedestrian traffic than now exists. It would behoove us to do a survey of successful experience elsewhere and to arrange for a design competition to help ensure that we have access to the best thinking and most successful designs.

Although the financial straits we find ourselves in may preclude early action on some potentially valuable projects, we should keep one in mind for the future -- namely, the construction of a new Metro Red Line station on the Community College's Rockville campus which had been recommended by the Task Force.

Transit-oriented development (TODs as they are referred to), the concentration of mixed use development around Metro stations offers much promise as a means of bringing people, jobs and shopping in close proximity and taking some of the strain off our road system. But it has already become evident that they are capable of generating fierce controversy. They raise a host of difficult and critical questions concerning density, design, traffic impact and closely linked to it, responsibility for mitigating the impact of traffic. Interwoven into this array of problems is another, housing and the price of it

There are good reasons for avoiding a cookie-cutter approach to the design and construction of these developments. Each of these TODs doesn't have to look like a clone of the others. The housing element may pose particularly difficult questions because there will be a temptation on the part of some to turn these into concentrations of high rise apartments and densely packed town houses. There is place for such dwelling units, but the need for single family homes on small lots should not be ignored. We need to strive for some measure of social balance in

these communities to be. What may prove to be especially troubling is the prospect of housing prices being out of the reach of those who would most benefit economically from being able to live close to transportation and shopping.

Of major importance would be the creation of incentives to spur the kind of development, housing or business, to help ensure that paper plans are fulfilled in the real world. Implementation must be given as much attention as planning.

Replacing this visionless road with something that reflects respect for aesthetics, growth that is orderly and does not overtax roads, schools and other facilities and services, the avoidance of a cookie cutter approach to the design of concentrated developments around metro stations will not come easily or quickly. But as new development replaces the obsolete there will be opportunities for the exercise of imagination and the introduction of a stronger planning discipline.

We don't have any prescriptions for a quick and easy solution to the manifold problems that beset 355. It's a project in which the entire community needs to be engaged.

We would like to get from the Planning Board a strong sense that it is positioned to move ahead swiftly with this project and assurance there will be a full measure of citizen involvement from the outset, including representation from Rockville and Gaithersburg. That involvement ought to take two forms -- one group, drawn from both civic and business communities to work with the Planning Board in developing a vision and strategy for the corridor as a whole; the other, separate groups to work on individual master plans along the route.

Given the fact that decisions taken by Rockville and Gaithersburg have significant effects on 355, it is essential there be the closest kind of coordination with both municipalities.

Montgomery County deserves a main street of beauty and character. Reinventing it will constitute a major challenge. But it will never happen unless we accord it the attention it merits. The Planning Board's project gives us a vehicle for doing so. We have to make sure it happens.

20 October 2007

MEMO to Montgomery County Planning Board  
From Pamela Lindstrom  
Subject: I 270/MD 355/Metro Corridor Report

I have read material and listened to Planning Board discussion of the Corridor with great interest. It is encouraging that the Board and staff are looking comprehensively at this all-important Main Street corridor of the County. The initial emphasis on sustainability is what the times require.

There is a strong emphasis on design in this document and others from the planners and Board recently. In the Semiannual Report, the discussion of the zoning ordinance amendment goes so far as to say that the new approach to zoning will focus on "form over function." Well, planners cannot afford to do that. Planners, including citizen planners like myself and most Board members, must think as we did in algebra class, about solving a set of simultaneous equations. All must be solved satisfactorily, or the answer is not correct. A master plan is the same. It must get both form and function right. It must be right in all its principal parts, including quantitative parameters and esthetic design. Otherwise the place cannot achieve the sustainability goals expressed for it.

The Corridor documents do well on some of its parameters – design, green space, green construction, economy. But it slights several key components. To achieve sustainability, people must be housed and they must have jobs and the relation between the two must allow access without long driving trips. As many as possible must be situated so they don't *need* to drive at all. Furthermore people across the whole economic spectrum must be accommodated. This is the essence of sustainability, but these aspects of the Corridor vision are weak.

This memo will discuss four related issues: numerical job/housing balance, the lack of vision for urban housing, transport implications of our unbalanced land use, and the problem of providing urban public facilities.

1. I have preached the job/housing balance sermon for years. Its value in reducing car travel and congestion was shown in the Transportation Policy Report. The TPR strategy of working toward job/housing balance within the County's western and eastern "trafficsheds" was adopted by Task Force, Planning Board, and the County Council in its New 10-Year Transportation Plan.

Most Planning Board members, however, are probably not familiar with the TPR balanced land use scenario and its travel benefits when combined with enlarged transit service. Therefore I am attaching a summary of the scenario and the traffic modeling results.

The staff's Corridor slide presentations discuss job/housing balance, and the need to increase housing relative to jobs in the MD 355/I-270 Corridor. The current and forecast ratios were shown in a slide which unfortunately contains some errors. The actual and forecast ratios are compared with those tested in the balanced land use scenario. This is a useful exercise. I urge the Board and planners to look at this comparison again when it's corrected, consider its implications, and make some decisions about applying the results in upcoming master plans.

My conclusion, on reviewing the recent job and housing numbers and Round 7 forecasts, is that a little progress has been made since TPR (2001). The count of actual jobs and hence the job forecast was lowered in Bethesda. Housing forecast rose thanks to the Shady Grove Sector Plan (assuming it is implemented). But the imbalance is still large and predicted to grow in number if not in ratio, especially in the southern part of the Corridor. The upper part (Gaithersburg Vicinity and north) is forecast to be near balance with a small excess of jobs.

These numbers do not justify more jobs relative to residents *anywhere* in the Corridor. The large job centers in the lower Corridor need any excess housing in Germantown, while Clarksburg is now forecast to have more jobs than employed residents. Rockville is not subject to County rules and will probably continue its emphasis on economic growth. In order to justify a policy of more employment for Germantown, the Board will need to work harder to reduce the big excesses in Bethesda and North Bethesda.

2. This observation leads to the second issue: The Corridor report needs to promote its centers as places for a large number of people to live, that is, as places to accommodate a large amount of new urban housing in a setting that makes previously suburban people want to live there. The slides on Life and Design hardly mention living in these centers. Mixed use, better job/housing balance are mentioned, but not pursued. Most people can picture working, shopping, or being entertained in an urban center but far fewer can picture living there. Yet that is what must happen if the County is to have a more sustainable future. From surveying done for the Centers and Boulevards project, we know that many people are open to the idea. But it needs to become more overtly part of policy and rhetoric.

Furthermore, the report needs to deal with affordability. There is no reason we can't do better at accommodating people with a wider income range in our transit-served centers. It's done in the world's leading cities; we should not consider ourselves exempt from this economic need and moral obligation. Certainly it is required of any place that calls itself sustainable.

3. The lack of resident workforce within the Corridor worsens the problem of travel and makes it more difficult to serve peak demand traffic flows with transit and other alternatives to driving. But I must argue with the Chairman: that reality does *not* reflect a County policy to transport people from residential corridors in the eastern County to the I 270 employment corridor. All recent policy documents including the TPR (Task Force's and Planning Board's), the County Council's 10-Year Transportation Plans and the Centers and Boulevards Framework Report stress the need to better meet the housing need within the Corridor, build up employment in the Georgia Avenue and Route 29 corridors, and *reduce* the need for east-west car commuting. The 18% reduction in east to west commutes was considered a triumph of the TPR balanced land use scenario.

Sustainability obviously requires housing and employment patterns that feature proximity and commuting without driving. This means numerically balanced jobs and housing located along transit corridors, in and near mixed use pedestrian-oriented centers, exactly what is described in the Corridor report. Of course not all people will live and work within a center or corridor, but land use plans need to maximize the opportunity.

It is good that the Chairman pointed out the paradox that two new high capacity roads are intended to serve the current unbalanced pattern: the ICC and Montrose Parkway. They and the traffic they will pour into the Corridor's centers present problems that has not been addressed by staff or Board. The traffic will interfere with the Board's hope of reducing the arterial road function of Rt. 355. The high cost of the new highways will preclude investment in new transit for the next decade at least. Which brings me to the last issue.

4. We know from numerous sources that the public often opposes new development in centers in their community or on their main streets. A major reason given is lack of confidence that adequate facilities will be provided for them and for the growth. The current Corridor material describes the facilities needed, but does not address the probability of their being provided.

A good accounting of what neighbors want from an urban center in their community is found in the survey conducted of participants in the Centers and Boulevards meetings. They, like all others, express dismay about added traffic from new development. But that concern does not mean they want bigger roads. Nor was the traffic a reason to oppose new development if development provides things they value, especially alternate means of travel. They want to be able to walk (and cycle) to the center, they want improved transit up and down the corridor. They want convenient shopping, and centering public spaces. When asked their priorities for public investment, new major transitways was first, followed by walk and bikeways, then schools, police and fire facilities, and at the bottom, road building and widening!

The County is *not* in a good financial position to promise neighbors that such facilities will be provided along with development. Developers can be tapped for some local facilities and amenities. There are, however, no funds to provide express arterial bus services, much less transitways like the Purple Line and transit to Germantown and Clarksburg. That may delay the realization of this vision and delay real improvements in sustainability for many years.

Not much on I 270-oriented part of the corridor

Not much on livable communities

Not much on affordability/equity

Schizophrenic about roads/transport. As the chairman pointed out. Public disbelief that urban facilities will be provided

Pamela Lindstrom  
February 2002

### The Transit/Balanced Land Use Scenario, Summary

The Transit/Balanced Land Use (BLU) scenario was developed for the Transportation Policy Report, along with a road-emphasis scenario and baseline that projected growth under the current master plans. These scenarios were tested by traffic modeling and public response. The Transit/BLU scenario produced walkable, transit-served communities and saved many acres of wetlands, forest and farmland. BLU reduced vehicle miles traveled and time spent driving, air pollution, traffic fatalities, and even reduced congestion by some measures, compared to the road-building scenario. It won the public "vote" handily.

The Transit/BLU scenario comprises the current transit backbone plus additional transitways, smaller road improvements, and a rearranged growth pattern. This Summary describes each briefly, and presents results, even more briefly.

#### **The BLU transportation system.**

The transit backbone includes the current Metrorail and MARC lines, plus

- the Inner Purple Line connecting Bethesda and Silver Spring with Langley Park, College Park; and Tyson's Corner to the west;
- rail transit extensions in the I 270 Corridor from Shady Grove to Clarksburg
- light rail connector from Langley Park to White Oak.

It also includes an expanded modernized bus system with more efficiently connecting routes.

It contains various road improvements, but no new freeway projects except completing the HOV lanes on I 270. It provided a better east-west through route by widening Muncaster Mill Road, and the Norbeck Road (Route 28) -Route 198 route all to four lanes.

#### **Balanced Land Use**

BLU rearranged growth, within the accepted framework of wedges and corridors. Three major policies were used for location of growth:

- More development near transit stations.  
The stations included many of those for the new transitways, and a new Metro station between Rockville and Gaithersburg.
- Balance jobs and housing between eastern and western parts of the County. BLU reduces current and planned imbalances by moving part of employment growth from the I 270 Corridor to the Eastern County, including Silver Spring and Langley Park. Conversely, part of housing growth would move from Eastern County to the I 270 Corridor.
- Less sprawl housing not just in the agriculture reserve, but also in outer suburban areas like the edges of Germantown, Potomac and Olney.

#### **The Road Scenario**

The road scenario included all the roads in master plans, including the Intercounty Connector and extension of Midcounty Highway from Shady Grove Road to the ICC. It would widen the Beltway, I 270 and roads in Potomac

leading to a new bridge to Virginia. For transit, it adds Georgetown Branch and busway service on the Corridor Cities Transitway route. It is designed to serve the master planned land use.

The road scenario costs about 10% more than the BLU/transit scenario.

#### RESULTS

The scenarios were tested by traffic modeling by the Montgomery County planning department, compared to a baseline comprising the master planned transportation network minus the ICC, and master planned development extended to 2025 and 2050. Environmental and community impacts were calculated, and the scenarios were discussed at public meetings. Most attendees filled out a questionnaire, giving an unusually good picture of the opinions of the 450 people at the meetings.

#### Traffic Modeling

The Transit/BLU scenario performed well compared to the baseline and the Road scenario. (Congestion increased in all scenarios, compared to present levels.)

The BLU scenario: reduced vehicle miles traveled, hours of travel, miles of travel on local roads as well as on freeways, miles driven in congested conditions, average trip time and average trip distance (both car and transit trips.) BLU increased transit mode share, and pedestrian/bicycle mode share.

The BLU strategy maintained the same overall congestion level as the Road scenario, though the Road Scenario average driving speed was a little higher. The Road Scenario "Vision" is of people driving farther in congested conditions, taking more time for the trip, but driving at a slightly faster speed. Few people would consider that an improvement.

#### Environmental Impact

Environmental impacts such as wetlands, forest and parkland taken, as well as houses impacted, are much lower with the Blu/transit scenario. Slightly fewer traffic fatalities are forecast, due to the reduction in VMT.

#### Public Response

The 450 questionnaire results showed that over two thirds of attendees at public meetings supported the BLU land use and transit projects.

A full report on the BLU/transit scenario, with tables showing changed growth pattern and travel results, is available on request.

#### Road Trip Times, 2025 (Minutes) Road Vs. Transit Scenarios

	Road Scenario	Transit Scenario	Difference
<b><u>East-West</u></b>			
Germantown TC - Olney	28	30	2
Gaithersburg - BWI Airport	73	79	6

Wheaton CBD-BWI Airport	62	66	4
Life Sci. Center-Columbia	55	58	3
Gaithersburg - Norbeck	23	25	2
Gaithersburg-Burtonsville	35	38	3
<u>Radial</u>			
Gaithersburg - Silver Spring CBD	28	31	3
Gaithersburg-Rock Spr Park	27	29	2

**Traffic Model Results, 2050**  
**Road and Transit Scenarios, Master Planned Baseline**

<b>ALL PM Peak Hour</b>	<b>1998</b>	<b>R 3</b>	<b>R 3</b>	<b>R 3</b>
		<b>MP Baseline</b>	<b>Transit Emphasis</b>	<b>Road Emphasis</b>
<b>ROAD TRAVEL</b>				
Lane Miles	2474	3121	2989	3269
VMT (000)	1,488.9	2,157.9	2,091.8	2,430.2
VHT (000)	54.5	94.1	101.1	105.6
VMT/Household	4.7	4.37	4.36	5.06
Av. Vehicle Speed	27.3	20.9	20.7	23
Av. V/C Ratio	0.62	0.67	0.67	0.68
Congested VMT (000)	278.5	697.3	687.6	770.2
% Congested VMT	19%	32%	33%	32%
Av. Trip distance, mi.	7.6	7.4	7.3	7.8
Av. Trip time, min.	17.6	18.9	18.8	19.8
VMT on freeways	567,407	747,531	752,945	1,011,833
VMT on other roads		1,410,383	1,338,522	1,418,134
Traffic Fatalities/year*	5.2	7.8	7.5	8.6
<b>TRANSIT TRAVEL</b>				
Transitway miles	138	256	290	256
Buses required	316	567	617	632
Transit Mode Share	16.8%	17.1%	19.6%	16.9%
Transit Mode Share, walk access	7.1%	7.5%	10.3%	7.6%
Av. Trip Distance, mi.	9.6	9.1	8.8	9.1
Av. Trip Time, min.	47	41.8	38.6	41.8
Walk/Bike Mode Share	about 3.6	about 4.6	about 6	about 4.4
Road Accessibility		1,586,000	1,656,000	1,742,000
Transit Accessibility		331,500	499,000	394,000

\*calculated based on VMT on different road types

NOTE: The Road Scenario cost about 10% or about \$0.8 billion more than the Transit Scenario. This inequality was due to the last minute addition of the Corridor Cities Transitway to the Road Scenario. This addition explains the Road Scenario's increase in Transit Accessibility compared to the MP Baseline.

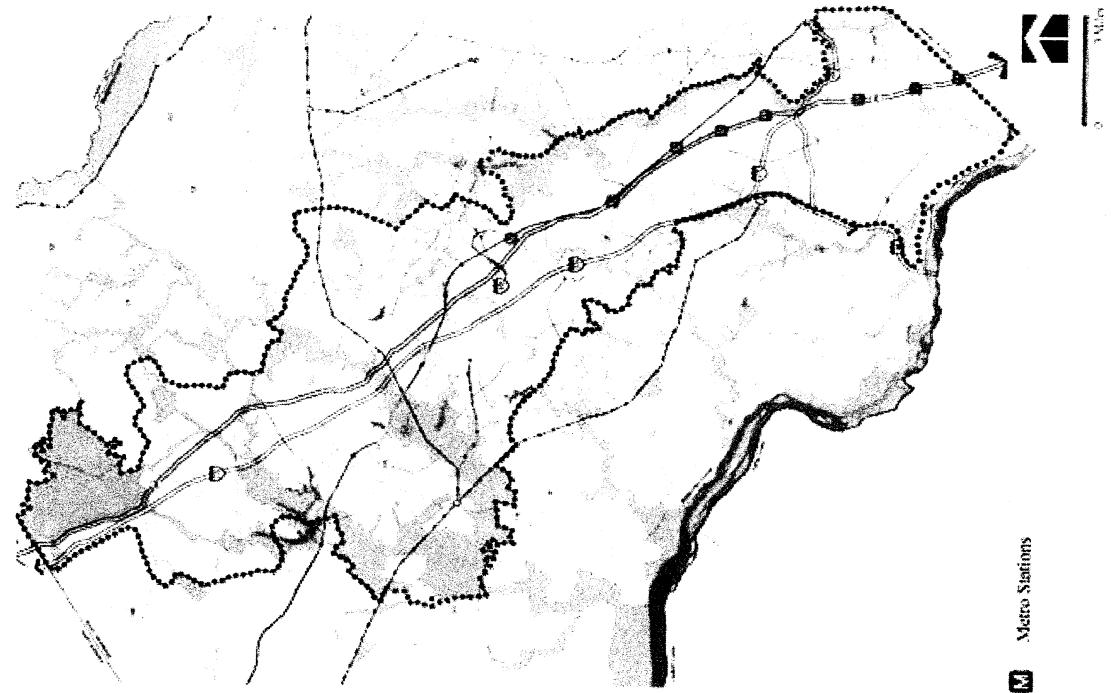


**Progress Report:**

# **THE 355/270 CORRIDOR PROJECT**

**A Vision for the Technology Corridor**

October 29, 2007



Montgomery County Planning Department

The Maryland-National Capital Park and Planning Commission



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# **Abstract**

This report consists of five sections  
(Introduction;

## **Introduction**

## **Summary of Findings**

## **Corridor Past, Present, and Future**

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## **Appendix**

This report is accompanied by a bound copy of five PowerPoint presentations (Work, Access, Life, Health, and Design) that were discussed by the Planning Board during the summer of 2007. This report and the PowerPoint presentations are available at [www.mc-mncppc.org](http://www.mc-mncppc.org).

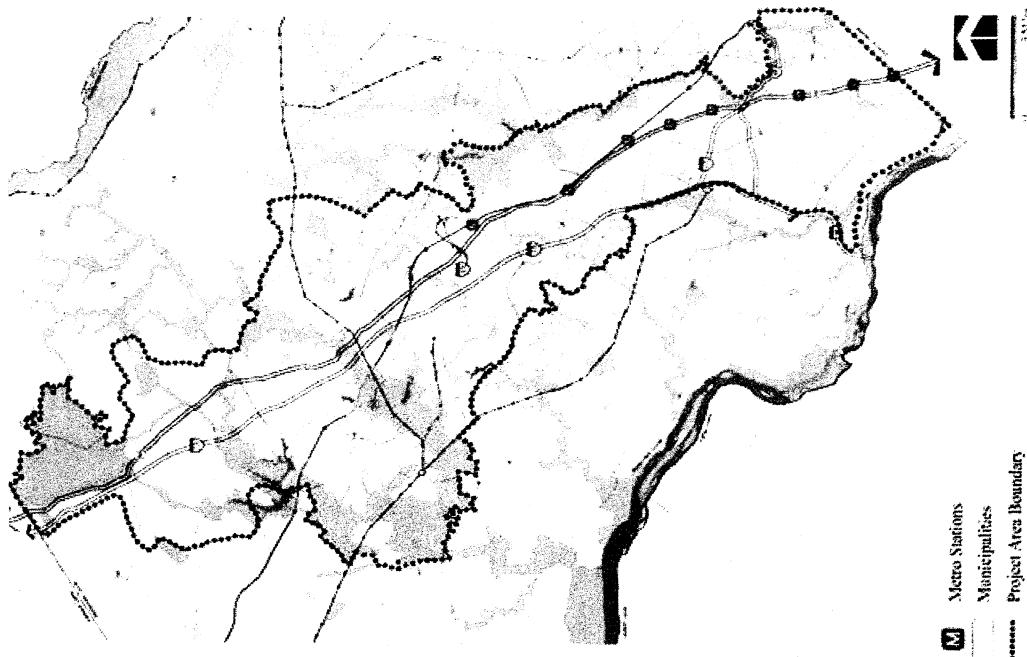
# INTRODUCTION

Montgomery County faces opportunities and challenges that will come with increasing population, jobs, and housing. Much of this growth will occur in the 355/270 Corridor, the center of the County's technology economy.

In the 2002 Transportation Policy Report, the Planning Board recognized the need for corridor-wide planning. The 2007 Centers and Boulevards initiative identified the need to examine opportunities along all County transportation corridors. This planning effort focuses on developing a conceptual framework for the 355/270 Corridor.

**Purpose** - This project establishes corridor-wide planning principles that can guide planning individual communities in the 355/270 Corridor. As each master plan and sector plan is prepared, they will fit into a larger vision of community. This project is also intended to foster coordination of multi-jurisdictional planning and development, address the needs of future employers, identify housing opportunities, foster transit-oriented development, ensure design excellence, and ensure clean air and water.

**Study Area** - This project includes the planning areas along MD 355 and I-270 within Montgomery County from the Washington, D.C. boundary to Frederick County. The concepts and ideas are intended to guide the recommendations in the Twinbrook and White Flint Sector Plans, and the Master Plans for the Germantown Employment Corridor and the Gaithersburg Vicinity West areas.



# SUMMARY OF FINDINGS

does not meet minimum clean air standards. Ground level ozone can be mitigated by more efficient vehicles, but an increase in drivers will keep ground level ozone at higher than desirable levels.

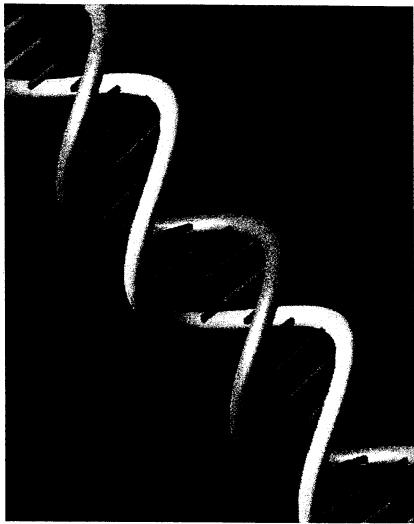
Development in the Corridor is affected by global and local forces that shape the economy, population characteristics and development demand. Examining the forces and themes will help guide short-term, mid-term, and long-term planning efforts.

## Global Forces

### Globalization and Competition

**Globalization** – Globalization is challenging the dominance of the American economy by transferring technology abroad. Shifts in information technology that allow the rapid transmission of information coupled with an increasingly educated workforce have contributed to the increased competition for jobs and investment.

**Climate Change** - Global climate change has the potential to impact local health, the natural environment, and the economy. In the region and in Montgomery County, the main sources of pollution are electricity generated by coal plants for heating and cooling, and vehicle emissions. The Metropolitan Council of Governments believes that by 2030 the region can expect a 48 percent increase in carbon dioxide. Montgomery County is contributing about 20 percent of the total increase and is currently a severe “non-attainment” area that



**Energy** - The industrialization of China, India, and other third world nations is increasing pressure on global energy resources, particularly oil, which is now perceived to have passed its peak as a source of energy. The cost and availability of energy will affect building construction and the cost of transportation.

### Technological Innovation

**Biotechnology and nanotechnology** could have a profound influence on the U.S. economy in coming decades. The manipulation of matter at the atomic scale will revolutionize services, products, and manufacturing. For example, health care will likely integrate molecular genetic advances to yield personalized medicines. The RAND Corporation believes businesses will be smaller, with an increase in self-employed and e-workers.

## Local Forces

### Science, and Research and Development

**Science and Advanced Technology** - Science and advanced technology are the County's most important economic industries. As one of the nation's top centers for research and development, the County's proximity to federal facilities makes it better positioned to remain competitive than other technology centers. But the County is not immune to global forces.

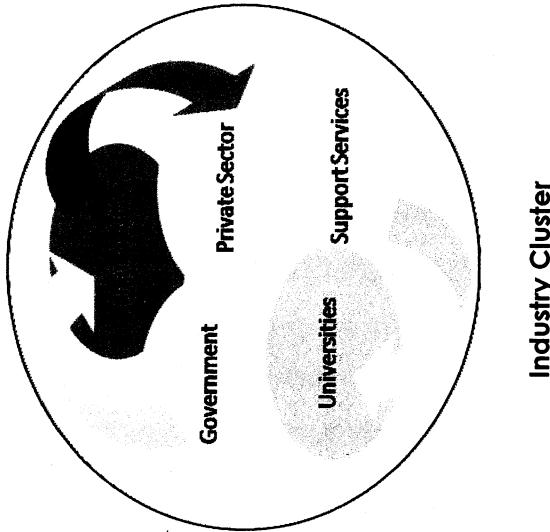
**Population Changes** - The County's increase in population is expected to be highest in people aged 35-65, an years and older. The younger cohort is drawn by the area's strong job market, and the older cohort will grow as the existing population of baby-boomers age. An increase is also expected in children aged 0-19. Housing and services will be needed to serve this population raising families, facing retirement, and facing advanced age. Providing affordable housing choices will continue to be a challenge.

### Availability of Land -

Montgomery County's historic development pattern focuses growth along Corridor and reserves a significant portion of land for open space and agricultural uses. This pattern should continue with infill and redevelopment incorporated into existing street patterns, co-existing with older buildings, and accessible to transit. Communities should be created with a mix of housing types and neighborhood serving retail that is easily accessible from home and work. Open space that serves environmental and recreational functions should be incorporated into development.

**Need for Clusters** - The Brookings Institute has found that high technology industries clustered in a collaborative setting can foster scientific advancements. Clusters can also provide the mix of uses, living environment, and attention to high quality design needed to attract the highly mobile employees of knowledge based industries.

**Access** - Ease of access in urban areas is a world-wide problem that affects quality of life, particularly time, money, and pollution. Roadway congestion has increased dramatically in 20 years with an increase in car ownership and total miles traveled.



## Vision

Augment and enhance the I-270 technology Corridor and MD 355, a "main street" of the county, in a manner that can be sustained over time. Transform the Corridor into a hierarchy of livable communities connected by the County's most identifiable boulevard, MD 355 and its primary north/south arterial, I-270.

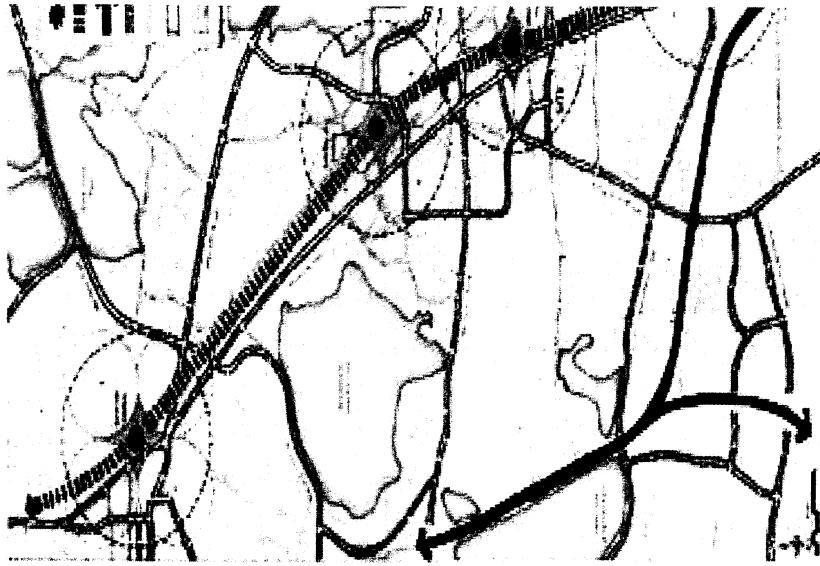
activities that make up daily lives. Through sustainable planning, new development can reduce energy use, and increased open space and tree planting can improve the natural environment. A new hierarchy of civic spaces and park facilities will provide opportunities to congregate and recreate.

## Themes

Over 250 years, the Corridor has evolved from a rural area into an important work place for 360,000 workers, and a community of choice for 425,000 residents. Along its 27 mile length, MD 355 has changed from a trail to multi-modal movement artery carrying as many as 5 million person trips per day.

Livable communities in the Corridor will be vibrant places to live and work, located amid the County's job centers with housing choices, expanded transit and pedestrian facilities, and an improved road network. Land use changes that created an improved jobs/housing balance will increase access to

land use, and amount of development will create communities with unique characters and economic positions throughout the Corridor. High technology uses should be clustered, with increased housing, entertainment, and retail options developed in relation to federal facilities and higher educational opportunities that drive job creation and innovation.



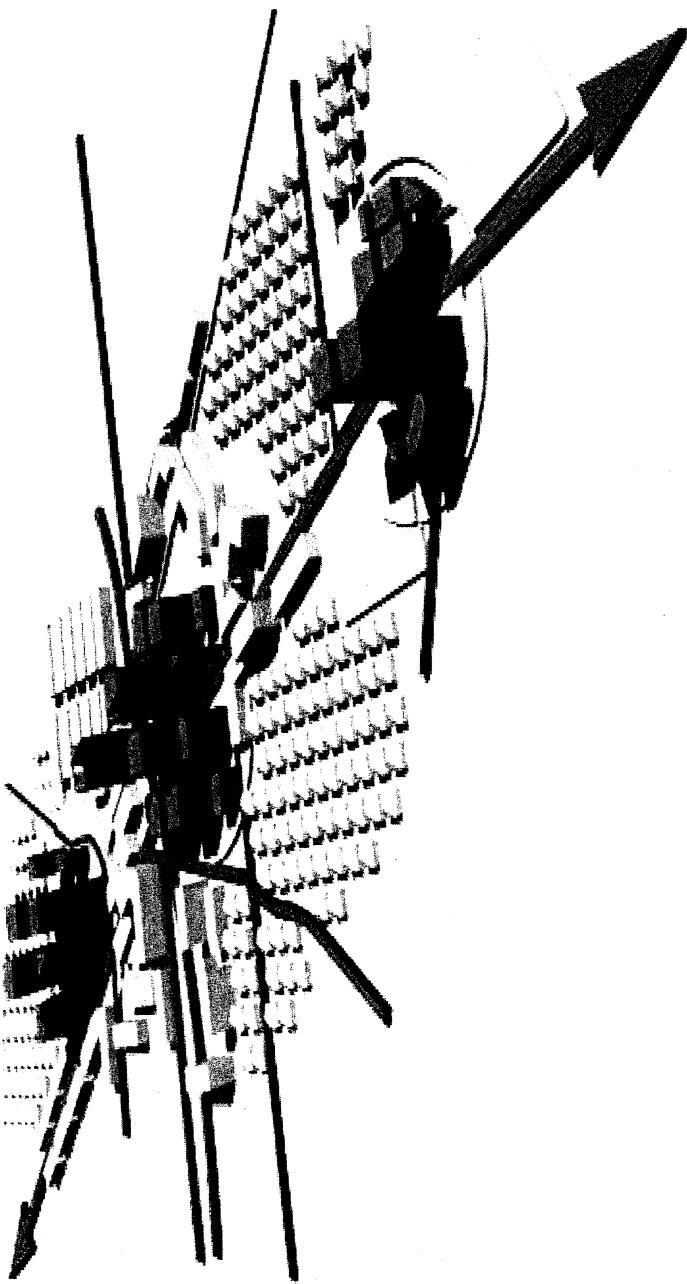
To realize this vision for the Corridor and grapple with global and local forces, the following themes were developed as overall guides to decision-making.

### Foster Sustainability and Enhance the Natural Environment

**Environment** – Planning that integrates varied land uses, affordability, open space, mobility, natural resources, and efficient energy use should drive the pattern of Corridor communities to reduce auto-use, and provide housing, work, and recreation options.

### Create a Hierarchy of Centers

**Centers** - A hierarchy of distinct centers based on the role, location,



### **Connect the Centers -**

Connecting the varied centers with transitways, bikeways, and pedestrian routes allows the Corridor to make best use of its total strength. Connecting the Corridor to downtown Washington, D.C. and to the park system will expand living and working opportunities.

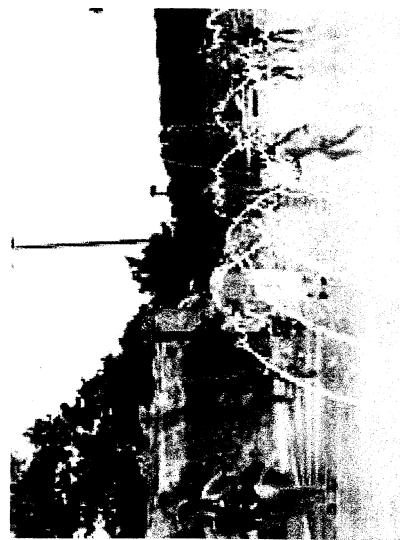
### **Establish MD 355 as a**

**Boulevard** – MD 355 forms a significant impression of the Corridor and adjacent neighborhoods. Improving its form and function will provide a special identity for MD 355 and the adjacent communities. Design features will make each community distinct with place making features, parks, and open spaces.

**Enhance Mobility** – Residents and workers will need easy access to activities that make up their daily lives, including the benefits of walking instead of driving. Constructing facilities that include roads, transit, bicycle routes, and pedestrian paths integrated with land use patterns and staged to ensure delivery will add mobility options.

## **Augment the Open Space and Recreation Hierarchy – A**

A hierarchy of open space and recreation opportunities will include stream valley parks, green space in residential areas, and urban parks and open spaces.



## **Create Green Communities –**

Emphasizing green community and building design will reduce the negative impacts of development on the environment and may contribute to improving it. Reducing carbon dioxide, providing walkways and bikeways, decreasing imperviousness, and planting trees are key components in creating green communities and buildings. Opportunities for exercise and recreation should be integrated into the design of centers and their connections.

## **Emphasize Civic Design –**

An increase in density and mixed uses requires attention to the quality of the civic design. Centers should be designed for livability, with attention to the character of streets and pathways, open space, and place making features. The form and function of each center will reflect its role in the Corridor.

# CORRIDOR PAST, PRESENT, AND FUTURE

The 355/270 Corridor has evolved from a rural area into a workplace and a community. Over time, MD 355 has changed from a trail to a multi-modal transportation artery. The County should now take this opportunity to transform MD355 into a community main street. By engaging the community, landowners, developers, and government agencies in a partnership focused on transformation, well designed and connected communities will be established.

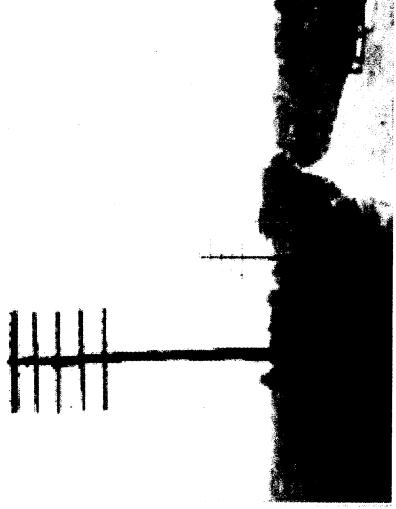
Known as the Great Road, MD355 began as a Seneca Indian Trail, through wooded lands, avoiding streams and steep slopes. By the 1700s, European settlers widened the trail to accommodate horse-drawn carts moving tobacco between Frederick and Georgetown. In 1755 the road was again expanded to accommodate General Braddock and his troops during the French and Indian War. After the war, stagecoaches traveled the two-lane Pike. Benjamin Latrobe, the architect of the Capitol, traveled the Pike and made sketches of the Village of Clarksburg and Sugarloaf Mountain. In the early 1800s, the Washington Turnpike Company received the County's first charter, and the road was an escape route from Washington, D.C. after the British set fire to the city during the War of 1812. The Civil War intensified redevelopment along the Pike with taverns, general stores, blacksmiths, and wheelwrights. By 1895, electric trolleys ran along the road.

By the turn of the century, increasing automobile use began to change communities along the Pike. Expanding residential suburbs emerged with produce stands, resorts, and restaurants. But the

County remained mostly agricultural until the 1950s. In the 1960s and 70s, development continued with the addition of high-rise commercial and residential buildings, fast food restaurants, the construction of Montgomery College, and indoor shopping malls that define much of the Corridor today.

Although growth in the past twenty years was contained within the framework of the General Plan, traffic congestion increased significantly in the 1980s and 1990s.

## The Past - Context



## The Present – Existing Conditions

The Washington-Baltimore region is among the world's most robust and diversified work environments. The region is a top-ranked center for research and development, and a center for high technology industries. The 355/270 Corridor is a significant part of the regional economy and the core of the County's economy. The County's economic development strategy focuses on advanced technology industries and the services needed to support them.



## Existing Land Use

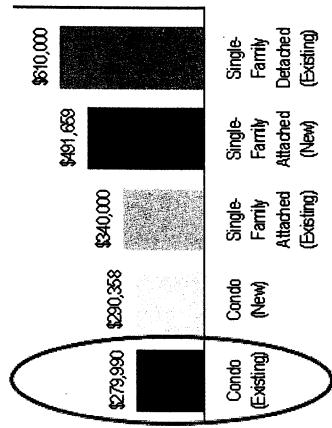
The centers of development along MD 355 vary widely and include the Shady Grove Life Sciences Center, NIH in Bethesda, and NIST in Gaithersburg. Enhancing these clusters and examining opportunities for new clusters should be included in master plan and sector plan efforts and should include the range of uses described in the following paragraphs.

**Housing** - Housing location and affordability are key regional issues. Today, the Corridor has a variety of urban, suburban, and rural communities. In more urbanized areas, such as Friendship Heights and Bethesda, apartments and condominiums are available in pedestrian-oriented and transit serviceable neighborhoods.

Suburban single-family detached communities are close to MD355. The price of single-family homes in the County has risen sharply since 1999. As of March 2007, the average, new single-family detached homes in the County sold for over a million dollars. Some affordable housing is provided in older garden apartments,

moderately priced dwelling units, and the newly created work force housing program. Master plans and sector plans also examine the potential for new housing, often with transit access, and consider the County's local and overall jobs/housing balance in their recommendations. Livable and active mixed-use neighborhoods at transit stations will help attract high quality employers to the Corridor.

**Corridor home prices are steep**  
Median price of homes sold in the Corridor (2006)



of the strip is devoid of street trees, sidewalks, and crosswalks that encourage pedestrian movement between developments across MD 355.

### Civic and Cultural Facilities -

Montgomery County has made a significant investment in civic and cultural institutions along MD355. The three most notable examples are the varied arts offerings at Strathmore, the North Bethesda Conference Center, and the Black Rock Center for the Arts.

### Connecting the Corridor

Improving existing connections and establishing new ones will be critical to the Corridor's long term success. Making the most of the Metro Red Line stations, improving transit in the northern Corridor, and improving park connections will provide travel and recreation options.

**Industrial Uses** - The existing industrial uses, warehousing, and other support functions are critical to supporting the basic and non-basic sectors of the high technology industry and supplying other businesses and residents with conveniently located goods and services.

**Retail** - According to a 2007 retail analysis, the Corridor is underserved by the existing establishments. Corridor residents often travel elsewhere for some shopping needs. MD355 is the County's primary commercial main street and also serves the region. Auto-oriented retail uses along MD 355, especially from White Flint Mall to Shady Grove, offer a variety of retail services. Much

## **Character of MD 355**

Most travel through the Corridor takes place on I-270, while MD 355 provides for local traffic from communities, shopping, and businesses. The character of MD 355, especially in North Bethesda and Rockville, does not enhance the first impression of Montgomery County and the adjacent neighborhoods. Pedestrian crosswalks, significant streetscaping, and on-street parking are limited along major portions of MD 355.

## **Open Space and Recreation Hierarchy**

Little Bennett Regional Park, Rock Creek Stream Valley Park, and Black Hill Regional Park provide large recreational and open spaces. The more densely developed areas of North Bethesda and Rockville lack significant open space areas and connections to regional facilities. Few smaller civic gathering places, plazas and greens exist in the Corridor.

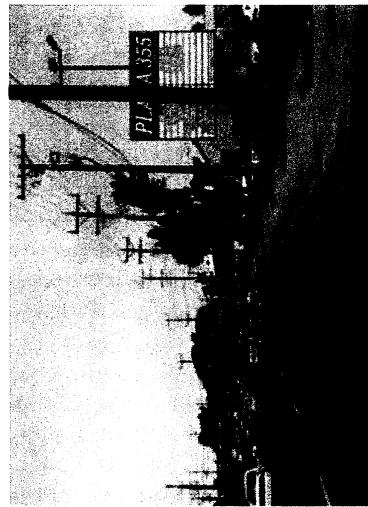
## **Mobility**

Establishing connected transit, roads, pedestrian, and bicycle facilities is part of creating a balanced transportation system. The Metro Red Line provides significant transit connections in the southern Corridor and is supplemented by bus and local shuttle services. East-west connections in the Corridor include Clarksburg Road, Ridge Road, Germantown Road, Quince Orchard Road, Montgomery Village Road, Sam Mig Highway, Shady Grove Road, and the future Inter-County Connector. Today, four of the County's ten most congested intersections are located along MD 355. The existing pedestrian and bicycle routes are not always connected, provide limited access to transit stations, and limited connections to local and regional parks.

## **Green Communities**

Montgomery County recently passed legislation requiring new projects to meet green building standards. Recently, standards for developing green communities are being incorporated into plans in the

Corridor. Planting trees and reducing imperviousness are some of the key elements necessary to improve the environment.





## Civic Design

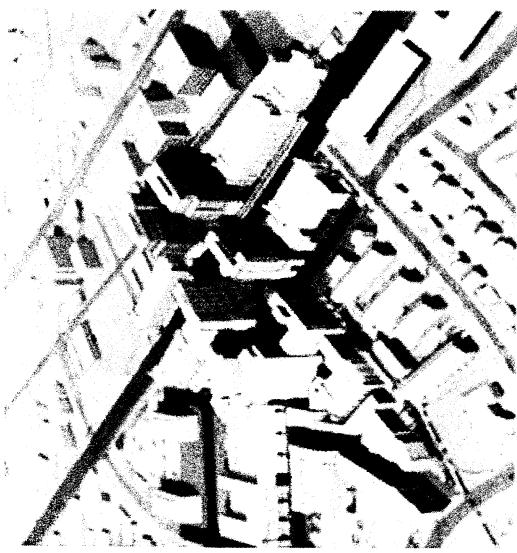
While the southern portion of the Corridor between Friendship Heights and Bethesda is defined by the Green Mile, the Corridor's commercial strip through North Bethesda lacks attention to high quality design. Significant attention to community design in the centers and along the roads with attention to livability, visual impression, varied open spaces, and place making features can help define distinct communities and provide an overall positive impression of the Corridor.

## The Future – Planning Opportunities

The following paragraphs identify some of the future planning opportunities in the Corridor. The items are intended to be incorporated into the upcoming master plans and sector plans.

### Create a Hierarchy of Livable Centers

A hierarchy of centers with a balance of housing, retail, technology employment, industrial services and civic facilities will establish a world class corridor. In combination, the centers described below will provide that balance.



**Friendship Heights** is a central business district with a concentration of comparison shopping and housing located adjacent to Washington, D.C.

**Bethesda CBD** is a central business district with a concentration of offices, housing, and a well-known community of restaurants, complemented by film and live theaters.

### National Institutes of Health/Naval Medical Center

**National Institutes of Health/Naval Medical Center** is an internationally known federal medical complex. They are research centers and a catalyst for the County's biotechnology industry. The 2005 Base Realignment and Closure Study may relocate some functions currently at the Walter Reed Army Medical Center to the area, which would expand the complex's size and function, which is master planned for 2,600 employees and approximately 435,000 patients and visitors per year.

**Grosvenor-Strathmore Metro Station Area** is a primarily residential area with some private schools and the County's cultural center at Strathmore.

**Twinbrook Metro Station Area** is proposed in the Public Hearing Draft of the sector plan now underway, as a transit center, supporting a mixed community of high technology and traditional industrial services with a new component of housing and retail uses.

**White Flint Metro Station Area** is envisioned by the sector plan now underway as North Bethesda's downtown with mixed-use, high-rise development. New and existing office, entertainment, and retail uses will be connected with a fine grained street network and improved pedestrian access between developments and across Rockville Pike.

**City of Rockville** is being redeveloped into a revitalized town center and County seat, with a distinct identity along MD 355.

## Potential College Garden

**Metro Station** could function as an expanded education center with the potential for a new Metro station in the long term between Rockville and Shady Grove.

## Shady Grove Metro Station

**Area** is envisioned as a transit hub and a significant housing resource along the Corridor.

**City of Gaithersburg** will combine low intensity employment, commercial, and residential uses at a town scale and pattern with three distinct areas, the Northern Employment District, the Fairgrounds Commercial District, and the Southern Residential District.

## Shady Grove Life Sciences Center and the Belward Research Campus

**will be linked to other centers by the Corridor Cities Transitway (CCT).** The area is a center for higher education with branches of the University of Maryland and Johns Hopkins University.

## Germantown Employment Center

**Center** is envisioned by the master plan underway as a mixed-use development of office, residential, and retail uses that could include corporate offices and biotechnology companies. The mix of uses and the number of jobs and housing allowed will be determined in the planning process.

**Clarksburg** provides a balance of jobs and housing connected to the future Corridor Cities Transitway and MD 355. Focused on the 19<sup>th</sup> and early 20<sup>th</sup> century historic area, there is significant development capacity in this newly built community.

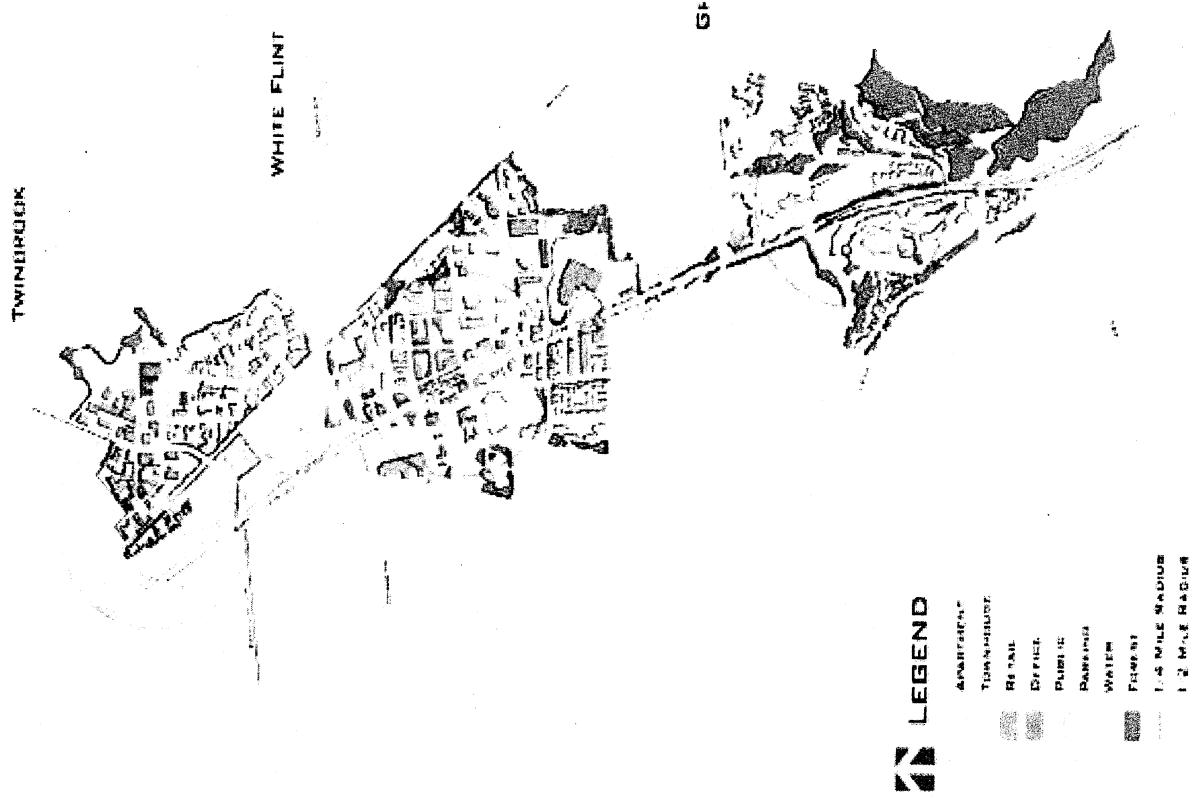
**Hyattstown** is a historic community and a focus for the rural communities.

## Connecting the Centers

Connecting the centers will help the Corridor function as a single place. The Metro Red Line and the future Corridor Cities Transitway will link within the Corridor and to the Metro region's housing, employment, retail, and cultural resources. The centers should also be connected to regional park and recreation resources.

## Establish MD 355 as a Boulevard

MD 355 connects Washington, D.C. to Frederick County, but should also have a local character. Today, its character changes dramatically from the urban business districts of Friendship Heights and Bethesda in the south, to historic villages and rural communities in the north. It should be divided into areas with three distinct characters.



## **Washington, D.C. to**

**Grosvenor** - From Friendship Heights to Bethesda, MD 355 is commonly called the Green Mile, and it is abutted by residential properties and the Columbia Country Club. Its green, boulevard character makes the two CBDs distinct and creates a positive impression. The central business district areas are marked with substantial streetscaping, though additional street trees and continuous sidewalks could enhance this stretch of the road.

uses. These nodes should have a fine-grained street network that can also create alternative routes to MD 355. Adding residential options will also contribute to evening the balance of jobs and housing.

**White Flint to Gaithersburg** – In this section, MD 355 is built as a traditional auto-scaled commercial strip with office and retail buildings oriented to parking lots. MD 355, here is the County's primary commercial district and a regional market place. Nonetheless, with redevelopment focused on nodes and attention to roadway design, the road can take on a boulevard character that serves pedestrians as well as drivers.

Improvements should include increasing the number and variety of public spaces, adding green landscaped elements, focusing mixed-use development in nodes that are pedestrian-friendly and include street-oriented ground floor

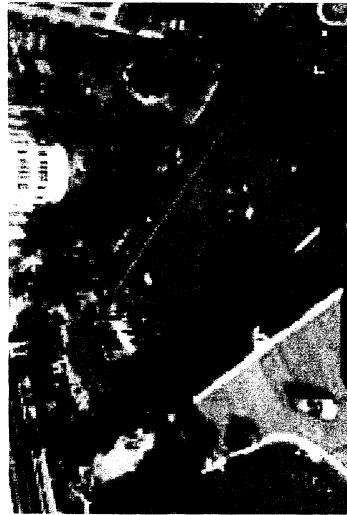
## **Enhance Mobility**

The County should build the Corridor's transportation network to meet the needs of a highly mobile community. That network should provide access to the activities that make up daily lives, and include options to walk and bike as well as drive. Techniques to establish and encourage the use of transportation alternatives include transportation management, new facilities including the Corridor Cities Transitway and the Purple Line, a connected local street network, pedestrian pathways, and bikeways. Land use determines the viability of alternative transportation options, and careful consideration of the jobs/housing balance, and the character and location of development near transit facilities should consider mobility.



## **Augment the Open Space and Recreation Hierarchy**

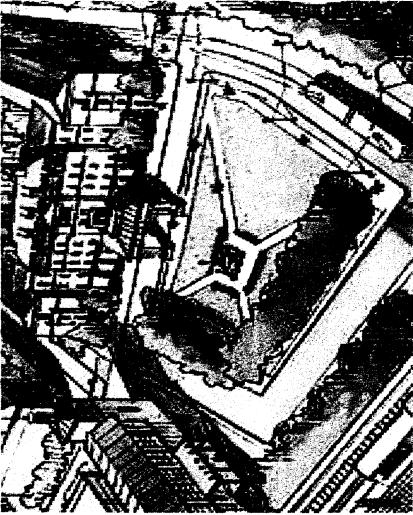
The hierarchy of open space and recreation opportunities includes regional stream valley parks, green space adjacent to residential areas, and local urban parks and open spaces, all of which provide significant active and passive recreation options. Connecting local and regional parks along MD 355 and incorporating new public spaces into redevelopment is an important element of the vision for the Corridor.



## **Create Green Communities and Buildings**

Demanding green communities and buildings will reduce the negative impacts of development on the environment by reducing carbon dioxide through decreased vehicle miles. Additional trees, parks, and open spaces can help reduce carbon dioxide and reduce the need for stormwater management. Increasing stormwater infiltration by providing more pervious surfaces, planted areas, and green roofs will also reduce the need for stormwater management facilities.

important to establishing a positive character for the Corridor and should include place making features, public art, and other landmarks that make the Corridor communities unique.



## **Emphasize Civic Design**

In car-oriented environments, public space is often reduced to parking lots. Focusing redevelopment in centers offers the opportunity to create pedestrian-scaled public spaces that can support and complement the proposed mixed uses. The design of each center should reflect its role in the Corridor, and the centers should have improved street and path networks with attention to the relationship to MD 355. The design of open spaces is

# IMPLEMENTATION

## Short -Term

### Mid-Term

### Long-Term

**Current Master Plans** - The Shady Grove Sector Plan and the Woodmont Triangle Amendment to the Bethesda CBD Sector Plan have been completed, and the Twinbrook Sector Plan is scheduled for a public hearing in November 2007. Their recommendations reinforce each area's role in the Corridor and together will increase housing by 16,800 dwelling units. In Shady Grove and Woodmont Triangle the job potential is decreased in favor of housing, creating a better jobs/housing balance. Other recommendations foster a new high technology cluster in Twinbrook. Improving the character of MD 355, establishing green community planning principles, and connecting these centers to the Metro system and the park system have also been incorporated into these plans.

**White Flint** - The White Flint Sector Plan is scheduled for completion in 2008 and will provide an opportunity to increase housing and create a distinct downtown for North Bethesda.

**Germantown** - A Germantown master plan amendment is studying the area's employment corridor, and this plan is providing another opportunity to add housing and create mixed-use centers that provide an attractive living and working environment.

**Gaithersburg** - The Master Plan for Gaithersburg West is an opportunity to establish a new life science center, supported by Johns Hopkins University and the University of Maryland.

**Future Master Planning** - The Plans for Gaithersburg East, North Bethesda/Garrett Park, and phase two of White Flint are included in the long-term master plan program.

**Transportation Facilities** - The planned Metro Purple Line and the Corridor Cities Transitway will influence redevelopment in the Corridor. Suggested by the community, and under consideration is a new Metro station at Montgomery College's Rockville campus, located between Shady Grove and the City of Rockville. An expanded bus network, and improvements to MD 355 and I-270 are also critical transportation projects. New parking districts in White Flint and other areas should be considered, along with additional pedestrian and bicycle connections to the transit stations and the stream

valley park system are needed. Completion of the Bethesda Trolley Trail from the White Flint Metro Station and the Capital Crescent Trail would provide one of the needed connections.

## **Capital Improvement**

**Programs (CIP)** – Facilities will be created through a combination of CIP and private sector funding. Coordination between public facilities and private development will be critical to providing facilities in a timely manner.

**Federal Facilities** - Changes in the Corridor include the expansion of some federal facilities. The relocation of the Walter Reed Army Medical Facilities to the Bethesda Naval Medical Center is expected to have transportation, housing, and local economic impacts in the Bethesda area. Expansion of NIH, NIST and NRC facilities is also expected.

## **Building Green Communities**

Encouraging green buildings and community planning during regulatory planning will be an ongoing effort intended to maintain and enhance air, water, forest resources, and reduce dependence on the automobile. The agency is

taking on particular studies to address these issues. The Green Infrastructure Functional Plan will identify and evaluate existing sensitive and important environmental features, and identify natural resources and opportunities for conservation, mitigation, restoration, and enhancement. The Water Resource Functional Plan will assess the County's capacity to sustain future development in the areas of water supply, wastewater and stormwater management that meet federal and state water quality standards. The Environment and Energy Plan will examine how the County can meet ongoing

environmental, economic and social needs, and will identify actions to improve sustainability through changes in watershed protection, green infrastructure, forest conservation, green community and building standards, and impervious surface control.

## APPENDIX A: RELATIONSHIP TO ONGOING STUDIES

The following studies are designed to augment and implement the concepts presented in this project. The combination of work provides a unique opportunity to improve the 355/270 Corridor.

### **Annual Growth Policy** - The

Growth Policy analysis will help decide how to address future growth while maintaining a high quality of life.

### **Housing Policy Element of the**

**General Plan** - This project will be a starting point for the development of a housing policy element of the General Plan, including preserving and enhancing existing affordable housing.

urban communities in the County. The new standards include accommodations for stormwater runoff, pedestrians and bicycles, traffic calming, reduction in the size and spacing of intersections, streetscaping, and enhanced sidewalks.

**Zoning Code Update** - This effort will create a regulatory environment that responds to the recommendations in the upcoming master plans and sector plans in the 355/270 Corridor. The revisions will make the code a more effective tool for implementing County policies for mixed-use, affordable housing, open space, and building form.

birding, camping, fishing, horseback riding, plant walks, interpretive programs and golf.

### **Urban Parks and Trails (Footsteps in the Corridor)** -

The Footsteps in the Corridor Plan will create a single pathway from Bethesda to Hyattstown within the Corridor. This trail will link parks, commercial centers, historic neighborhoods, and community focal points. It will connect to the three east-west greenway corridors in the Countywide Park Trails Plan and to existing sidewalks in the urbanized portions of the trail.

**Centers and Boulevards** - This planning report chronicles the key development trends, changing population needs, emerging land use, and market changes in Montgomery County. It presents a vision of Montgomery County in transition from an auto-dependent

### **Little Bennett Regional Park**

**Master Plan** - Little Bennett Regional Park is an important gateway to the County. This plan will provide for approximately 67,500 visitors to enjoy hiking, cycling,

suburb to a more urban form with mixed-uses, and transit oriented centers located along boulevards.

### **Design Excellence Initiative** -

As part of the Growth Policy, this effort seeks to promote an open dialogue on enlightened thinking about civic and architectural design. The discussion will identify why design matters, and how design aspirations and standards can be codified.

### **Green Infrastructure**

#### **Functional Plan** -

This Plan will identify and evaluate existing sensitive and important environmental features.

### **Water Resource Functional**

#### **Plan** -

This countywide plan will assess the County's capacity to sustain future development in the areas of water supply, wastewater and stormwater management to meet federal and state water quality standards.

### **Environment and Energy Plan**

- This plan will examine how the County will meet ongoing environmental, economic and social need.

## APPENDIX B: COMMUNITY INPUT

Engaging the community is vital to creating a successful plan, and this process included significant outreach. Prior to starting work on the 355/270 project the community involvement began through a series of public workshops on the Centers and Boulevards project. Through these workshops, participants identified several key attributes critical to the 355/270 Corridor. This was followed by forming a twelve member Work Program Development Committee to collaborate in developing a work program for the 355/270 project. Meetings with the County's Department of Public Works and Transportation staff and with the Cities of Rockville and Gaithersburg were held periodically throughout the planning process. Telephone interviews were held with representatives of the science industry. A project web site was also established. Listed below is a summary of the information gathered from the community.

- Engage in a holistic approach to planning the Corridor. Consider the cumulative impact of growth within the Corridor when making decisions about the environment, housing, transportation, visual quality, and community issues. Foster multi-agency/institution/government coordination to ensure implementation. Establish indicators to measure success.
- Create a better balance of jobs and housing by establishing a diversity of mixed-use centers that become the focus of community life. Protect new and old communities by retaining the community culture of older areas, and preserving existing green space. Provide job and business opportunities, including retail and services uses in the northern segments of MD 355. Address affordable housing in the corridor, and accommodate families by providing adequate school capacity.
- Improve the visual characteristics and urban design features along the corridor by highlighting and punctuating MD 355's important nodes and gateways. Green the Corridor with trees, and transform MD 355 into a boulevard with streetscape, parks, and green space. Provide civic uses and gathering spaces for recreation and passive relaxation. Scale new development to be

- compatible with the existing built environment. Build closer to the street with ground floor activity to create more vibrant street-life.

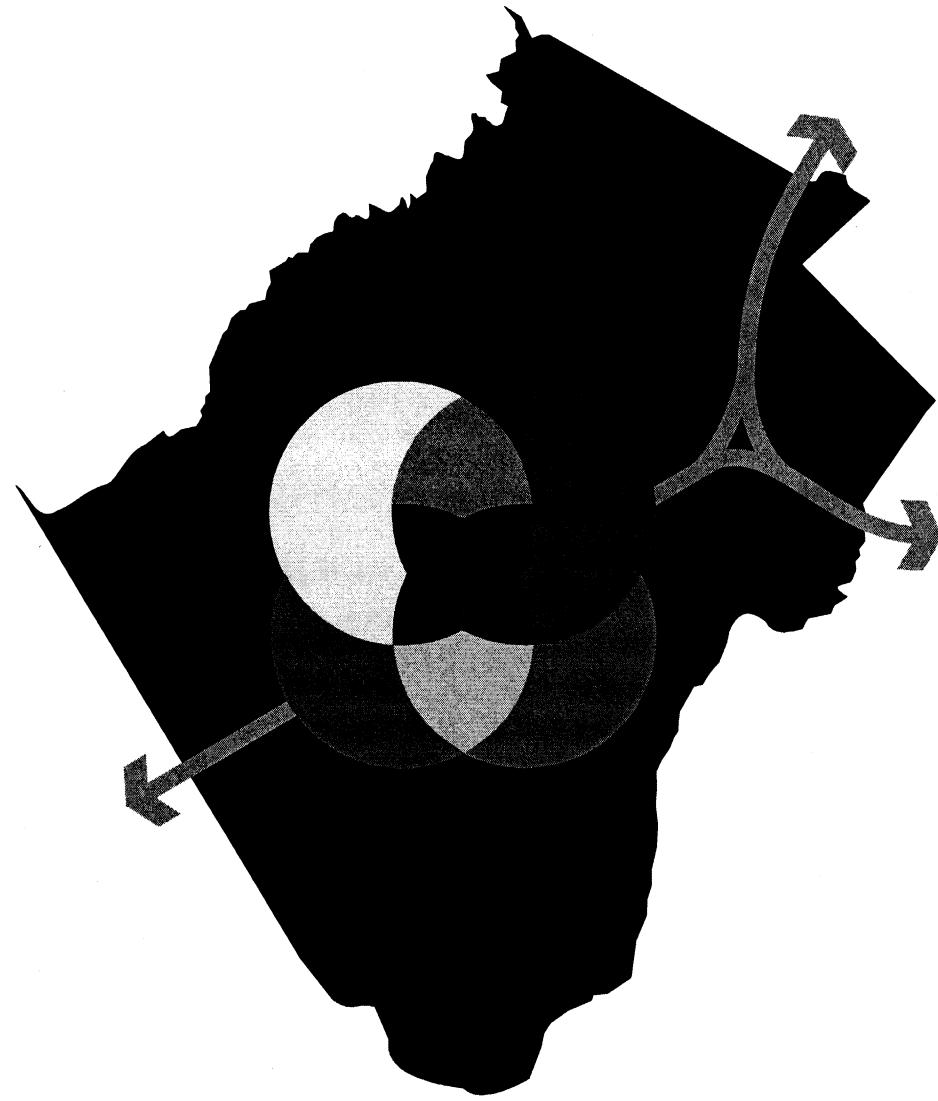
- Plan for adequate transportation
  - develop more bikeways and trails accessible to MD 355, and provide mass transit opportunities in the median. Provide a local shuttle to shopping and Metro station areas.

- Take back the road for pedestrians - provide pedestrian connectivity and improve pedestrian safety. Increase pedestrian connections with crosswalks, underpasses, and overpasses. Improve connections to the park system.

- Ensure implementation by creating new zones, amending master plans, and instituting management mechanisms such as the National Trust for Historic Preservation's Mainstreet Program or a redevelopment corporation. Streetscapes should be funded, managed and maintained.

**PowerPoint Presentations**

# **355/270 CORRIDOR**



**October 2007**

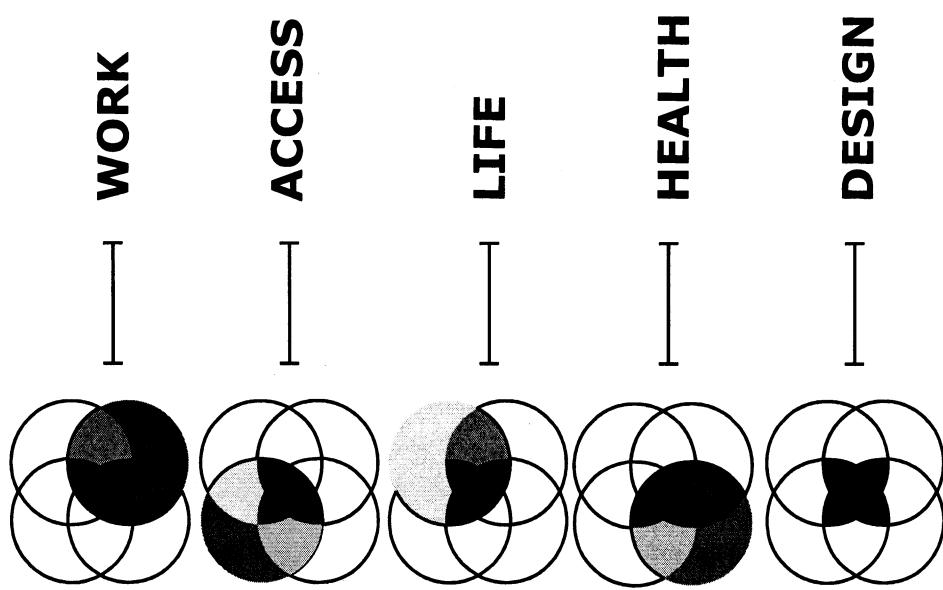
**Montgomery County Planning Department**

 The Maryland-National Capital Park and Planning Commission



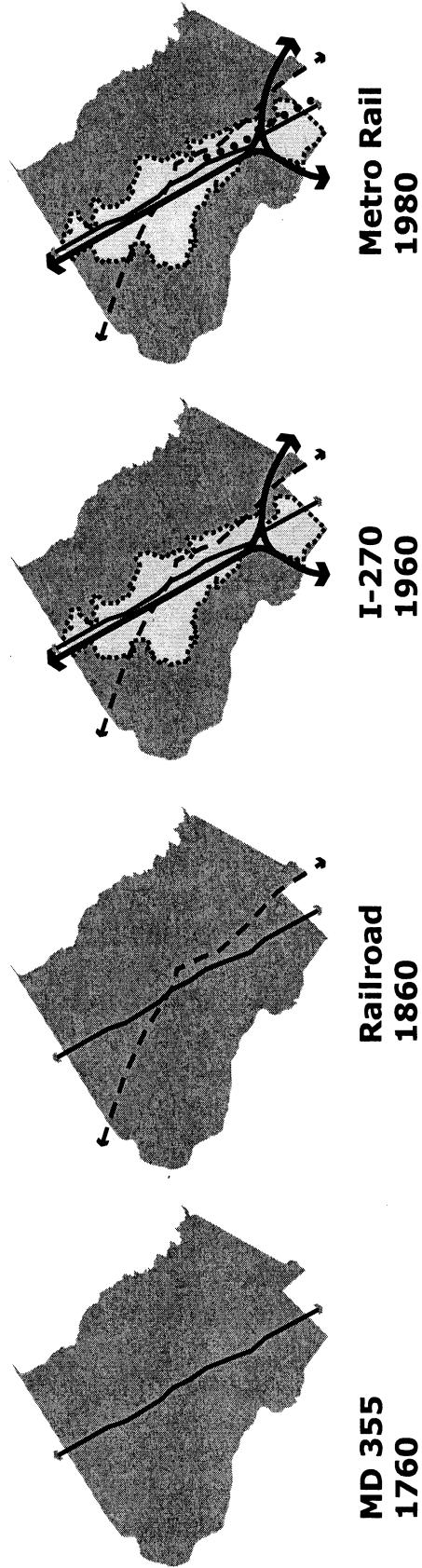
355/270 Corridor  
**Introduction**

**Project Outline**



# 355/270 Corridor Introduction

## The 355/270 Technology Corridor



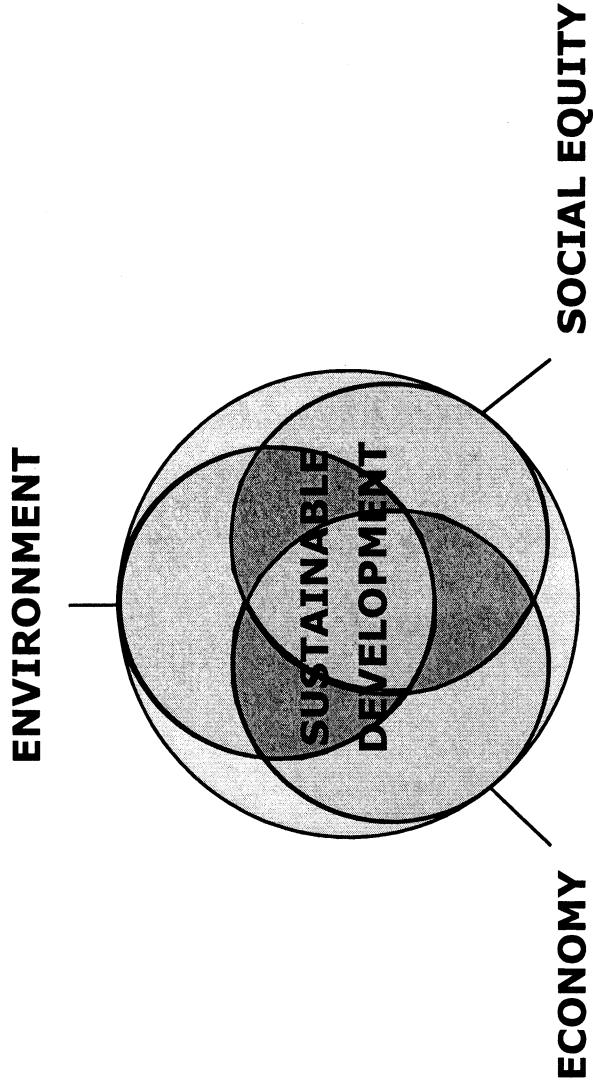
**Vision** - To augment and enhance the I-270 Technology Corridor and MD 355, a "main street" of the County, in a manner that can be sustained over time. Over 250 years, the Corridor has evolved from a rural area into an important workplace for 360,000 workers, and a community of choice for 425,000 residents. Along its 27 mile length, MD 355 has changed from a trail to a multi-modal movement artery carrying as many as 5,000,000 person trips per day.

**Purpose** - This report evaluates key issues that affect the ability to achieve this vision. It also includes a checklist of issues, challenges and actions to be addressed as individual planning efforts seek to implement the vision.

# 355/270 Corridor Introduction

## Sustainability

A NEW GOAL FOR THE 21ST CENTURY



Energy-Technology-Geo-Politics

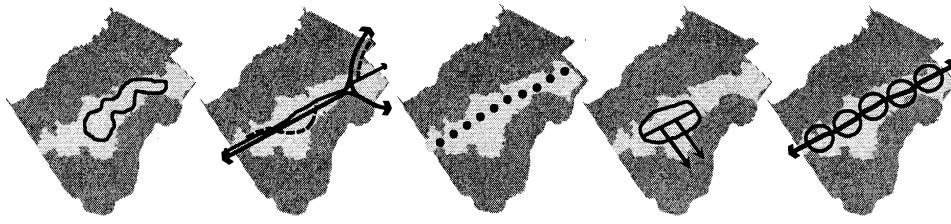
Demographic Shifts - Migration Issues

"Meeting the needs of today without depriving tomorrow"

# 355/270 Corridor Introduction

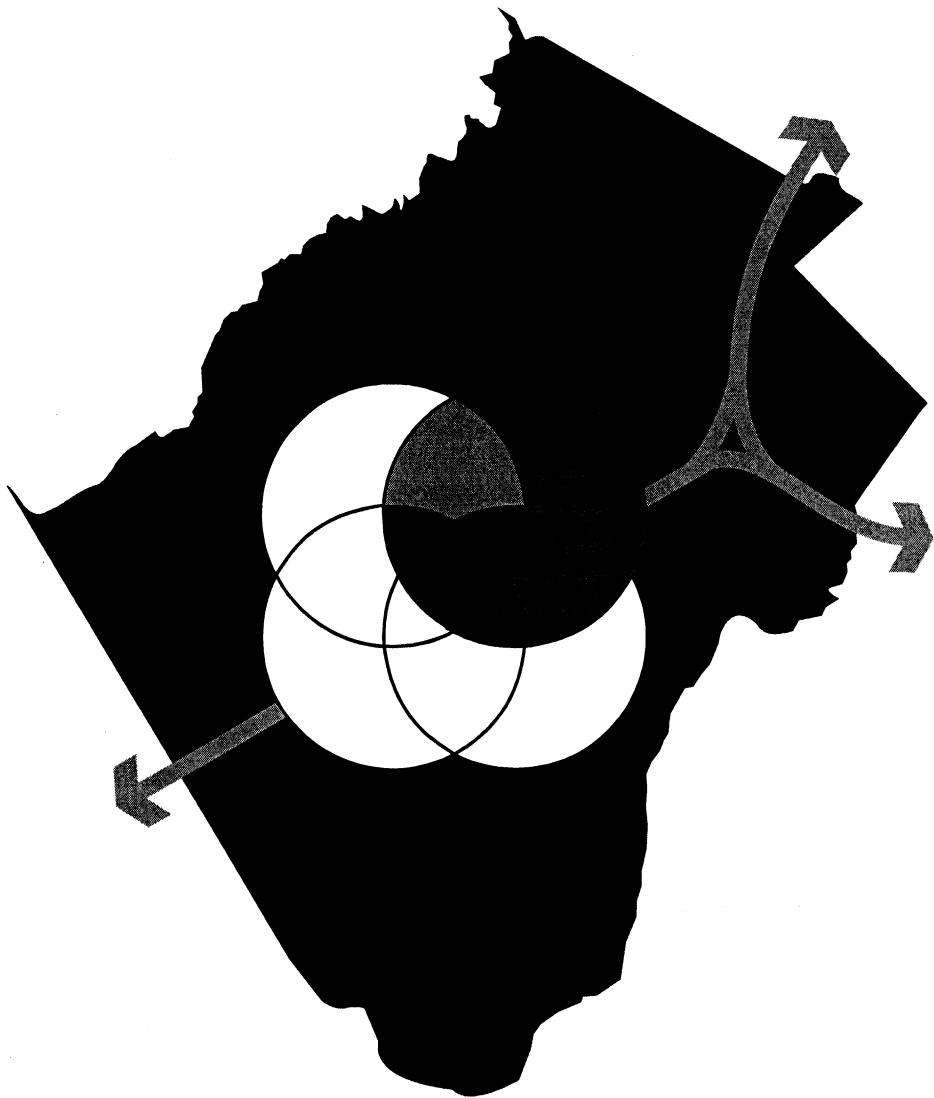
## Outline and Structure

FUNCTION	ISSUES	CHALLENGES	ACTIONS	FOCUS
WORK	competition energy	technology research	efficient energy institutions <b>connect</b> venture support	
ACCESS	travel time congestion	mobility choice	behavior <b>facilities</b> land use staging	
LIFE	choice affordability	centers affordable housing	<b>community/housing</b> entertainment/retail parks and schools design excellence	
HEALTH	climate change	nature restoration	cut carbon dioxide <b>plant trees</b> filtration green communities	
DESIGN	civic design	cluster main street	<b>centers</b> boulevard open spaces landmarks	



# WORK

**Efficient Energy, Institutions, Connections, Venture Support (Economy)**



**Montgomery County Planning Department**

 The Maryland-National Capital Park and Planning Commission

## **Emerging Issues**

The rapid development of a global economy is bringing to the forefront two new issues:

### **ENERGY**

The industrialization of China, India, and other third world nations is putting increasing pressure on global energy resources, in particular on oil supply, which is now perceived to have passed its peak as an energy reserve. With no alternative energy source in sight at present that is equivalent in scale, cost, and flexibility, many now consider this problem to represent a looming crisis.

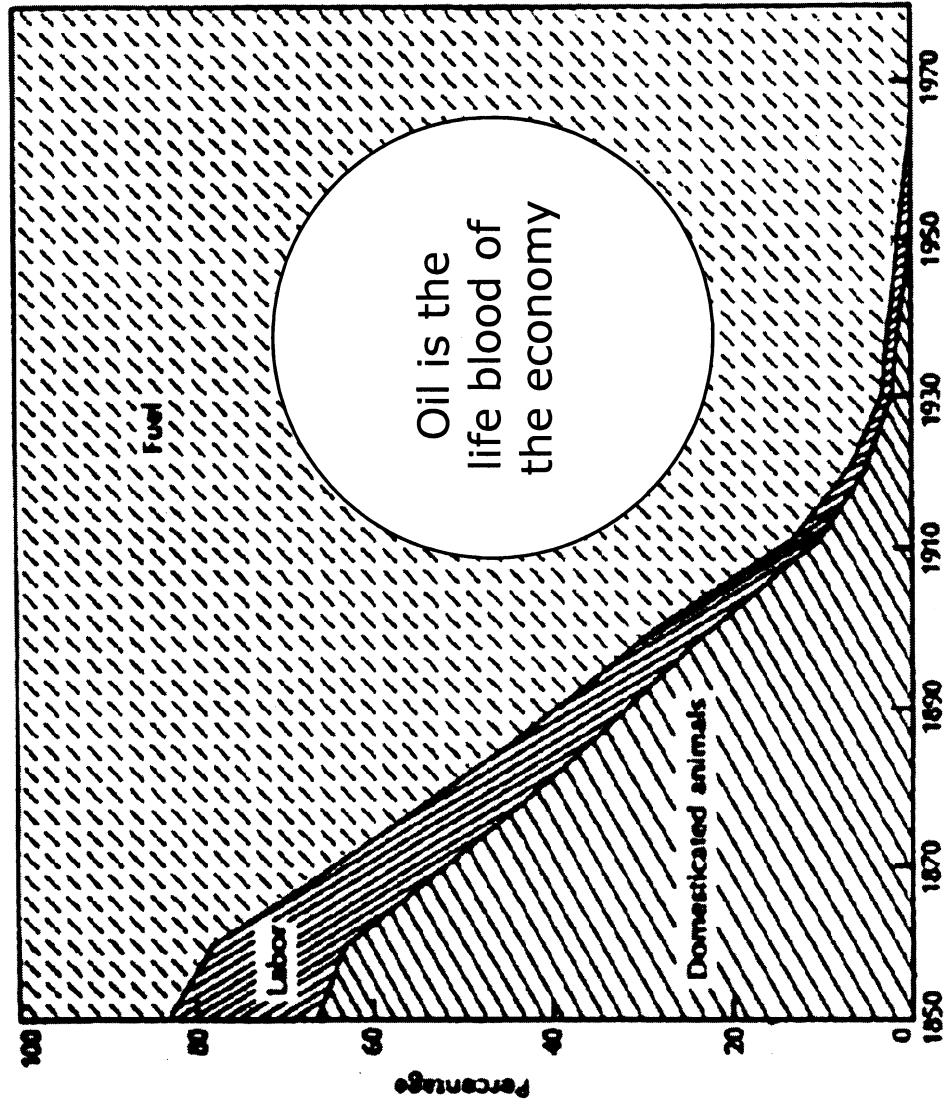
### **COMPETITION**

The transfer of advanced technology from the USA to other nations is beginning to challenge this nation's previous dominant position in research and development. **As one of the nation's top centers for such R & D, Montgomery County is better positioned to remain competitive than other urban areas in the nation, but the County is not immune to the potential effects of a changing global situation.**

# Work Issues

## Energy

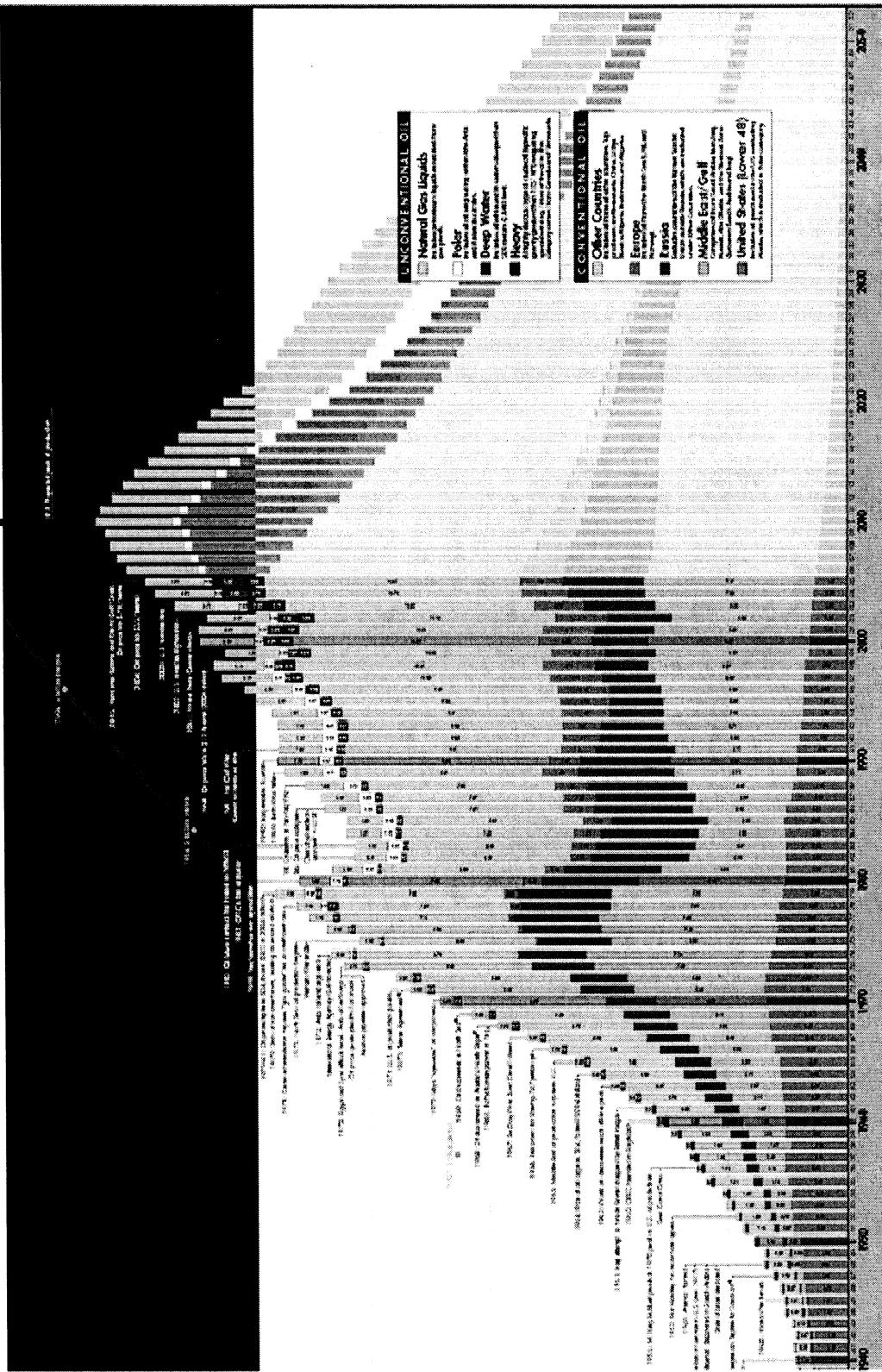
Work over time by humans, domesticated animals, and machines, as a percentage of total horsepower in the economy



Hall, C.A.S., Cleveland, D.J., Kaufmann, R., *Biophysical Economics: The Ecology of the Industrial Process*, New York: Wiley & Son, 1985

# Work Issues

## Energy | 2010



## The Hirsch Report

"...the peaking of world oil production presents the US and the world with an unprecedented risk management problem. As peaking is approached, liquid fuel prices and price volatility will increase dramatically, and without timely mitigation, the economic, social and political costs will be unprecedented. Viable mitigation options exist on both the supply and demand sides, but to have substantial impact, they must be initiated **more than a decade** in advance of peaking"

(Hirsch, R.L., *Bulletin of the Atlantic Council*, XVI:3, October 2005.)

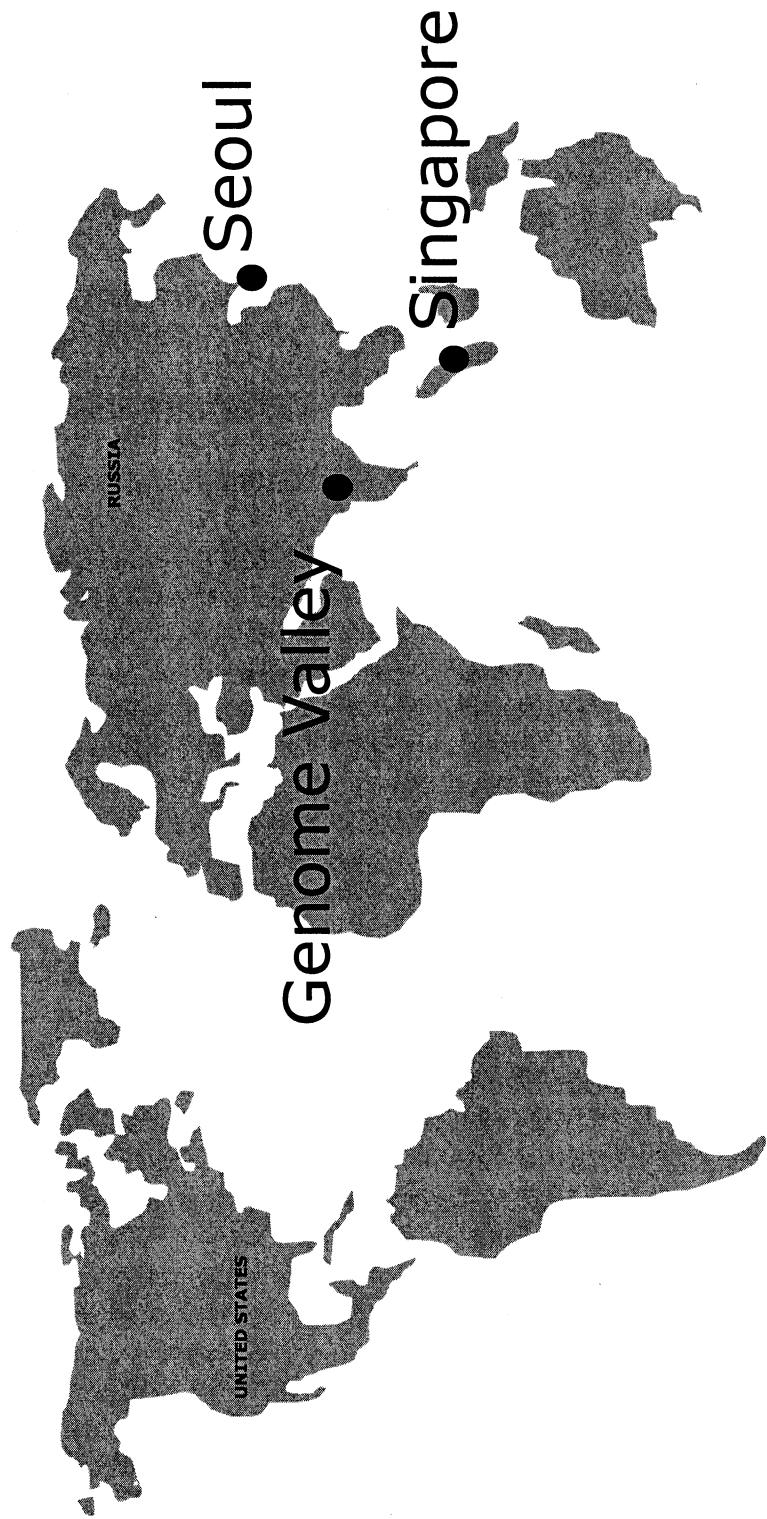
## Energy

- The full implications of “peak oil” are immensely complex and enormously important. Improving transit access and pedestrian connectivity is important in the Corridor to reduce demand for oil.
- Mainstream economists and strategic thinkers only recently have turned their attention to analyzing this problem in detail.
- Constructive responses range widely – from alternative energy sources like solar, wind, biomass, etc. to conservation and adaptive recycling.
- Spatially, all directions of analysis point to the need to cluster land use activities in order to reduce travel energy consumption. Clusters help provide for collaboration and an agglomeration of talent.
- Economically, this huge problem can be seen as an opportunity for local research institutions to enhance their productivity in support of the nation’s needs.

# Work Issues

## Advancing Science in Maryland

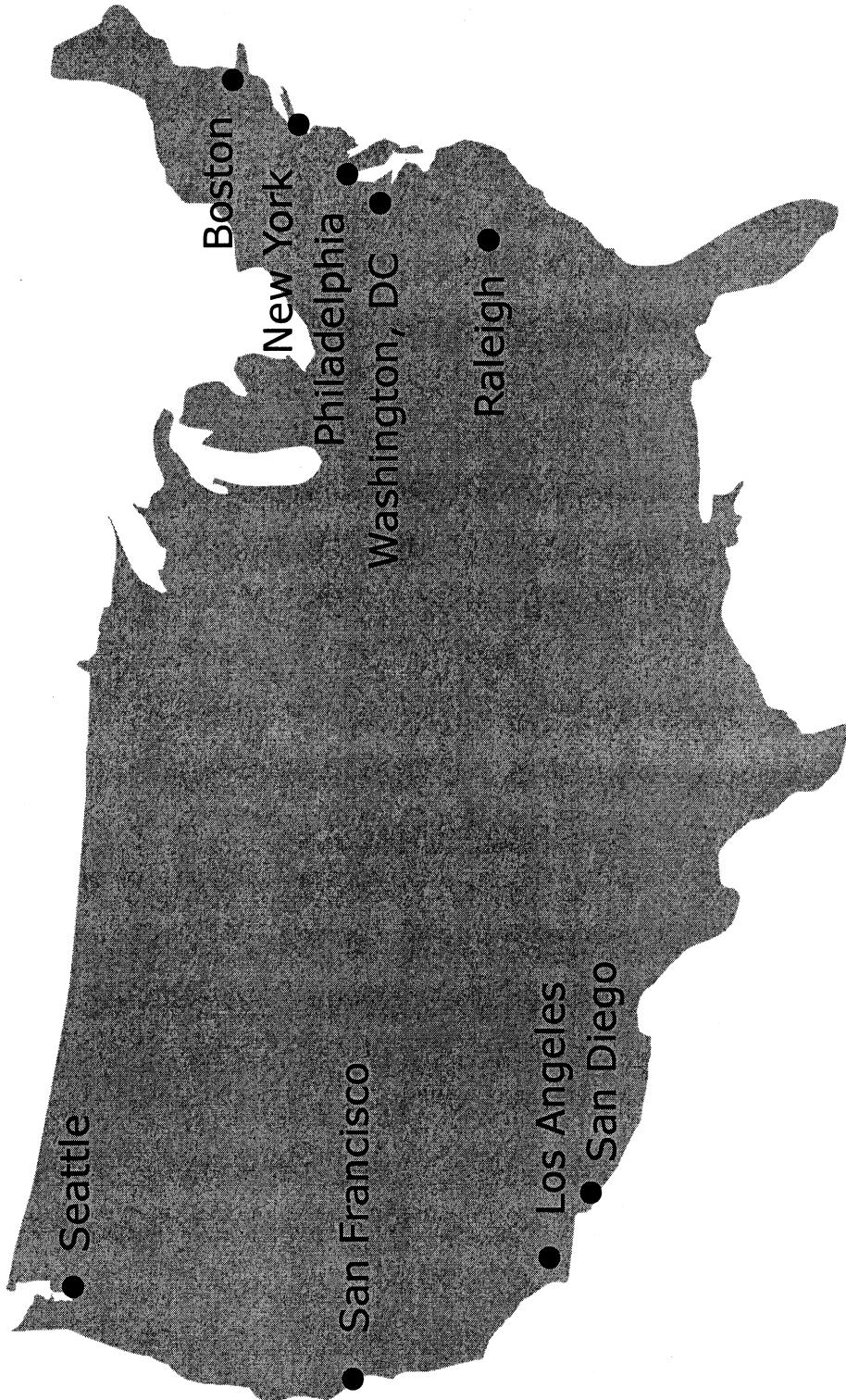
### Global Competition



# Work Issues

## Advancing Science in Maryland

### National Competition



## Advancing Science in Maryland

### 52 Key Competitors

- North America (15)**
  - Austin, TX, USA
  - Baltimore/Washington, DC, USA**
  - Boston, MA, USA
  - Los Angeles, CA, USA
  - Minneapolis / St Paul, MN, USA
  - Montreal, Canada
  - New York/New Jersey, USA
  - Philadelphia, PA, USA
  - Research Triangle, NC, USA
  - Rochester, NY, USA
  - San Diego, CA, USA
  - San Francisco, CA, USA
  - Saskatoon, Canada
  - Seattle, WA, USA
  - Toronto, Canada
- Central America / South America (3)**
  - Belo Horizonte / Rio de Janeiro, Brazil
  - Sao Paulo, Brazil
  - West Havana, Cuba
- Asia (14)**
  - Bangalore, India
  - Beijing, China
  - Dengkil, Malaysia
  - Hokkaido, Japan
  - Hong Kong, China
  - Hsinchu, Taiwan
  - Hyderabad, India
  - Kansai, Japan
  - New Delhi, India
  - Shanghai, China
  - Shenzhen, China
  - Singapore
  - Taipei, Taiwan
  - Tokyo-Kanto, Japan
- Continental Europe (8)**
  - BioAlps, France / Switzerland
  - Biovalley, France / Germany / Switzerland
  - Brussels, Belgium
  - Helsinki, Finland
  - Medicom Valley, Denmark / Sweden
  - Paris, France
  - Sophia-Antipolis, France
  - Stockholm / Uppsala, Sweden
- United Kingdom / Ireland (5)**
  - Cambridge - SE England
  - Dublin, Republic of Ireland
  - Glasgow / Edinburgh, Scotland
  - London, England
  - Manchester / Liverpool, England
- Africa (1)**
  - Capetown, South Africa
- Mideast (1)**
  - Israel
- Australia / New Zealand (4)**
  - Brisbane, Australia
  - Dunedin, New Zealand
  - Melbourne, Australia
  - Sydney, Australia

## Challenges

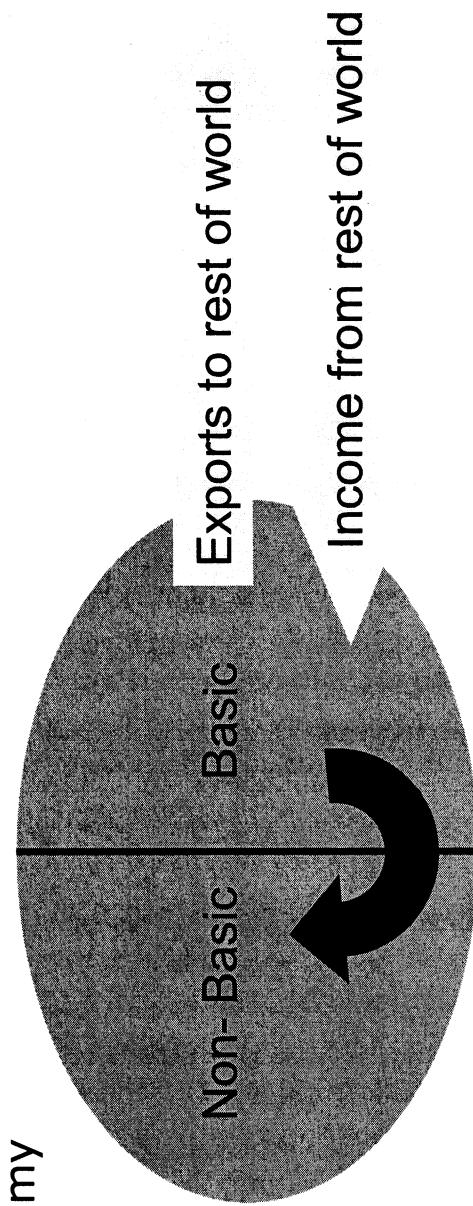
**Establishing an economic strategy that satisfies the needs of both the basic and non-basic sectors of a knowledge based economy**

**The Basic Sector:**

- The activities that produce products and services that are exported to the rest of the world

**Non-Basic Sector:**

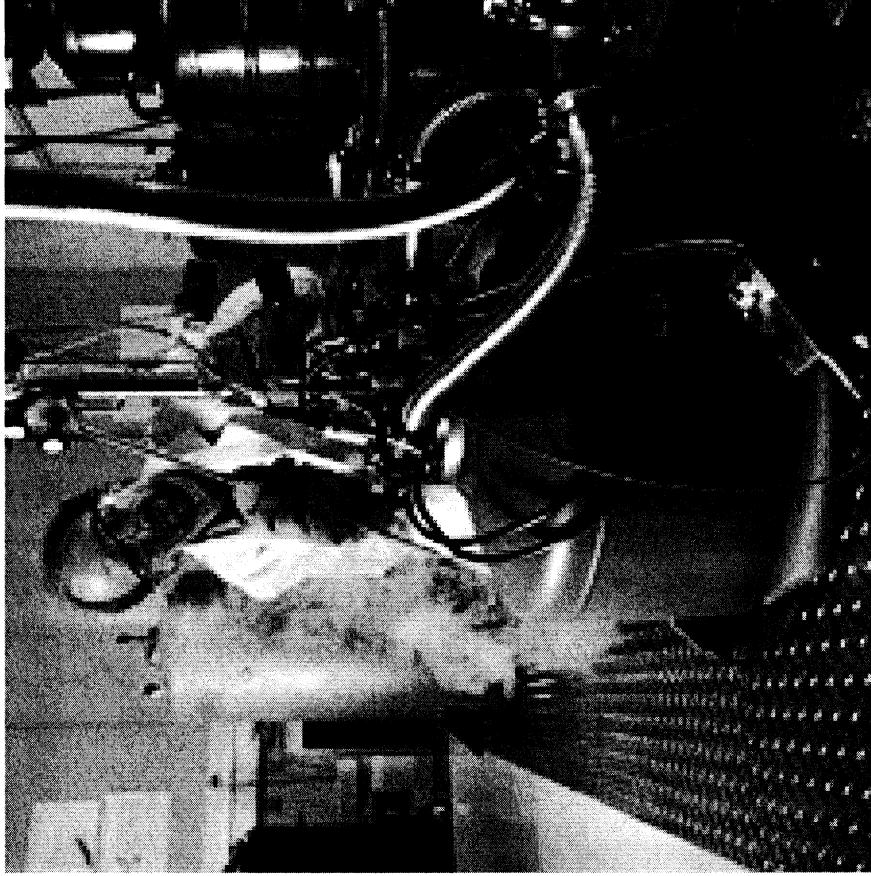
- The activities made possible by income from the basic economy



## Challenges

### **Supporting the Basic Industries in Montgomery County**

- Scientific Research and Development
- Computer System Design and Related Services
- Pharmaceutical and Medical Manufacturing
- Corporate Services
- Associations
- Federal Government
- Defense industries



Work

## Challenges

### Supporting the Non-Basic Industries in Montgomery County

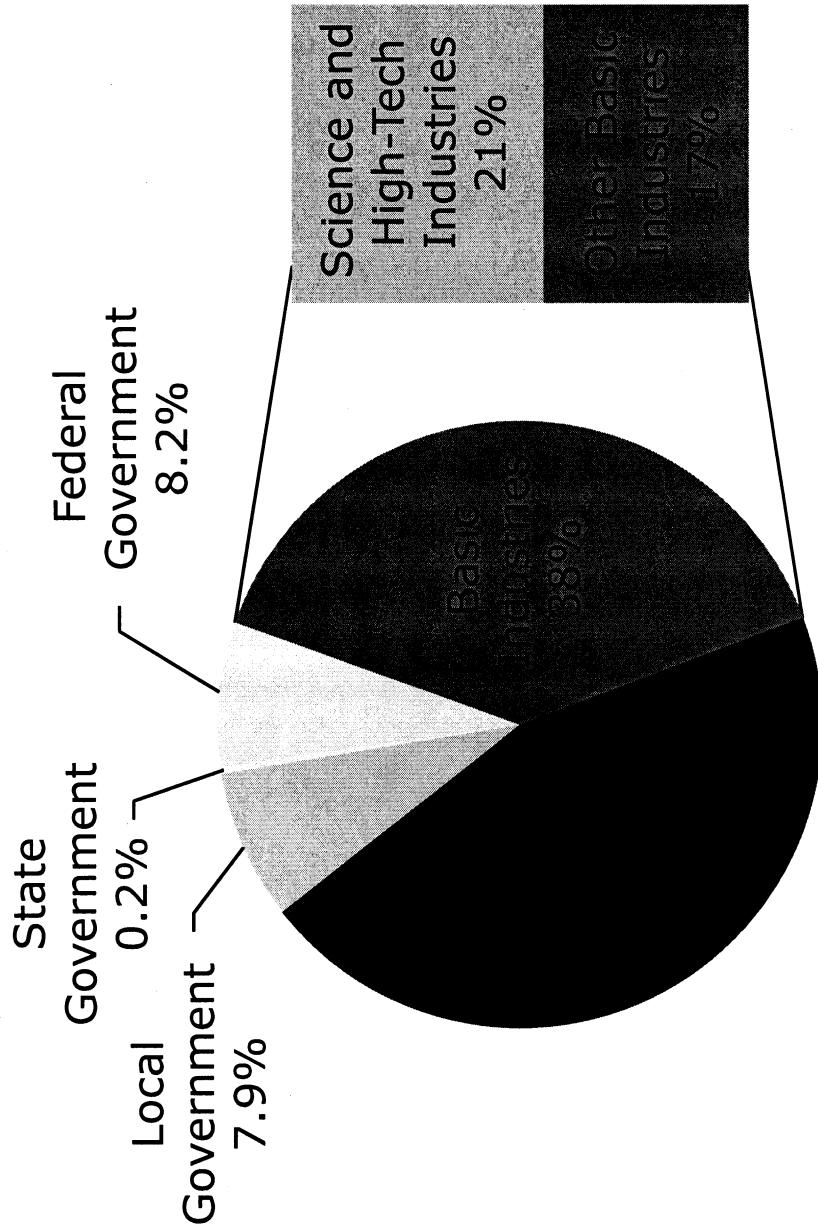
- Retail Trade
- Real Estate
- Arts and Entertainment
- Health Care and Social Assistance
- Local Government



## Challenges

### Supporting Science and High Technology Industries is Important to the Basic Sector in Montgomery County

Montgomery County Employment Base

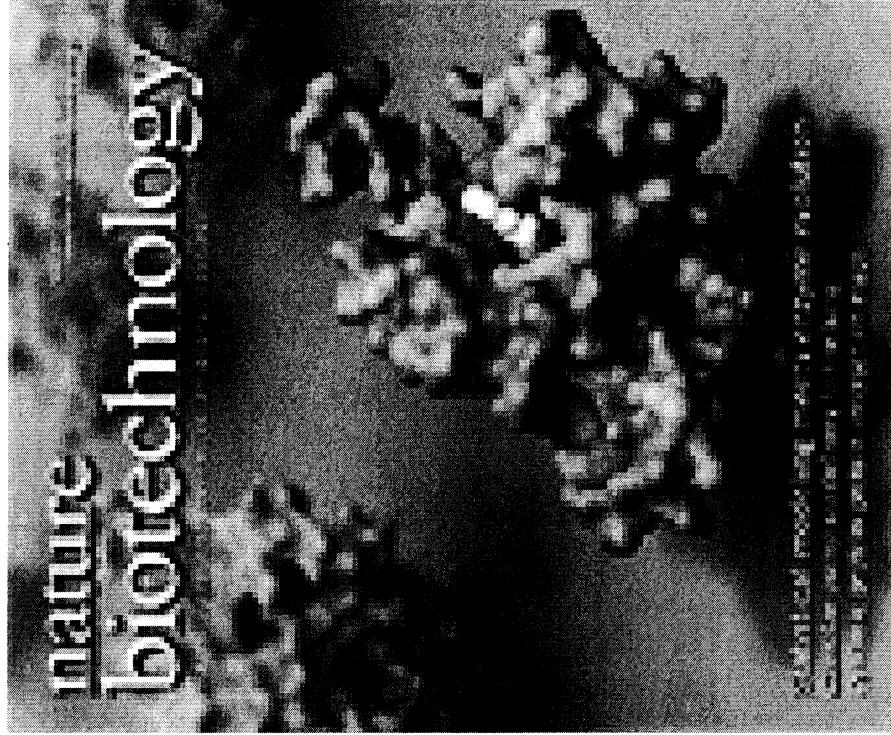


Source: County Business Patterns and M-NCPCC, 2005

## Challenges

### Supporting the High Technology Sector in Montgomery County

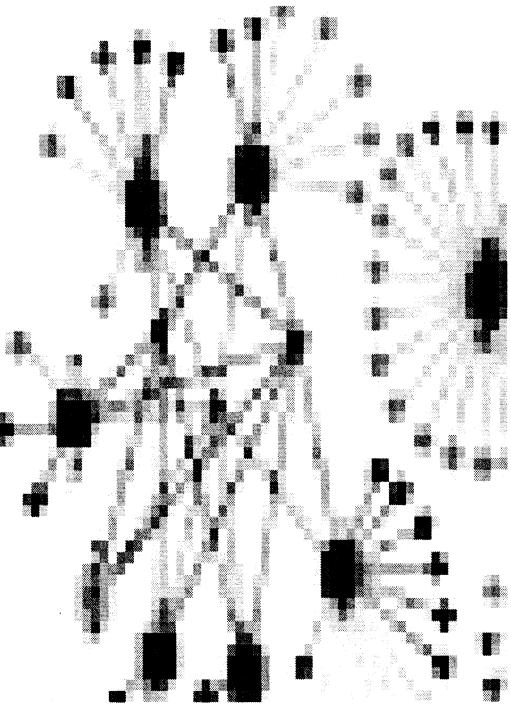
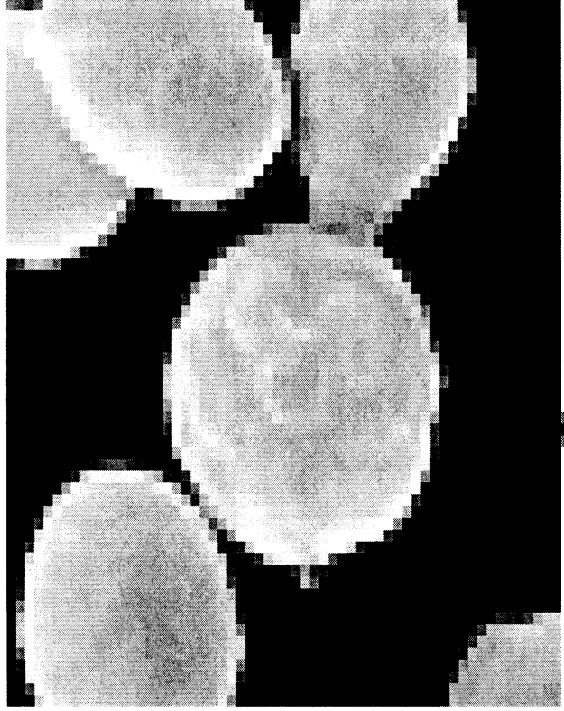
- **Biotechnology** – The commercial application of living organisms or their products through deliberate manipulation of their DNA molecules
- **Information Technology (IT)** - Includes computer and telecommunications firms developing software, providing systems integration, designing websites, and providing internet services
- **Nanotechnology** – Ability to see, measure, and manipulate objects at the atomic scale. Nanotechnology can span all industries



## Work Challenges

### **Supporting Science and High Technology in Montgomery County is Important to the Nation**

- Maryland ranks 4th in the nation in number of biotechnology firms.
- One-third of state's biotech firms are clustered in Montgomery County
- Maryland ranks 6th in the nation in IT employment.
- One-third of state's IT workforce is employed in Montgomery County
- Maryland ranks 6th in nanotechnology research and development dollars.

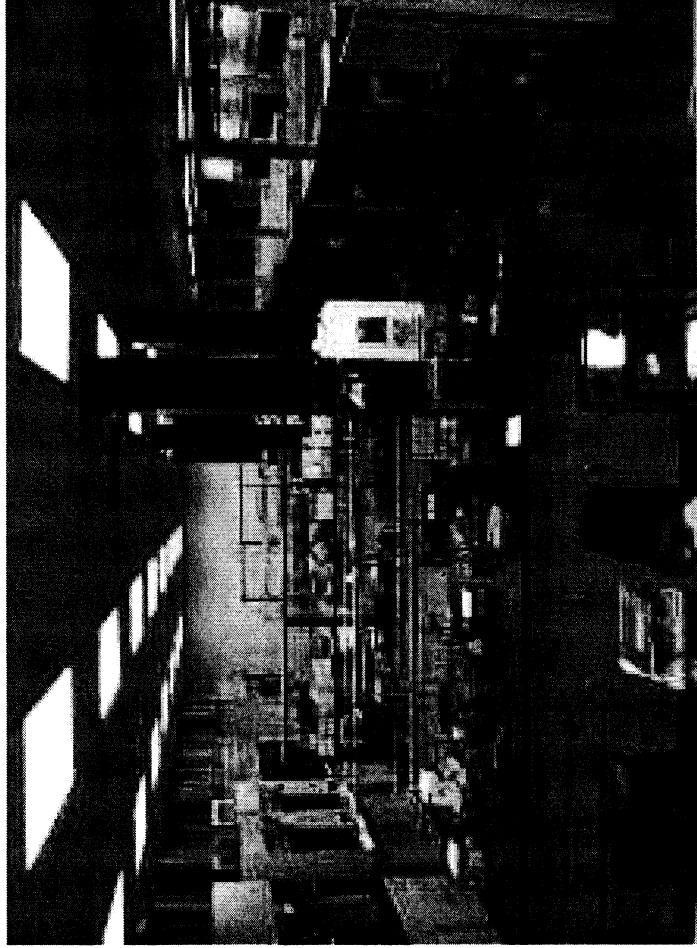


Sources: Sage Policy Group Report, Jan. 2005; The Biotechnology Industry in Montgomery County, MNCPBC, July 2000; Cortright and Meier, Brookings, Jan. 2001.

## Work Challenges

### Maintaining Montgomery County's Role and Competitive Advantage in Biotechnology

- The high cost of land and the need for large parcels at the production phase, limits the County's competitiveness in the large scale manufacturing of components and drugs
- Need more venture capital for industry to remain competitive
- **Montgomery County's niche is in the research and development to prototype phase of biotechnology**

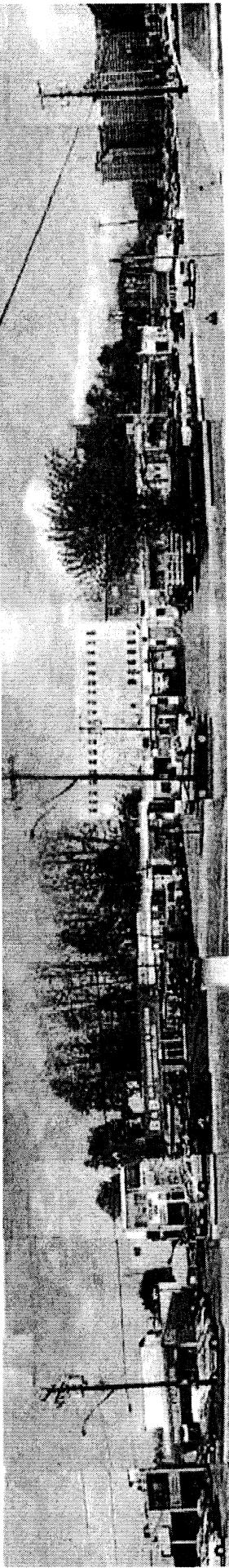


## Work

# Challenges

## Addressing Land Use Implications

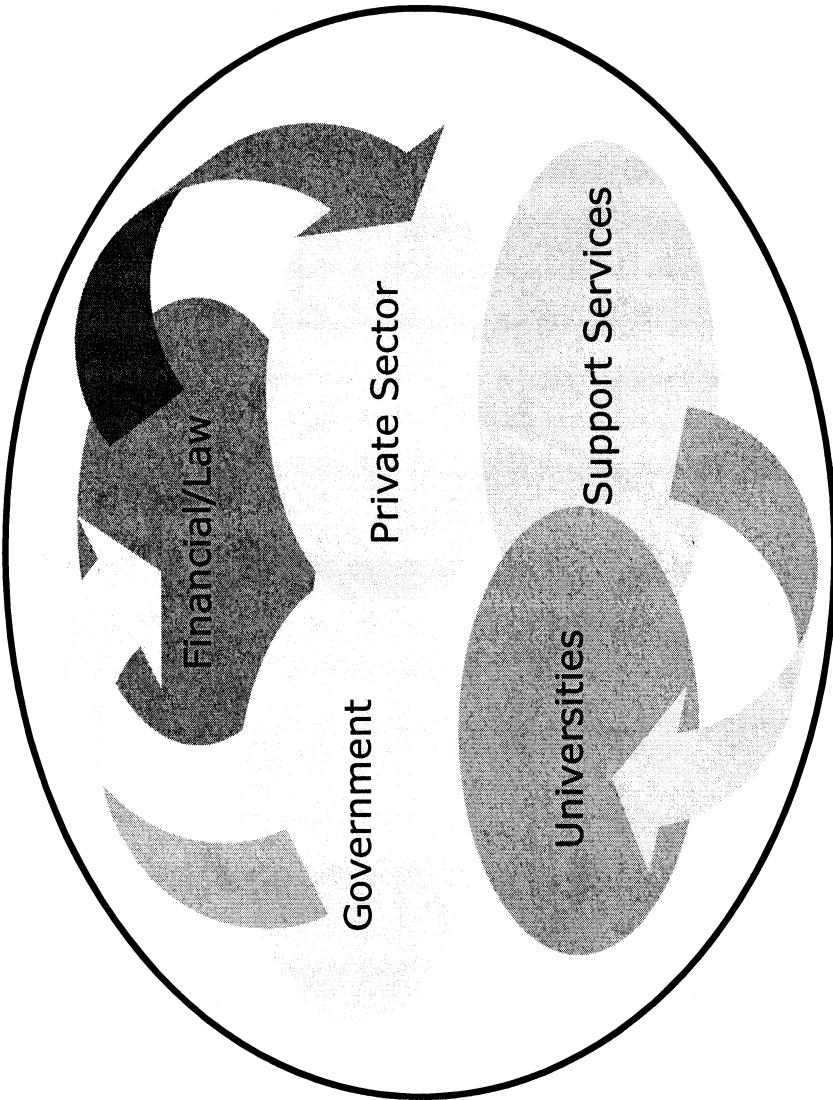
- Montgomery County's strength is in research that flourishes in **compact high-density clusters or centers** to foster collaboration
- Montgomery County also needs adequate **industrial and wholesale uses** that support the biotechnology industry. For example, scientific supplies and office equipment wholesalers
- Knowledge based workers demand **high quality environments** including park and recreation areas, access to open space, cultural opportunities, and high quality work places that provide a range of land uses such as retail offices, laboratories housing, and open space connected to the region
- The County needs **support services** including finance, law, accounting and medicine



## Work Challenges

### **Addressing Land Use Implications by Establishing Compact, High-density Clusters**

- Clusters are agglomerations of interrelated activities that foster wealth creation in a region, principally through the export of goods and services beyond the region

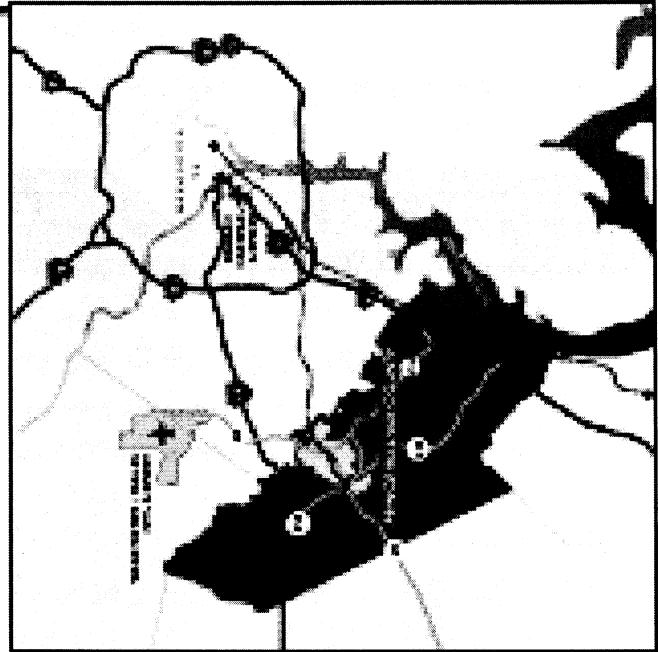
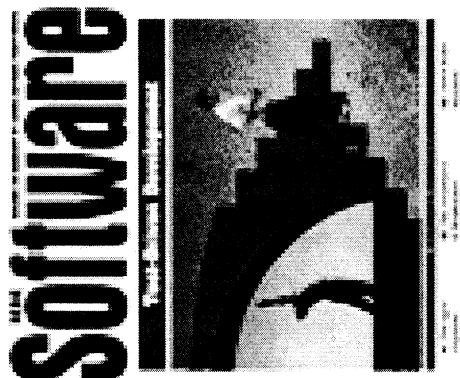


## Work Challenges

### Maintaining Montgomery County's Role in IT

- Montgomery County's strength is in software development, data processing, computer programming, and computer systems design and integration
- Smaller firms with room to grow
- Larger firms go to Northern Virginia where there are larger parcels of land
- Northern Virginia has one of the country's four network access points so they attract more and larger internet providers than Montgomery County

Source: The Information Technology and Telecommunications Industry in Montgomery County, M-NCPPC, June 2001

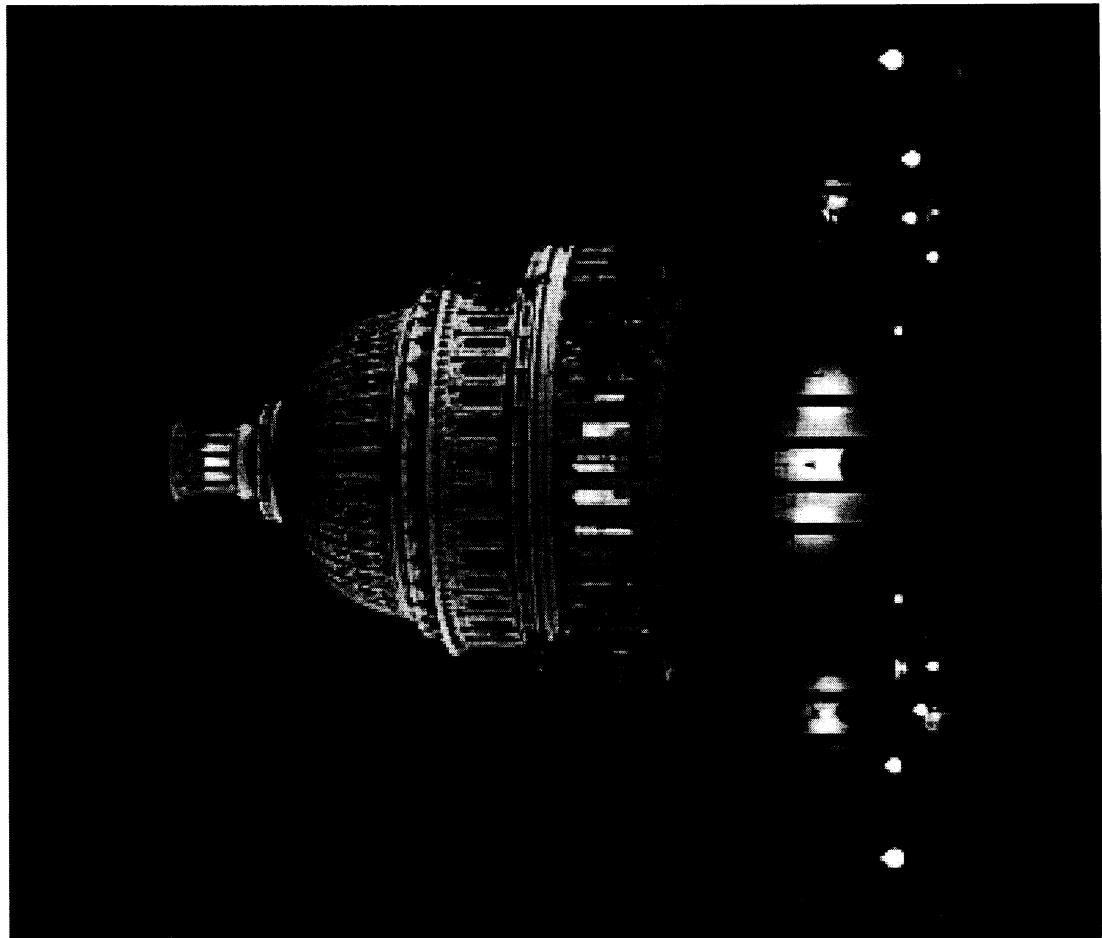


## Challenges

### Reasons Why the Biotechnology and IT Industries are Strong in Montgomery County

- 1. The federal presence and leadership in bioscience, IT and nanotechnology are the base for a world class center in these fields because of:**

- NIH
- NIST
- Satellites for DHHS and DOE
- FDA
- Walter Reed Army Medical Center
- Bethesda Naval Hospital/Uniform Health Service

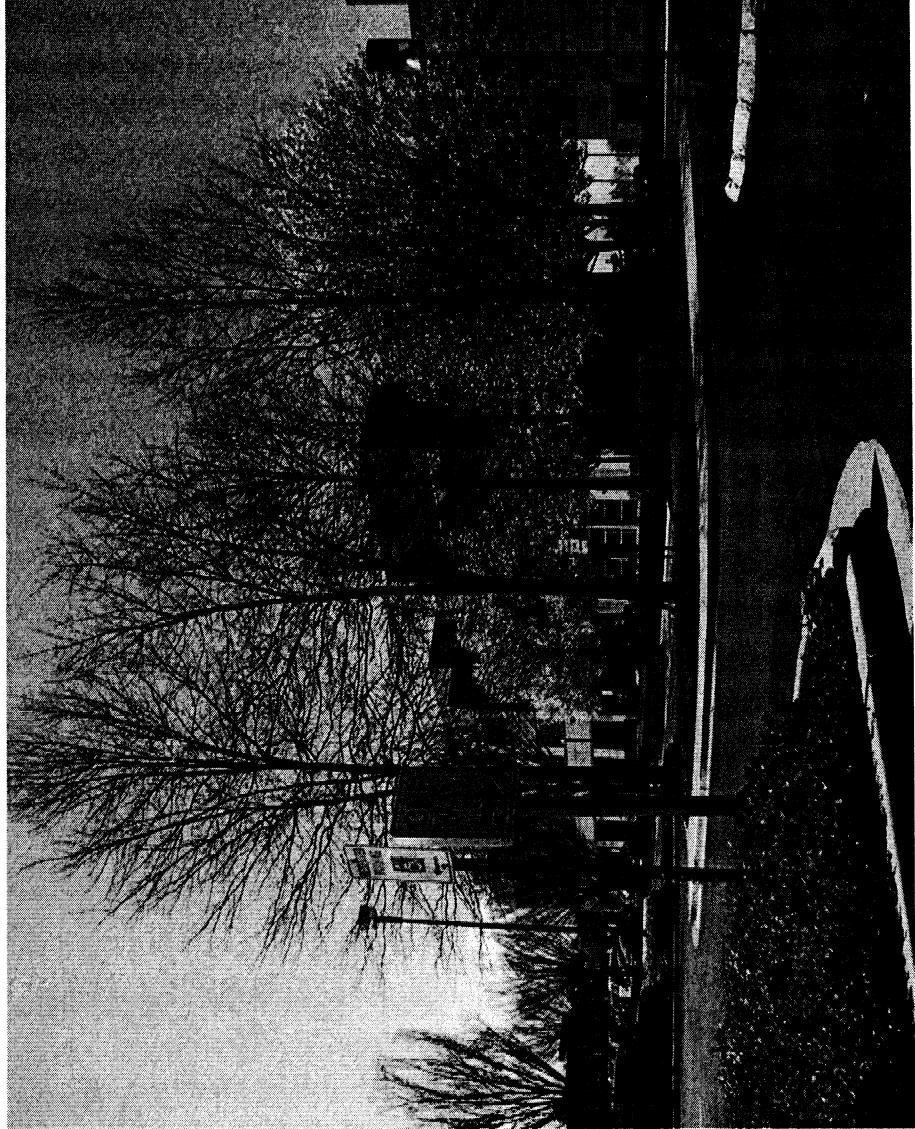


## Challenges

### The Reasons Why the Biotechnology and IT Industries are Strong in Montgomery County

#### 2. Montgomery County's proximity to two major research universities:

- Johns Hopkins
  - *First in research and development expenditures in the U.S. for 26 years*
- University of Maryland
  - *UMD ranked as second best computer science program in the nation (Communications of the ACM, June 2007)*
- Both strengthened by their campus presence at the Shady Grove Life Sciences Complex



## Challenges

### The Reasons Why the Biotechnology and IT Industries are Strong in Montgomery County

#### 3. A highly educated labor force:

- Second highest percent of residents with a Ph.D. among all counties in the U.S.
- Sixth highest percent of residents with a masters degree
- First in the nation in the percent of residents with a professional degree

Source: M-NCPCC, June 2007

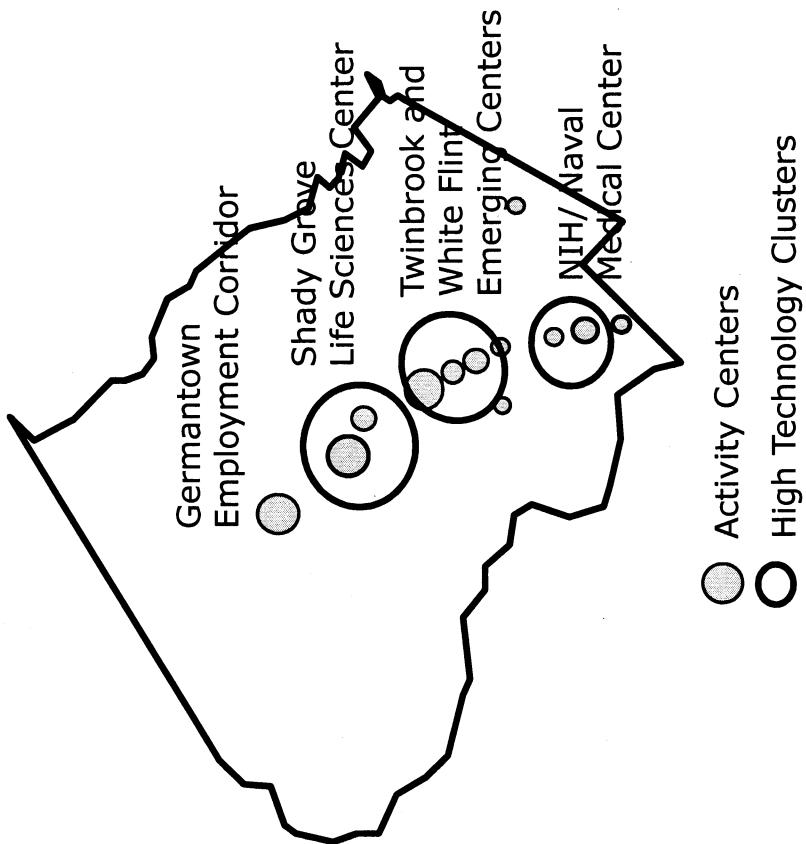


# Work Challenges

## Identifying the Importance of Clusters

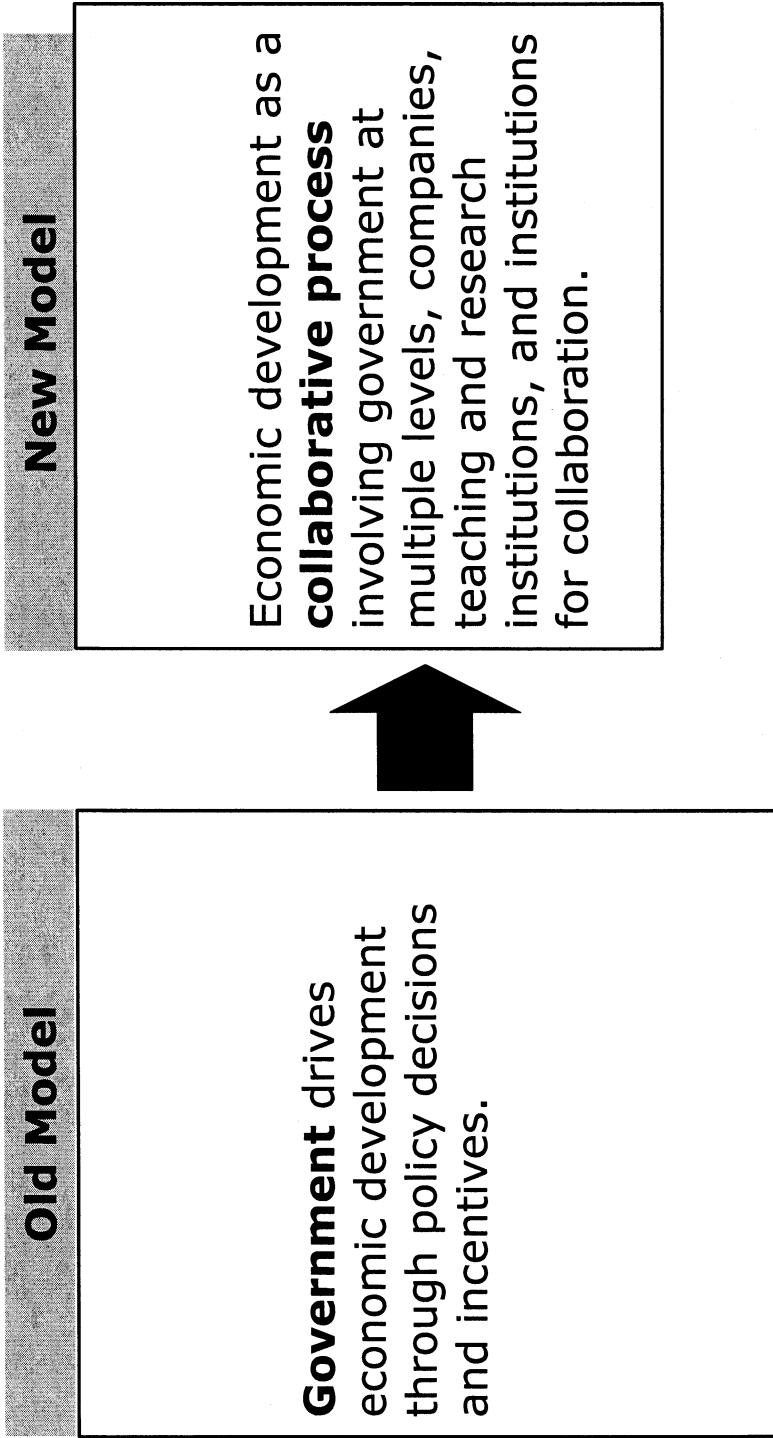
Reasons successful high-technology firms are spatially concentrated:

- Innovative industries thrive where there are connections and linkages among firms, specialized suppliers, customers, and workers
- Continuous innovation requires a sharing of formal and informal information between firms and workers in the high tech industry



## Work Challenges

### Supporting New Economic Development Models



Source: BIO, State Government Initiatives in Biotechnology, September 2001; life sciences institutions' web sites

## Work Actions

### To Remain Competitive Montgomery County Should:

#### 1. Continue to foster social diversity:

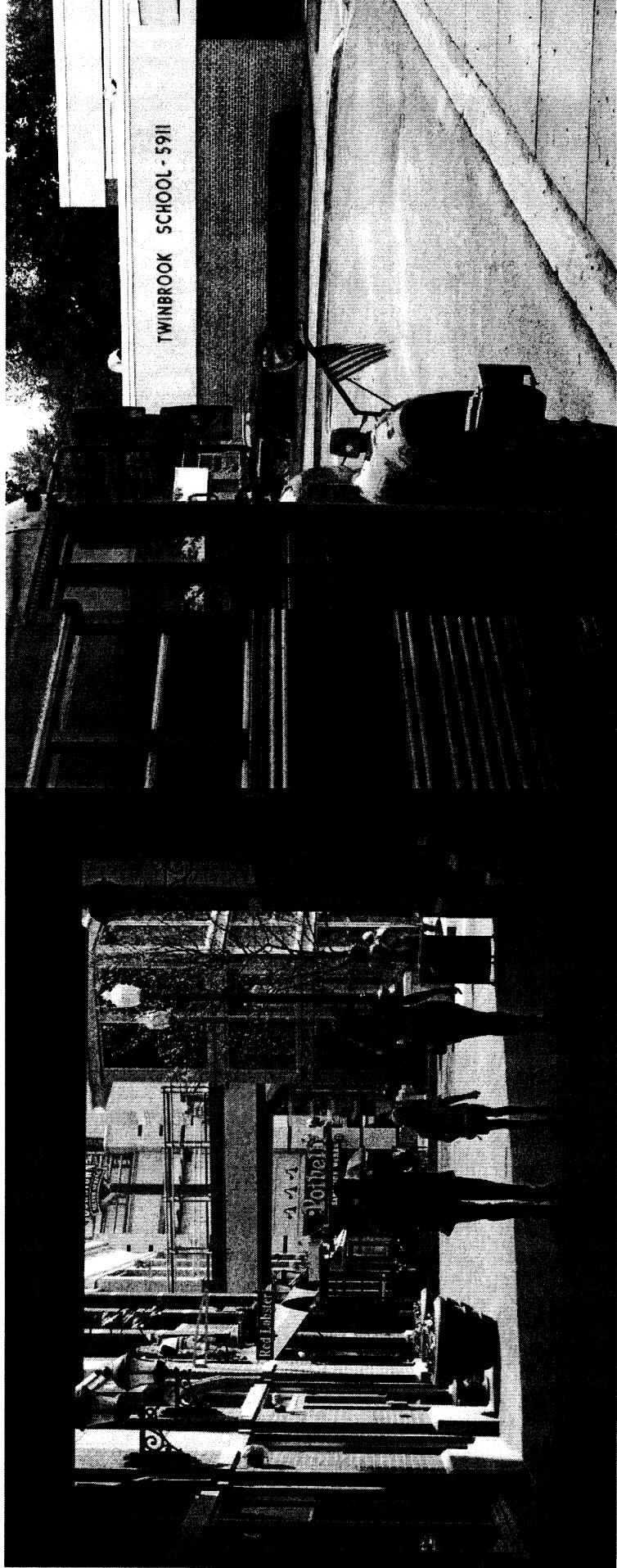
- World class scientists come from all countries. Montgomery County must be a place welcoming to a diverse population of many ethnic and religious backgrounds
- Innovation occurs in environments where there is a cross breeding of different and unconventional ideas and knowledge



## Work Actions

### To Remain Competitive Montgomery County Should:

2. **Maintain a continued high quality of life for residents and employees,** including open space, good environmental quality, lively urban centers, top schools, higher education opportunities, and a range of cultural facilities and programs



## Work Actions

### To Remain Competitive Montgomery County Should:

#### 3. Focus attention and efforts on addressing the Energy Problem:

- Coordinate research with the University of Maryland, Johns Hopkins University, Department of Energy, and other local institutions
- Coordinate with federal and state agencies on energy related projects, such as NIST, the department of energy, and the Dickerson Resource Recovery Facility
- Establish an energy audit program for all county buildings and adopt legislation promoting energy efficiency in all new private buildings
- Make energy efficiency a key factor in all land use and transportation planning especially in the Corridor

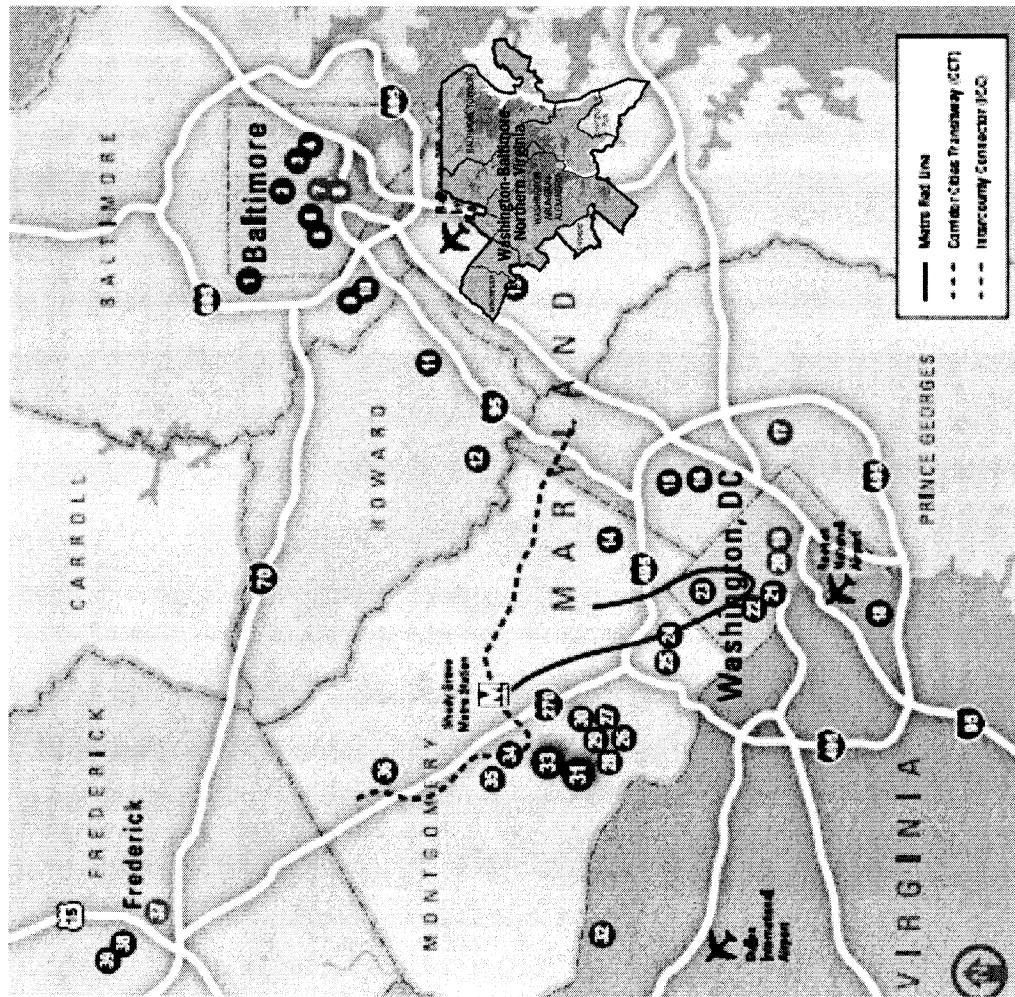
# Work Actions

## To Remain Competitive Montgomery County Should:

### 4. Foster Connectivity and

#### Increase Accessibility:

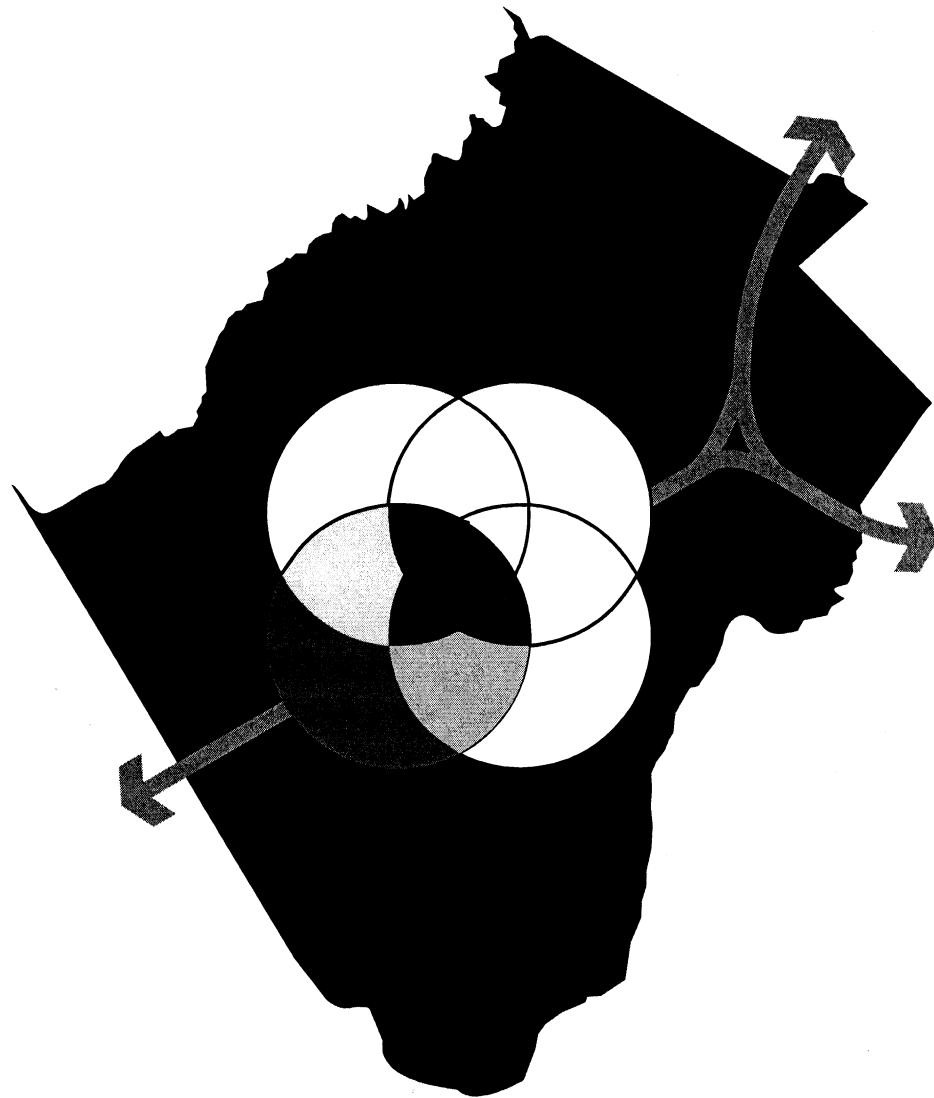
- Within the high technology clusters in the county
- With high technology clusters in other Virginia and Maryland counties
- With other high technology around the country and world
- Connect to Baltimore/ Washington International Airport





# **ACCESS**

## **Trips, Roads, Transit, Bikeways, Pathways (Mobility)**



Montgomery County Planning Department

 The Maryland-National Capital Park and Planning Commission

## Issues

### Trips, Roads, Transit, Bikes, Pathways (Mobility)

#### Issues:

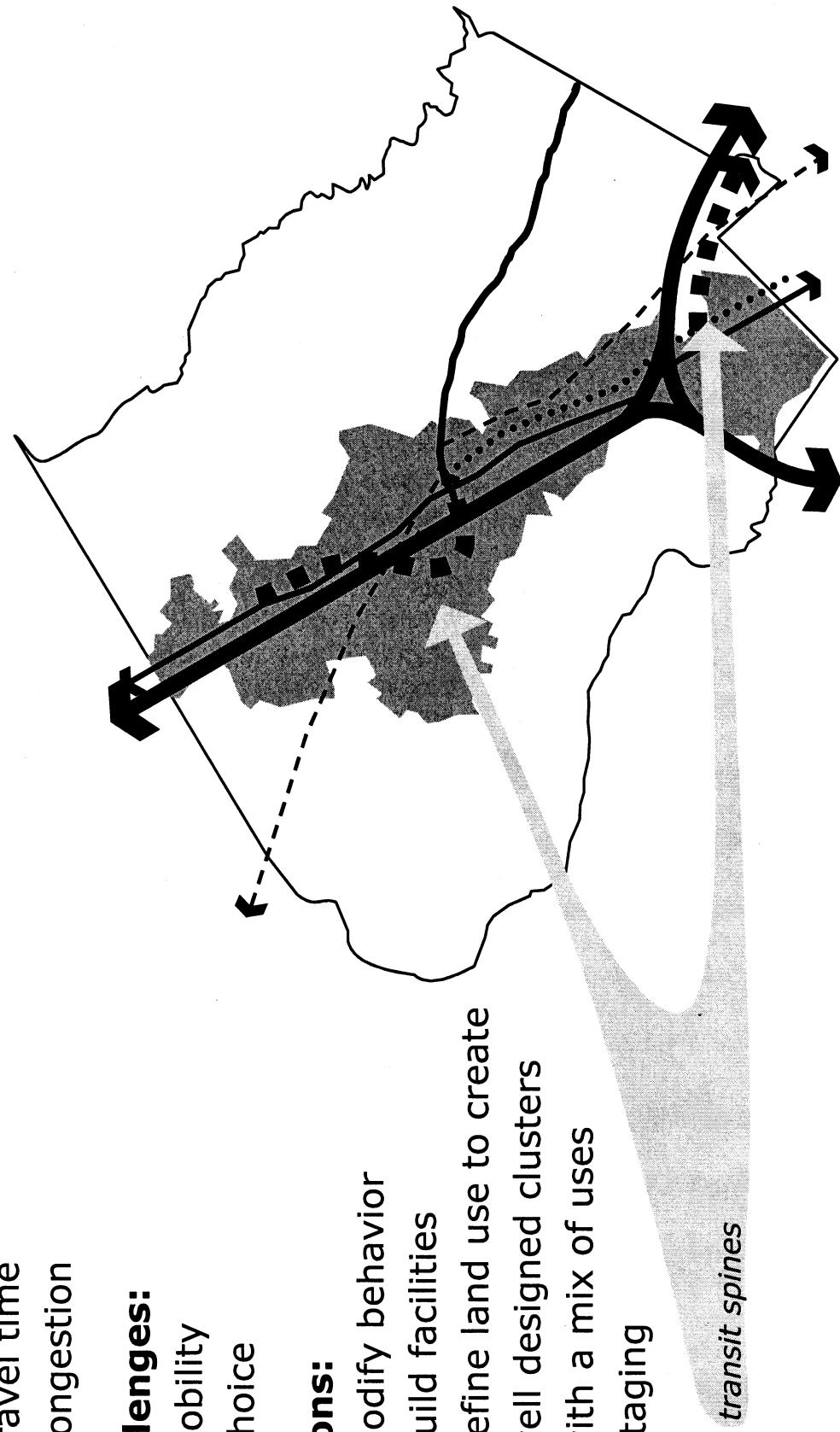
- Travel time
- Congestion

#### Challenges:

- Mobility
- Choice

#### Actions:

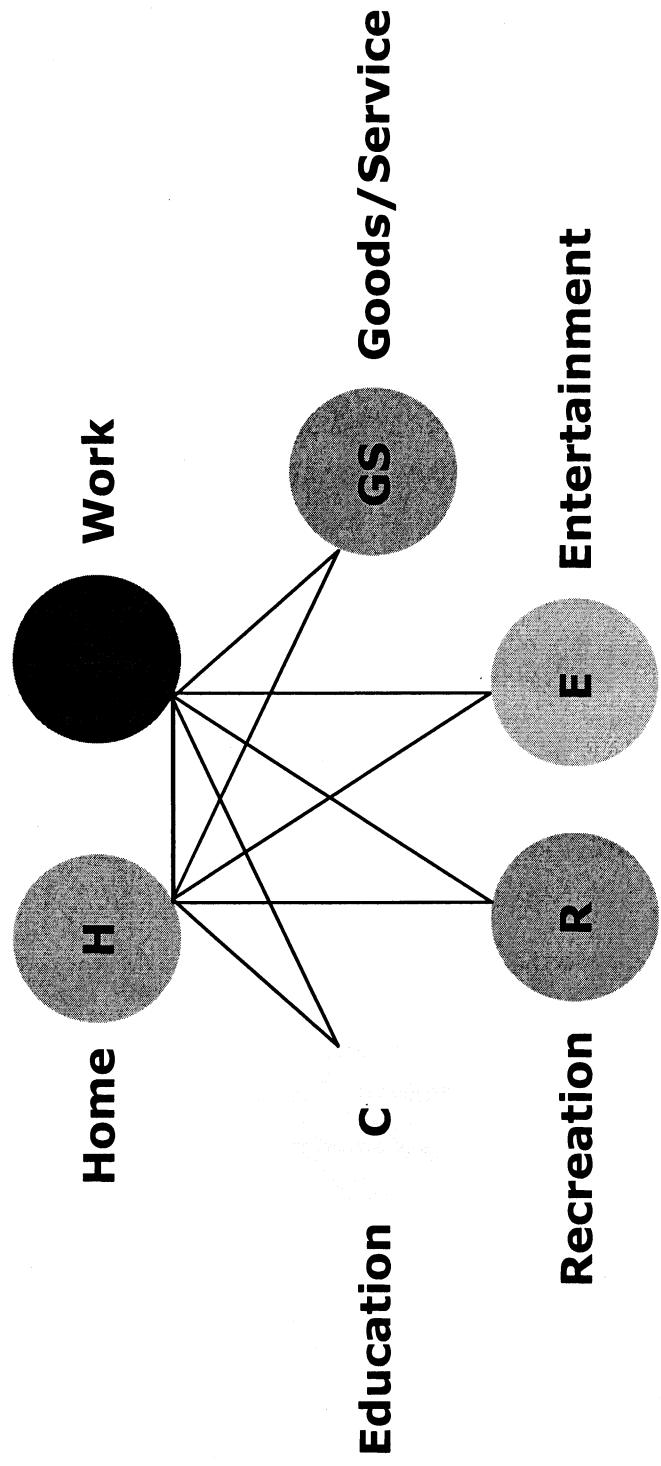
- Modify behavior
- Build facilities
- Refine land use to create well designed clusters with a mix of uses
- Staging



# Access Issues

## Access Affects Quality of Life

The key to a land use pattern that gives people the maximum opportunity to fulfill their aspirations is the *degree to which they can access all the centers of their lives.*



# Access Issues

## Corridor Facilities Provide Access to Jobs

In 2030....

- Journey to work in the Corridor will remain highly directional
- More than half of the jobs in the Corridor will be filled by residents living somewhere else especially east of the Corridor
- Facilities and services are planned to address these forecasts

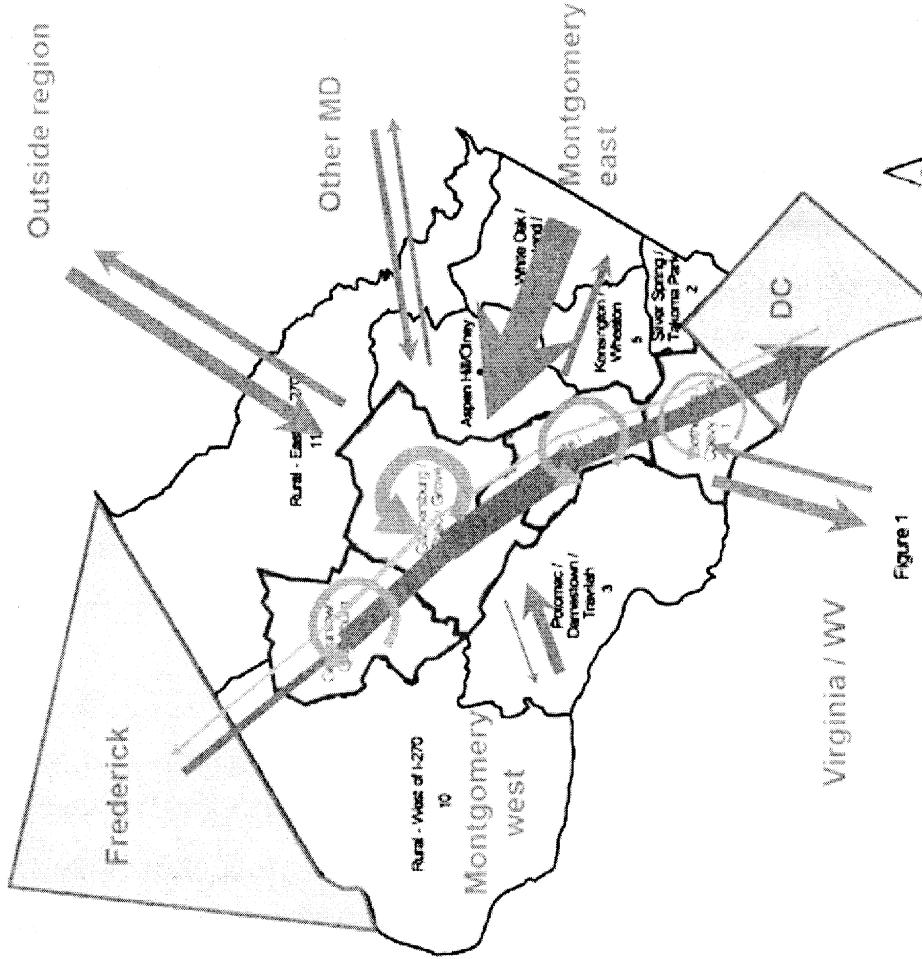


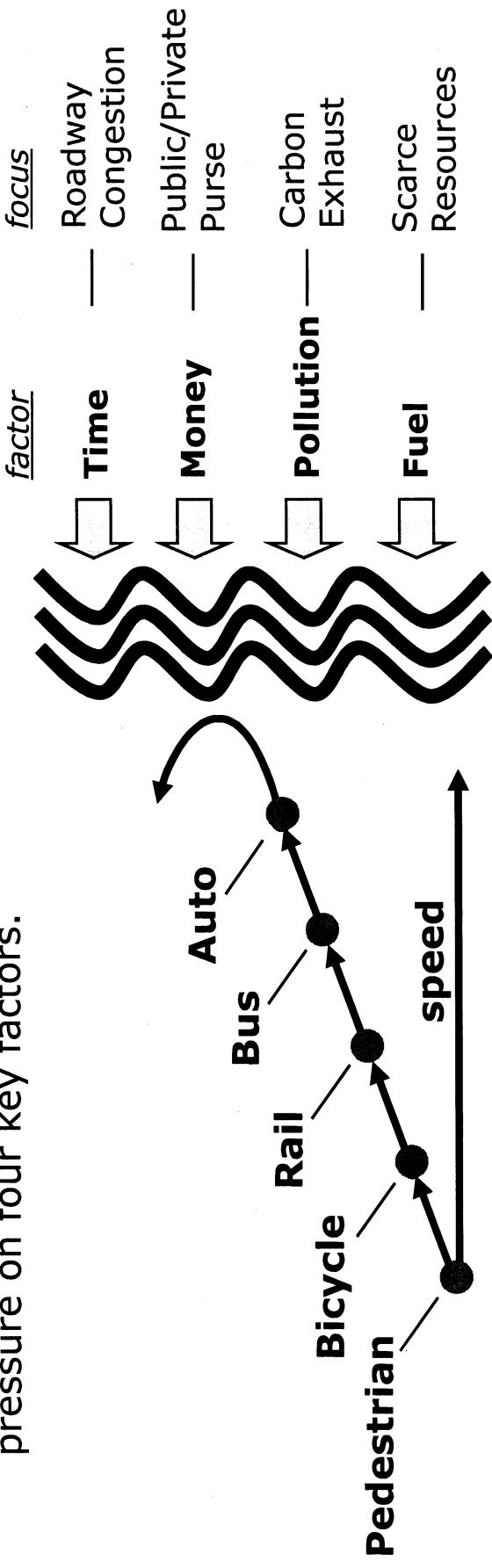
Figure 1

Local = trip stays within "super district"  
Peak = journey to work is southbound in the corridor  
Reverse = journey to work enters or leaves the corridor  
Other = journey to work enters or leaves the corridor

# Access Issues

## Congestion is One Limiting Factor

Traffic congestion is not unique to Montgomery County. Ease of access in urban areas is a problem all over the world because of increasing pressure on four key factors.



*HISTORICAL EVOLUTION OF MODES OF TRAVEL*

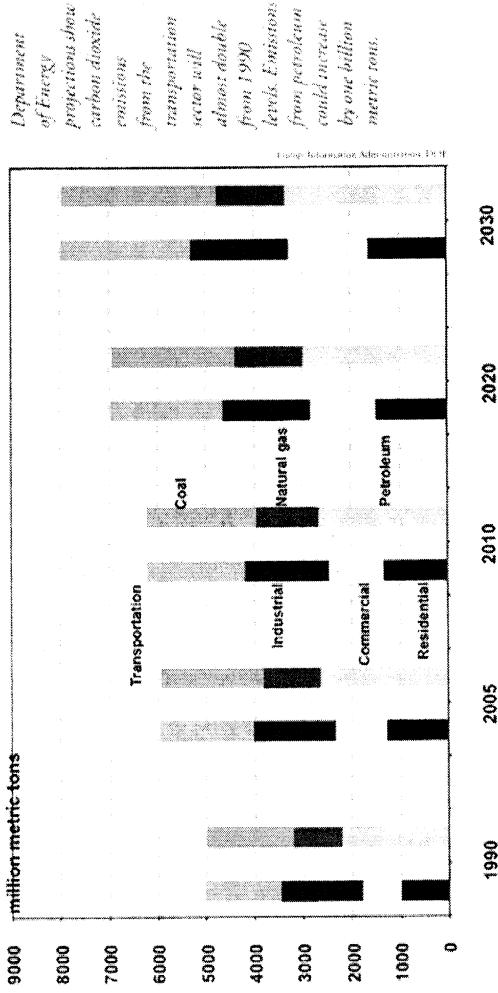
**Pollution and Fuel are the emerging management challenges.**

# Access Issues

## Limiting Factors

- Time** Roadway congestion has increased dramatically in 20 years across the USA, due more to increase in car ownership and total miles traveled than to population increase.
- Money** Pressure on federal and state budgets for infrastructure repair and other expenses will continue to reinforce the existing trend to shift to travel costs from taxes to user fees.
- Pollution** At present, the pollution exhaust from the transportation sector constitutes about 30% of the total USA carbon emission into atmosphere.
- Fuel** Although the full effect of global oil supply cresting around 2010 may not be fully reflected in gasoline cost for some time, the future is clearly discernible.

U.S. Carbon Dioxide Emissions by Sector and Fuel,  
1990-2030



## Providing Good Access in the Corridor Depends on the Following:

### Changing Behavior

- induce change away from long, single occupancy vehicle trips
- basically an economic matter
- requires policy decisions to charge fees that capture real costs
- effects on travel are felt short-term (1 – 5 years)

### Building Facilities

- build new transit, bike, and pedestrian networks
- primarily a fiscal matter
- could require policy decisions to raise taxes
- effects on travel are felt mid-term (5 – 10 years)

### Improving Land Use

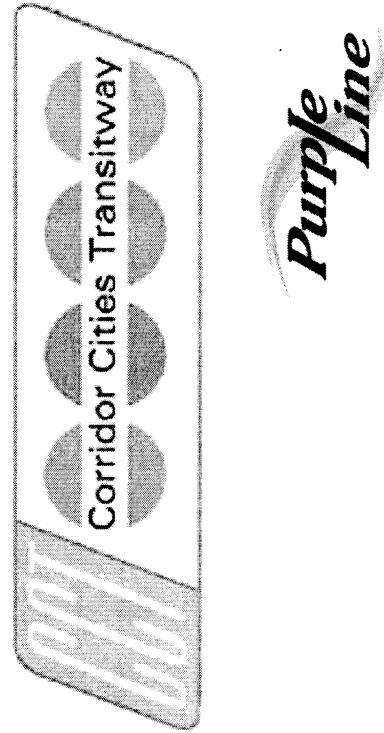
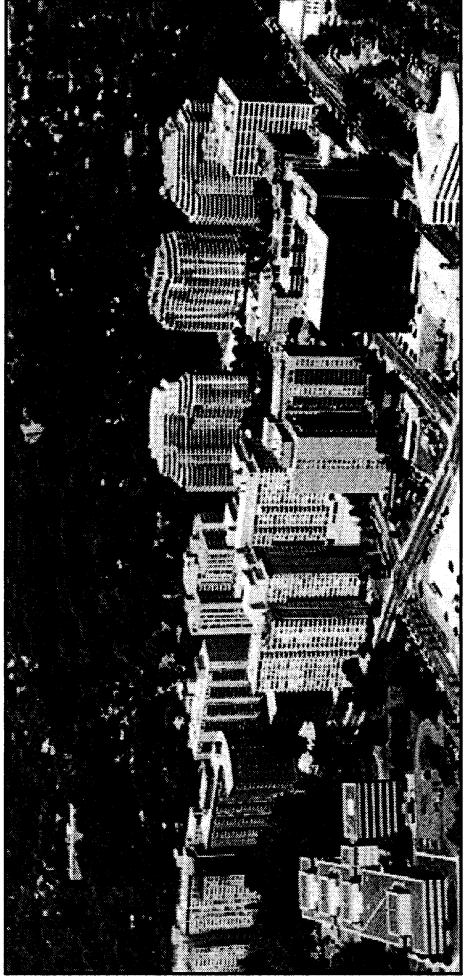
- increase mix and density of uses
- requires strong policies to guide market forces
- effects on travel are felt long-term (10 – 20 years)

# Access Issues

## Planning Policy

**Montgomery County is already planning in all these directions**

<b>Behavior</b>	Using Travel Demand Management in Transit Station Areas
<b>Facilities</b>	Using and Adding: (a) Metrorail Red Line (b) Corridor Cities Transitway (c) Purple Line Transitway (d) Arterial Bus Rapid Transit (e) Bikeways and Sidewalks (f) Local Network Enhancements
<b>Land Use</b>	Concentrating Density and Mixed Use along Corridors and at Transit Station Areas.



## Challenges

### Behavior, Facilities, and Land Use

#### Behavior

##### Enhancing Travel Demand Management methods

- (a) Reduce parking requirements
- (b) Congestion pricing
- (c) Support flextime

#### Facilities

##### Providing new non-auto mode facilities

- (a) Construct the Corridor Cities Transitway and Purple Line
- (b) Improve access to the transit facilities
- (c) Implement road standards that address the need for improved pedestrian access
- (d) Establish standards appropriate to high density clusters and centers

#### Land Use

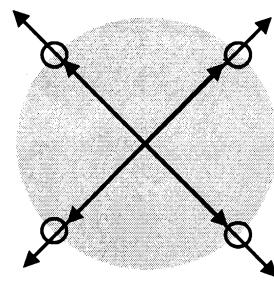
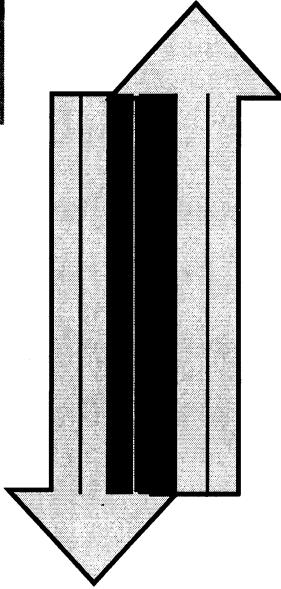
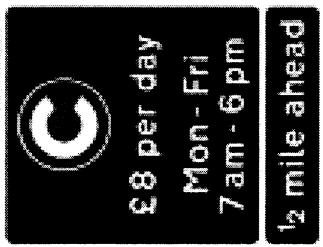
##### Changes land uses planned for the Corridor

- (a) Increase housing in the Corridor
- (b) Create clusters with a mix of uses
- (c) Stage development with transportation facilities

# Challenges

## Behavior – Congestion Pricing

- Urban driving in rush hour is priced far below its real social cost, because less important trips impose congestion on more important trips.
- Some cities employ “area congestion pricing” in central areas, designed to influence both the mode and time-of-day (London, NYC studying)
- U.S. states are adopting “value pricing” for express lanes on key roadways to accomplish a similar outcome. Maryland is building the ICC as a totally value priced roadway, and is evaluating adding lanes to I-270 for this purpose.

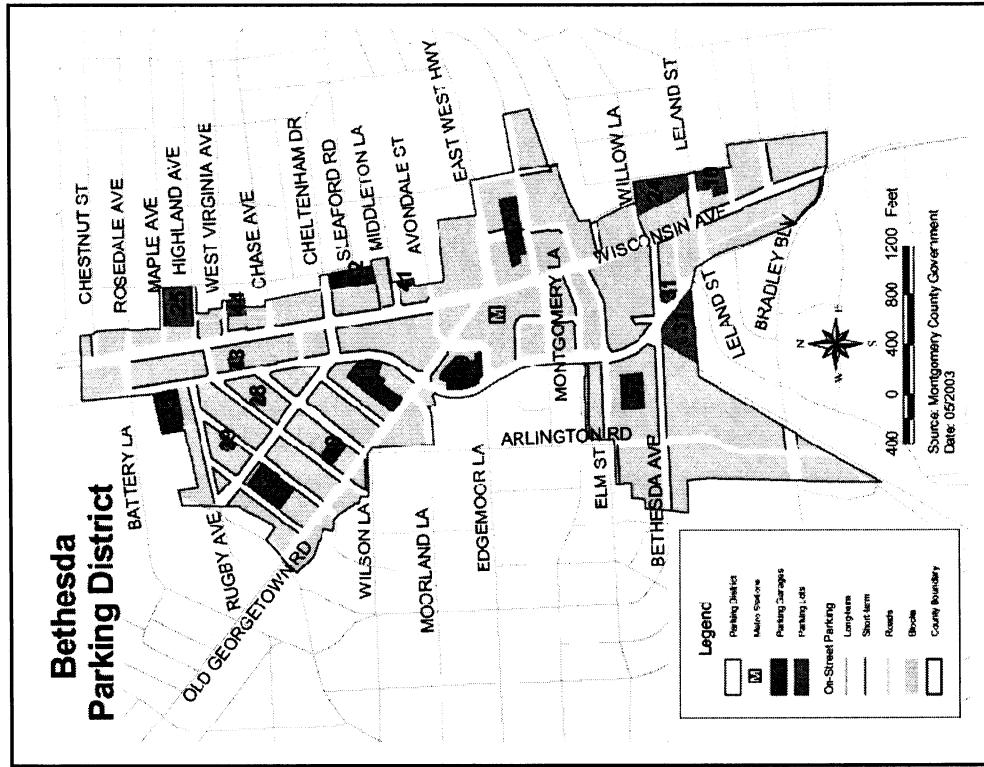


**Area congestion pricing**

# Challenges

## Behavior –Parking Management

- The supply and price of parking is a key factor influencing trip behavior by automobile.
- Managing the size, location, and type of parking facilities also contributes to managing local traffic congestion in dense areas.
- Parking management assists in creating livable and pedestrian oriented clusters.

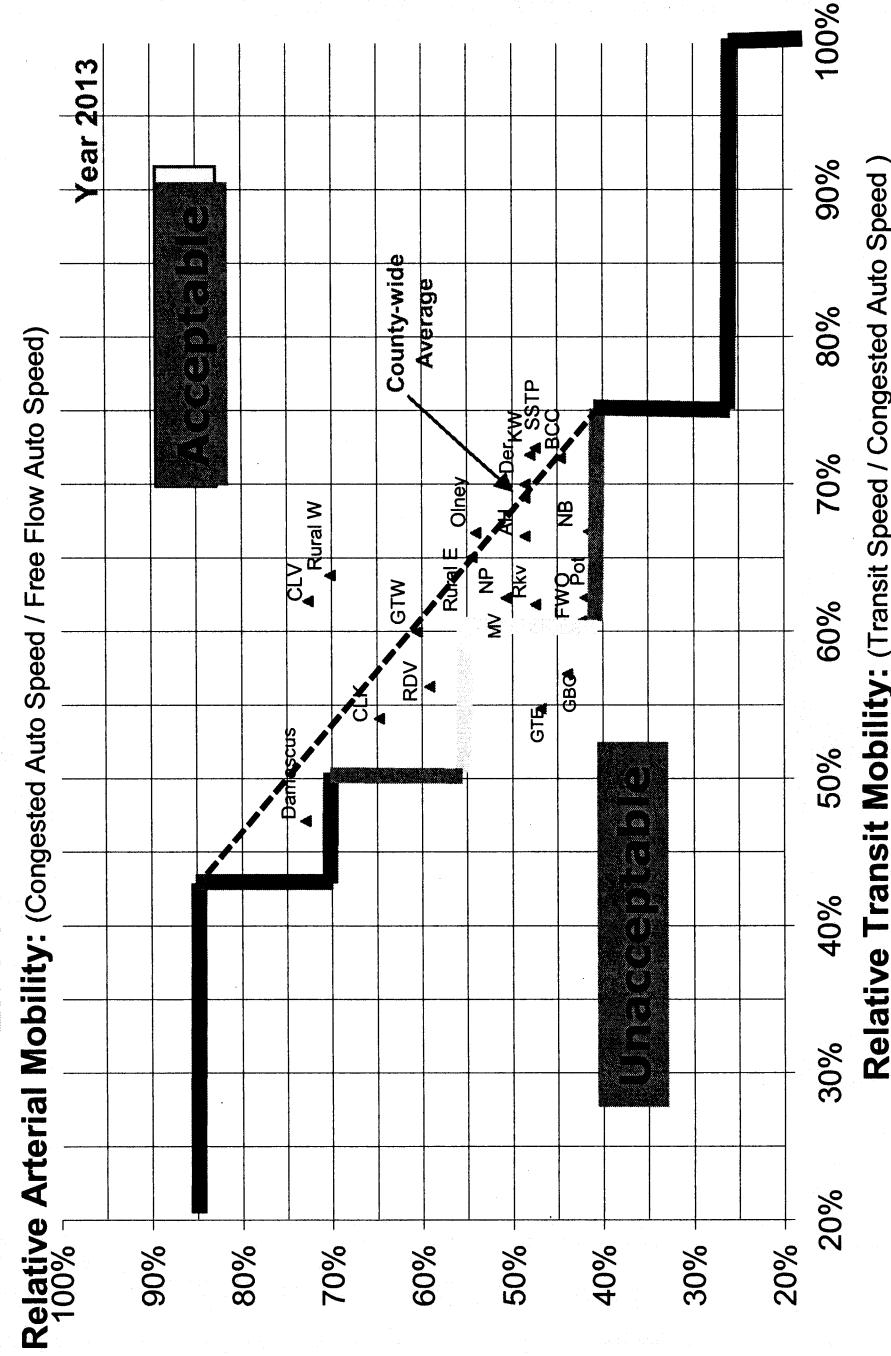


# Challenges

Access

## Behavior – Identifying What is Considered Accessible

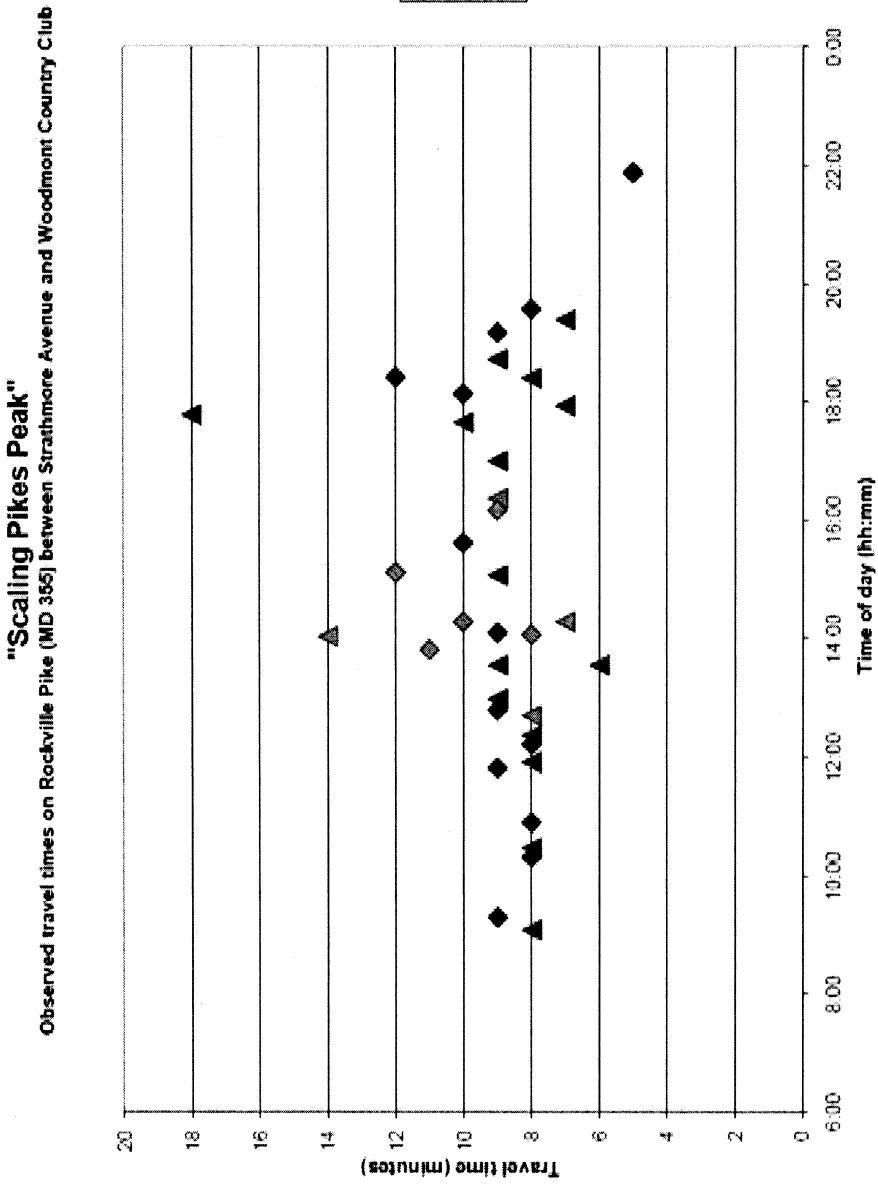
**Exhibit 2-5. Year 2013 PAMR Chart**



The Planning Board's Growth Policy recommendations propose a shift from capacity towards multi-modal mobility. Expectations for what levels of mobility are sustainable remain a subject of discussion.

# Access Challenges

## Behavior – What is Considered Accessible



Mobility along MD 355 in White Flint is at LOS D for most motorists, regardless of time of day or day of week. Reliability is important and traveler expectations may be higher for midday and weekends.

## Challenges

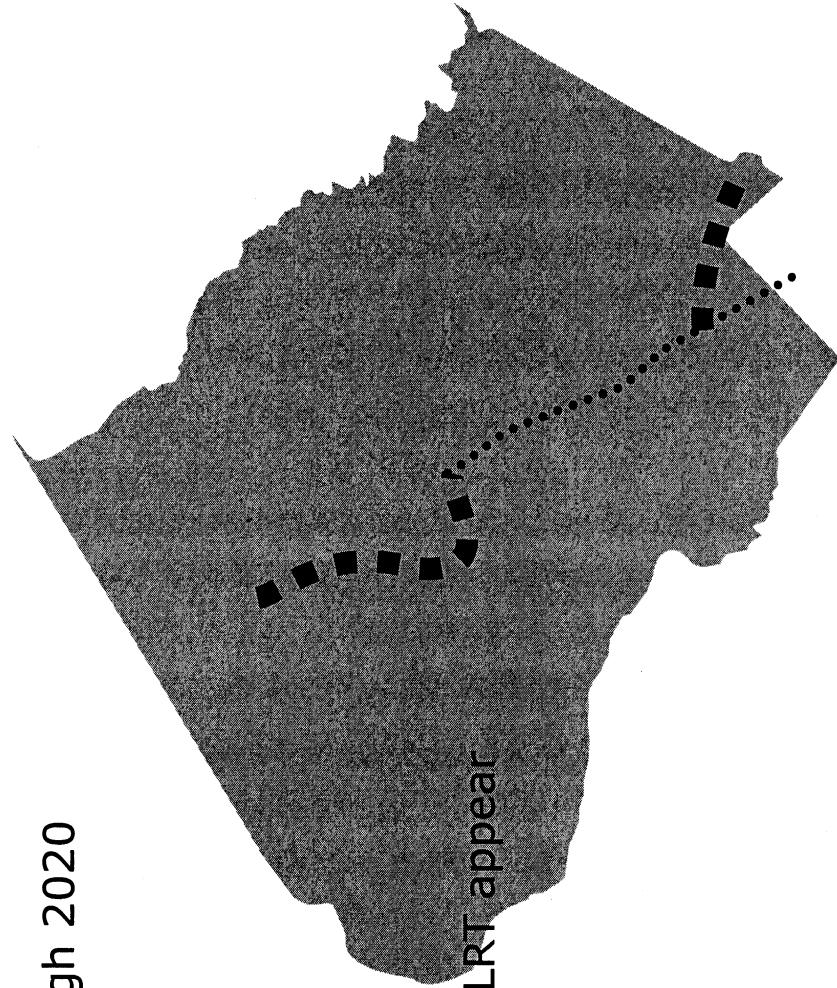
# Planning for the Purple Line and Corridor Cities Transitway

### Schedules

- Preferred alternatives – summer 2008
- Implementation: 2012 through 2020

### Corridor Cities Transitway

- Two alternatives
- \$550M if BRT
- \$900M if LRT
- Operating costs for BRT and LRT appear to be comparable



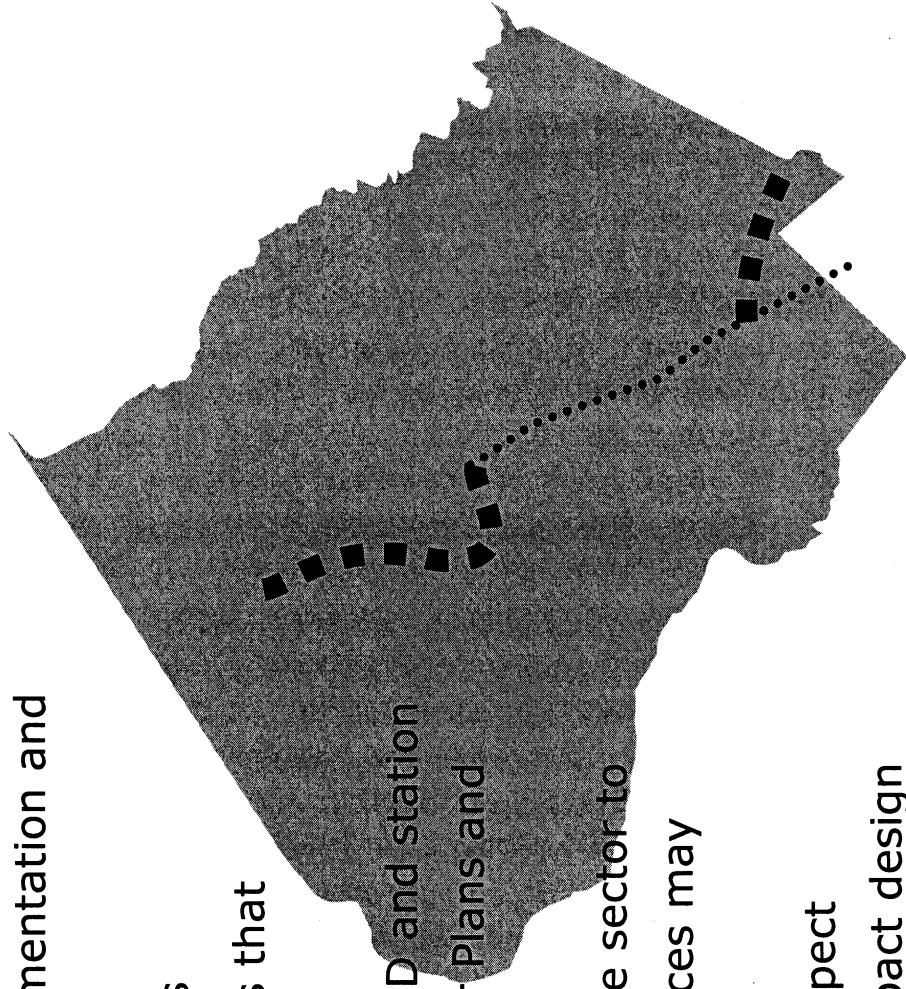
### Purple Line

- Six alternatives
- BRT: \$350M to \$1550M
- LRT: \$600M to \$1650M

## Challenges

### Planning for the Purple Line and Corridor Cities Transitway

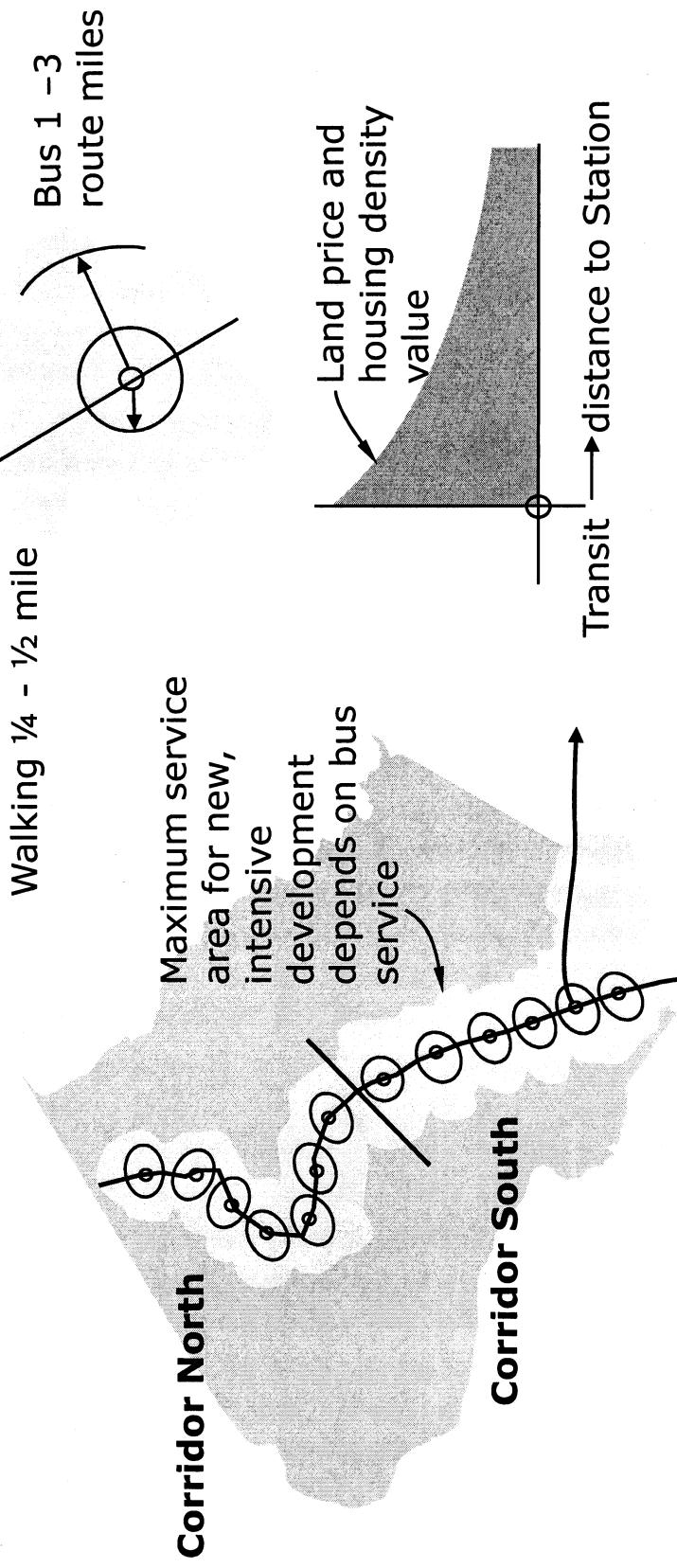
- **LRT or BRT**
  - Cost considerations tend to favor BRT
  - BRT more flexible for both implementation and operations
  - LRT favored by most constituents
- **Local Priority** – Identify the phases that should move ahead fastest
- **Land Use Planning** – Enhanced TOD and station access considerations both in Master Plans and regulatory approvals
- **Market Forces** – Require the private sector to address the concern that market forces may outpace public responses
- **Environment** – Facilities should respect environmental concerns and low impact design



# Challenges

## Facilities – Station Access

- The key to transit effectiveness is the total trip experience, not just the central rapid link.
- Maximum distance from station is considered to be:
  - Implications:

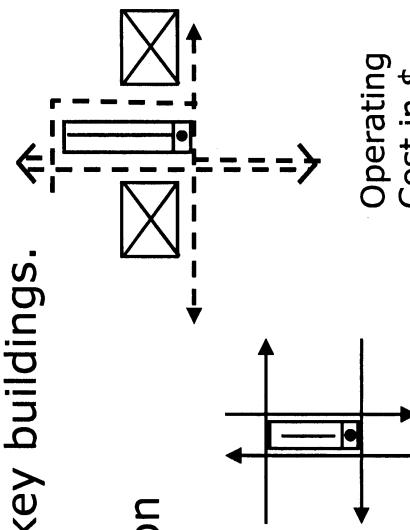


# Access Challenges

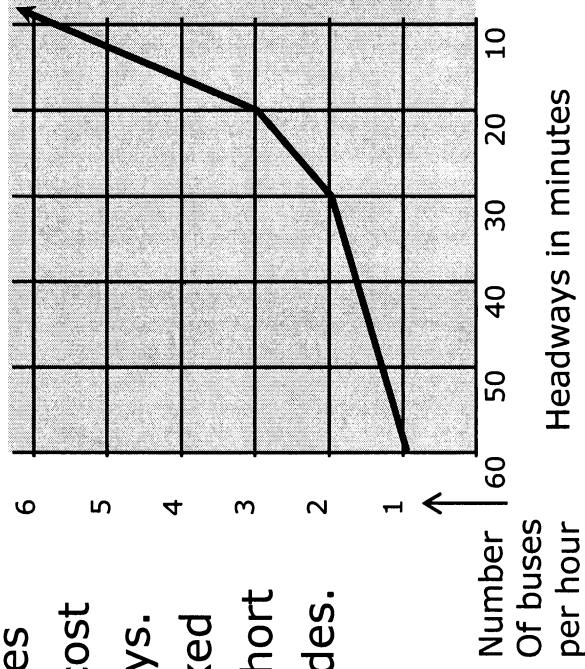
## Facilities – Station Access

### Key Factors:

- **Walking** – Safe, level, networked pathways with interesting, attractive design features connecting parking garages and key buildings.
- **Bus Circulation** – Easy turns in and out of station loading area, adequate layover facilities, and covered loading areas.



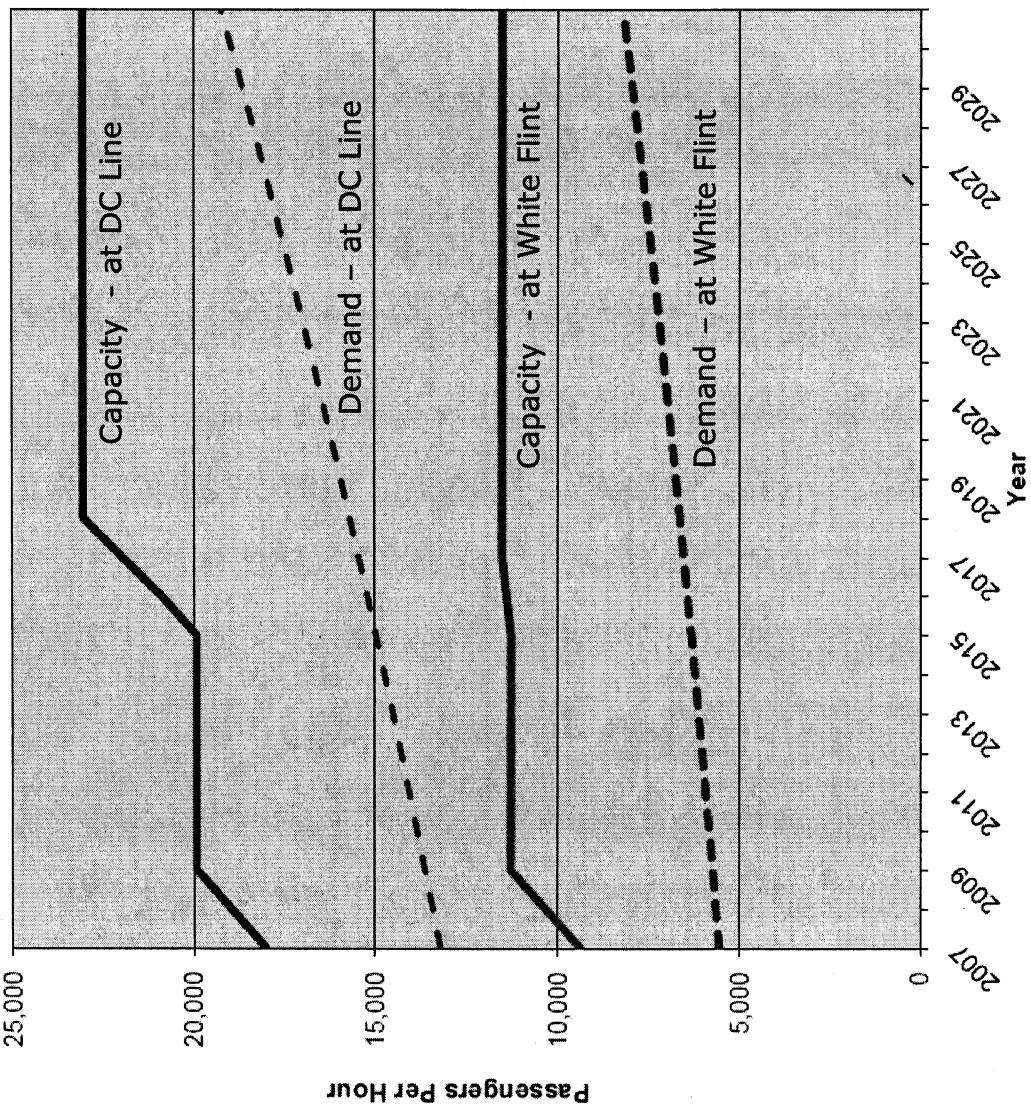
**Bus Service Quality** - Key to voluntary ridership. Headways under 10 minutes generate much more ridership, but cost twice as much as 20 minute headways. A key for success is encouraging mixed use at appropriate densities within short bus rides to the Corridor's transit nodes.



# Access Challenges

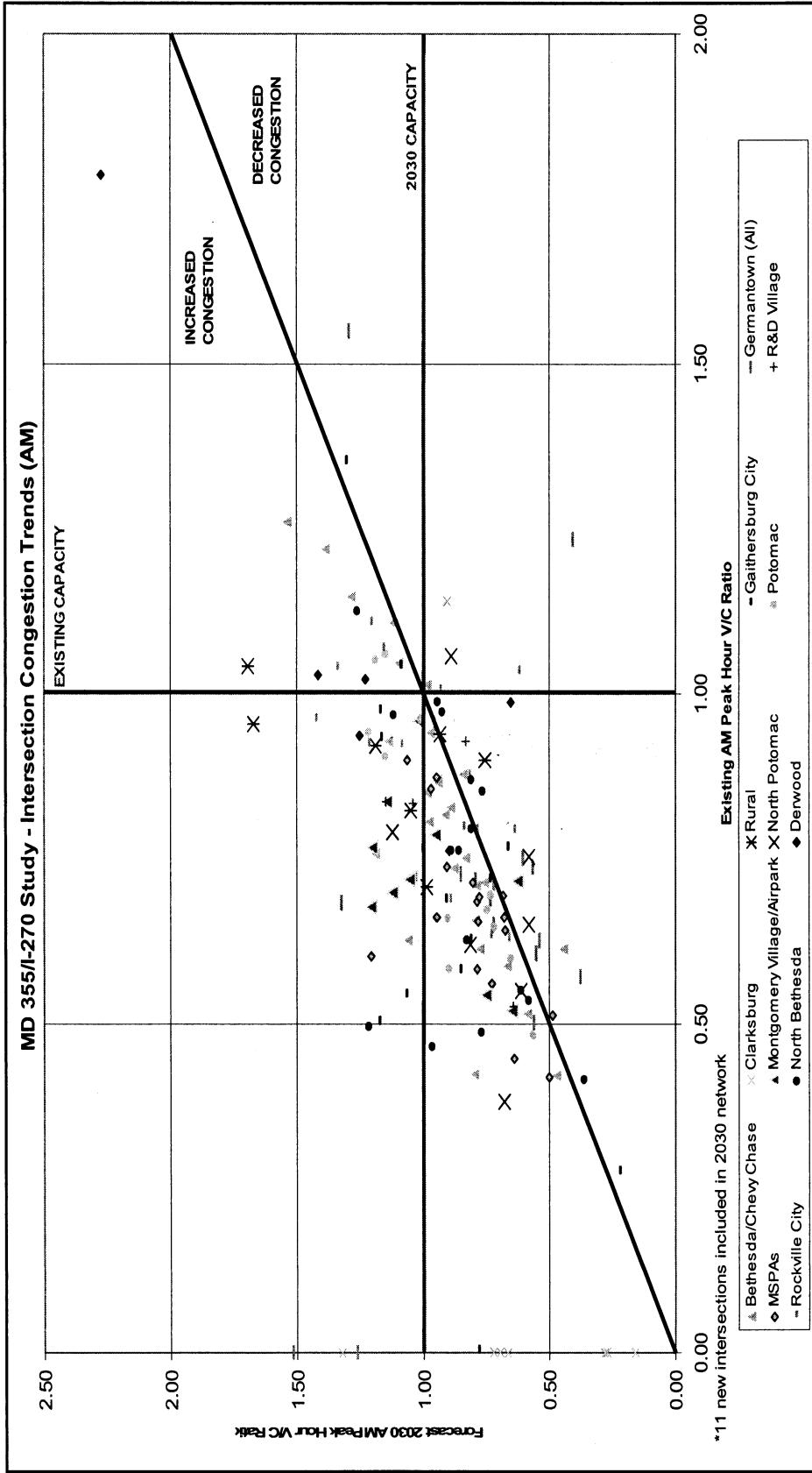
## Metrorail System Capacity

- Sufficient Red Line capacity is planned in 2030 to accommodate forecast demand between stations.
- Davis Bill funding is critical for rail car capacity to keep pace with growth.
- Improvements to station circulation elements like entrances, fare gates, and escalators are also needed.



# Access Challenges

## Facilities – Intersection Performance



Intersection congestion will increase in the corridor, but remain below capacity at most locations. Where demand exceeds capacity, roadway network enhancements will be needed or changes in travel demand will have to occur.

# Challenges

## Facilities – Local Network Enhancements

- **Signals** Coordinate traffic progression by signal timing.
  - **Grids** Add local streets to break superblocks into finer grain grid street system.
  - **Couples** Create one way movement couples, using existing streets or adding new ones.
  - **Ladders** Add new streets parallel to existing roads in major traffic direction.
  - **Turns** Widen existing intersections.  
This is last choice in mixed use areas because of pedestrian crossing distance and comfort.
- 
- The image contains six diagrams illustrating street network enhancement techniques:
- Signals:** A diagram showing a grid with two traffic lights at the top corners, indicating signal coordination.
  - Grids:** A diagram showing a large rectangular grid being subdivided into smaller, more irregular blocks by additional streets.
  - Couples:** A diagram showing a street segment with two arrows pointing in opposite directions, representing a one-way couplet.
  - Ladders:** A diagram showing a street segment with three parallel horizontal lines, representing a ladder street.
  - Turns:** A diagram showing a street segment with a sharp turn, representing a widened intersection.

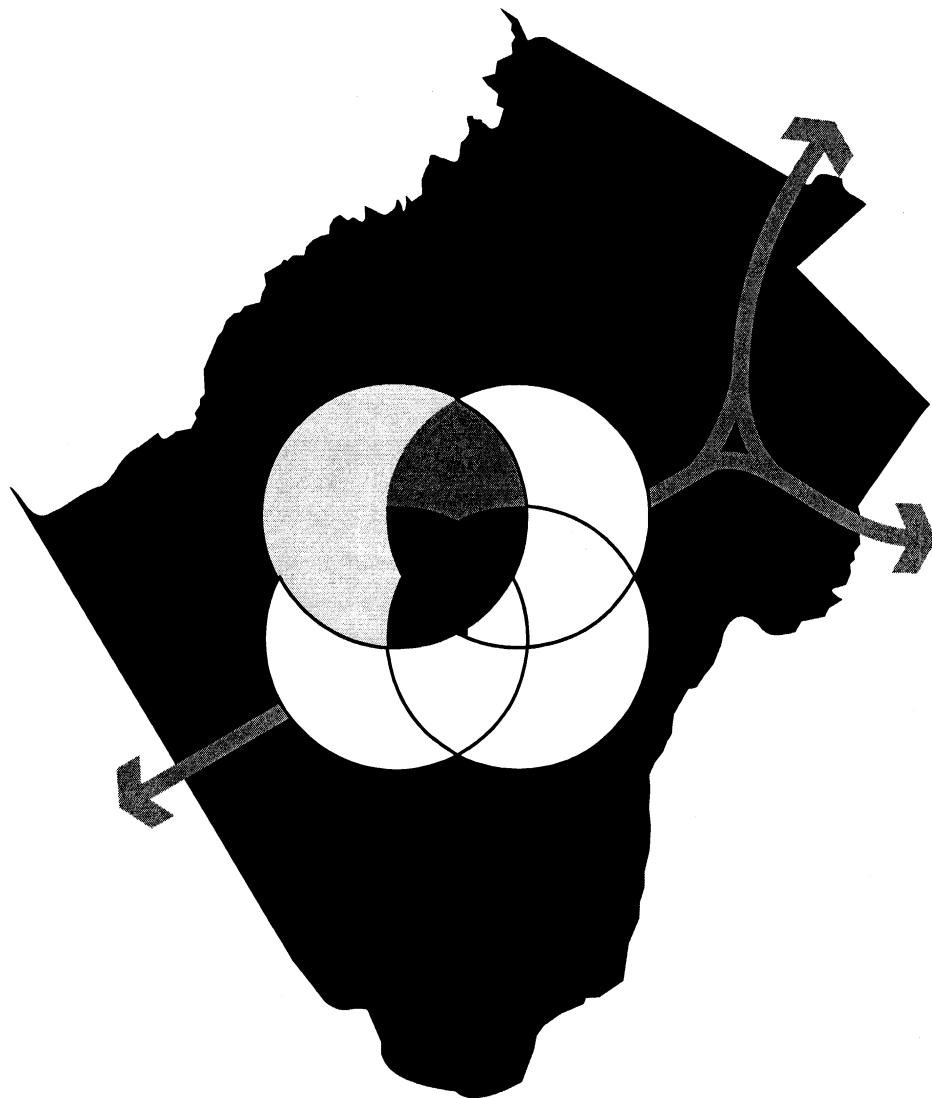
## Access

# Actions

<b>Behavior</b>	(a) Conduct comprehensive Parking Management study (b) Define multi-modal quality of service objectives considering sustainable quality of life objectives (c) Select solutions that reduce auto reliance in planning efforts
<b>Facilities</b>	(a) Develop a decision-making strategy for the Corridor Cities Transitway and Purple Line (b) Incorporate intermodal transfer needs into master plan recommendations (c) Apply local network enhancements appropriately
<b>Land Use</b>	(a) Increase housing in the Corridor to improve job/housing ratios (b) Create cluster of development that address the need for land use density, high quality design, and proximity to transit service in planning efforts
<b>Staging</b>	(a) Stage facilities with development (b) Include staging elements in master plans and large regulatory approvals

# LIFE

**Housing, Retail, Parks, Schools, Design Excellence (Community)**

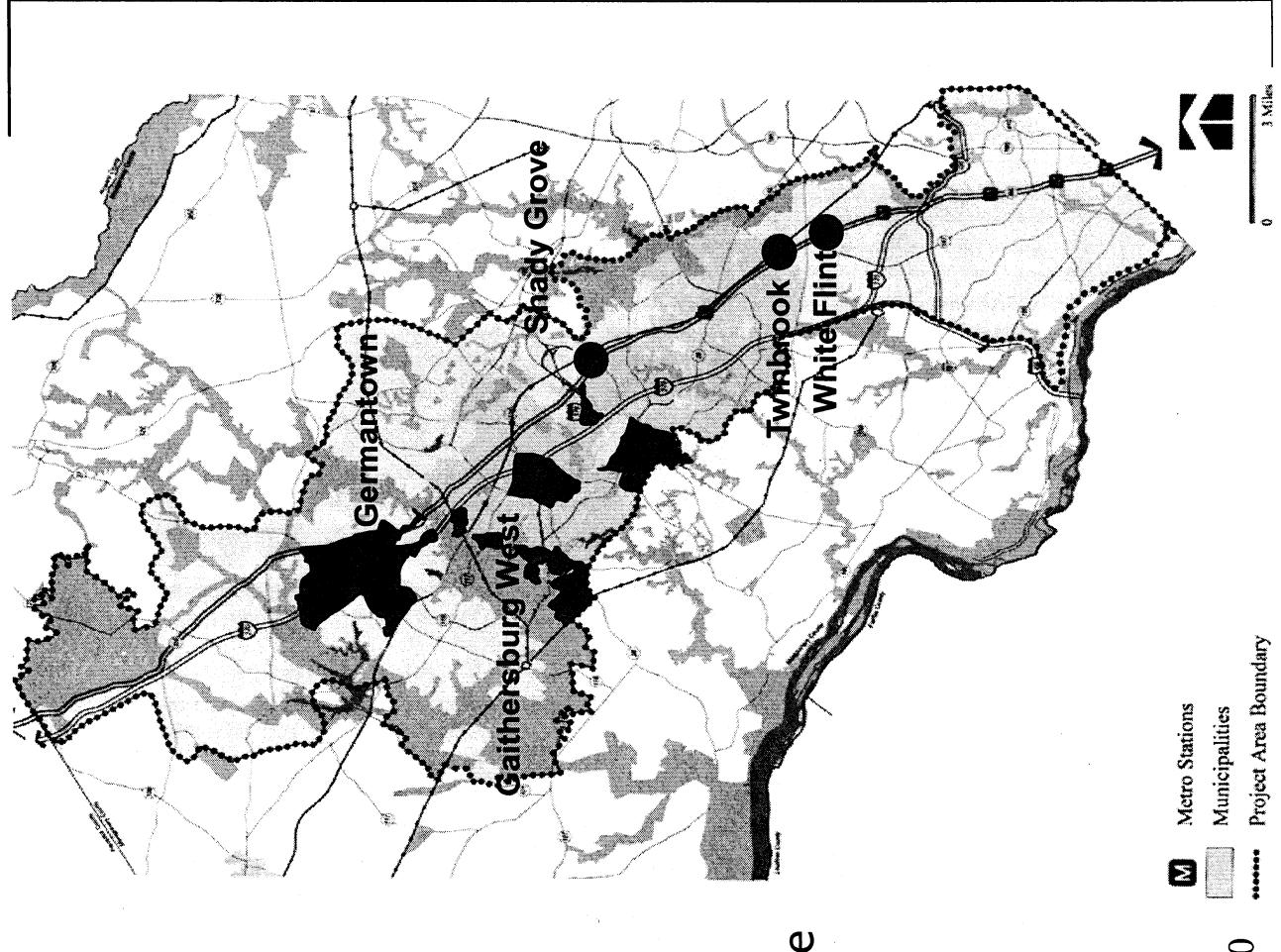


Montgomery County Planning Department

 The Maryland-National Capital Park and Planning Commission

## Providing communities that serve the needs of the 21<sup>st</sup> Century:

- **Community/Housing** – Providing affordable housing to meet the diverse needs of the future population
- **Entertainment/Culture/Retail** – Increasing entertainment, culture and retail opportunities
- **Parks and Schools** - Providing high quality parks and schools that keep pace with development
- **Design Excellence** - Addressing the need for quality design in high density residential living environments, and mixed-use clusters and centers



# Life Challenges

## Addressing the Needs of a Diverse Population:

- Planning for young workers, families, and seniors
- Incorporating a majority of the County's population growth (70%) into the Corridor

**COUNTY AGE/POPULATION GROWTH**

	County Total	0-19 Years	20-34 Years	35-64 Years	65-79 Years	80+ Years
2030 Estimated total population	1,136,000	298,815	200,369	449,029	145,378	42,409
2000 Estimated total population	863,910	237,420	169,003	364,984	69,636	22,867
Estimated increase in population	272,090 31.5%	61,395 25.9%	31,366 18.6%	84,045 23.0%	75,742 108.8%	19,542 85.5%
Estimated need for housing units	116,735	NA	?	?	?	?

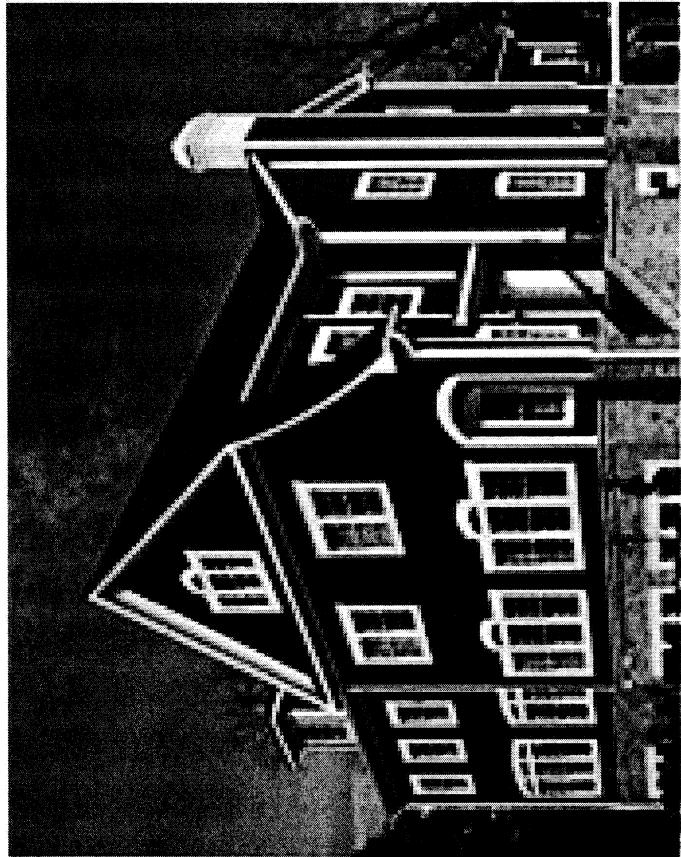
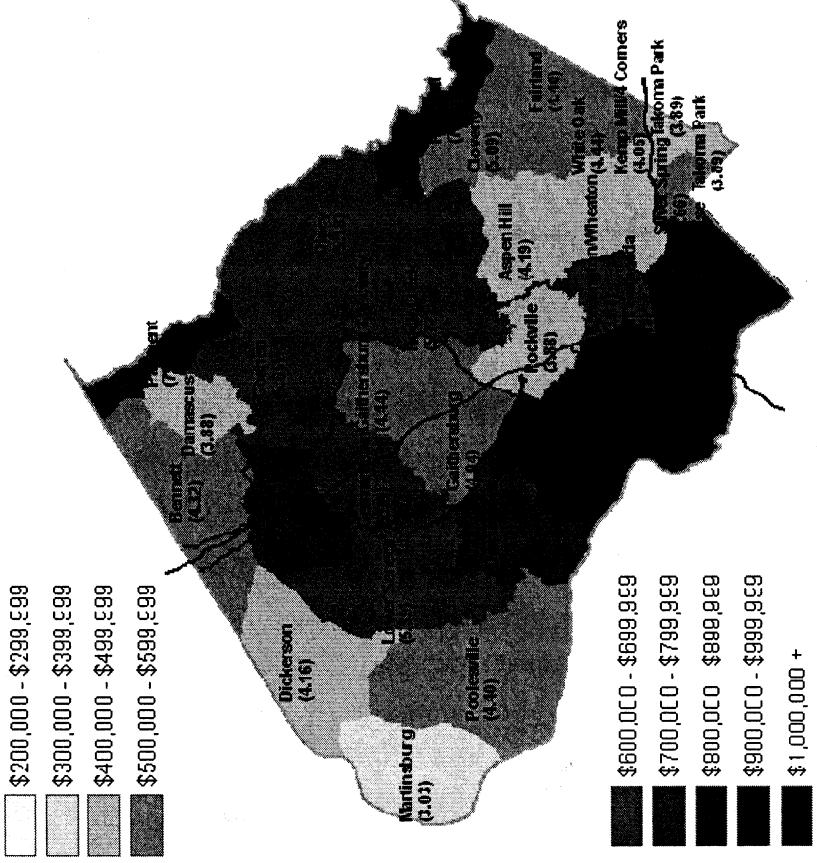
 Implications for the school system     Implications for type and amount of housing needed in the future

## Challenges

### Providing Affordable Housing:

- Households need an income of \$100,000 - \$267,000 to purchase a median priced single-family detached home (\$300,000 - \$800,000) in the Corridor

Single Family Detached Median Sales Price

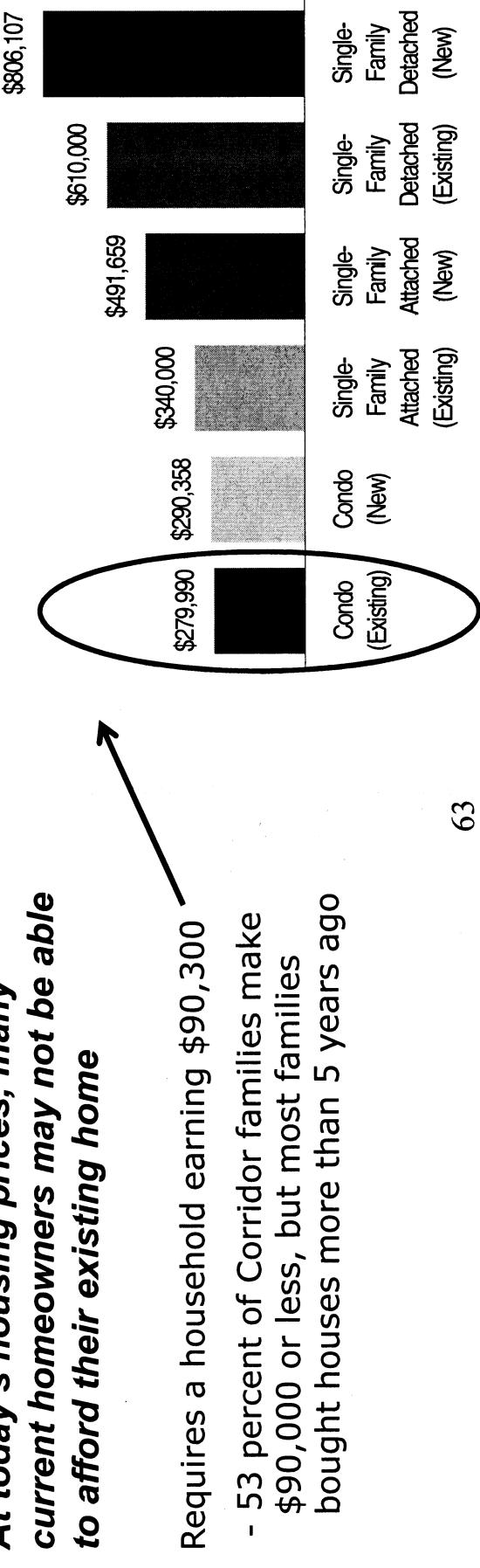


## Challenges

### Providing Affordable Housing:

- Maintain our existing supply of housing that is affordable to the workforce
- 25% of new housing stock in the Corridor will be affordable
  - 15 percent MPDUS
  - 10 percent workforce housing
- New workers have difficulty purchasing housing

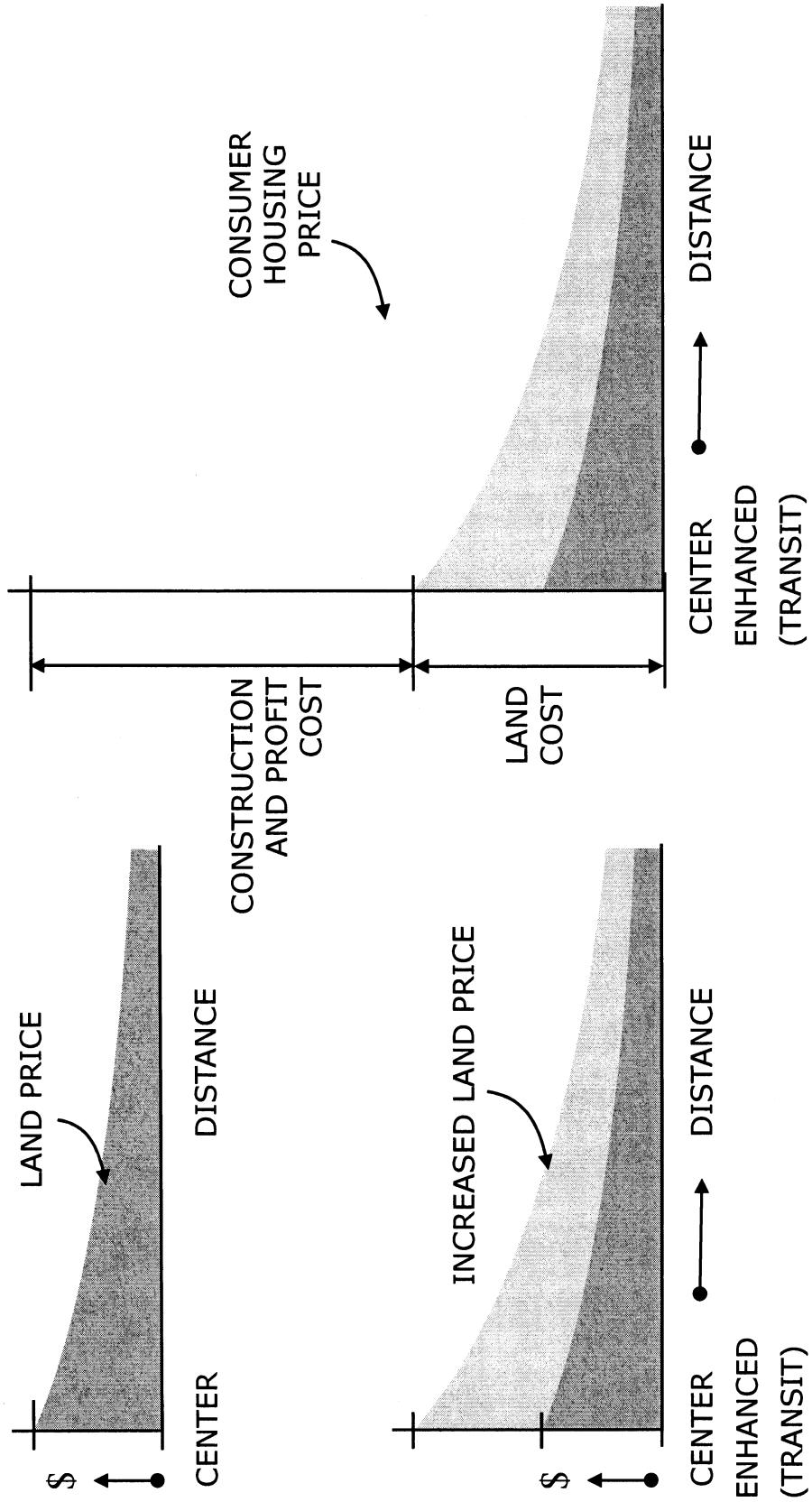
**Corridor home prices are steep**  
Median price of homes sold in the Corridor (2006)



# Life Challenges

## Addressing Market Demands for Location

Affordability Decreases as Attractiveness of an Area Increases

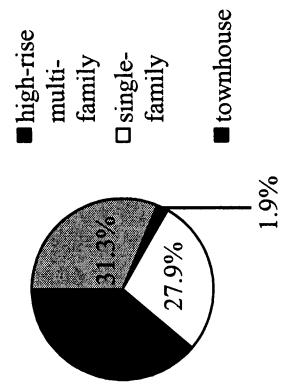


## Challenges

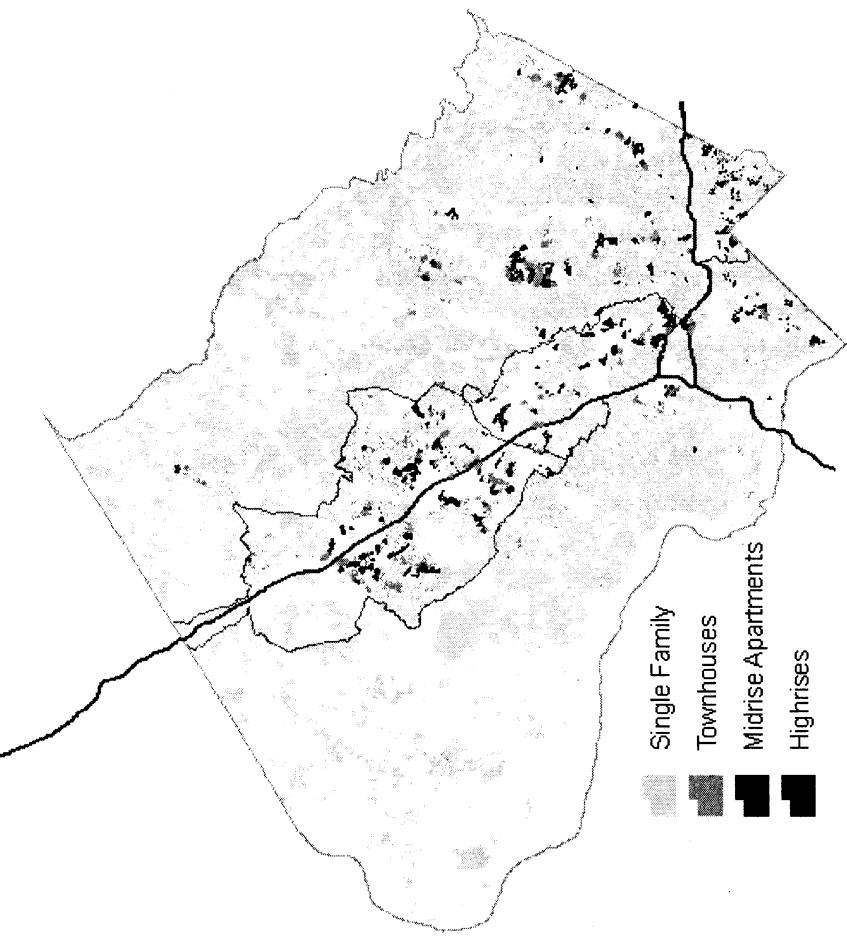
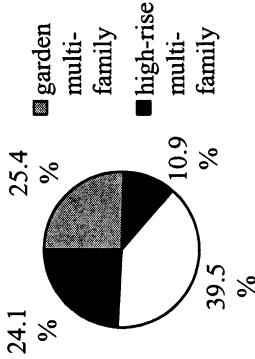
### Improving the Mix of Housing

*More mid-rise and high-rise housing in the North than in the South*

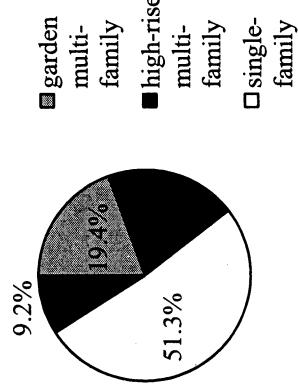
**I-270 Corridor  
North**



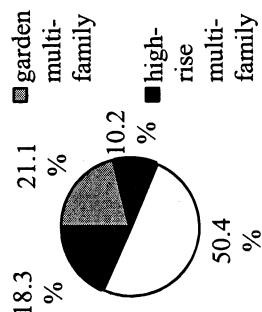
**I-270 Corridor  
Total**



**I-270 Corridor  
South**



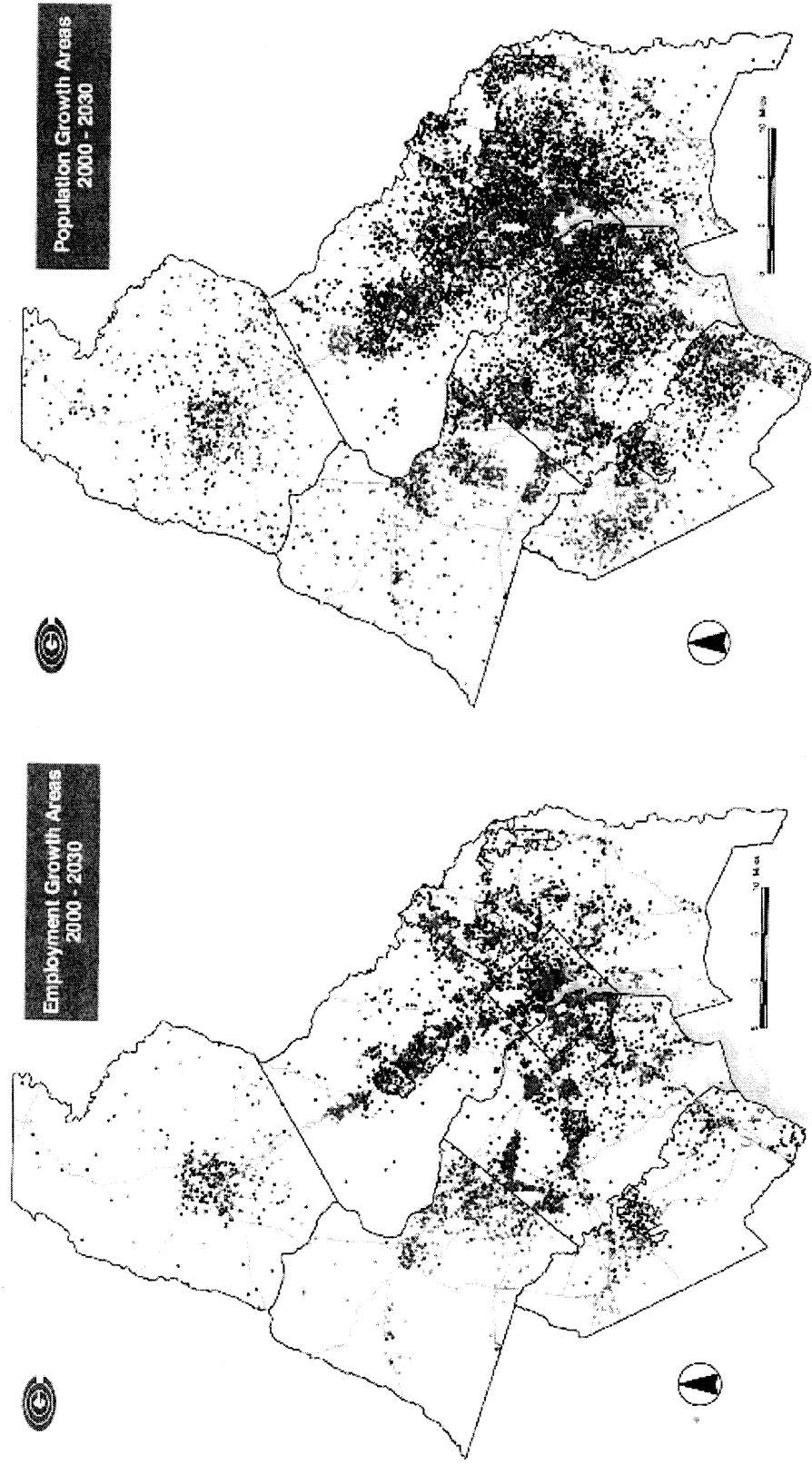
**Montgomery  
County Total**



# Challenges

## Clustering Land Uses

### Job-Housing Relationships – Current and Forecast

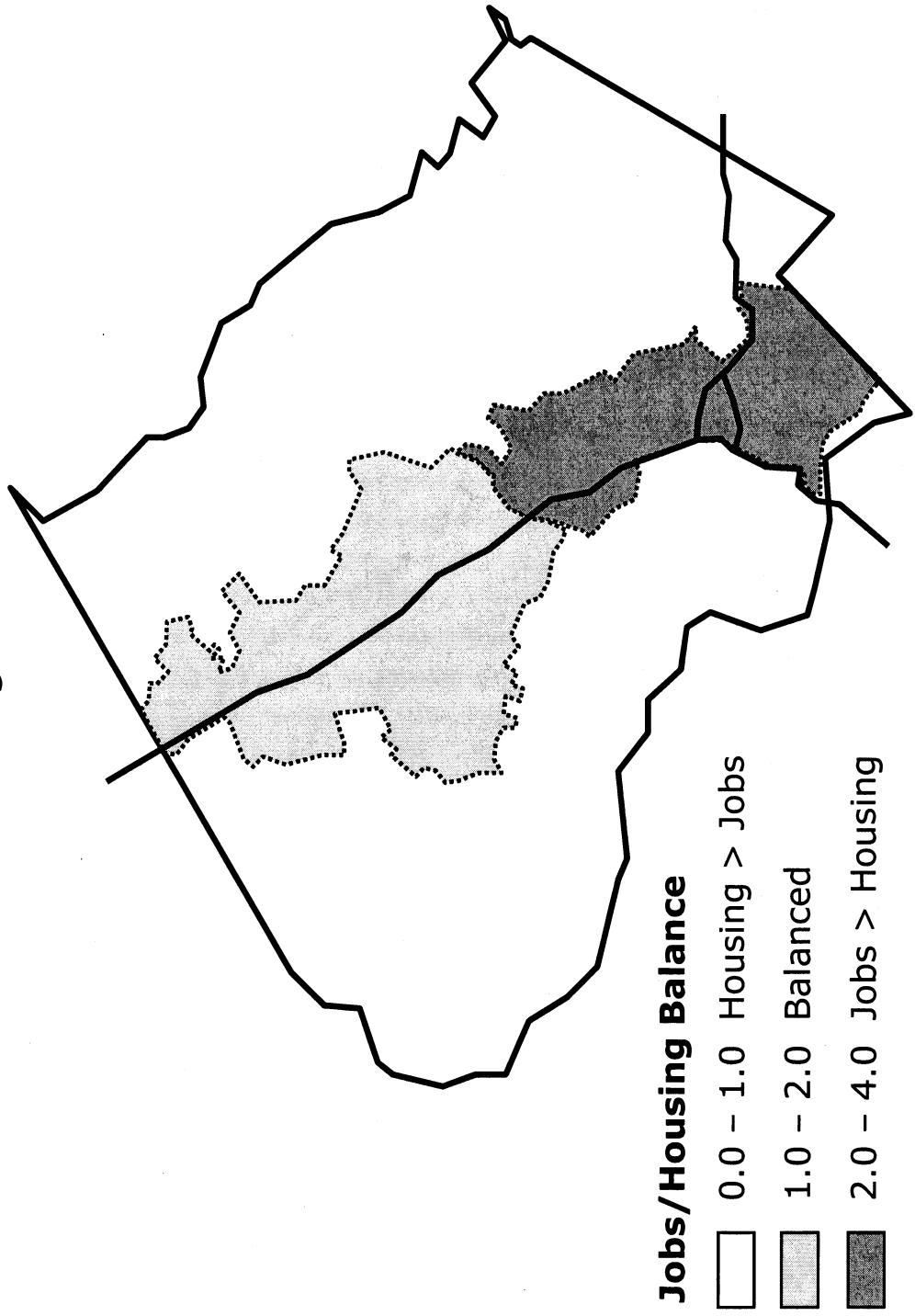


Jobs are clustered more tightly along the I-270 Corridor than housing.  
But both together create an unique opportunity for more efficient multi-modal transportation

# Life Challenges

## Improving Land Use Balance

Future Job-Housing Balance 2030 Trend Forecast



Increasing jobs in the north, and housing in the south would facilitate reverse flow on existing transit facilities and roads.

## Challenges

### Increasing Entertainment, Culture, and Shopping Opportunities:

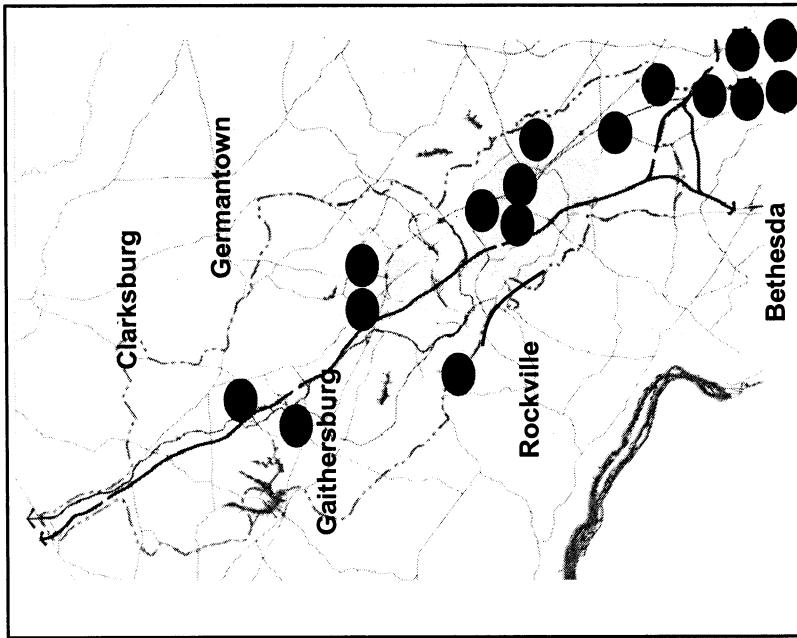
- Providing the right kind of entertainment to serve the residents and young workers we hope to attract



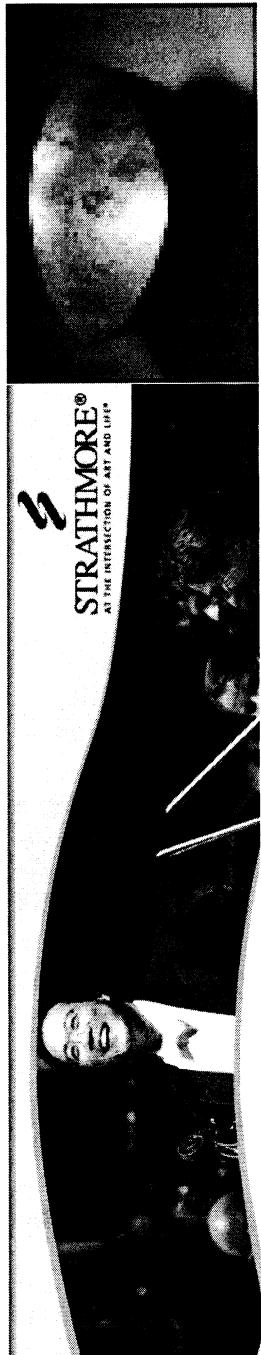
## Challenges

### Increasing Entertainment, Culture, and Shopping Opportunities:

- Establish a cultural identity within the Corridor



- Black Rock Center for the Arts
- Waters House at Pleasant Fields
- Montgomery County Fair Grounds
- Montgomery Playhouse at Asbury
- The Arts Barn
- Beall-Dawson House
- Rockville Arts Place
- F. Scott Fitzgerald Theater & Glenview Mansion
- Robert E. Parilla Performing Arts Center
- Jewish Community Center of Greater Washington
- Strathmore Hall Arts Center
- The Writer's Center
- Washington Conservatory of Music
- Imagination Stage
- Round House Theater
- The Dennis & Philip Ratner Museum



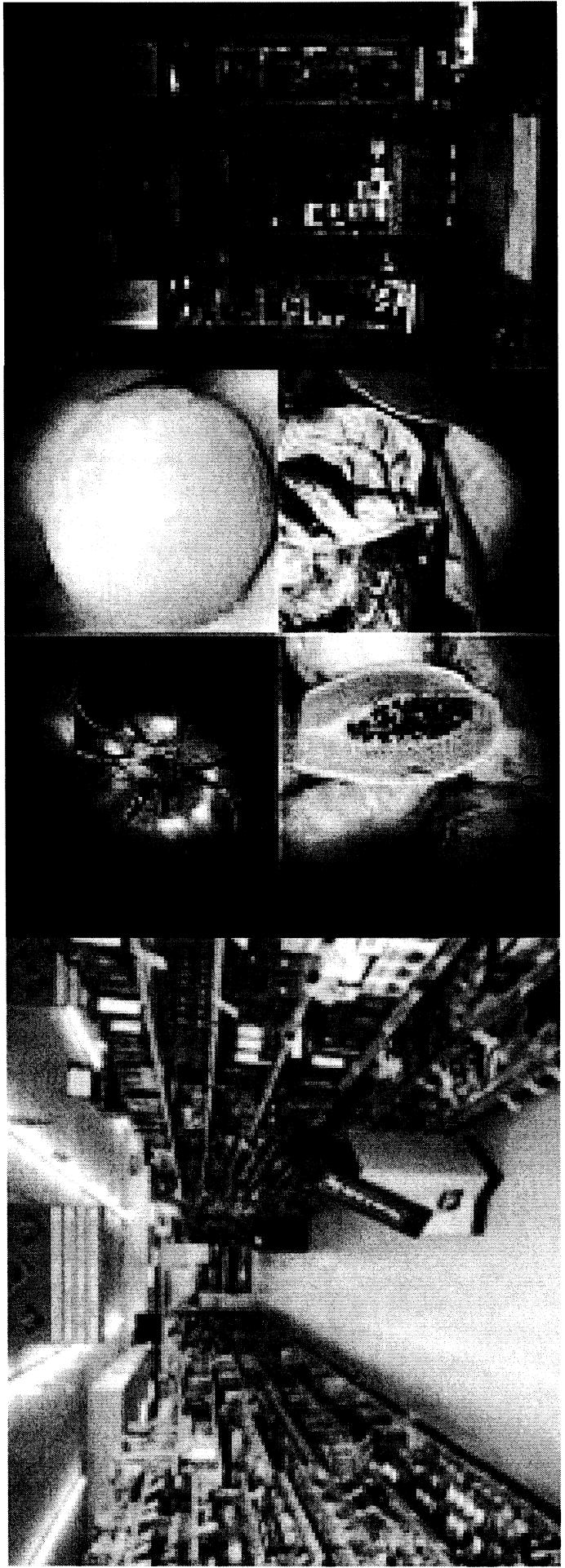
## Challenges

### **Increasing Entertainment, Culture, and Shopping Opportunities:**

Provide the right kind of retail in the Corridor needed to serve existing and future residents

- Convenience Shops
- Neighborhood Center
- Community Center
- Power Centers
- Life-Style Centers
- Regional and Super Regional Centers

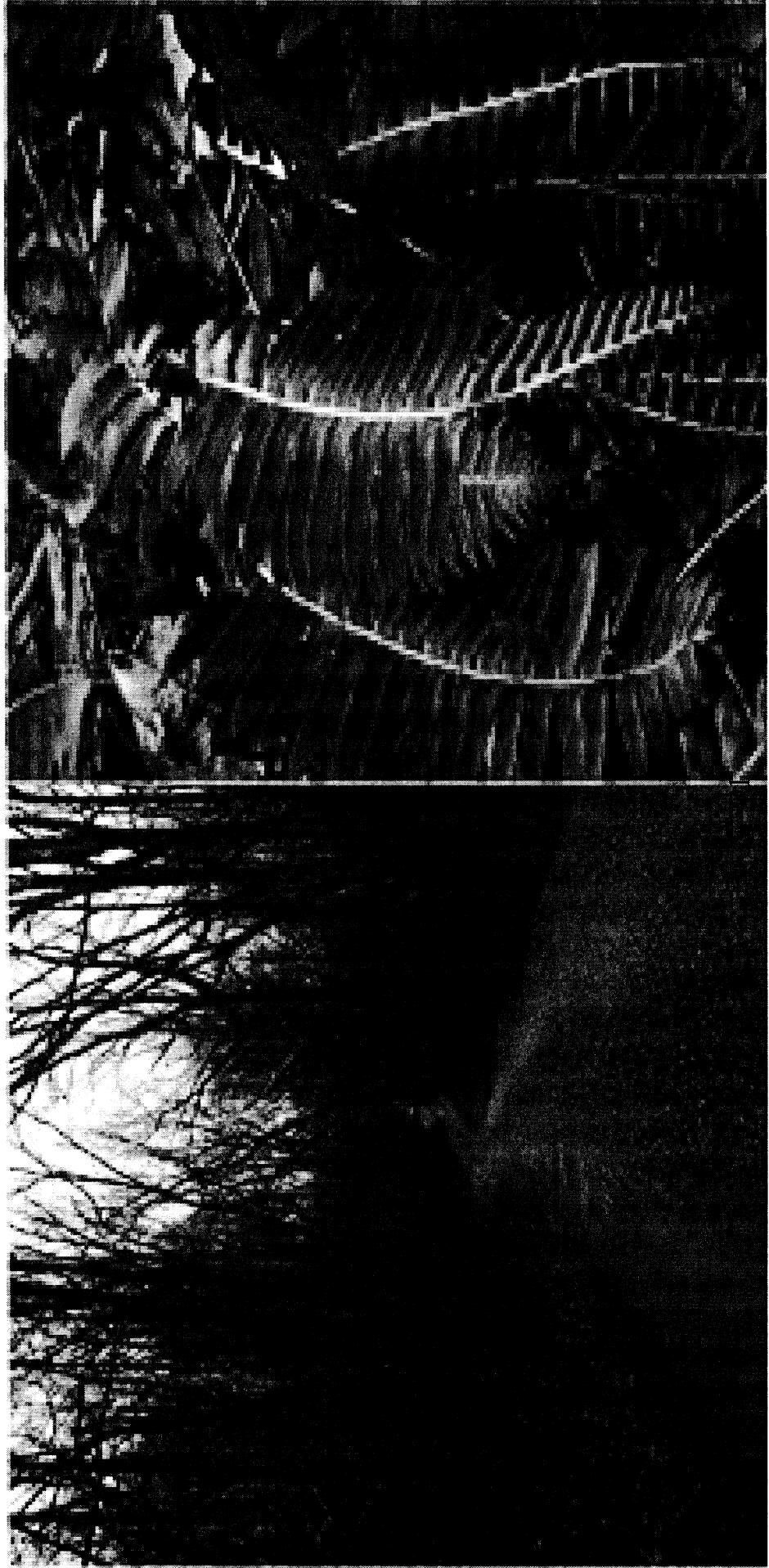
**Residents are spending \$1.5 - \$2 Billion outside of the County**



## Challenges

### Providing New Parks:

- Provide park facilities at the pace of development
- Connect the Corridor to the stream valley parks, the regional park system, recreation opportunities, large and small open spaces, and the Agricultural Reserve



## Challenges

### Providing New Schools and Renovating Existing Schools:

- Provide school facilities at the pace of development
- Renovating and building new schools to accommodate an increase in student population
- Support higher education

#### Northern Corridor

9 Elementary Schools	3 Elementary Schools
4 Middle Schools	2 Middle Schools
2 High Schools	0 High Schools

#### Southern Corridor

12 Elementary Schools	3 Elementary Schools
6 Middle Schools	2 Middle Schools
2 High Schools	0 High Schools

#### Total Needs

12 Elementary Schools
6 Middle Schools
2 High Schools

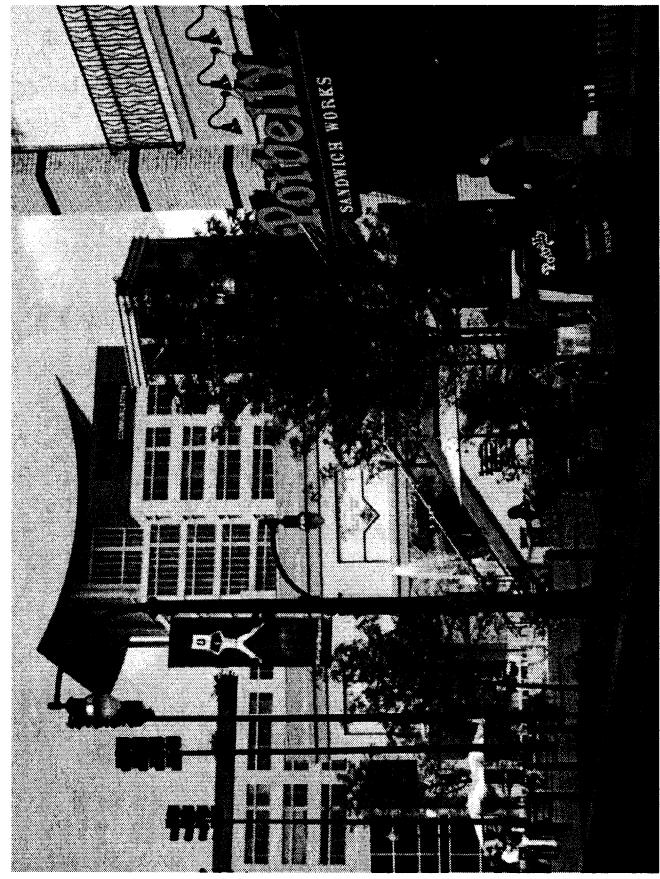
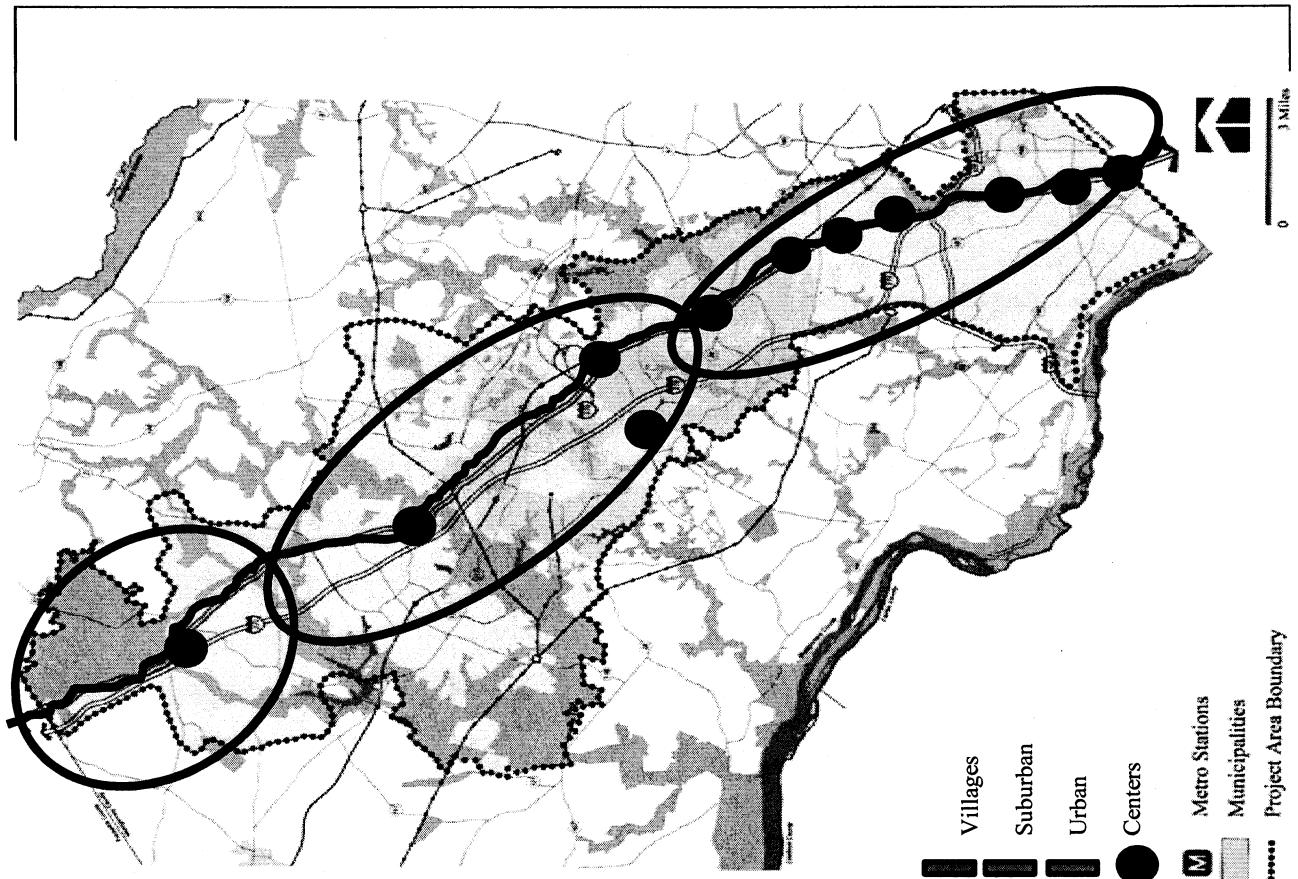
#### Higher Education

University of Maryland  
Johns Hopkins University  
Montgomery College



**Community/Housing:**

- Provide a hierarchy of villages, and suburban areas, and urban communities with a mix of uses
- Develop zoning standards for each community type that encourage design excellence:
  - Village Centers
  - Suburban Town Centers
  - Urban Centers and Central Business Districts

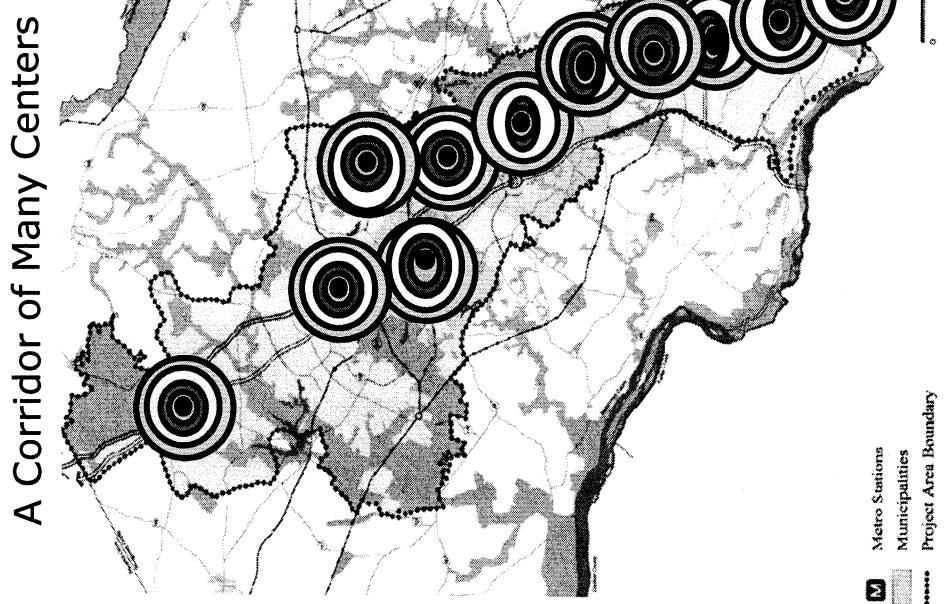
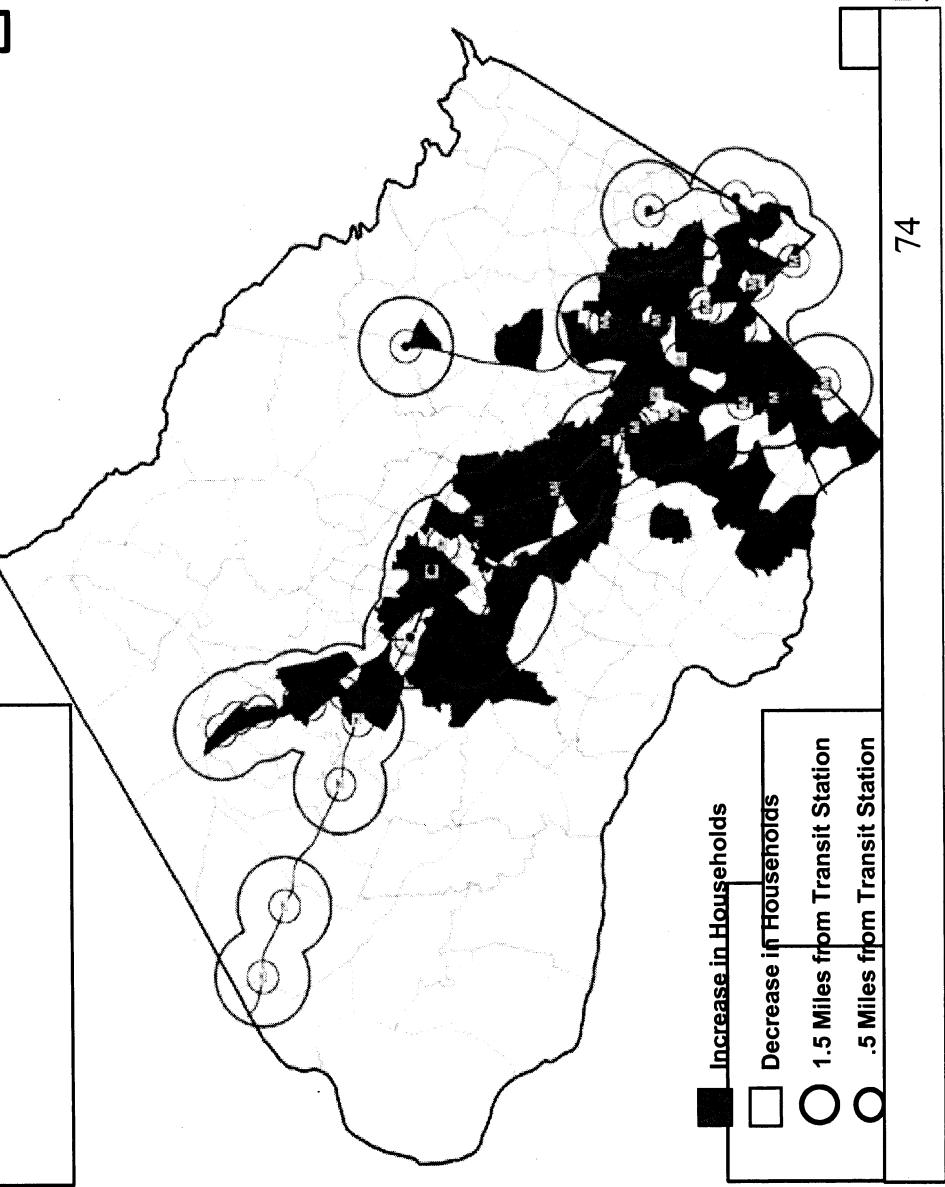


# Life Actions

## Community/Housing:

- Direct new development to centers in the Corridor located near transit
- Support high technology clusters
- Create high quality living environments and mixed-use centers

## Distribution of Future Housing 2030



## Life Actions

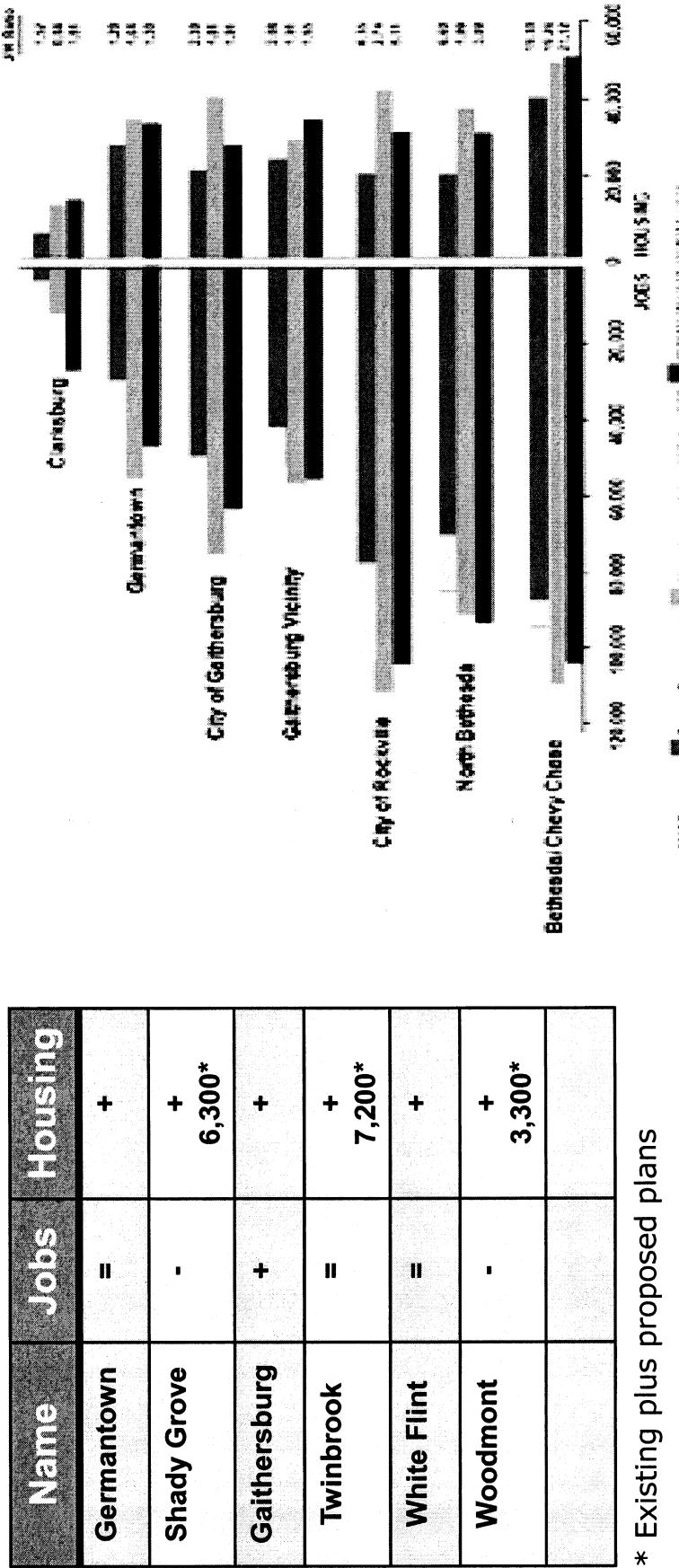
### Community/Housing:

- Implement a better balance of jobs and housing through Master Plan and Sector Plan amendments

### Jobs/Housing Ratio

I-270 Corridor Planning Areas

### 2000 Transportation Policy Report



\* Existing plus proposed plans

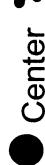
# Life Actions

## Community/Housing:

- Create unique and different communities at each center in the Corridor

### 355/270 Centers

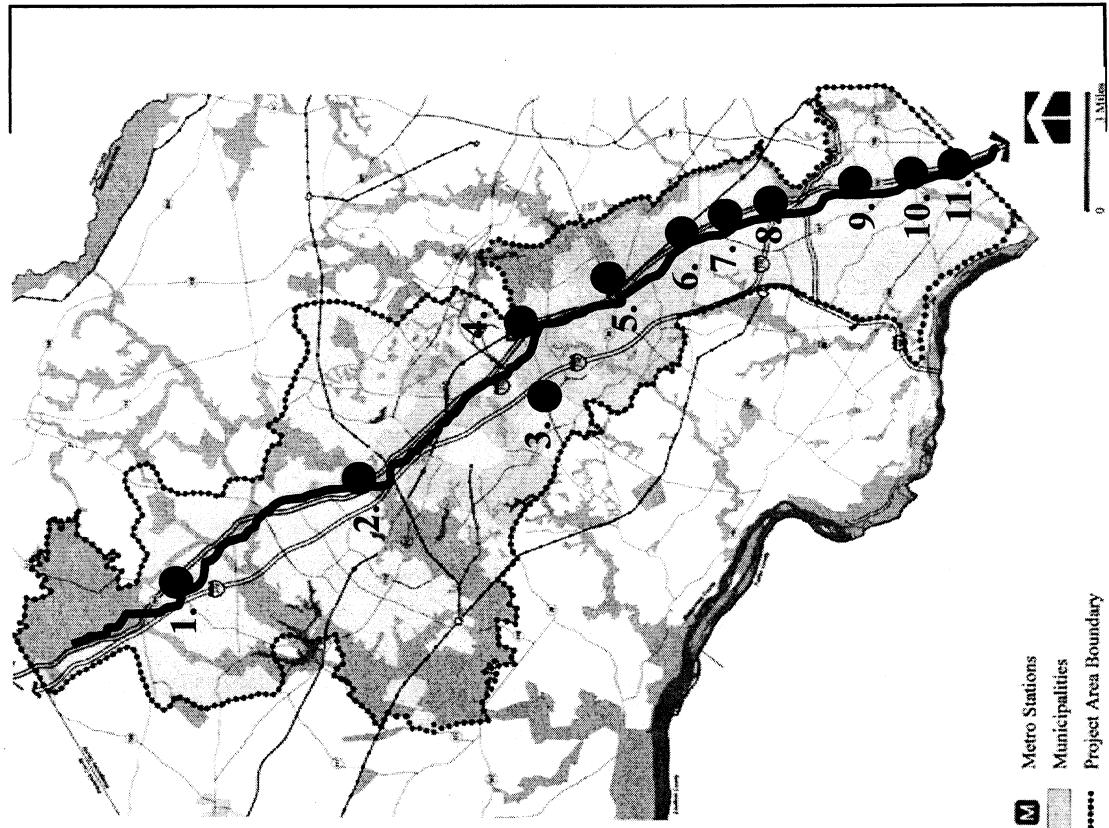
1. Clarksburg Town Center
2. Germantown Employment Center \*
3. Belward/Johns Hopkins Science Center \*
4. Shady Grove (*Recently completed Sector Plan*)
5. Rockville Town Center
6. Twinbrook \*
7. White Flint \*
8. Grosvenor
9. NIH/Bethesda Naval
10. Bethesda CBD
11. Friendship Heights CBD



Center

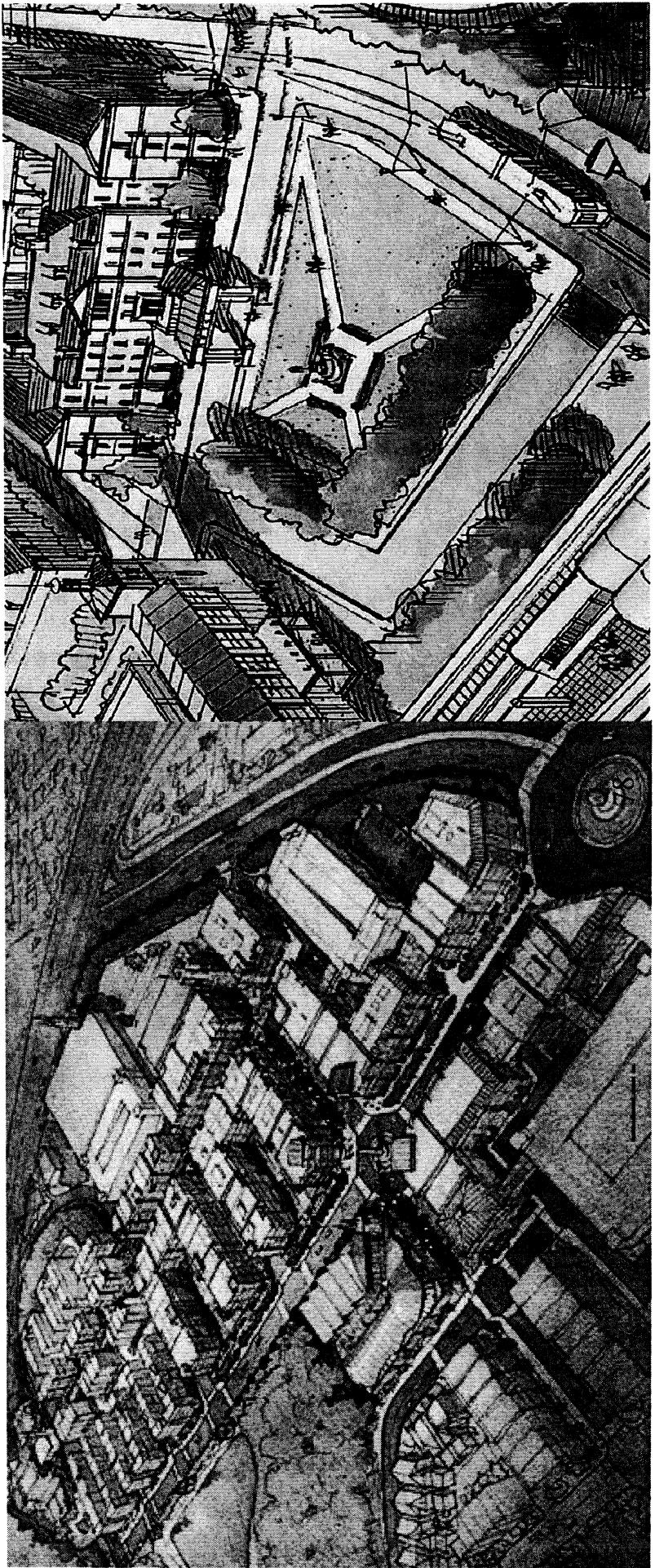


Master/Sector Plan under development



## **Community/Housing:**

- Convert some future commercial capacity to accommodate single-family attached and detached dwelling units
- Encourage a mix of housing types in each center
- Plan for science and high technology

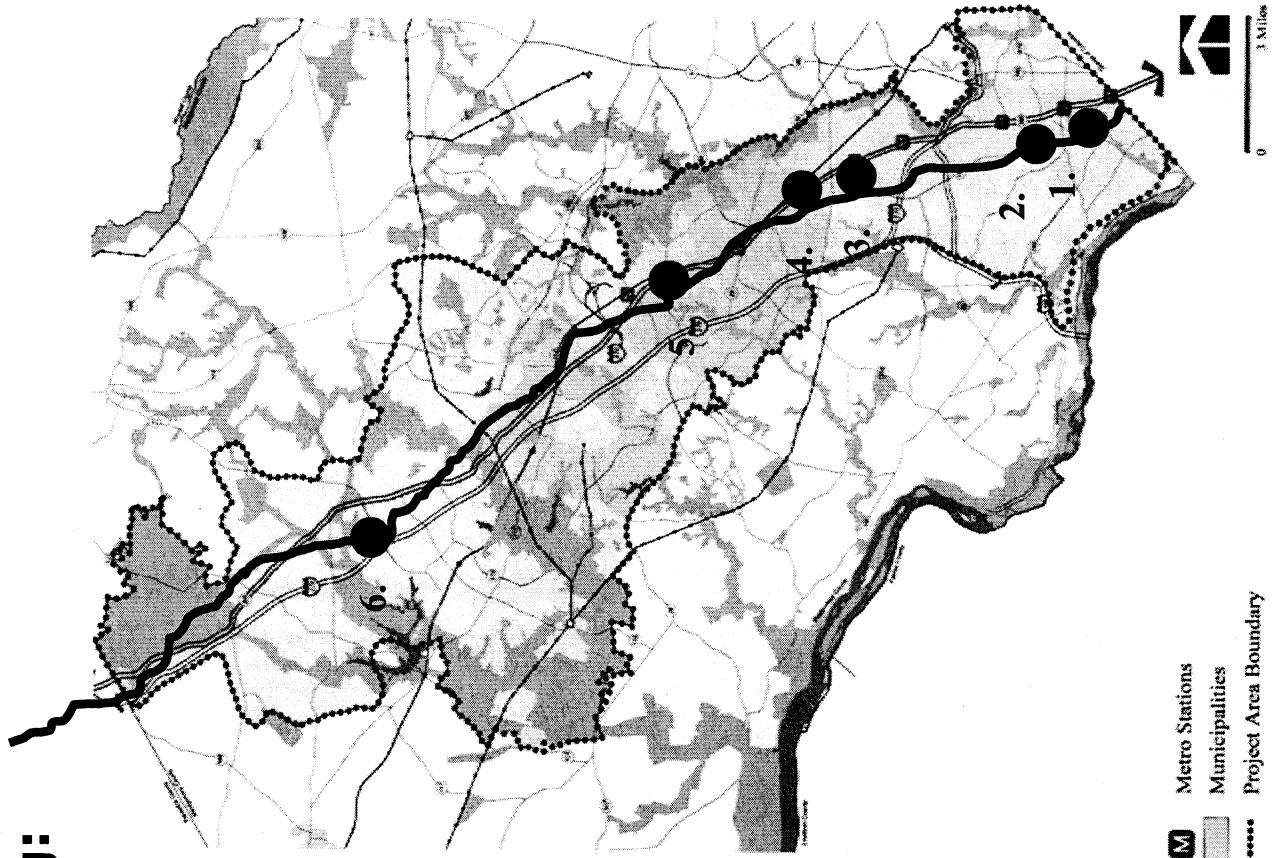


# Life Actions

## Entertainment, Culture, and Shopping:

Create entertainment nodes at centers

1. Friendship Heights (*Shopping District*)
2. Bethesda CBD (*Restaurant/Office District*)
3. Grosvenor (*Housing and Cultural*)
4. White Flint (*North Bethesda's Downtown*)
5. Rockville (*Civic, community and neighborhood focus*)
6. Germantown  
*employment and housing focused)*



## Entertainment, Culture, and Shopping:

- Cluster cultural facilities near existing facilities to strengthen existing and emerging cultural nodes along the Corridor:

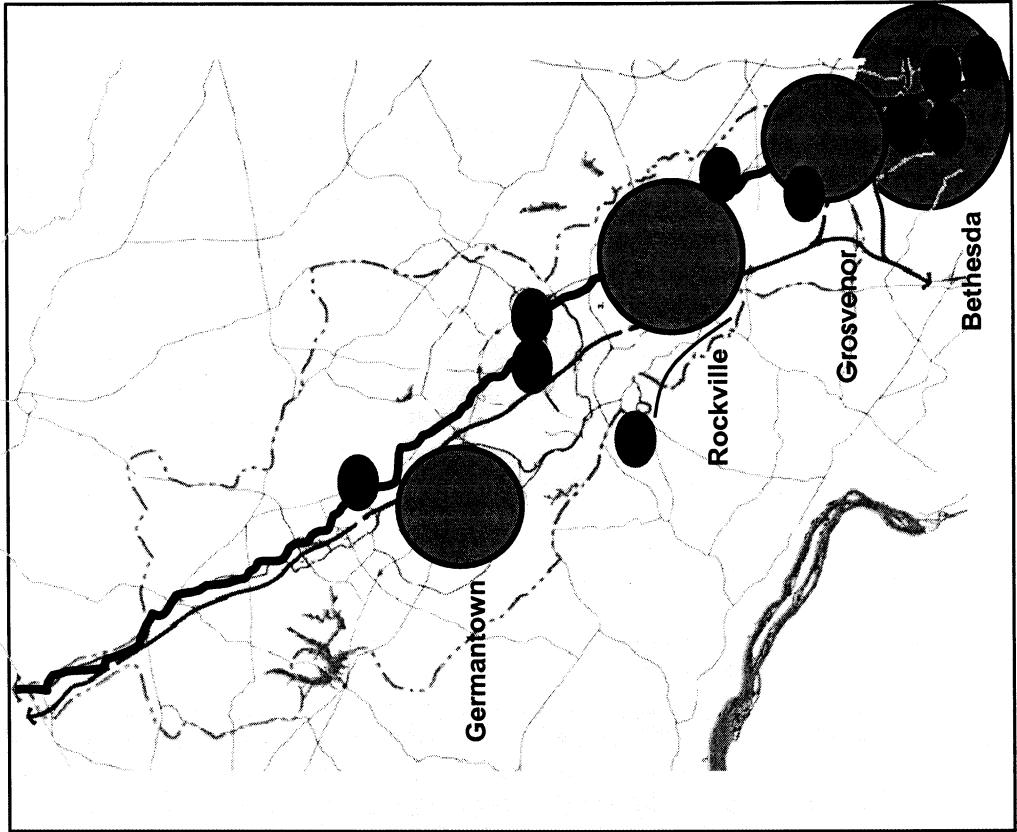
- Bethesda/Roundhouse

- Grosvenor/Strathmore

- Rockville/Parilla Center

- Germantown/Black Rock

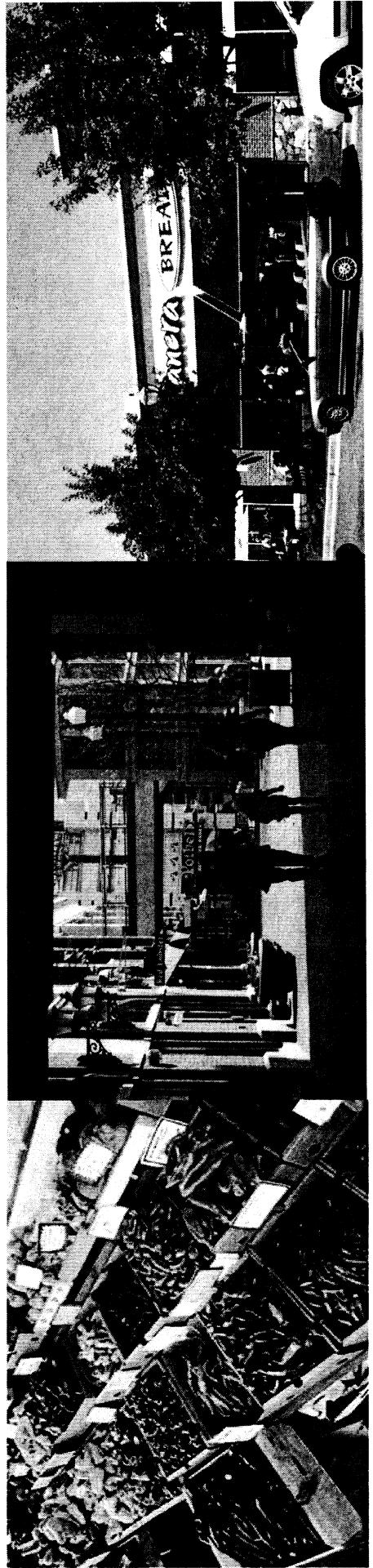
- Encourage cultural facilities in the Corridor that serve the community and complement, not compete, with the regional cultural scene



## Life Actions

### **Entertainment, Culture, and Shopping:**

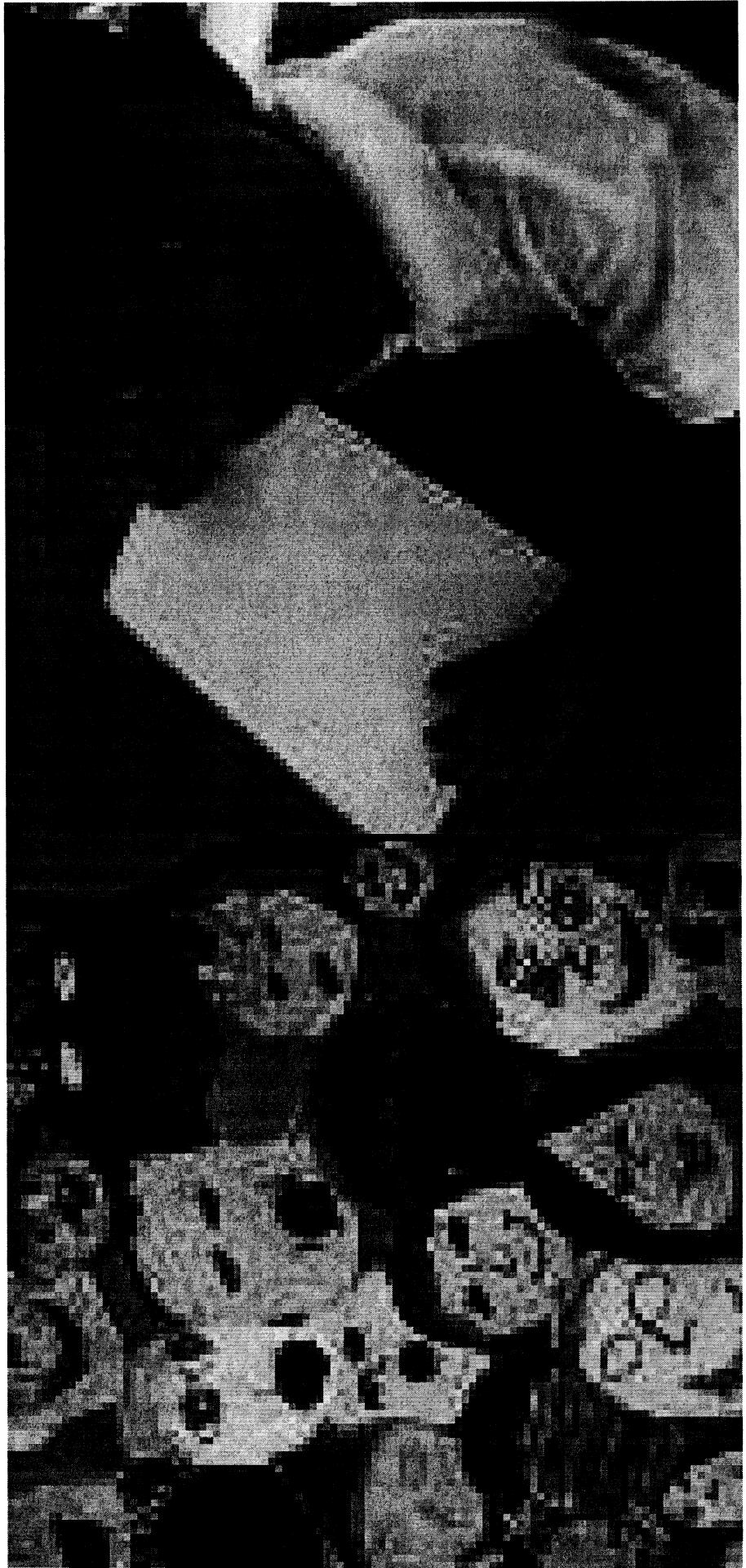
- Expand retail variety and choice in the Centers
  - Convenience (mini-markets)
  - Neighborhood Center (Grocery store)
  - Community Center (Strip retail)
  - Power Centers (Big box)
  - Life-Style Centers (Entertainment, Restaurants, bookstores, apparel)
  - Regional and Super Regional Centers (Fashion)
  
- Expand moderate mainstream retail south of Rockville
  - Locate grocery stores proximate to housing
  - Expand opportunities for small local businesses



## Actions

### Provide for Quality Schools:

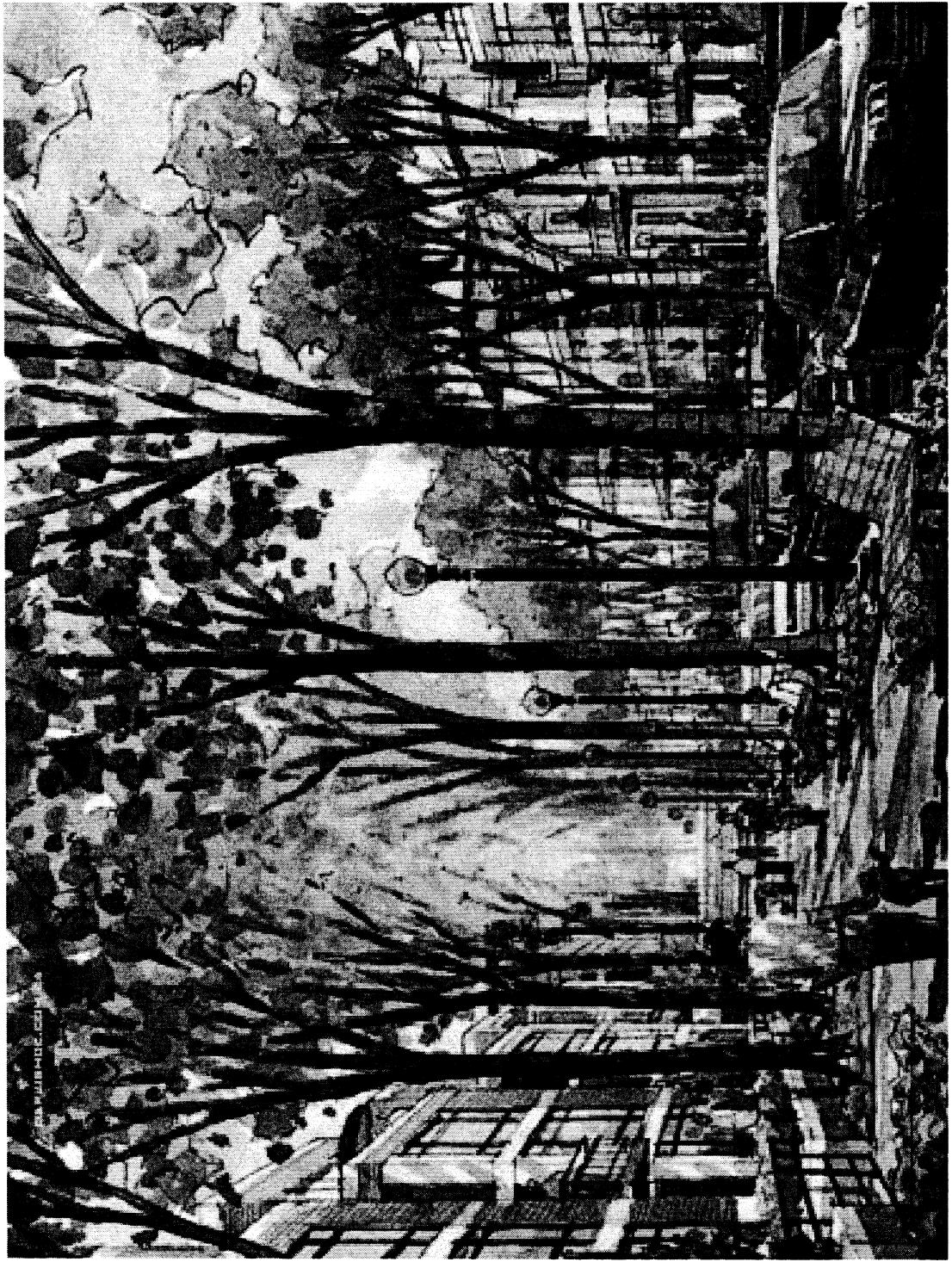
- Develop an urban standard for future school development.  
*The availability of 12 to 30 acre parcels in urbanized areas to build one-story school buildings and associated athletic fields is scarce.*



# Life Actions

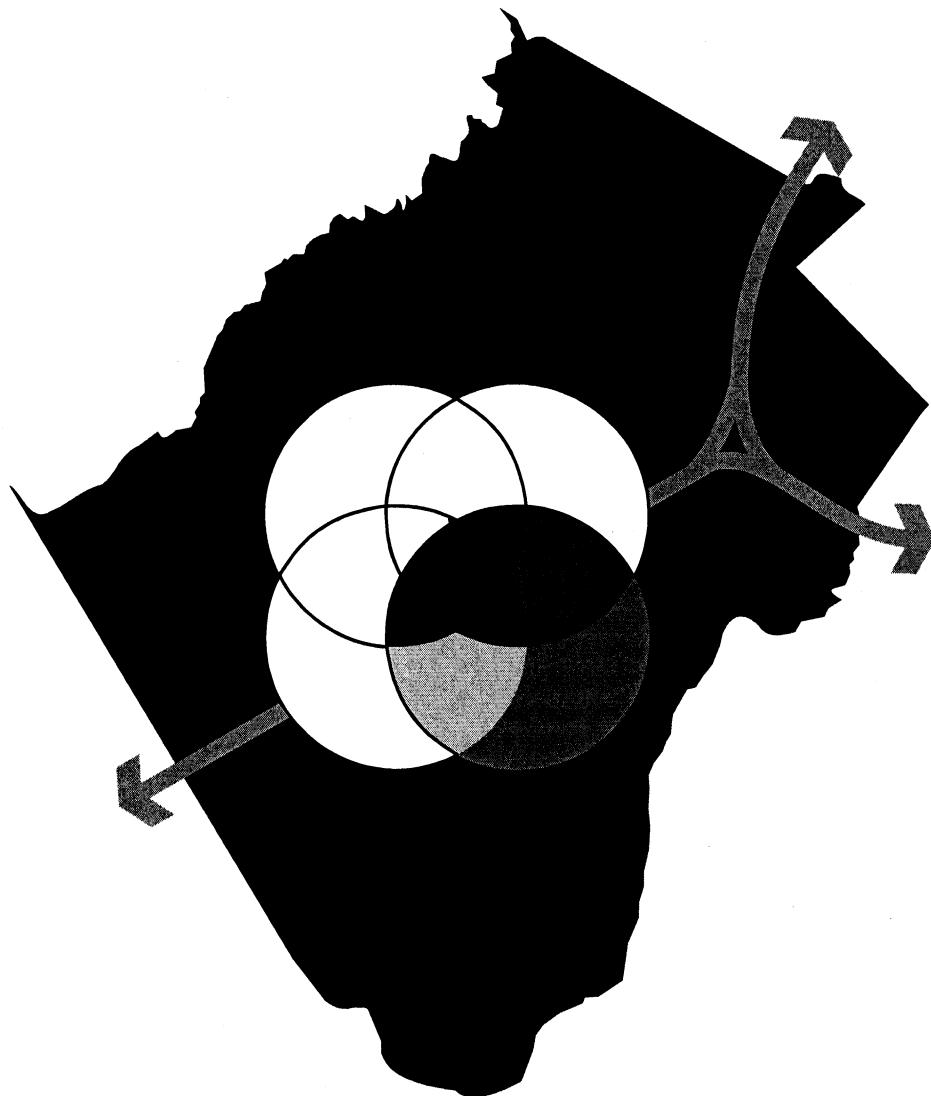
## Demand Design Excellence:

- Create attractive living environments through design excellence



# **HEALTH**

**Cut Carbon, Trees, Filtration, Green Communities, Walkways (Ecology)**



**Montgomery County Planning Department**

 The Maryland-National Capital Park and Planning Commission

# Health Issues

Climate  
Change

Air to Breathe

Water to Drink

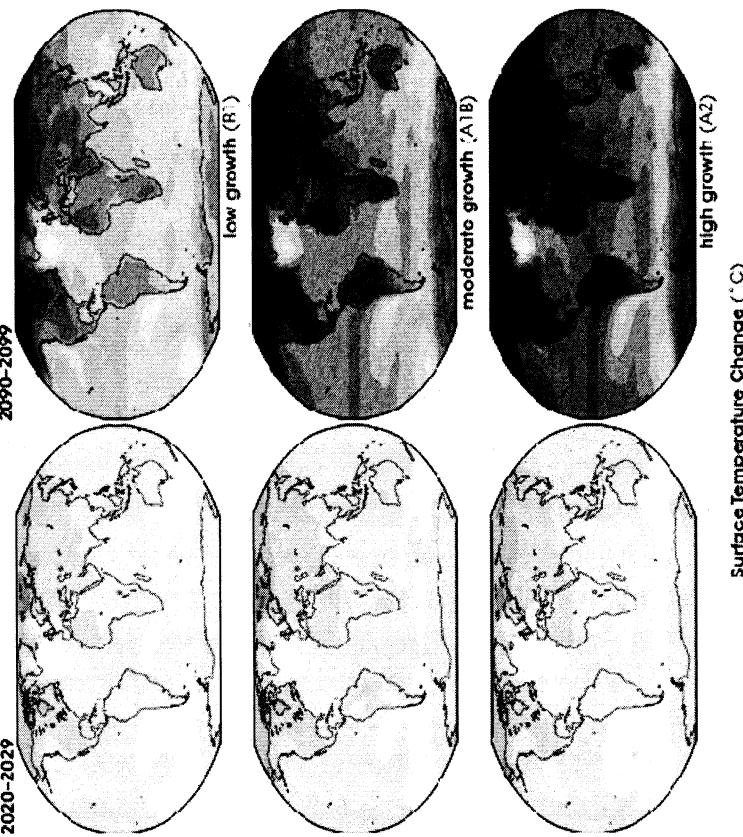
Exercise Opportunities

Local Food

## Challenges

### Addressing Global Climate Change

**2020 - 2029**  
2090-2099



### Global Surface Temperatures

**U.S. Environmental Protection Agency projected future regional patterns of warming based on three emissions scenarios (low, medium, and high growth).**

## Challenges

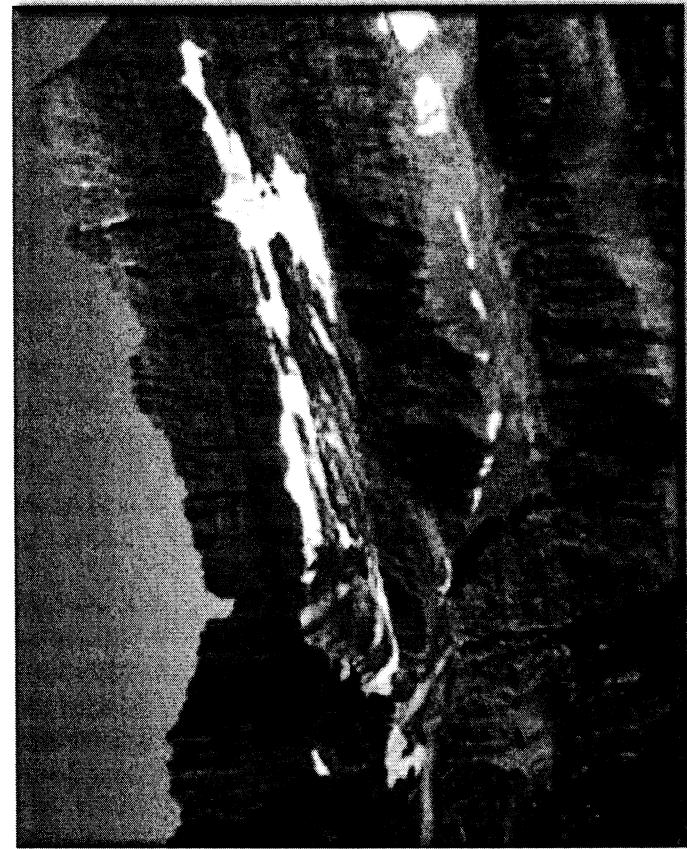
### Addressing Climate Change

The Washington Metropolitan Area will see an increase of 48% in carbon dioxide by 2030.



Audrey photo, GNT Archives, 1913

Sheppard Glacier 1913



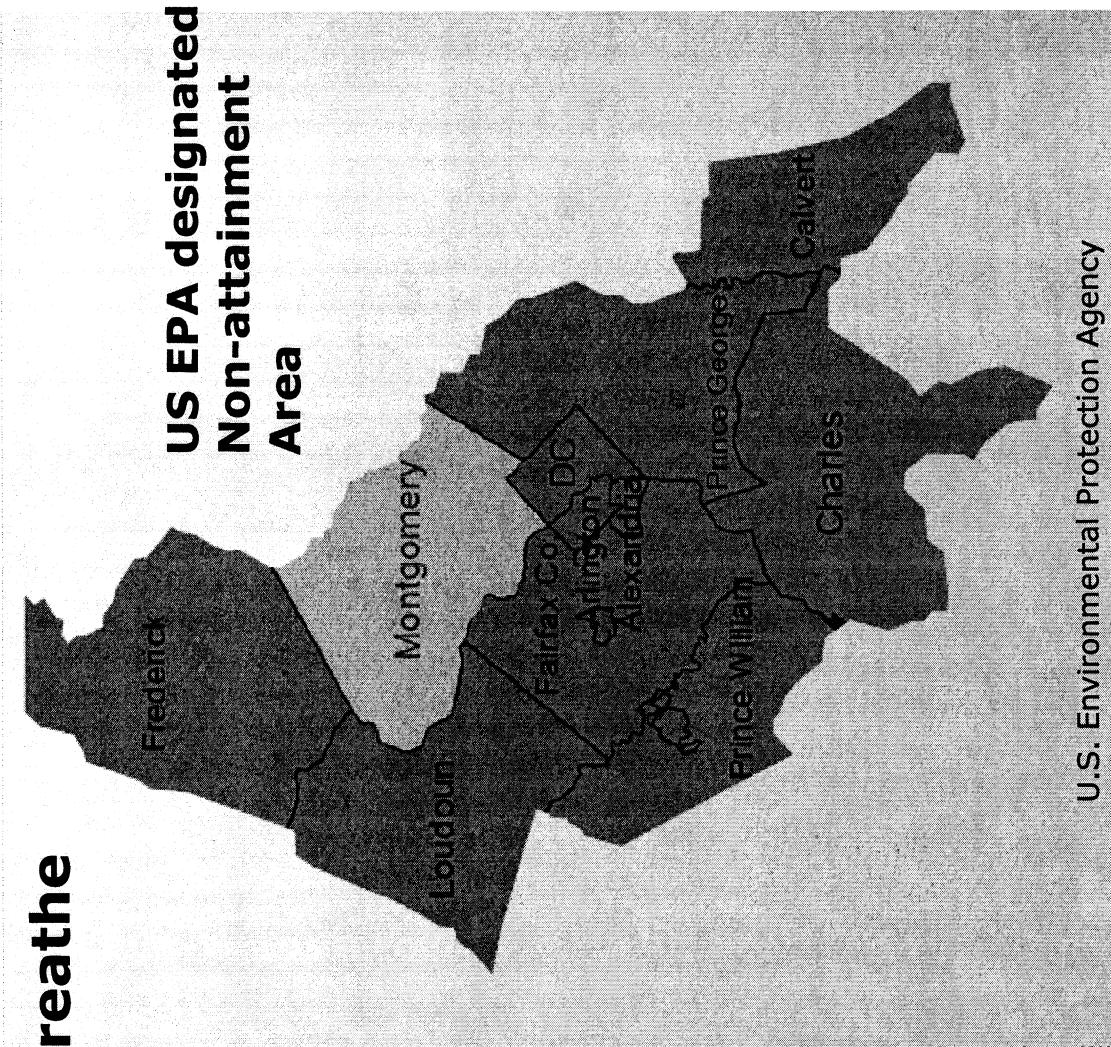
Sheppard Glacier 2005

## Health

# Challenges

## Providing Clean Air to Breathe

Reducing ground level ozone

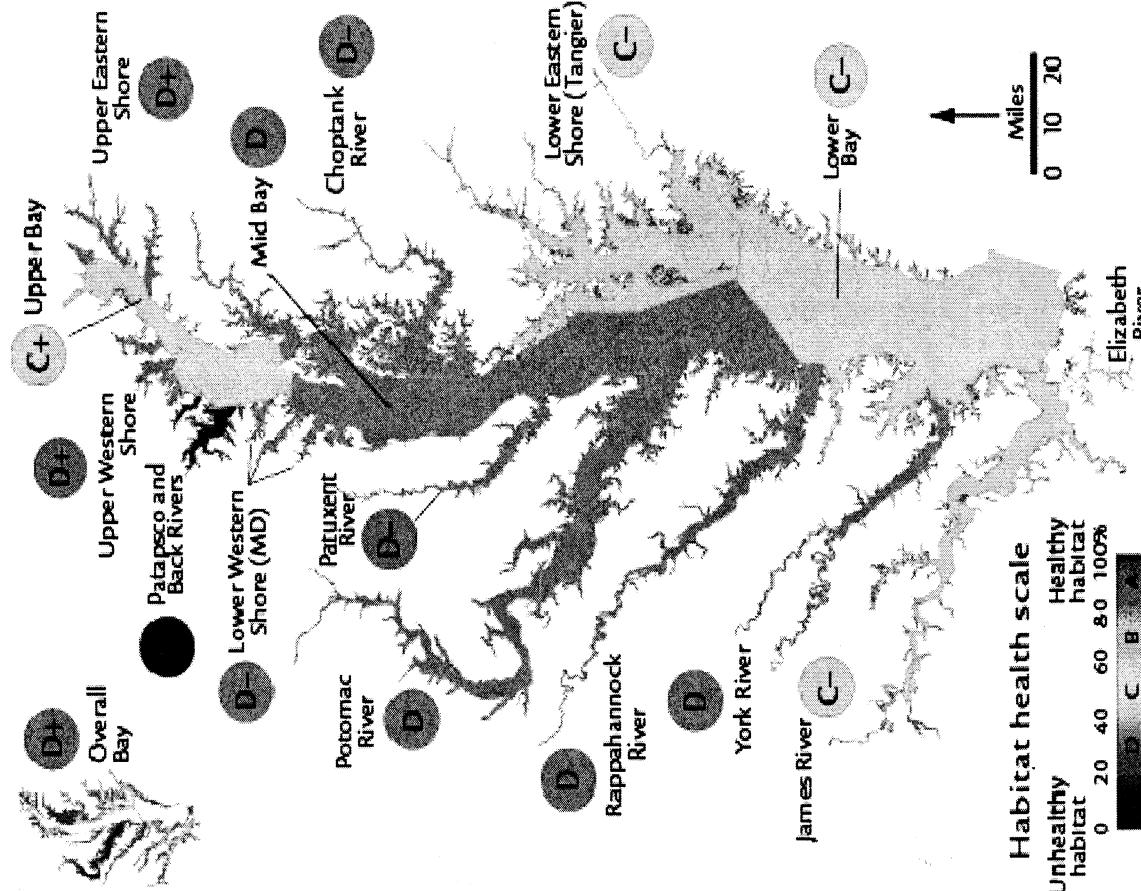


U.S. Environmental Protection Agency

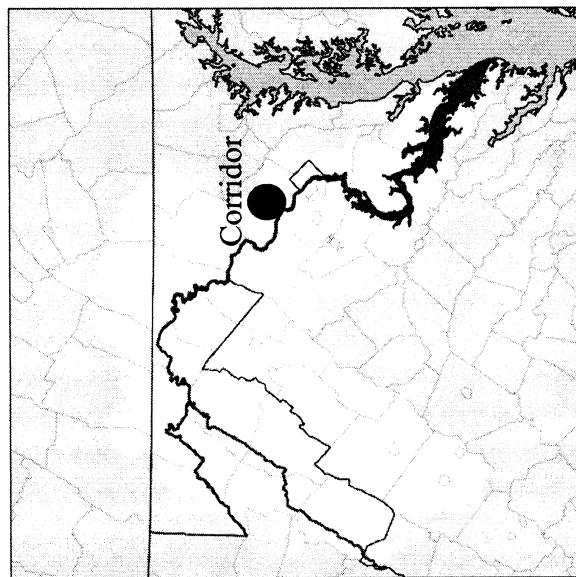
## Health

# Challenges

## Providing Clean Water



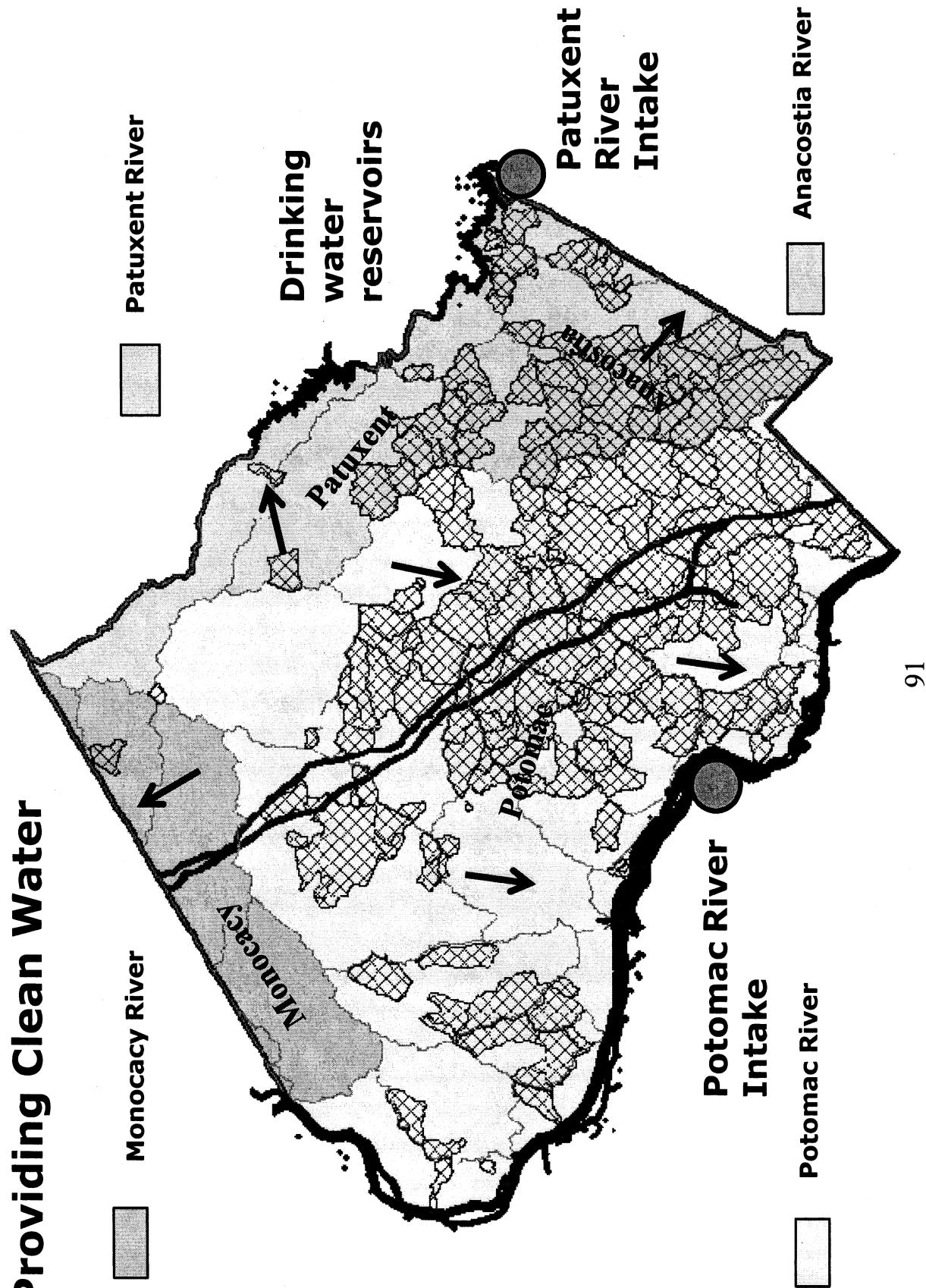
## Potomac River Watershed



## Chesapeake Bay Region

## Challenges

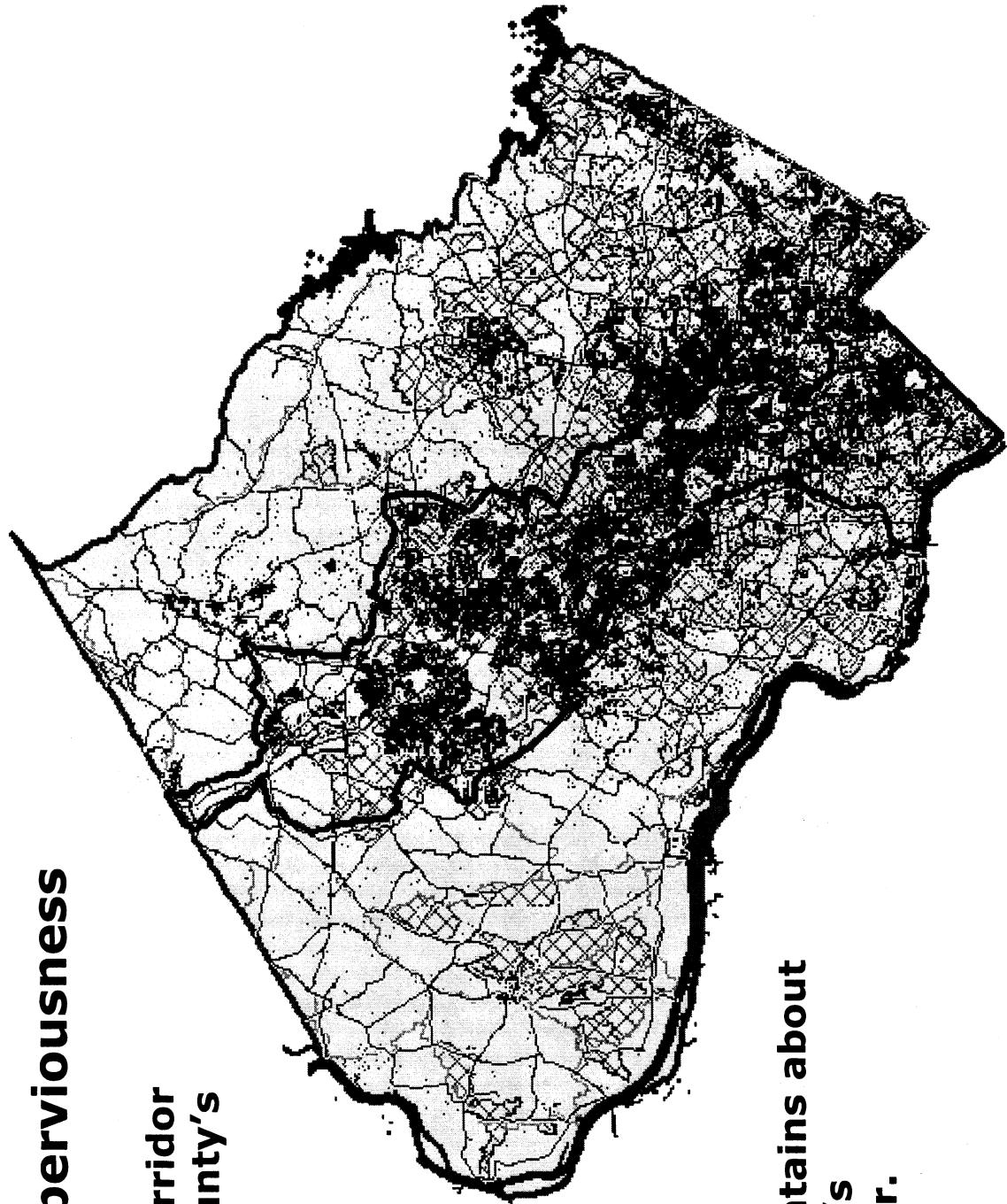
### Providing Clean Water



## Challenges

### Reducing Imperviousness

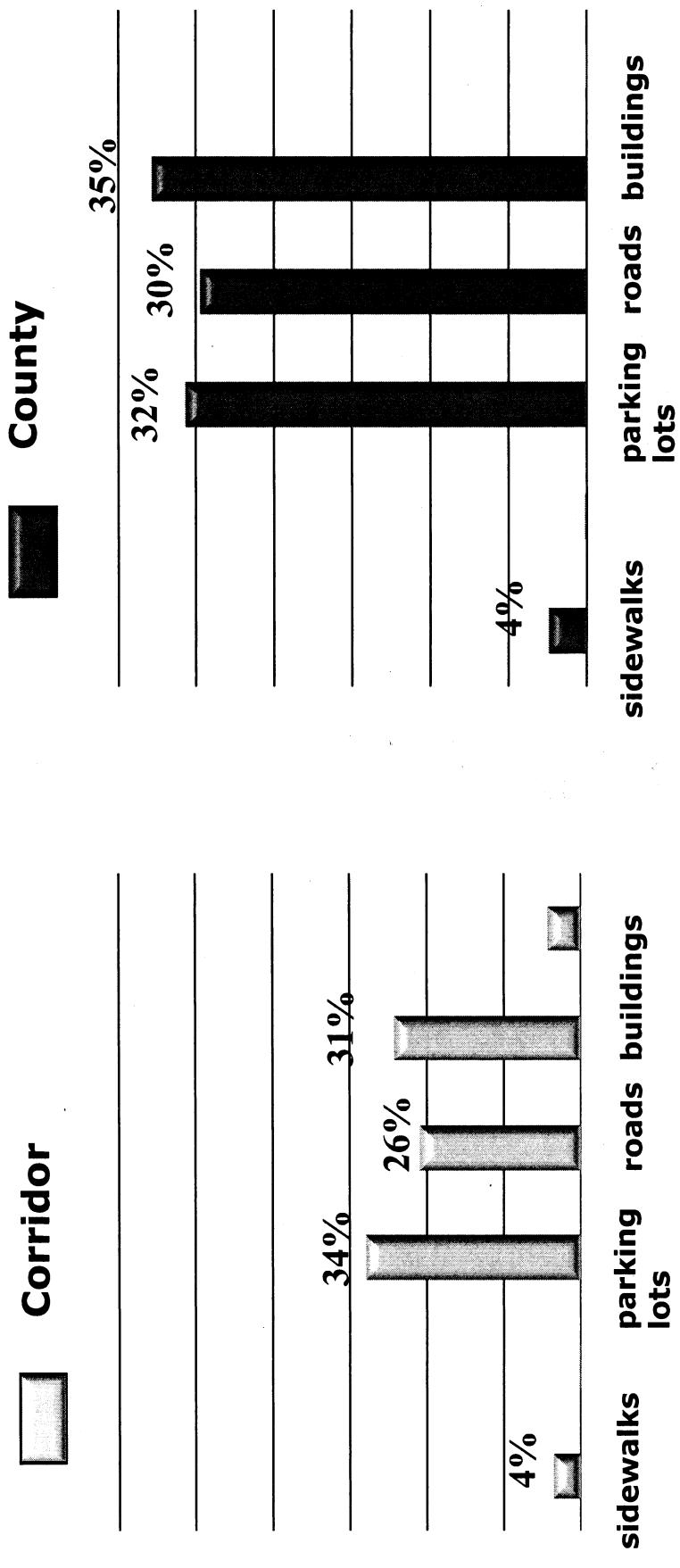
**The 355/270 Corridor  
has  $\frac{1}{4}$  of the county's  
land area.**



**The Corridor contains about  
 $\frac{1}{2}$  of the county's  
impervious cover.**

## Challenges

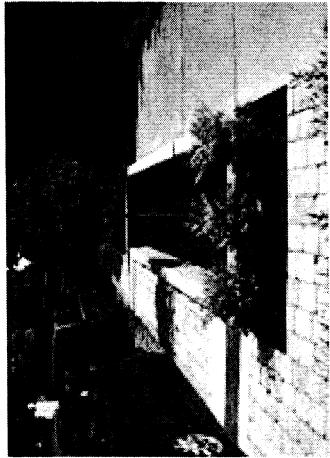
**Reducing Imperviousness: Parking lots, roads and buildings constitute over 90 percent of the county's impervious land cover.**



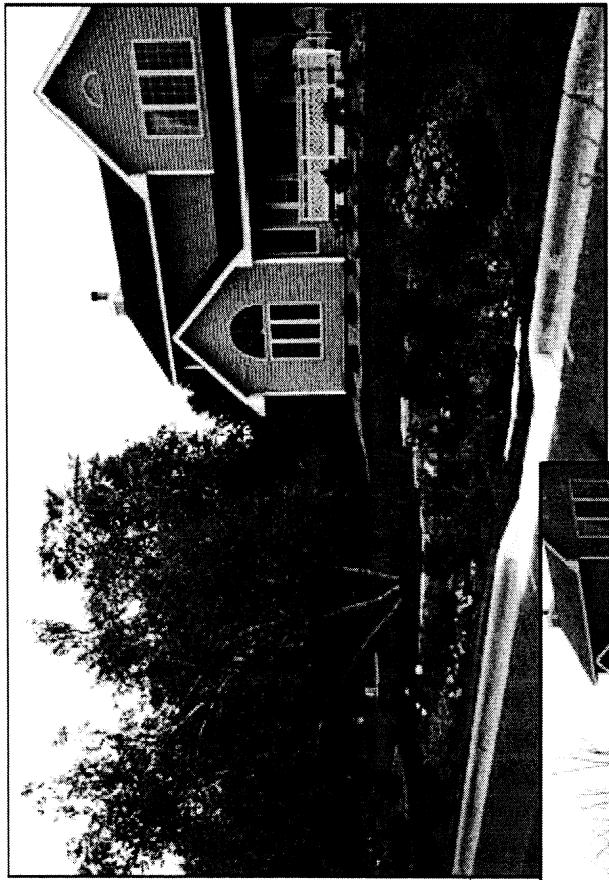
**In both Montgomery County and Corridor, the rough distribution is 1/3 roads, 1/3 parking lots, and 1/3 buildings.**

## Challenges

### Improving On-site Water Quality Through Infiltration



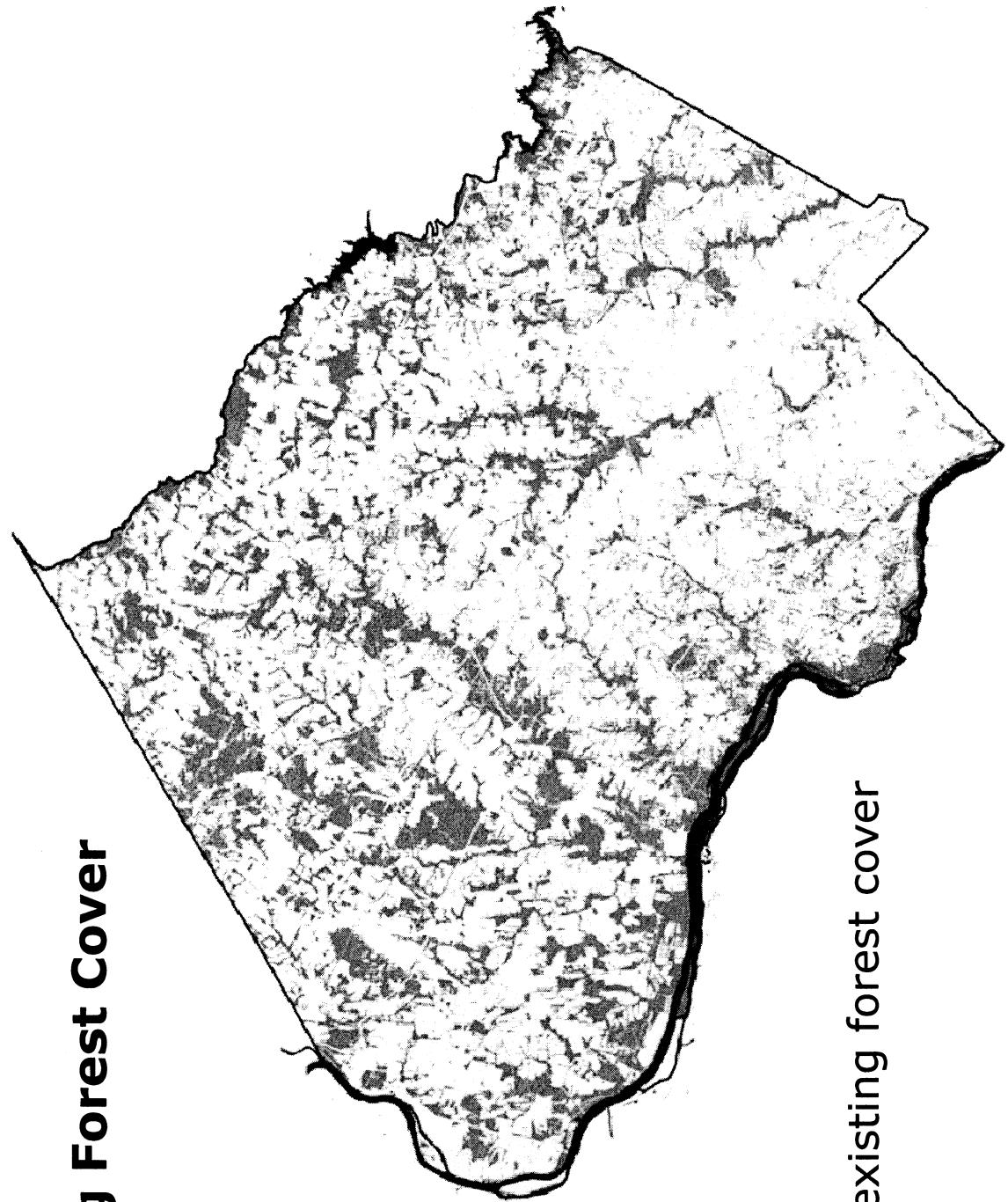
Creating  
greener  
streets



Rain garden  
before and  
after

## Challenges

### Increasing Forest Cover



Increasing existing forest cover  
from 30%

Health

## Challenges

### Supporting local food production

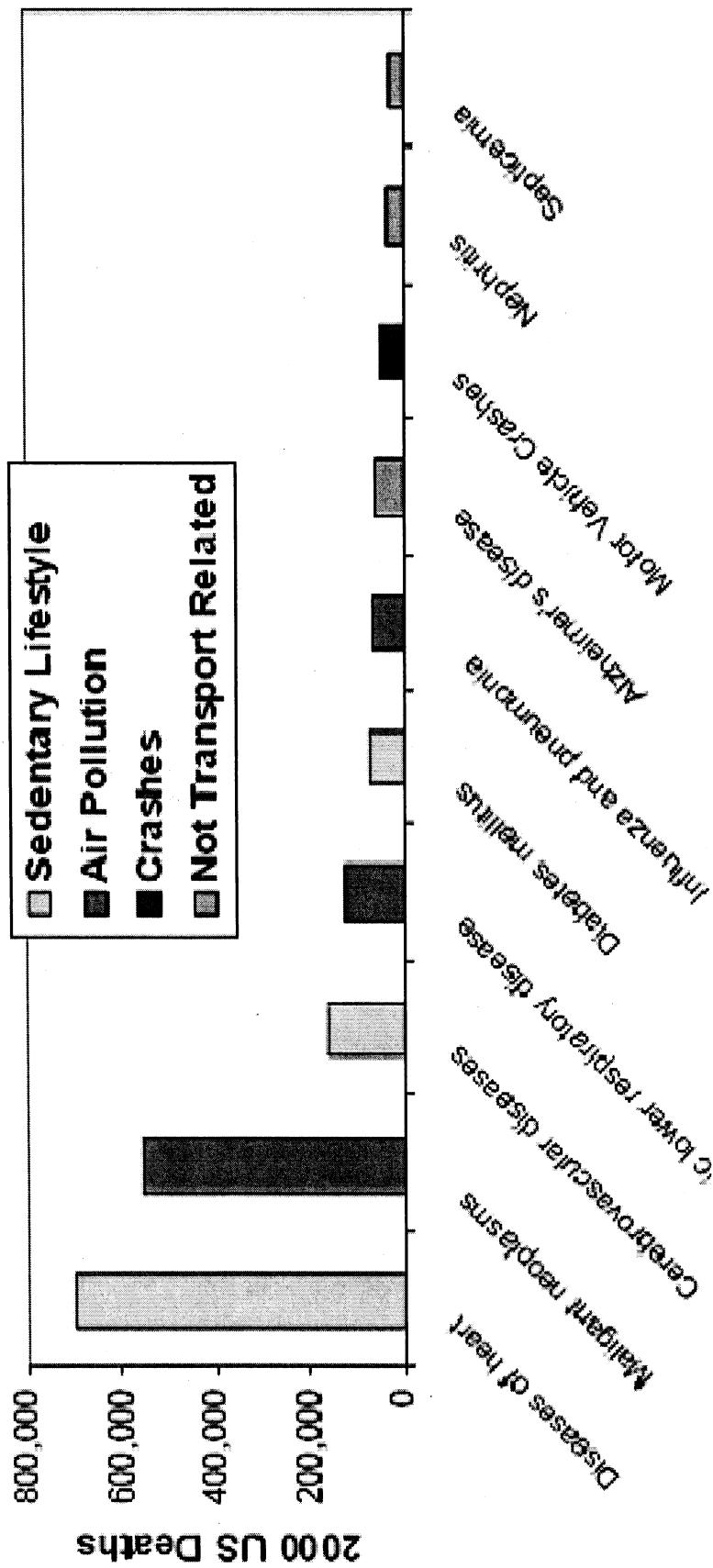
Providing more receiving areas for transfer development rights



# Health Challenges

**Improving access and providing for an active life style**

## Ten Leading Causes of U.S. Deaths



Source : Center for Disease Control and Prevention

## Actions

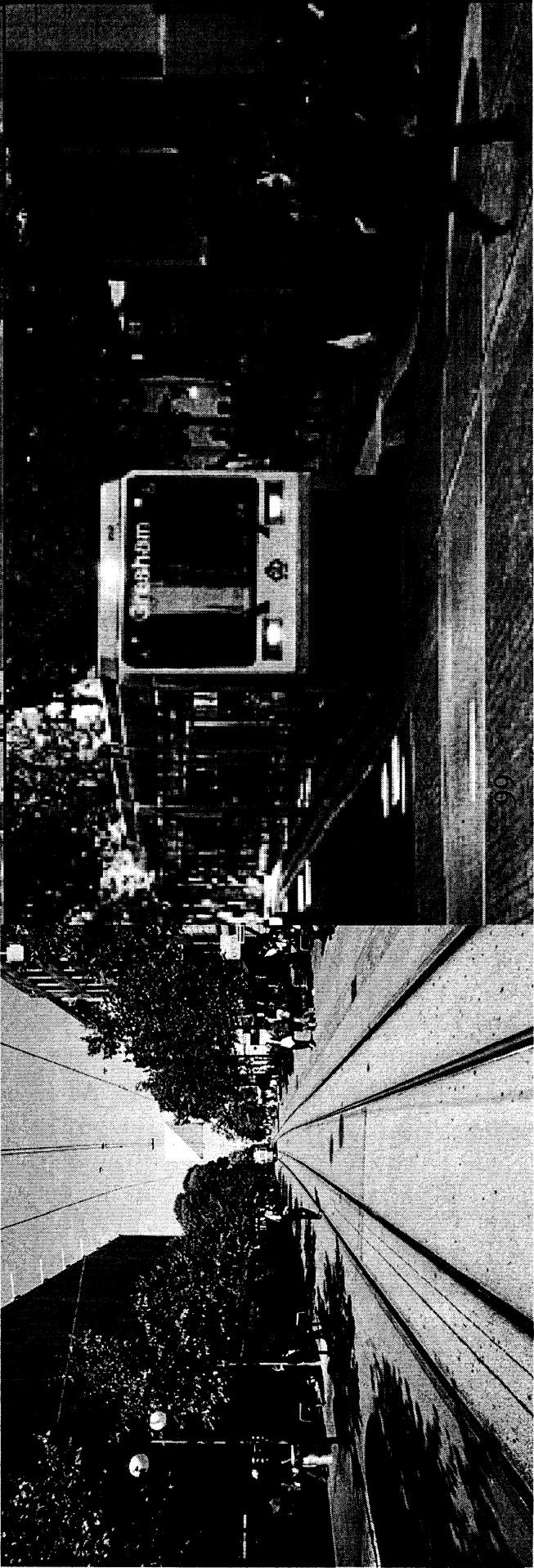
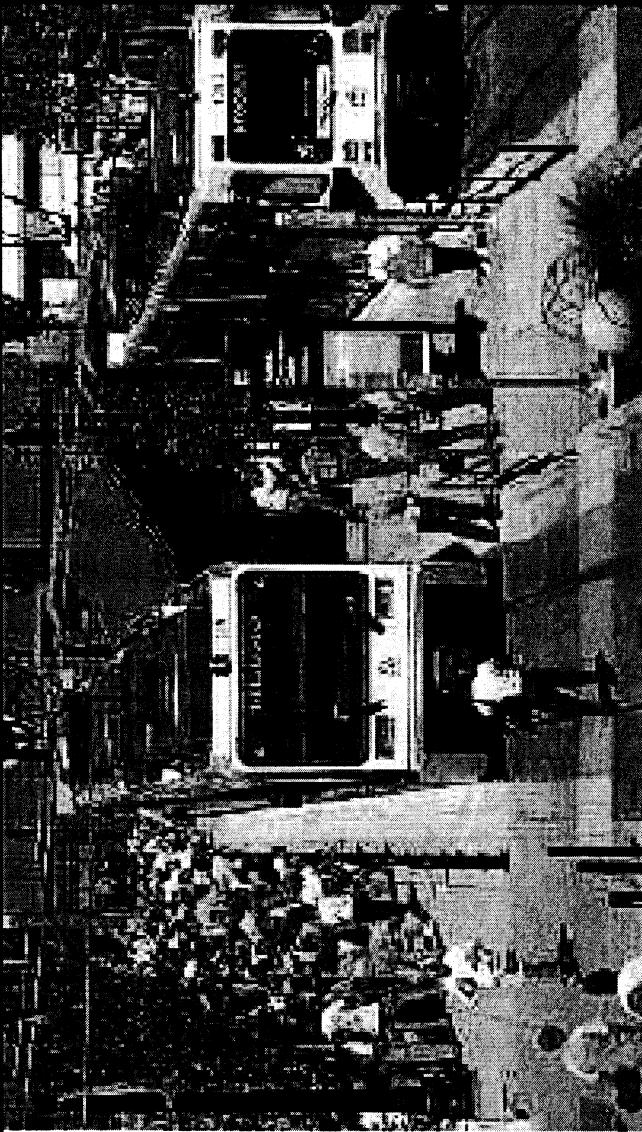
- Cut Carbon Dioxide**
- Provide Walkways and Bikeways**
- Plant Trees**
- Increase Infiltration**
- Provide Green Communities and Buildings**

Health

## Actions

### Cut Carbon Dioxide

**Reduce vehicle miles  
traveled by increasing  
transit options.**

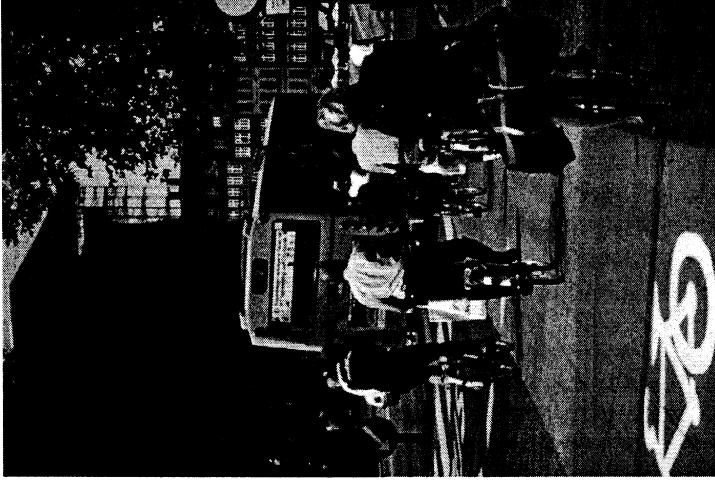
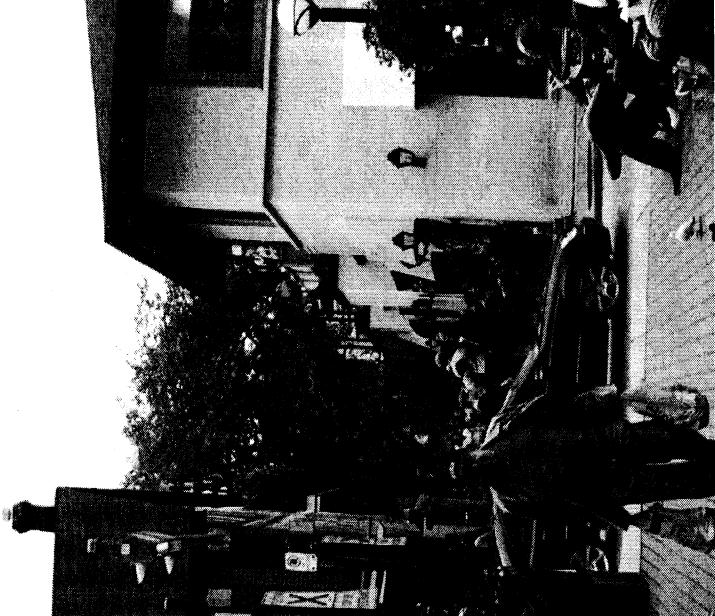


## Health

## Actions

### Provide Walkways and Bikeways

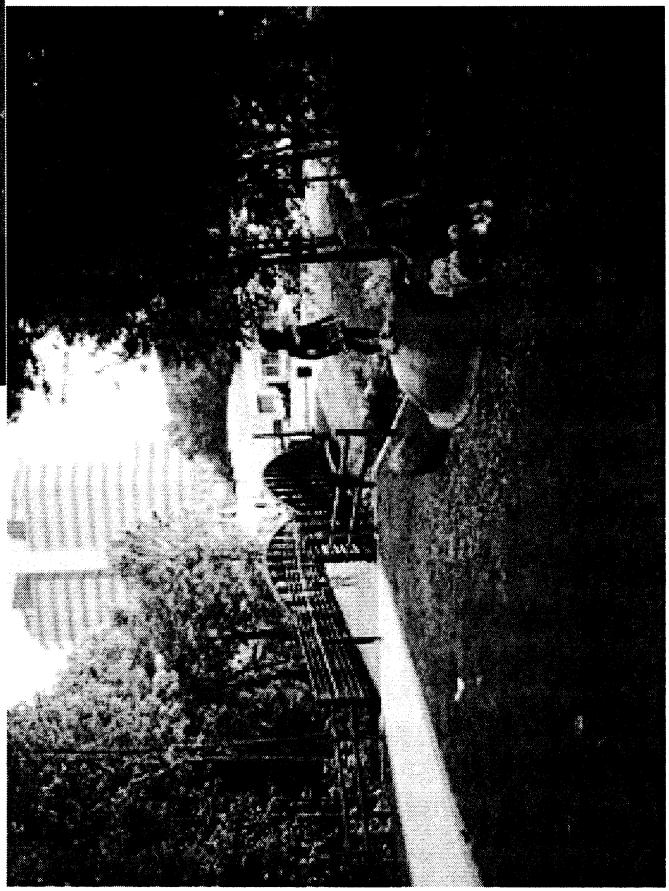
- Provide pathways conducive to biking
- Increase pedestrian access



Health

## Actions

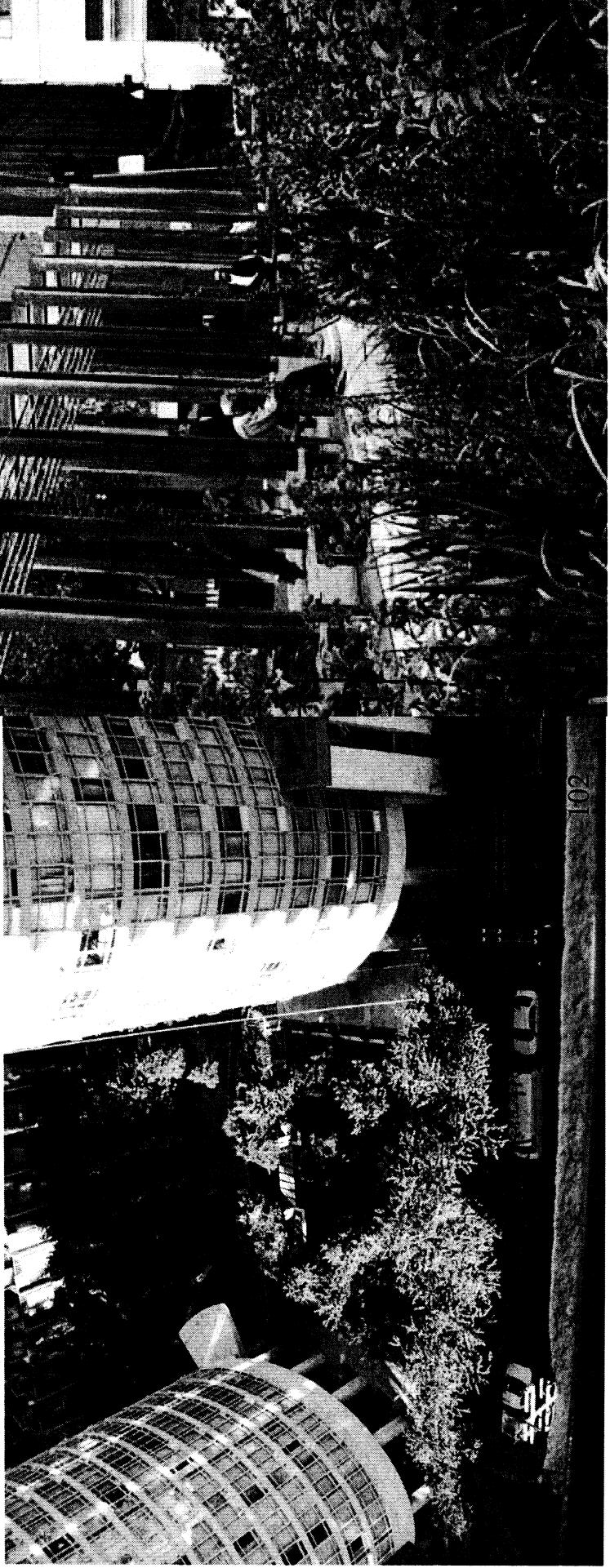
### Plant Trees



## Actions

### Increase Infiltration

- Provide more pervious surfaces**
- Increase planted areas**
- Provide green roofs**
- Establish rain gardens**

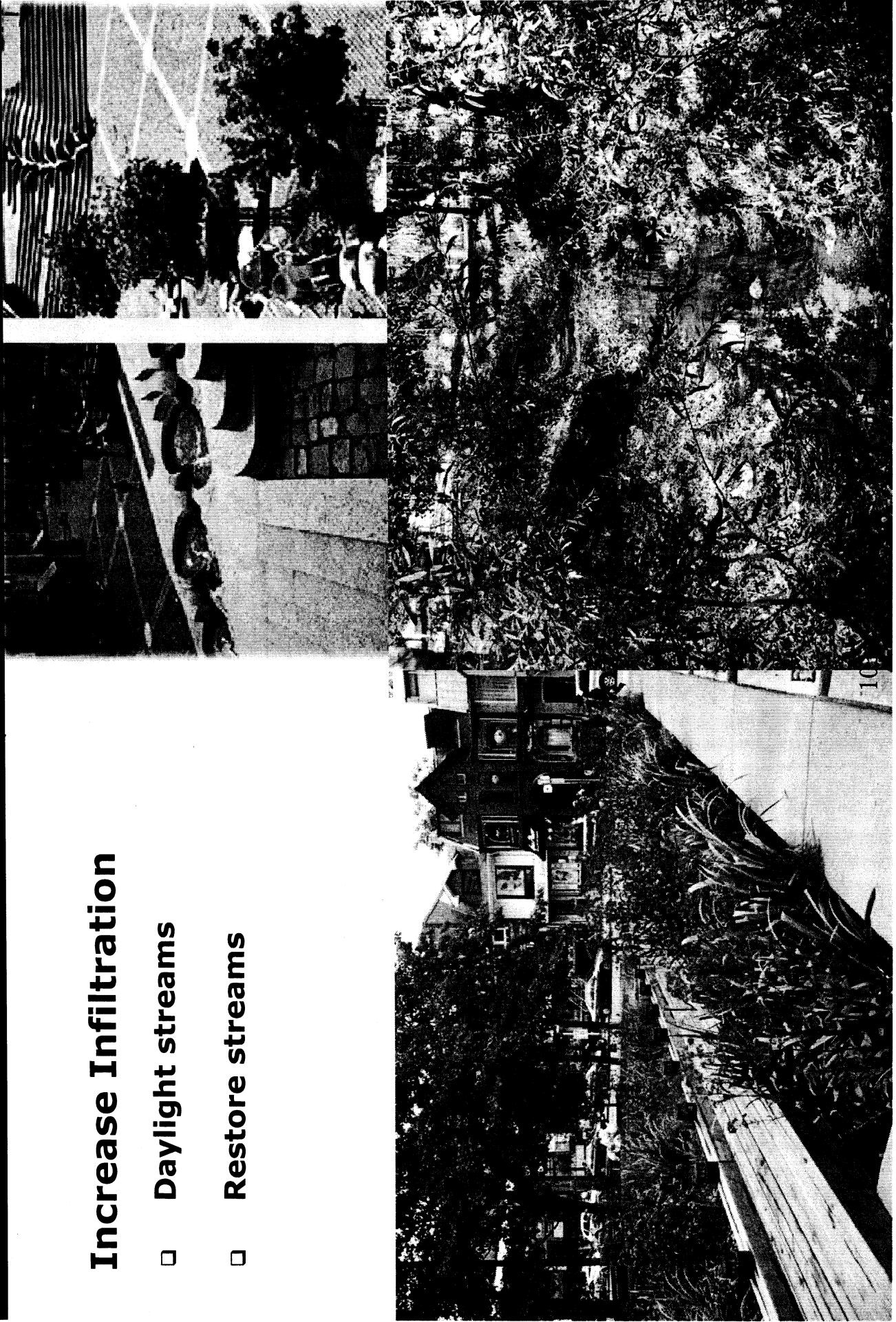


## Health

## Actions

### Increase Infiltration

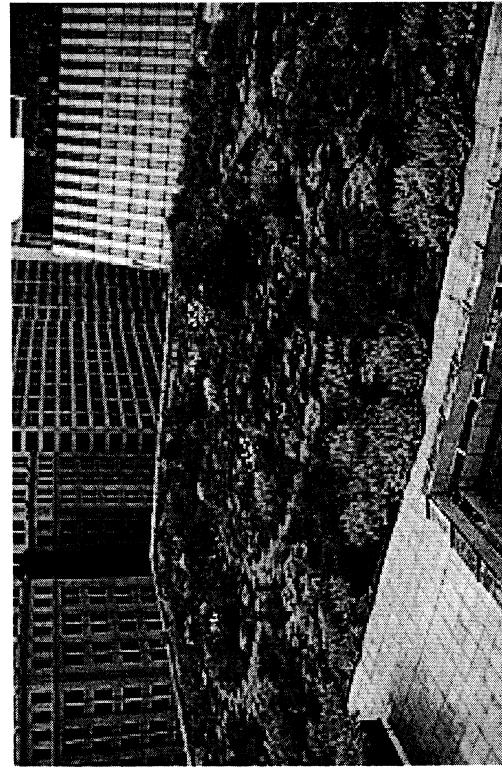
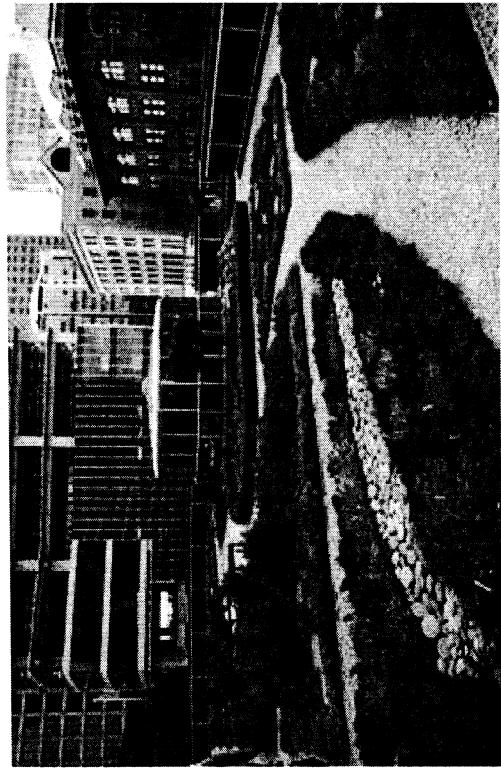
- Daylight streams
- Restore streams



Health

## Actions

### Foster Green Building Technology



**Chicago, Illinois City Hall**

104

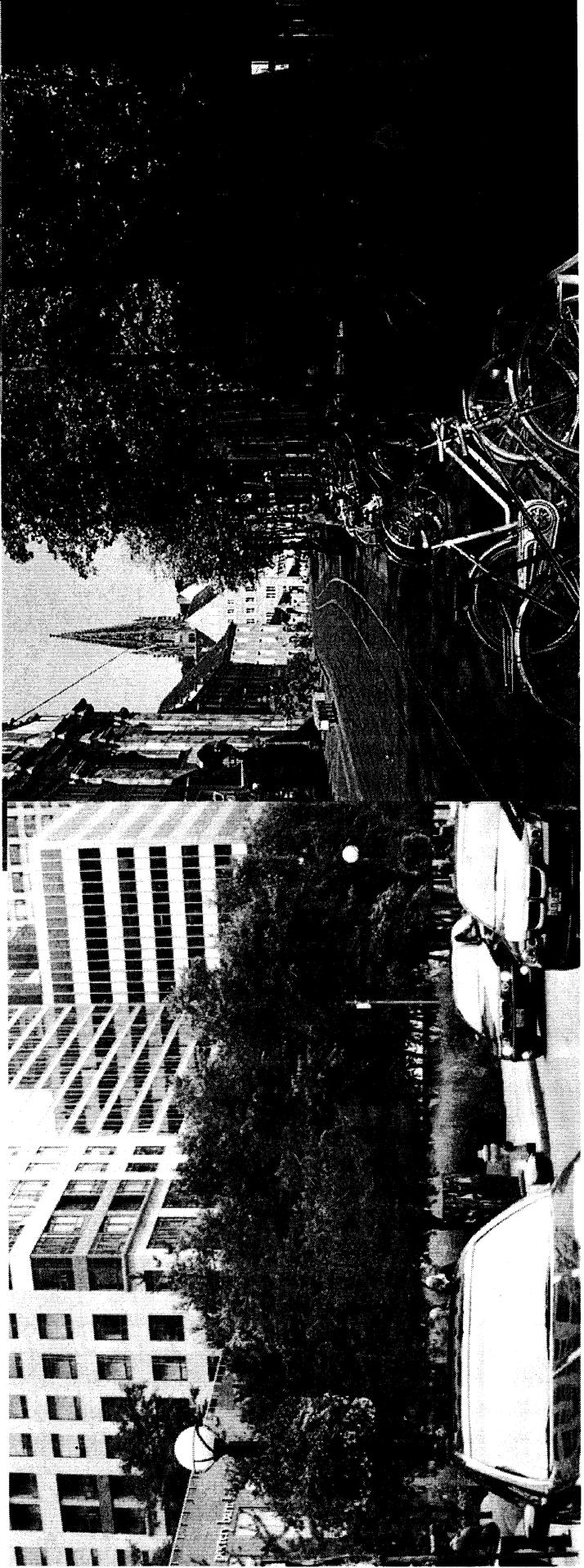
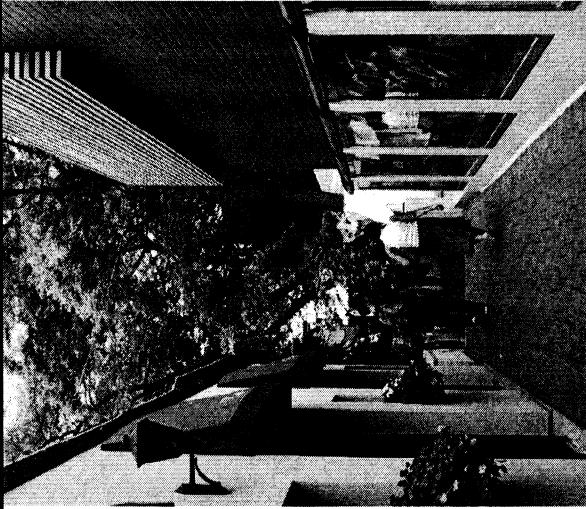
**Silver Spring, Co-Housing**

## Health

## Actions

### Create Green Communities

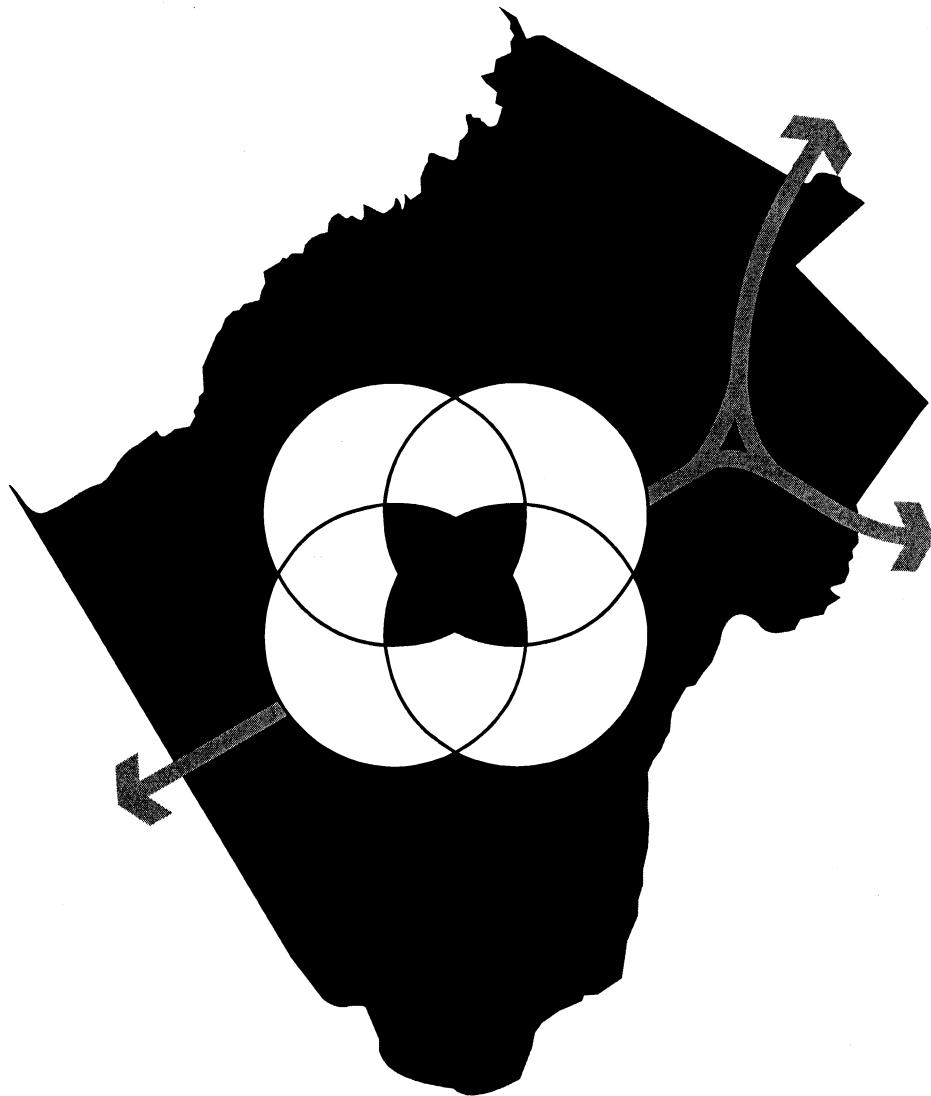
- Provide for a dense and green environment**
- Provide pedestrian networks**
- Establish bikeways**
- Improve transit options and transit access**





# **DESIGN**

## **Vision, Centers, Boulevard, Open Spaces, Landmarks (Character)**



**Montgomery County Planning Department**

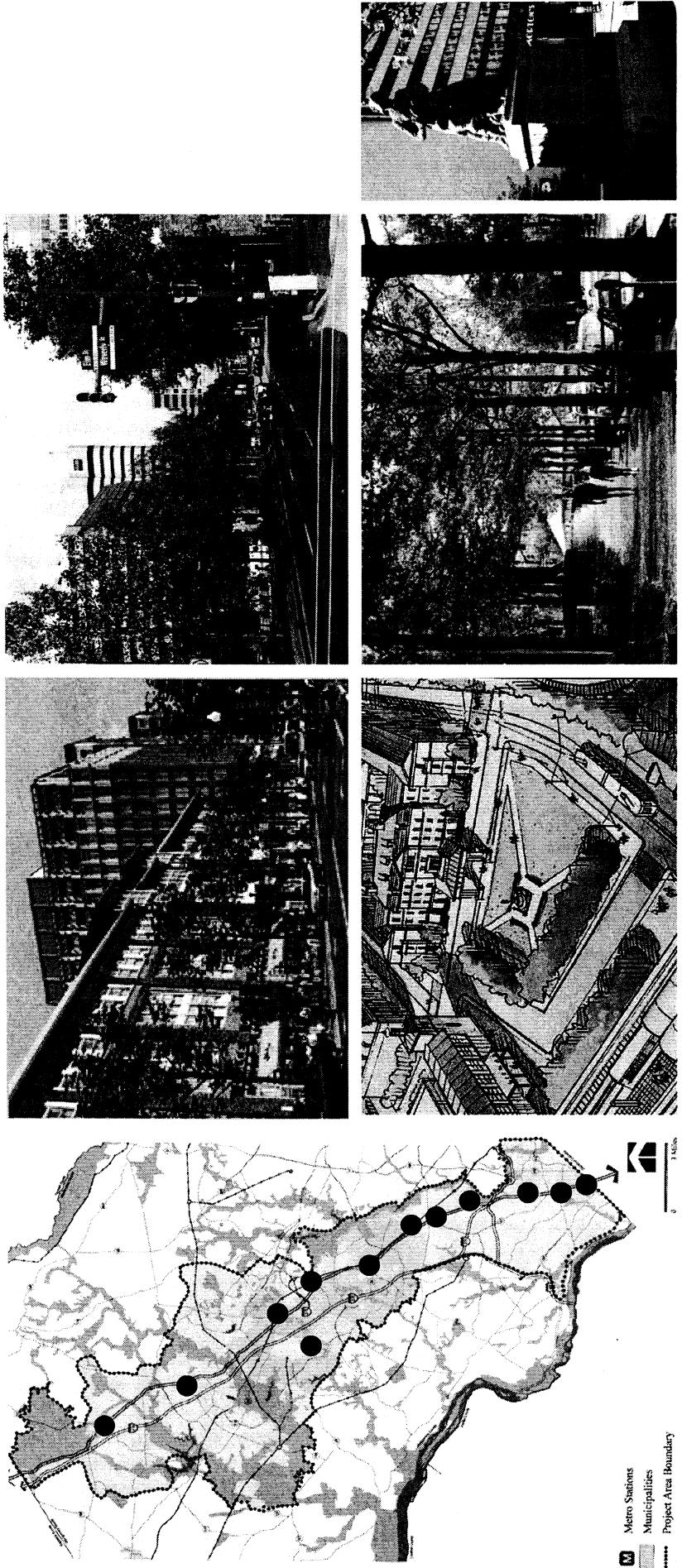
 The Maryland-National Capital Park and Planning Commission

# Design Issues

## Vision:

The MD 355/I-270 Technology Corridor from Friendship Heights to Frederick County will include the following elements:

- **Centers:** High quality pedestrian-oriented areas with private and public employment, local or regional retail, a mix of residential unit types, and historic villages
- **MD 355 Boulevard:** Main street with a variety of characteristics
- **Open Spaces:** Stream valley parks, residential areas and green space, and urban parks
- **Landmarks:** Place making features



# Issues

## **Macro Design Issues:**

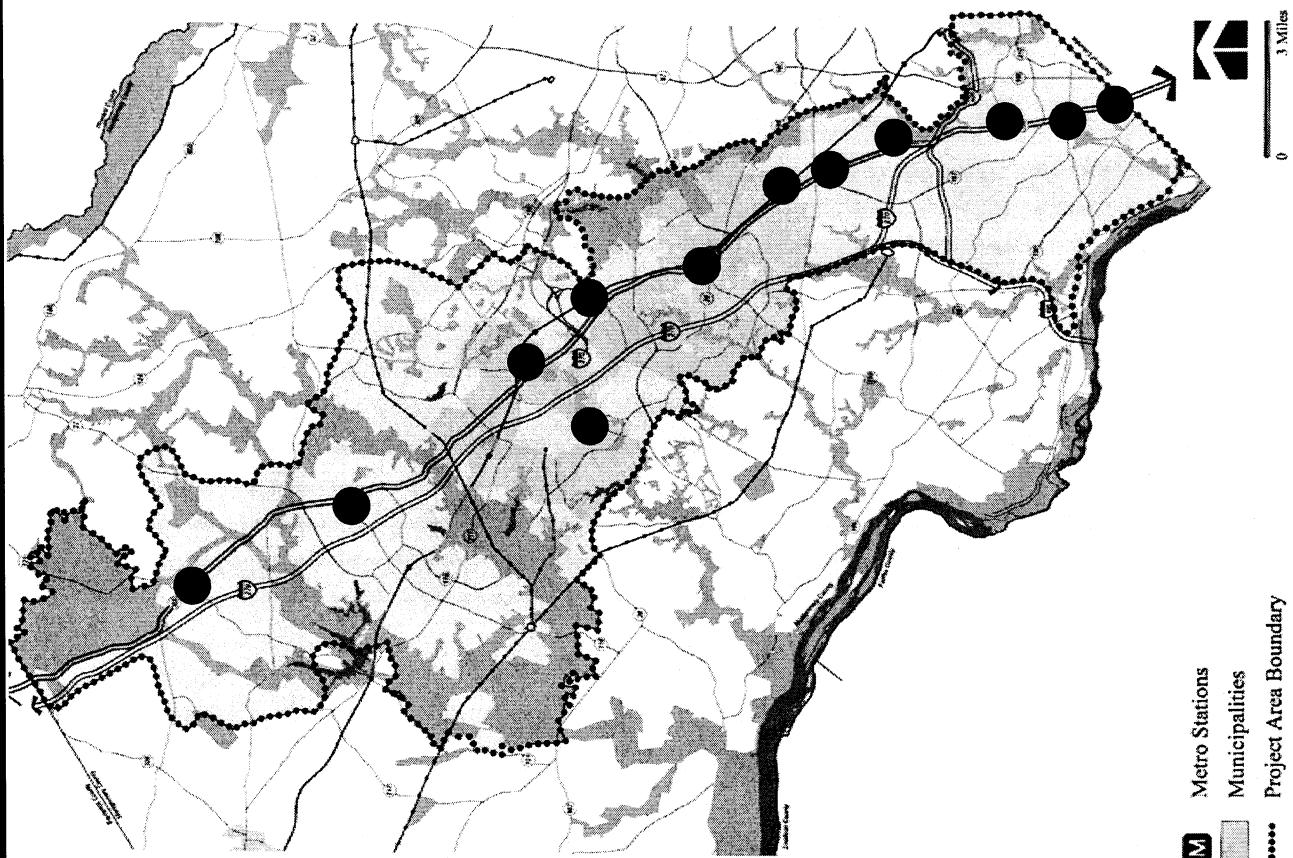
- Creating a hierarchy of centers
- Design for science and high tech
- Addressing economic functions and roles:

- Mixed-use CBDs
- Specialized centers (NIH)
- Life Sciences Centers (Shady Grove and Twinbrook)
- Housing Resources (Grosvenor and Shady Grove)
- Rockville (County Government Center)
- Historic Villages (Hyattstown and Clarksburg)

- Major parks and open spaces

## **Micro Design Issues:**

- Creating unique, livable centers
- Creating the MD 355 Boulevard
- Providing a hierarchy of open spaces
- Establishing place making features



M

Project Area Boundary

.....

Municipalities

3 Miles

109

# Challenges

## Creating Unique Centers, Transit Station Areas and Commercial Centers:

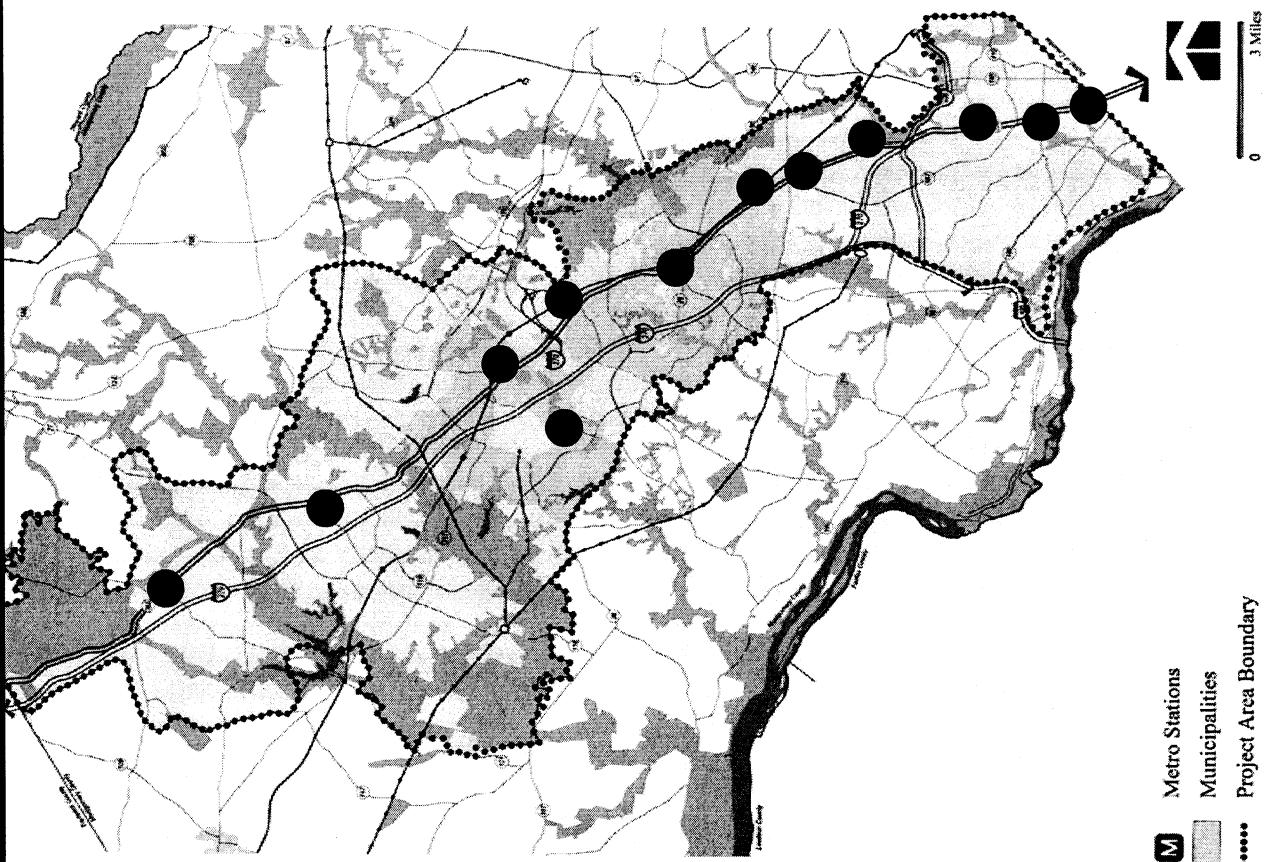
- Friendship Heights
  - Bethesda
  - NIH/Naval Medical
  - Grosvenor
  - White Flint\***
  - Twinbrook\***
  - City of Rockville
  - Shady Grove
  - City of Gaithersburg
  - Gaithersburg Vicinity West\***
  - Germantown Employment Corridor\***
  - Clarksburg
- Note: \*Plans Underway



## Challenges

### Planning for a Variety of Centers with Identifiable Functions and Roles:

- Friendship Heights
  - Bethesda
  - NIH/Naval Medical
  - Grosvenor
  - White Flint\***
  - Twinbrook\***
  - City of Rockville
  - Shady Grove
  - City of Gaithersburg
  - Gaithersburg Vicinity West\***
  - Germantown Employment Corridor\***
  - Clarksburg Town Center
- Note: \*Plans underway



## Design

# Challenges

## Planning for High Quality Mixed-use Centers (Prototype Center):

### Health:

- 1 Closely spaced street trees
- 2 Additional public use space
- 3 New stormwater management
- 4 Reduce vehicle miles traveled through mixed-use zoning, stronger pedestrian networks, and TDRs

### Work:

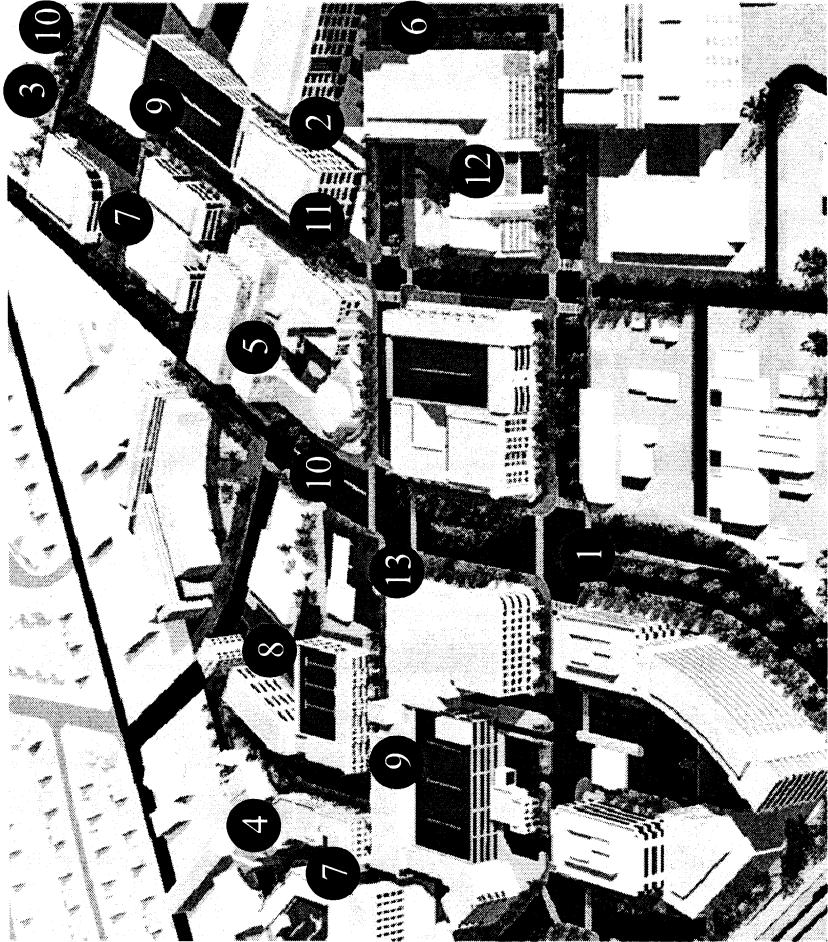
- 5 Plan and design for science clusters
- 6 Plan for collaborative public spaces
- 7 Flexible, mixed-use zoning including housing, retail, offices and laboratories

### Access:

- 8 Transportation Management District
- 9 Potential parking district
- 10 New facilities including streets and crosswalks

### Life:

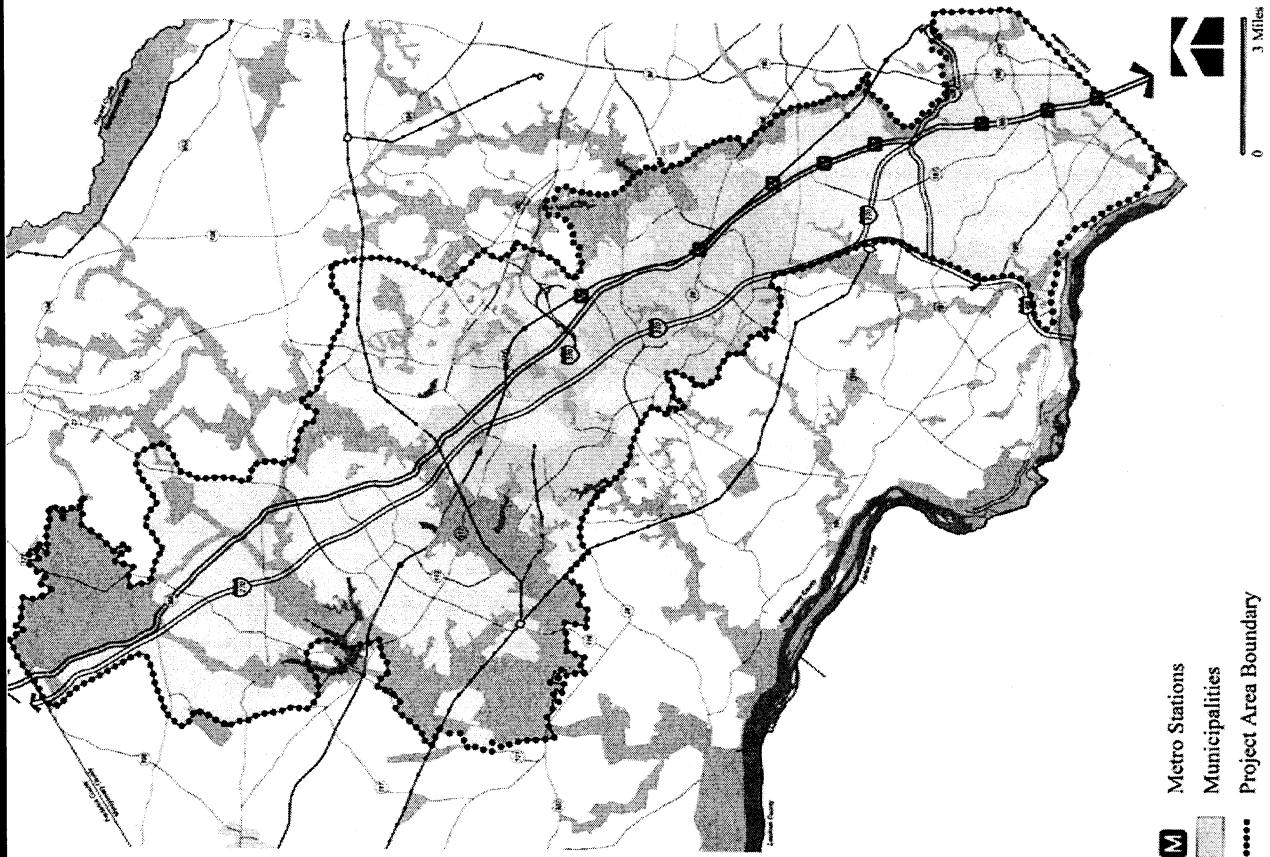
- 11 New public spaces
- 12 Place making features
- 13 Mixed-use including small scale retail



# Challenges

## Planning the MD 355 Boulevard:

- Recognizing the Variety of Functions
  - I-270 – Major freeway for long distance and through travel connections, auto oriented
  - MD 355 – County Main Street for local travel within and between centers, first impression and quality design, pedestrian oriented
  - Urban Streets – Centers of livability, pedestrian oriented
- Augmenting and Enhancing the Varied Character of MD 355:
  - Friendship Heights to I-495 – Maintaining and enhancing an Urban Boulevard and residential places
  - I-495 to Gaithersburg – Creating an Urban Boulevard
  - Germantown to Clarksburg – Establishing an Urban Boulevard
  - Clarksburg to Hyattstown – Maintaining a two lane rustic road



## Design

# Challenges

## Planning the **MD 355 Boulevard**

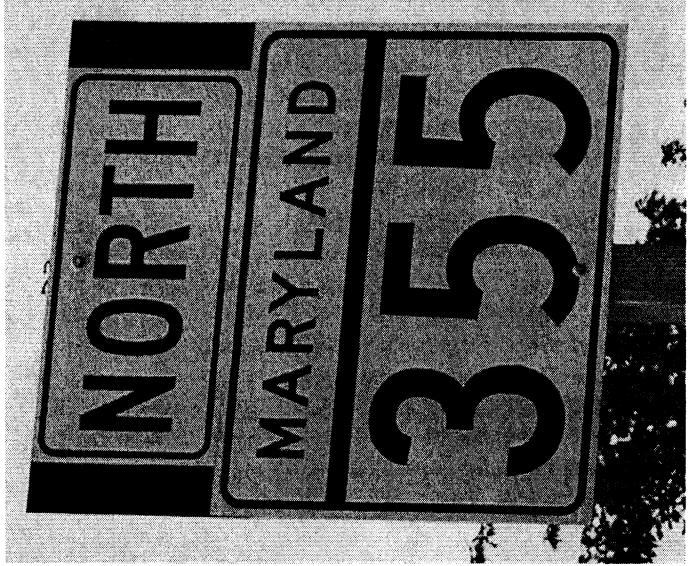
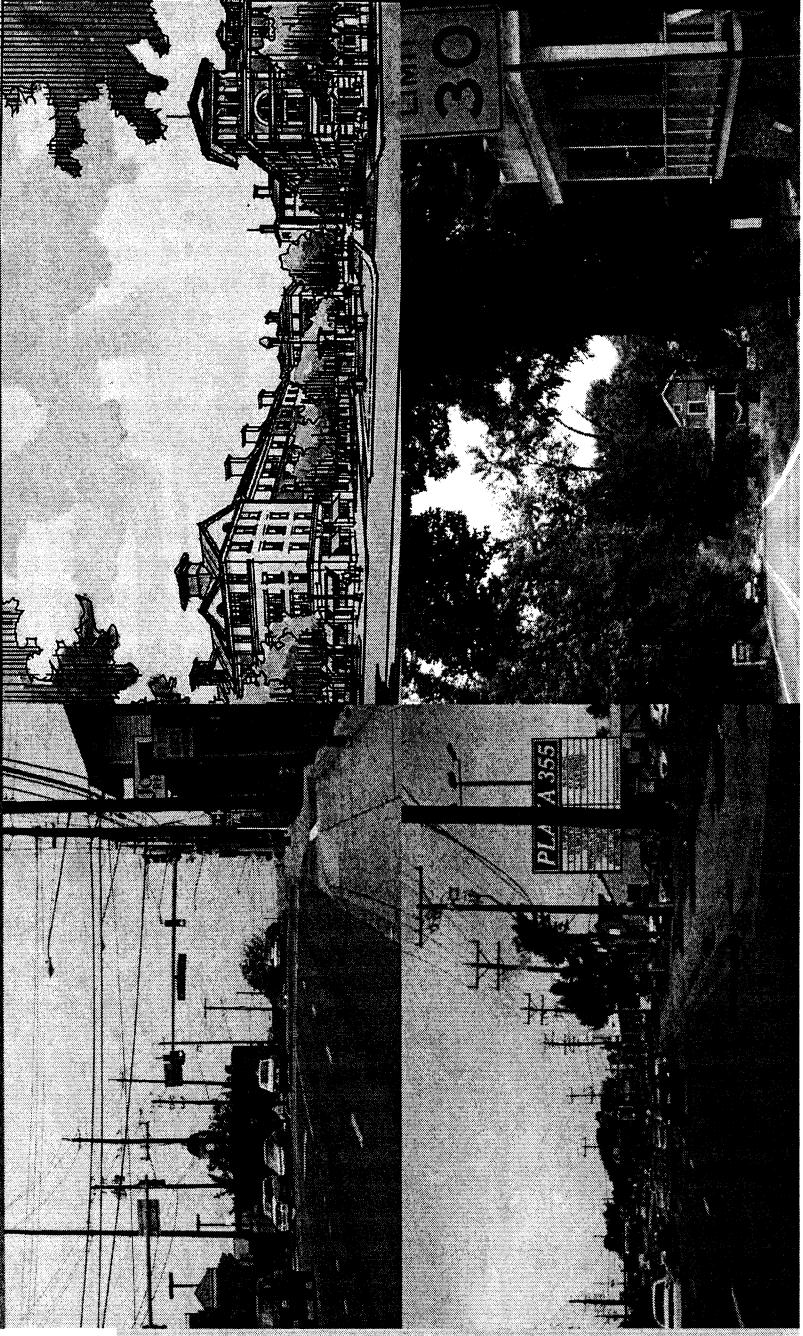
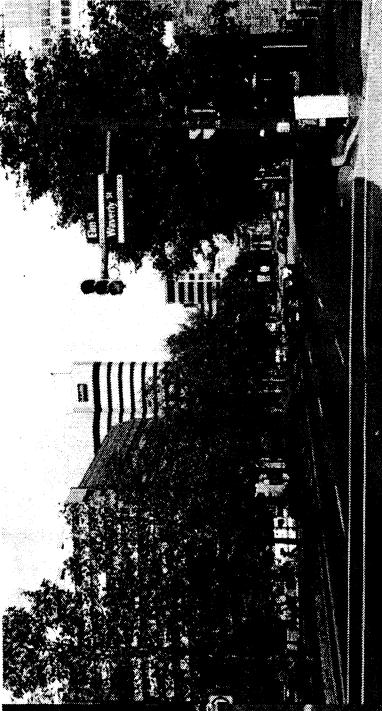
(Changing Character -  
Bethesda CBD to  
Hyattstown)

- Bethesda CBD - Urban
- Shady Grove - Suburban
- Hyattstown - Rural

## Existing Views



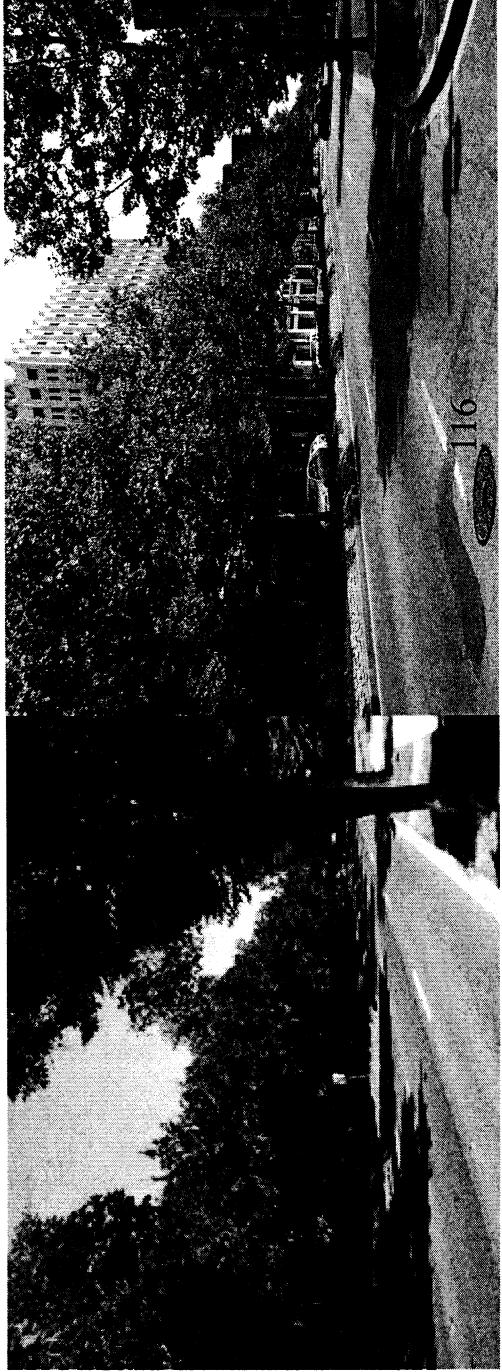
## Examples: Bethesda to Hyattstown



## Challenges

### Planning the MD 355 Boulevard (Examples):

- Wisconsin Place, MD 355/Wisconsin Avenue at Western Avenue, Friendship Heights
- MD 355/Wisconsin Avenue at Bethesda Avenue, Bethesda CBD
- MD 355/Wisconsin Avenue at East West Highway, Bethesda CBD
- MD 355/Wisconsin Avenue at Hamden Lane, Bethesda CBD
- Green Mile Between Friendship Heights and the Bethesda CBD



## Design

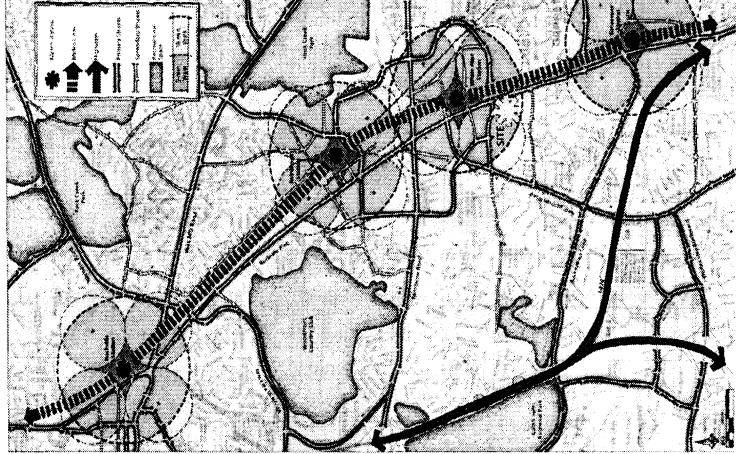
# Challenges

## Planning the MD 355 Boulevard in North Bethesda

### North Bethesda:

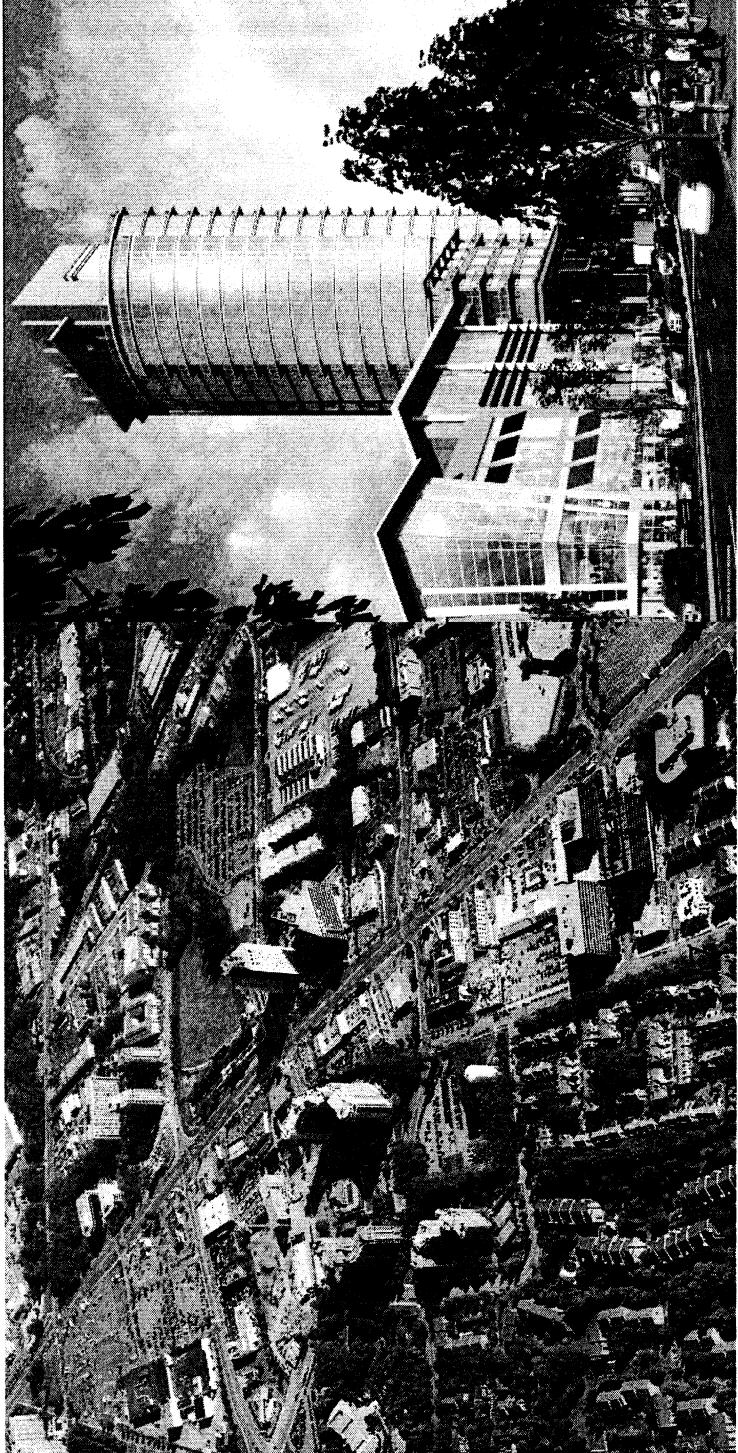
- Grosvenor
  - White Flint
  - Twinbrook
  - City of Rockville
- ### White Flint Metro Center Area
- ### White Flint Crossing

North Bethesda



White Flint Metro Station Area

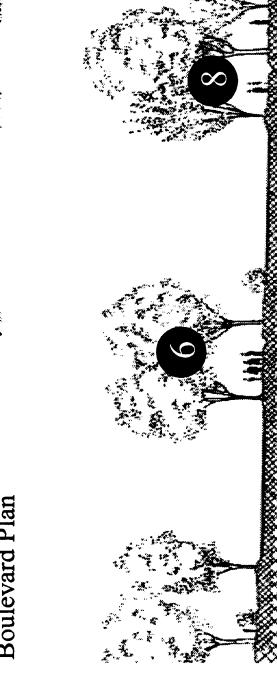
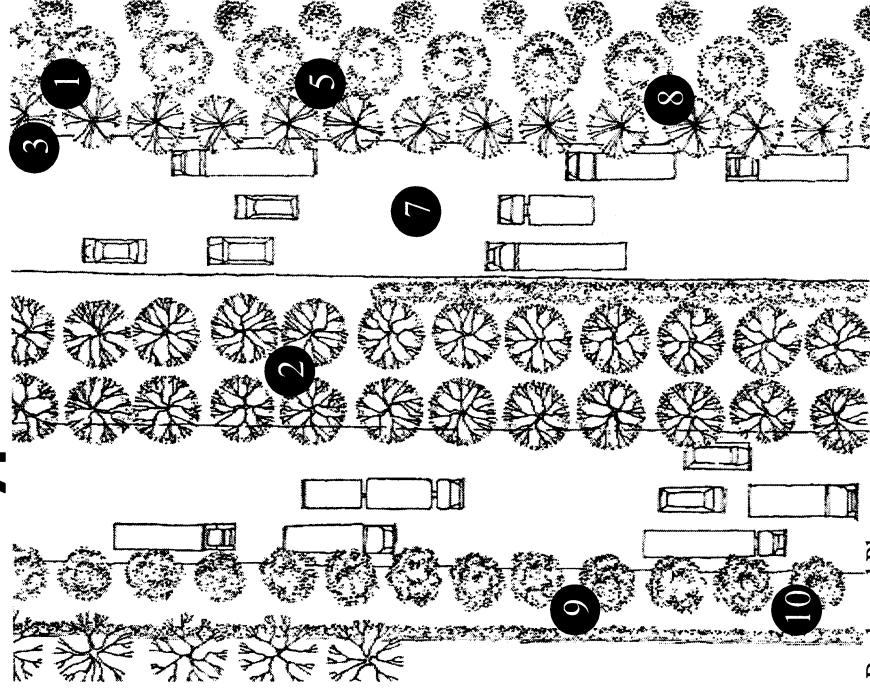
White Flint Crossing



## Design

# Challenges

## Prototype Boulevard:



## Health:

- 1 Closely spaced street trees
- 2 Minimize imperviousness
- 3 New stormwater management

## Work:

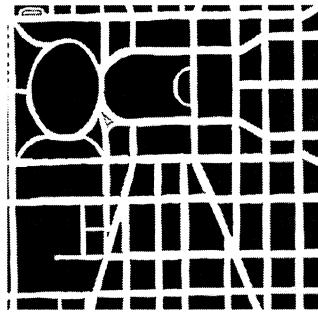
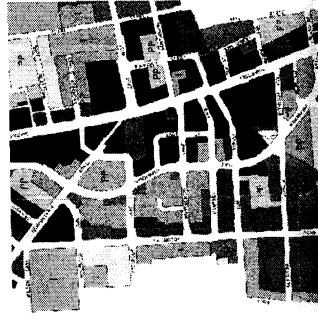
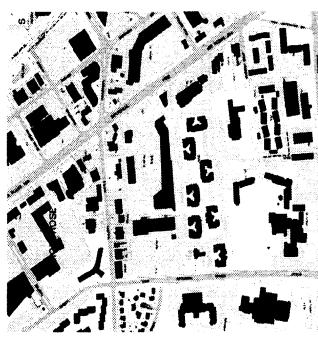
- 4 Plan for a grid of streets
- 5 Plan for collaborative public spaces

## Access:

- 6 Variety of streets and boulevards (wide tree lined streets to 2 lane rural roads)
- 7 Context sensitive streets
- 8 Sidewalks and crosswalks for pedestrians

## Life:

- 9 Special street furniture (lights, benches)
- 10 Public spaces activated by retail



Sample: Grid of Streets

## Challenges

### Providing High Quality Open Spaces including Urban Parks and Public Spaces:

#### Stream Valley and Regional Parks:

- Rock Creek Stream Valley Park
- Germantown Buffer
- Great Seneca Park
- Little Bennett Regional Park

#### Residential Areas and Green Space:

- Green Mile

- NIH to Grosvenor

- Clarksburg Transit Corridor

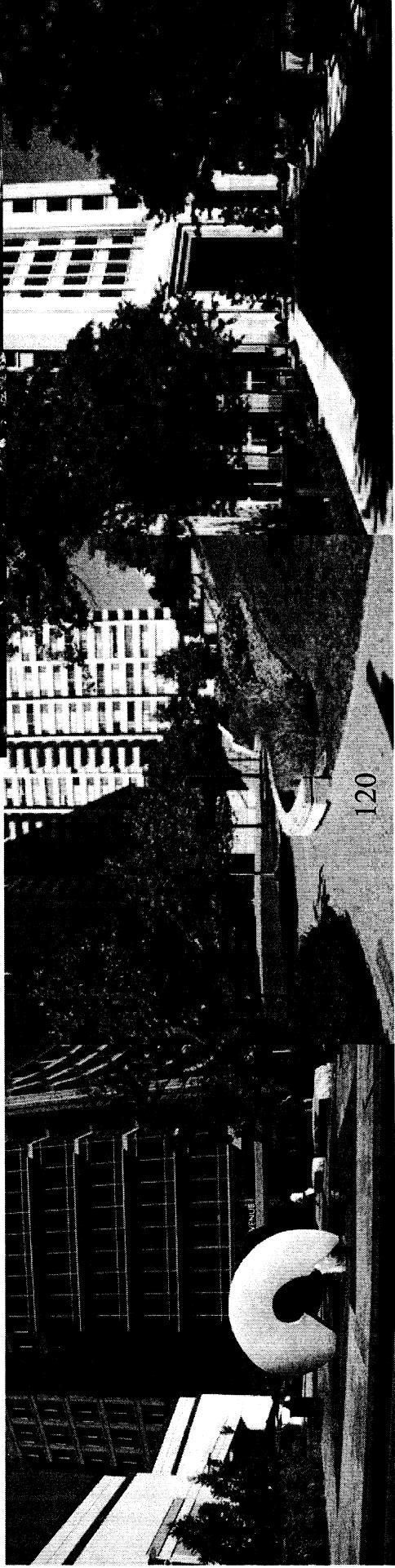
#### Urban Parks and Public Open Spaces:

- Friendship Place Plaza
- Bethesda Metro Center/Chevy Chase Bank Park
- Twinbrook Station Public Park
- Shady Grove Metro Park
- Clarksburg Triangle Park

## Challenges

### Providing High Quality Open Spaces including Urban Parks and Public Spaces

- Friendship Place Plaza
- Western Avenue
- Village of Friendship Heights Park
- Chevy Chase Land Company Park
- Barlow Building Park
- Wisconsin Avenue at Willard Avenue

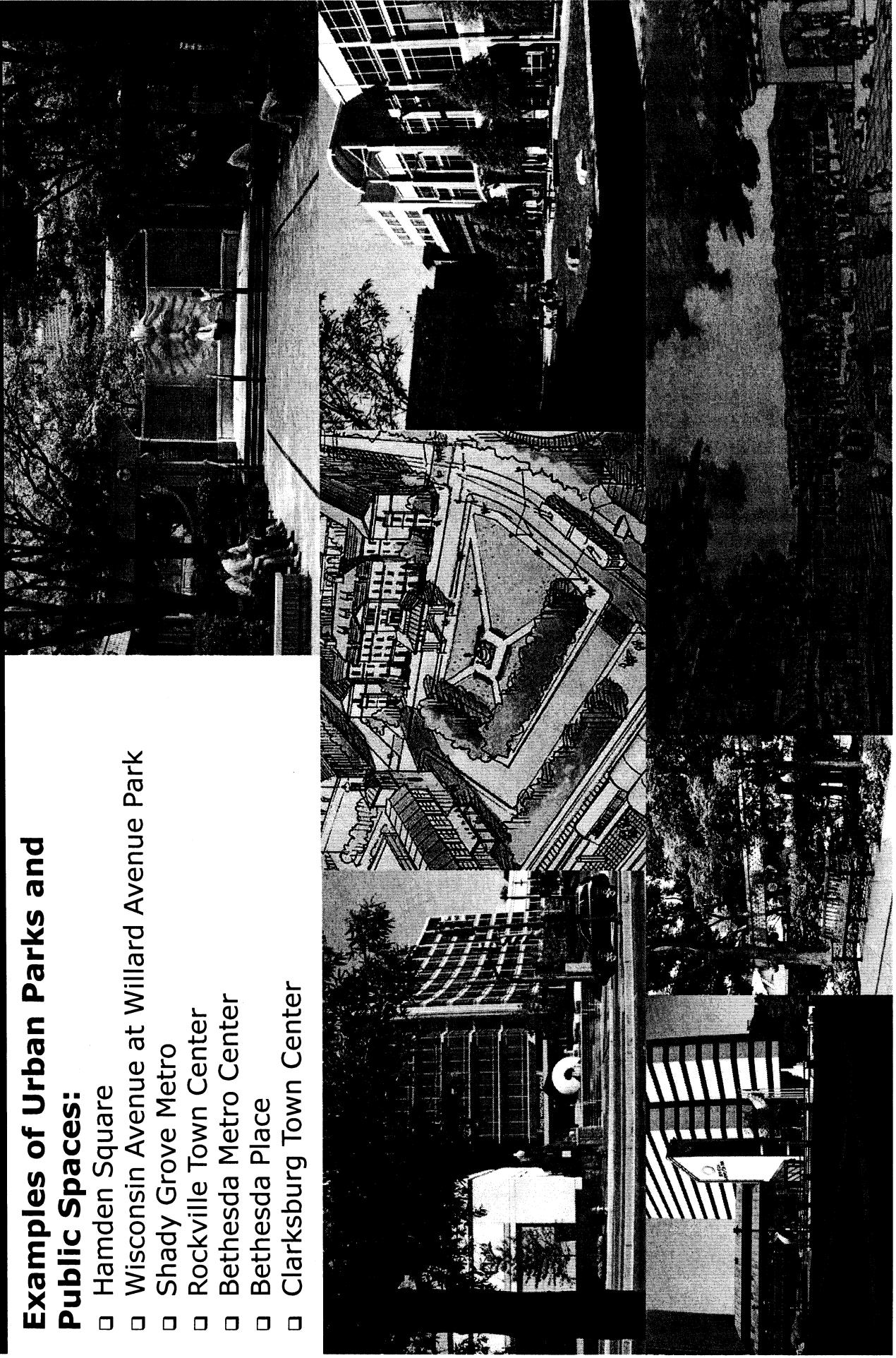


## Design

# Challenges

### Examples of Urban Parks and Public Spaces:

- Hamden Square
- Wisconsin Avenue at Willard Avenue Park
- Shady Grove Metro
- Rockville Town Center
- Bethesda Metro Center
- Bethesda Place
- Clarksburg Town Center



## Design

# Challenges

## Providing a Range of Open Spaces : (Typology of Spaces)

### Stream Valley Parks:

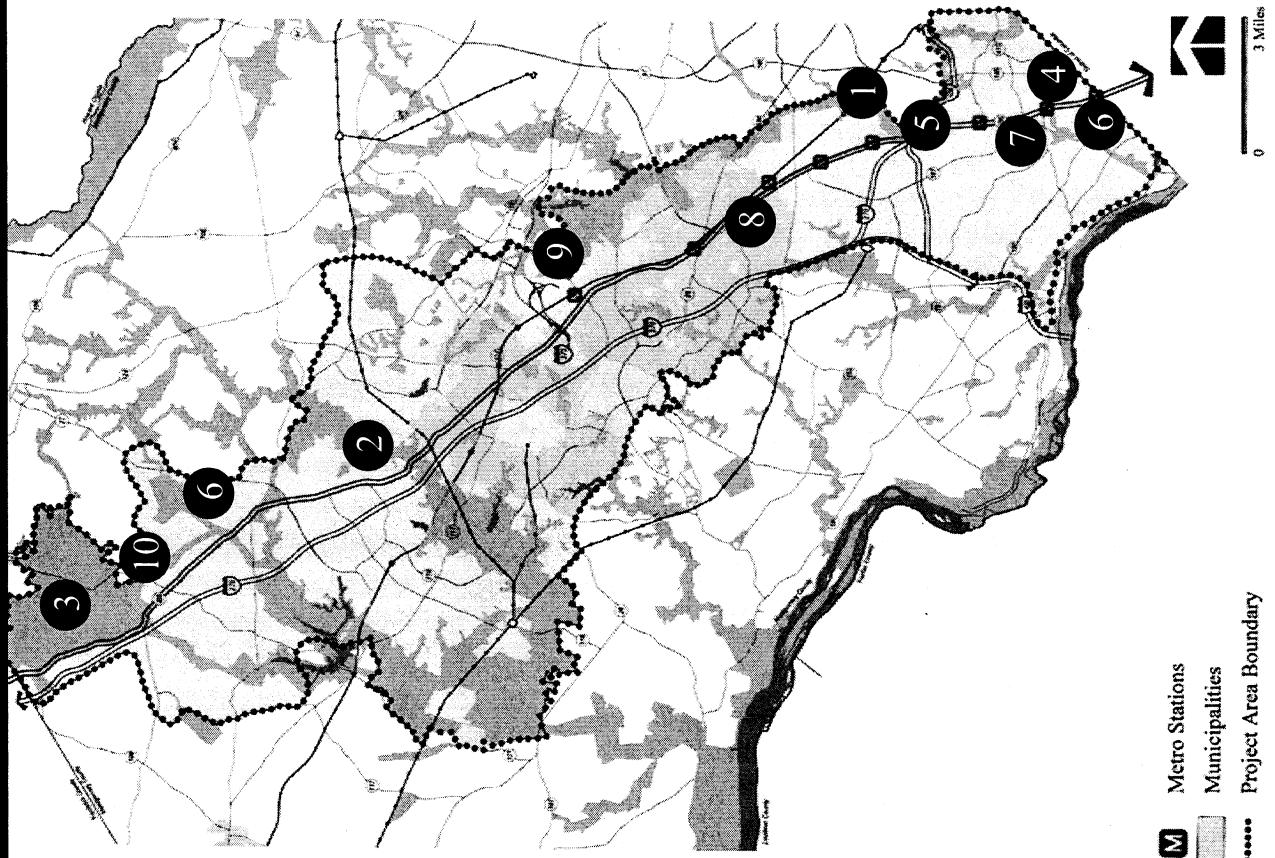
- 1 Rock Creek Stream Valley Park
- 2 Germantown Buffer
- 3 Little Bennett Regional Park

### Residential Areas and Green Space:

- 4 Green Mile
- 5 NIH to Grosvenor
- 6 Clarksburg Transit Corridor

### Urban Parks and Public Open Spaces:

- 6 Friendship Place Plaza
- 7 Bethesda Metro Center/Chevy Chase Bank Park
- 8 Twinbrook Station Public Park
- 8 Shady Grove Metro Park
- 10 Clarksburg Triangle Park



## Challenges

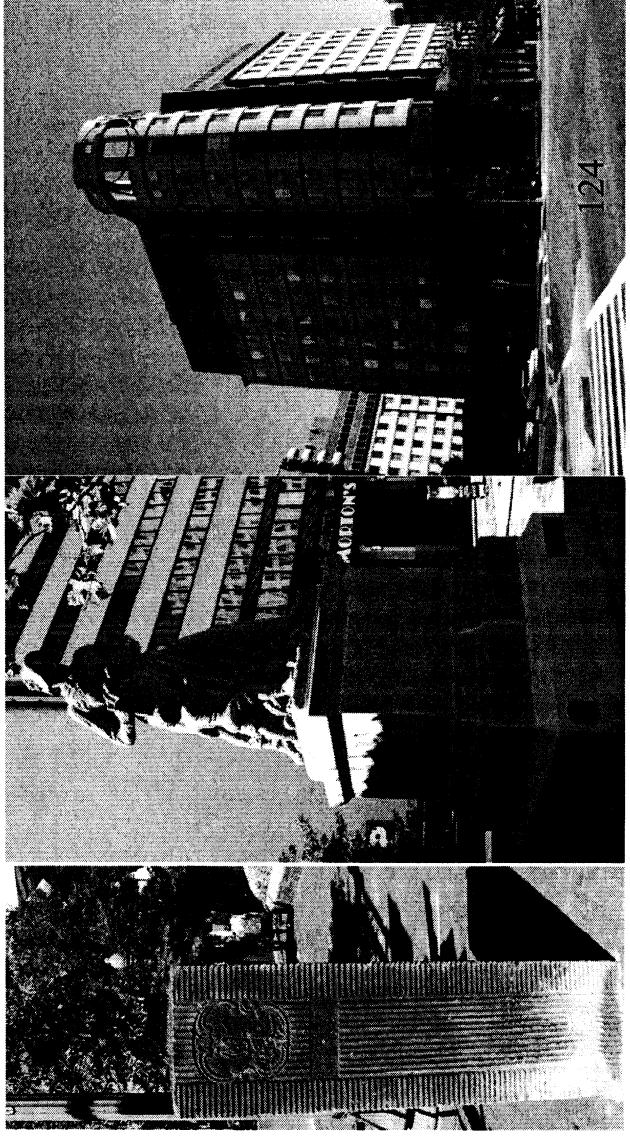
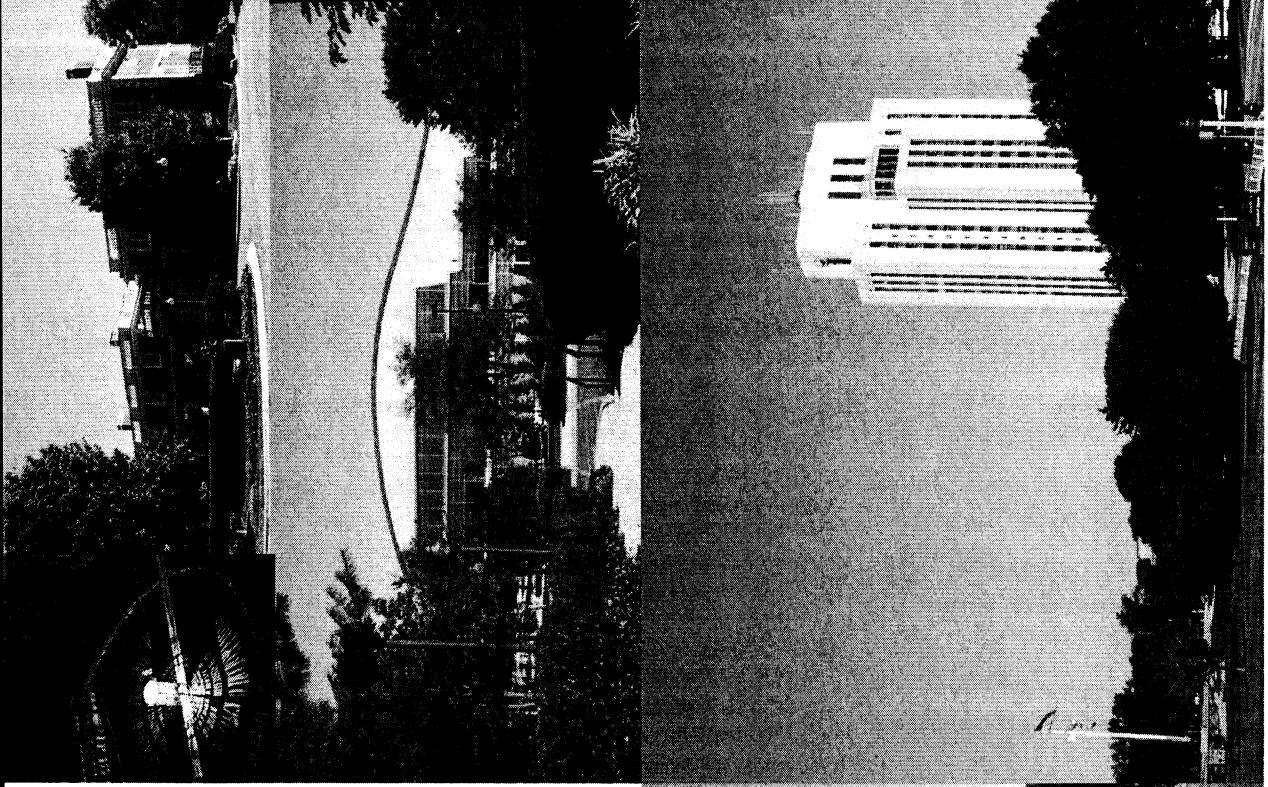
### **Establishing Landmarks and Icons (Place Making Features):**

- D.C. Marker, Friendship Heights
- Madonna of the Trails
- Bethesda Crescent Building
- Bethesda Naval Medical Building
- Strathmore Hall and Cultural Center
- NRC Building, White Flint
- St. Elizabeth's Church, Rockville
- COMSAT Building, Clarksburg

## Challenges

### Establishing Landmarks and Icons:

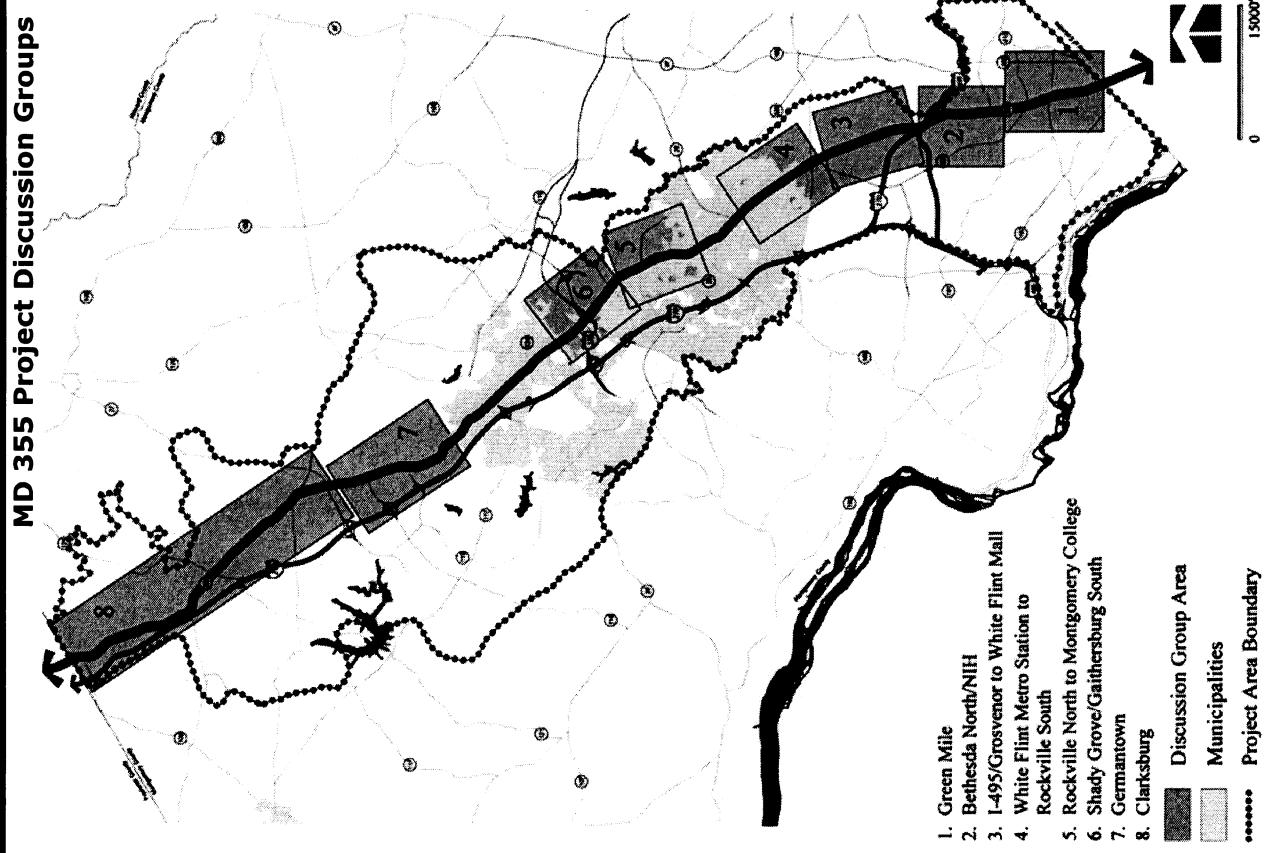
- White Flint Crossing Public Art, North Bethesda
- Strathmore Hall/Corby Mansion
- Strathmore Concert Hall
- D.C. Marker, Friendship Heights
- Madonna of the Trails, Bethesda
- Bethesda Crescent Building and Public Art
- Bethesda Naval Medical Building



# Design Actions

## Summary of Community Recommendations:

1. Green Mile
2. Bethesda North/NIH/Naval Medical
3. I-495/Grosvenor to White Flint Mall
4. White Flint Metro Station to Rockville South
5. Rockville North to Montgomery College
6. Shady Grove/Gaithersburg South
7. Germantown
8. Clarksburg



# Design Actions

## **Green Mile**

Wisconsin Avenue (MD 355) between Friendship Heights and the Bethesda Central Business District

### **Vision**

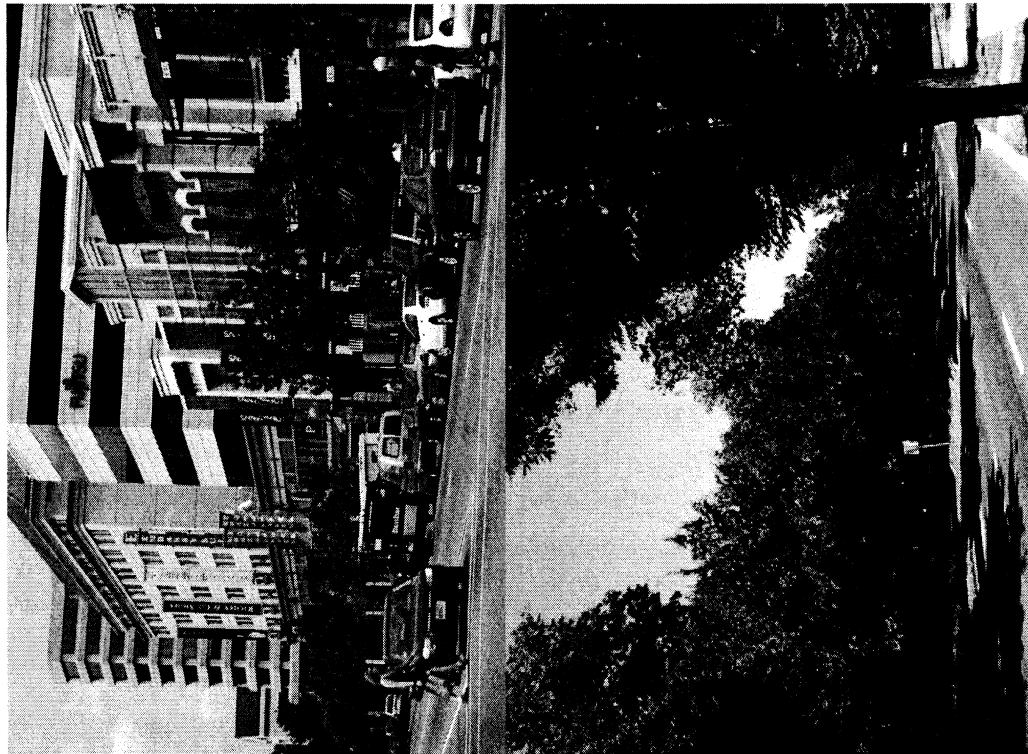
“The Green Mile” - a Grand Boulevard that preserves the existing green and residential character

### **Character**

- A Grand Boulevard
- Wide median with trees and sidewalks
- Enhance existing green character
- Improve bike connections
- Provide additional public transit
- Prohibit commercial encroachment
- Retain building setbacks

### **Actions**

- Create a special MD 355 Plan
- Apply an overlay zone
- Enforce development standards
- Reduce and enforce speed limits



## Design Actions

### Bethesda North/NIH

#### Woodmont Triangle - Wisconsin Avenue Between Battery Lane and I-495

##### **vision**

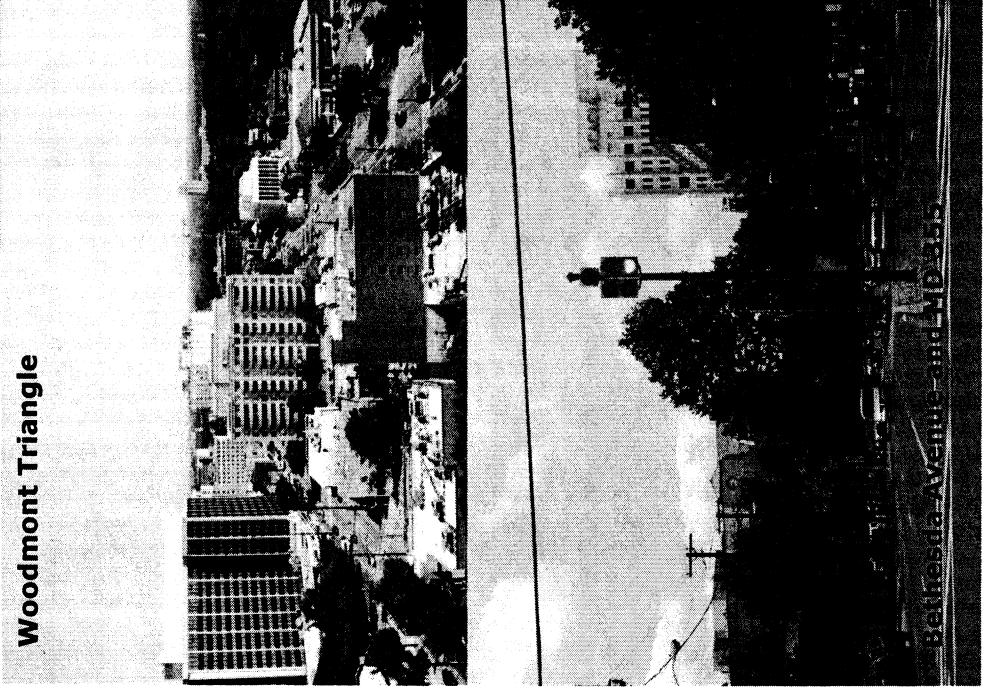
MD 355 is an attractive, pedestrian-friendly, and community-oriented retail gateway into the Bethesda CBD

##### **Character**

- Retain special character of the CBD
- Accessible green space
- Provide retail and service
- Provide affordable housing

##### **Actions**

- Establish mixed-use zones
- Retain small and local businesses
- Expand medians
- Provide street trees
- Provide sidewalks

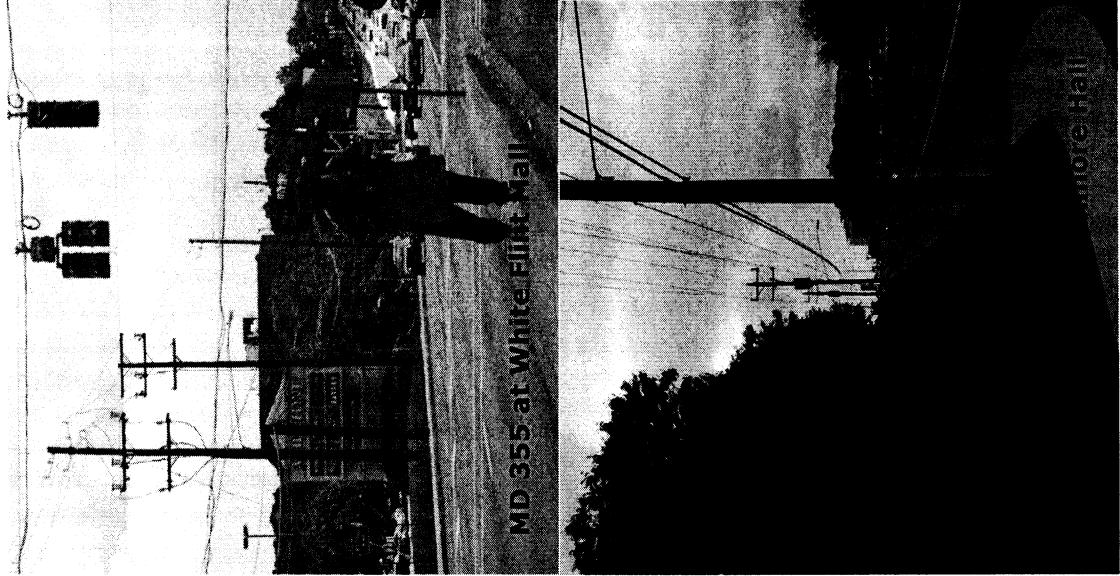


## Design Actions

### I-495/Grosvenor to White Flint Mall

#### Vision

MD 355 is a boulevard with residential and retail mixed-use with multiple transportation options and connectivity to residential areas, and Metro stations



#### Character

- Green space
- Pocket parks
- Transportation alternatives
- Pedestrian safety
- Pedestrian access
- Improved bikeways
- Signage along MD 355
- Adequate parking
- Civic uses
- Road connectivity

#### Actions

- Limit Special Exceptions
- Establish a transportation management program
- Improve access from neighborhoods

## Design Actions

### White Flint Metro Station to Rockville South

#### Vision

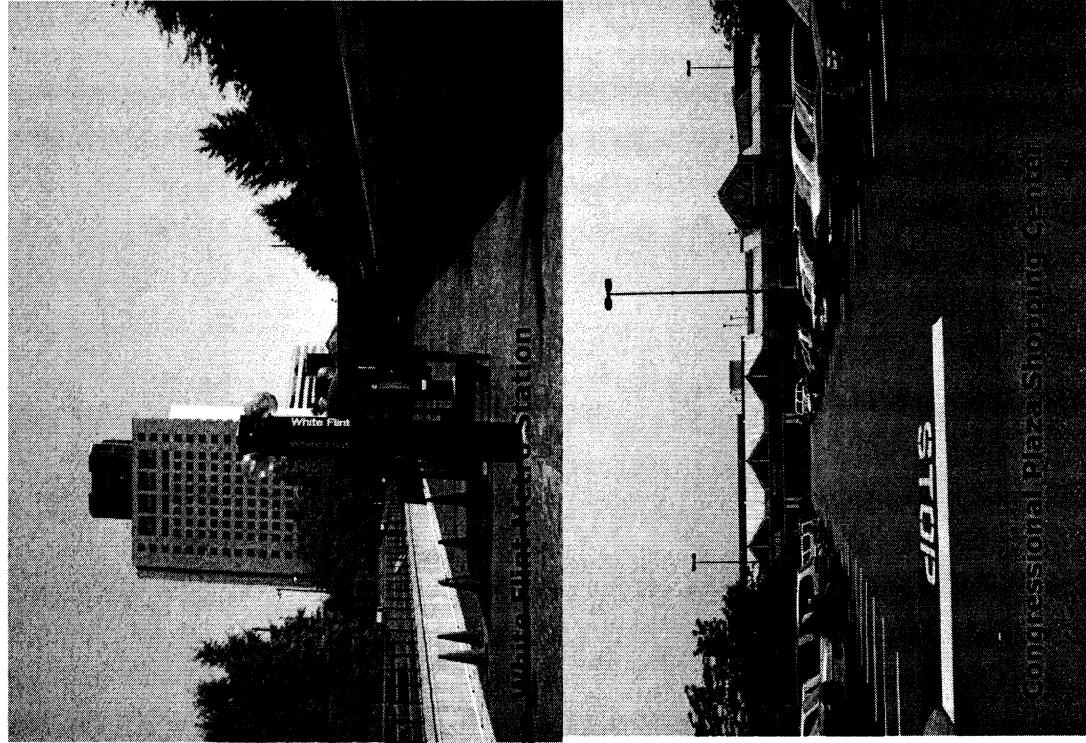
An urban boulevard with a mix of uses in town centers and transportation nodes with expanded multi-modal connectivity

#### Character

- Variety of public spaces
- Additional green space
- More office and residential space
- Address congestion
- Multi-modal transportation system
- Improve pedestrian safety
- Provide pedestrian connectivity
- Ground floor activity

#### Actions

- Create a form based code
- Establish incentive zoning tools
- Create a business improvement district
- Create a secondary road
- Establish a parking district



## Design Actions

### Rockville North to Montgomery College

#### Vision

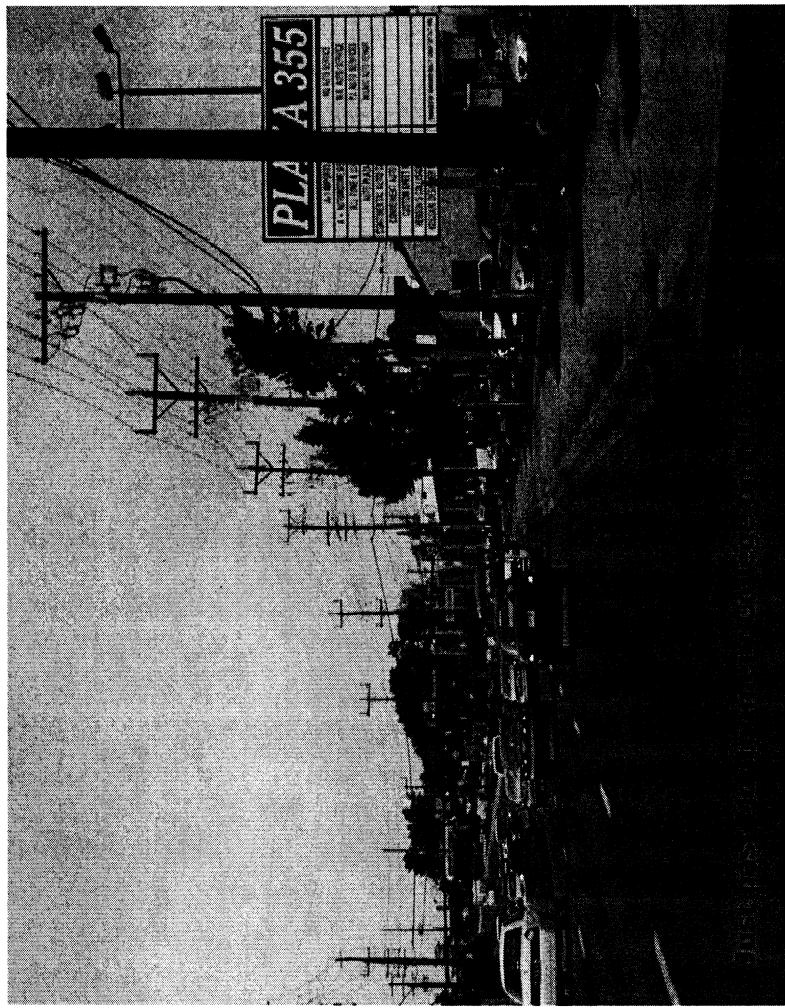
A Grand Avenue for the college, business, and residential uses around new Metro stations located at Montgomery College and the area north to Gude Drive

#### Character

- Green - trees, parks, and green walls
- Provide local shuttle
- Pedestrian connections
- Pedestrian oriented development
- Build closer to the street
- Spacious pedestrian sidewalks
- Grid of streets
- Recreational uses
- Gathering places

#### Actions

- Use parking areas for redevelopment
- Create new mixed-use zones
- Establish design guidelines
- Update environmental street standards
- Coordinate with other jurisdictions



# Design Actions

## **Shady Grove/Gaithersburg South**

### **vision**

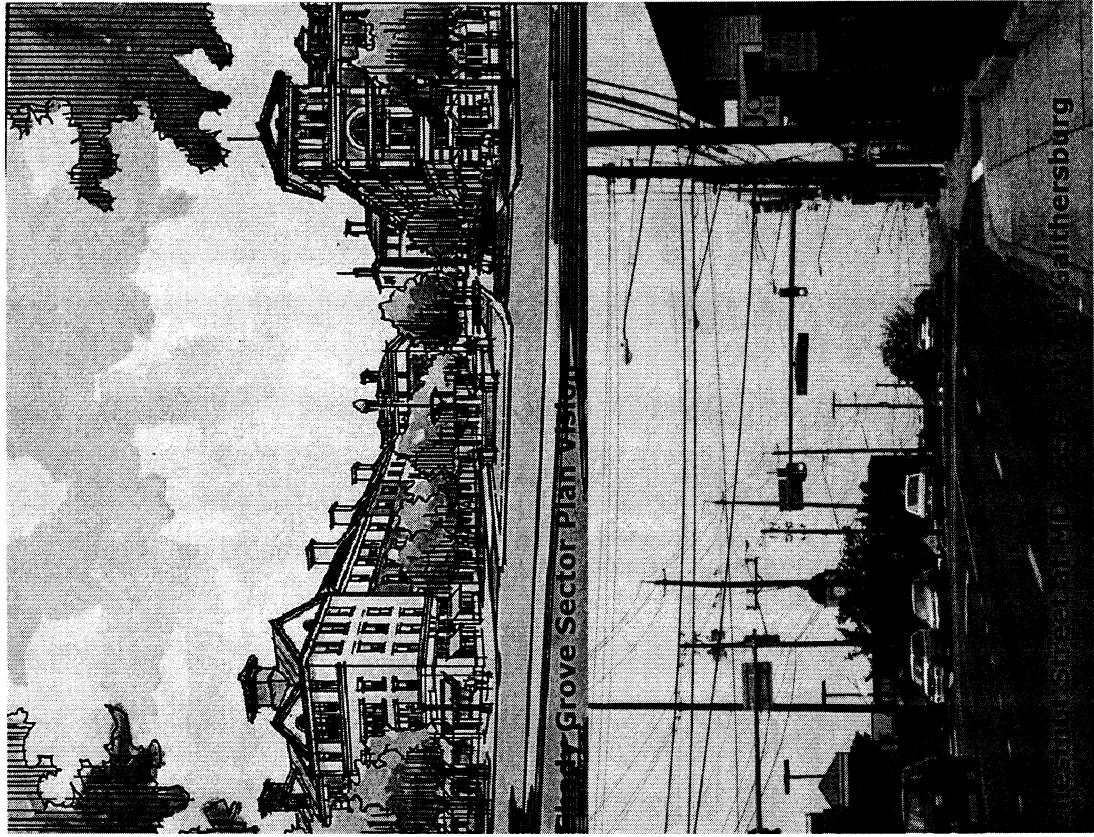
Compact development near Metro, with connections to other transit, and emphasis on "walking as the new transit"

### **Character**

- First floor commercial with residential above
- Affordable housing
- Green design
- Green bridges
- Improve pedestrian environment
- Bike trails
- Cut and fill to bury through traffic
- Improve pedestrian crossing

### **Actions**

- Accept some congestion
- Coordinate streetscaping and road standards between jurisdictions
- Reduce speed limits
- Improve County standards for streets

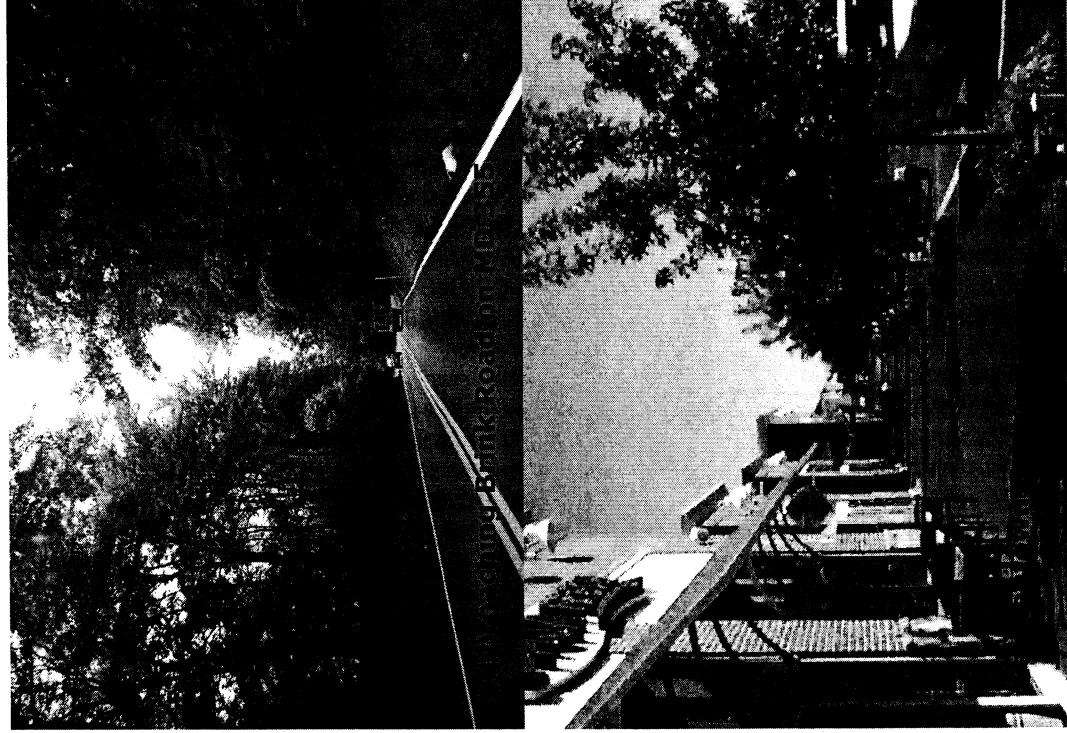


# Design Actions

## Germantown

### Vision

A connected urban civic center extending from Montgomery College to the Milestone Shopping Center



### Character

- Tree-lined pedestrian friendly streets
- Internal circulator
- Safe pedestrian access
- Redeveloped with mixed use, connected storefronts and structured parking
- Montgomery College as centerpiece of academics, and research and development
- Plan for science

### Actions

- Address the needs of future employment
- Create a MD 355 Plan
- Use overlay zones
- Enforce development standards
- Address speed
- Improve the pedestrian environment

## Design Actions

### Clarksburg

#### Vision

MD 355 or the "Great Road" serves as a gateway to Washington D.C. and Frederick County and connects historic villages, natural areas, a large expanse of parkland, and the Agricultural Reserve.

#### Character

- Unify streetscape
- Transitional elements between communities
- LEED certification
- Scale and compatibility with existing development
- Respect historic areas
- Provide transit connections to Little Bennett Regional Park
- Encourage infill revitalization in historic areas

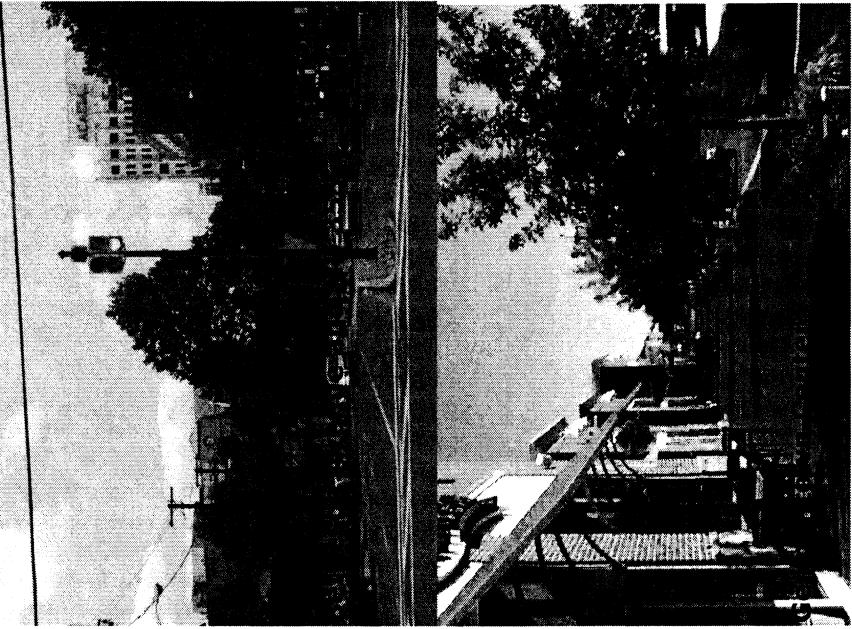
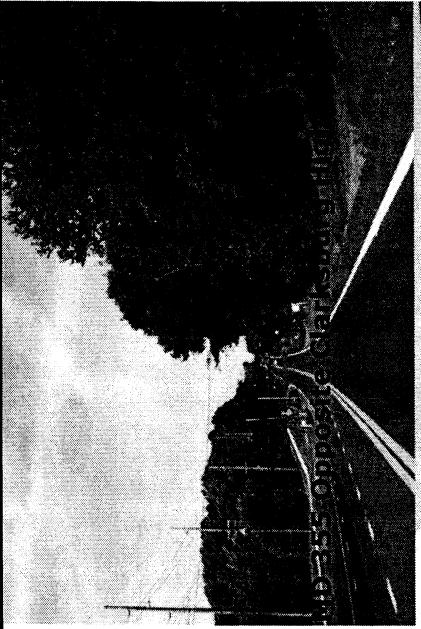
#### Actions

- Establish a design review process
- Involve the Historic Preservation Commission



## **Summary of Actions:**

- Create high quality centers, boulevards, open spaces and place making features
- Establish a distinctive design character for each section of the corridor (one approach will not fit all)
- Serve as a prototype and produce ideas that can be transferred to other areas



## **Health**

- Provide for closely spaced street trees
- Additional public use space to reduce imperviousness
- Create carefully designed stormwater management
- Design for green communities and buildings
- Reduce vehicle miles traveled through mixed-use Zoning, stronger pedestrian networks, and the use of TDRs
- Provide for a range of open spaces
  - Stream valley parks (example: Germantown buffer)
  - Green spaces along residential areas (example: Green Mile)
- Urban parks and public spaces (example: future Clarksburg Triangle)

## Design

## Actions

### Work

- Design for science clusters
- Create collaborative public spaces
- Provide flexible, mixed-use zoning including housing, retail, offices, industrial, and laboratories

### Access

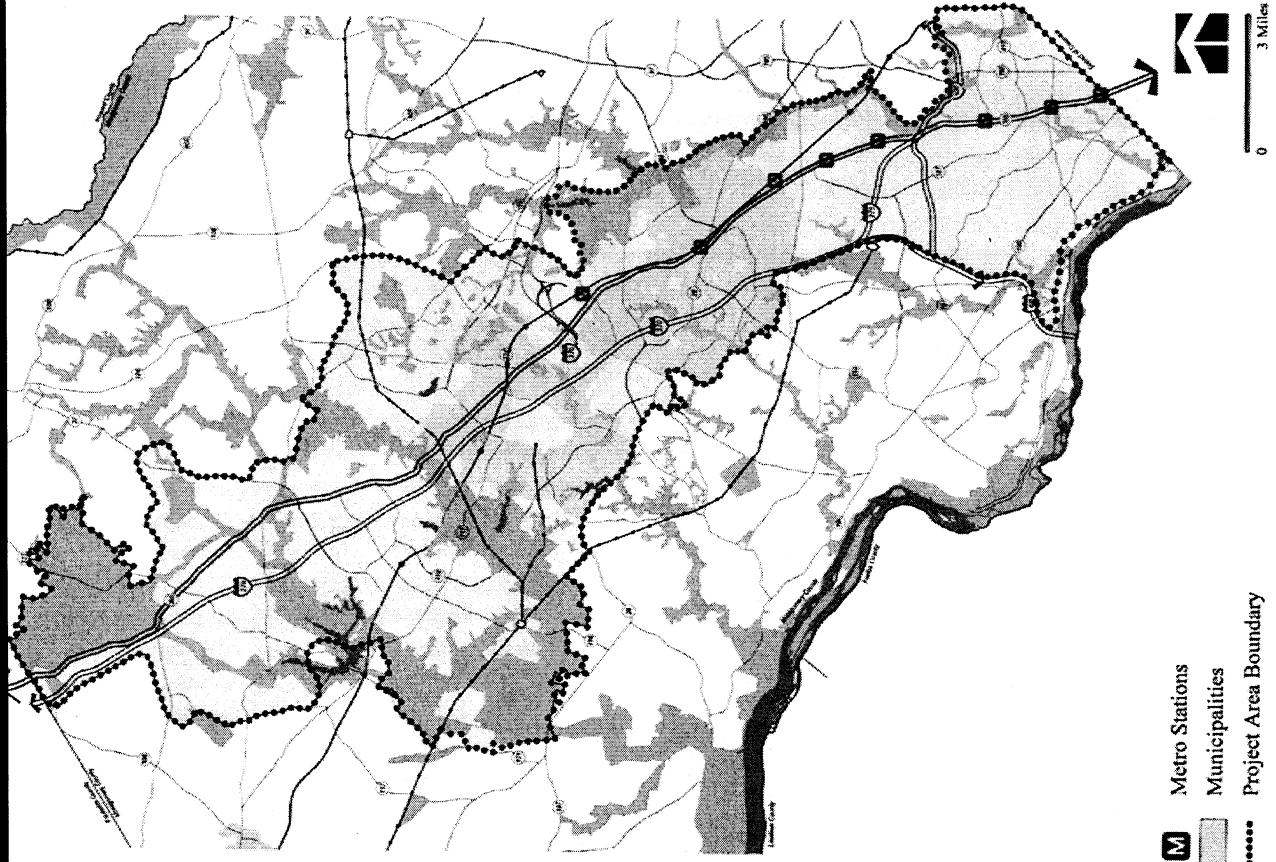
- Provide a variety of streets and boulevards (wide tree lined streets to two lane roads)
- Establish context sensitive streets
- Improve sidewalks and crosswalks for pedestrians
- Establish Transportation Management Districts
- Consider establishing parking districts
- Consider a new Metro station between Rockville and Shady Grove
- Provide a second Metro access at White Flint
- Provide a grid of streets at each center
- Increase transit options and pedestrian connectivity
- Provide bike and pedestrian connections to a range of open spaces



# Actions

## Life

- Provide new zoning tools that emphasize design excellence
- Provide a variety of new public spaces activated by retail
- Provide place making features including public art, street furniture, and significant buildings
- Provide for a mixed of uses including small scale retail
- Provide for a range of housing types
- Provide high quality public facilities and amenities concurrent with development
- Increase open space and improve connections to the park system
- Maintain a diversity of community types
- Incorporate institutions



M Metro Stations  
Municipalities  
..... Project Area Boundary