M-NCPPC

MONTGOMERY COUNTY DEPARTMENT OF PARK AND PLANNING

THE MARYLAND-NATIONAL CAPITAL
PARK AND PLANNING COMMISSION

8787 Georgia Avenue
Silver Spring, Maryland 20910-3760

MCPB
12-20-2001
Item No. 11

December 14, 2001

MEMORANDUM

TO: Montgomery County Planning Board

VIA: Charles R. Loehr, Director, Department of Park and Planning

FROM: Jeff Zyontz, Chief, County-wide Planning Division

John Carter, Chief, Community-Based Planning Division

Melissa C. Banach, Chief, Strategic Planning Division

SUBJECT: Transportation Policy Report II, Staff Recommendations

---

Transportation Policy Report II (TPR II) has been the most intensive and comprehensive effort ever undertaken by a Planning Board-appointed advisory group. During the past 18 months, the TPR II Task Force, led by co-chairs Stan Schiff and Sam Raker, has held 48 Task Force meetings, three all-day workshops, 38 core team meetings, 79 work group meetings, 10 community workshops/forums and 14 focus groups. Work group leaders in particular dedicated countless hours to attend and prepare for their meetings.

As the Planning Board noted on November 28, this dedication is in the best tradition of citizen involvement in Montgomery County. Staff would also like to acknowledge the contributions of representatives from the Maryland Department of Transportation, Montgomery County government, the cities of Gaithersburg and Rockville and the Washington Metropolitan Area Transit Authority. These representatives brought insight and perspective to the process and enriched the Task Force's discussions.

The Task Force was empowered to direct the work of technical staff while staff, in turn, modeled networks and land uses the Task Force approved for testing. During this process, the Task Force established criteria for evaluating these networks and staff performed the analysis within the limits of time and budget. Nationally recognized experts provided advice on bus system improvements, transportation demand management practices, and the land use-transportation relationship. Guided by staff,

the core team set meeting agendas. We used a nationally recognized facilitator at all Task Force and core team meetings. The Task Force developed its own decision rules. We provided an independent professional writer for their report and we strove to have the Task Force develop consensus on its recommendations.

Through this effort, we have learned an enormous amount. Some of this knowledge has improved our technical insight into future transportation issues. Some provides a context for the nature of competing philosophies within the county on land use and the provision of transportation infrastructure.

Attached is a staff report that provides a policy and facility blueprint for the development of future Master Plans. Staff takes full responsibility for its content. This document fully endorses the policy recommendations of the Task Force on land use, bus, and Transportation Demand Management and the consensus it reached on some facilities. In developing a network of facilities, however, staff is making a recommendation whereas the Task Force did not. We have not had sufficient time to share these recommendations with the Task Force directly. But we are making these recommendations now in response to the requirements of the work program and to frame the resolution of these issues by the Planning Board and the County Council.

We are certain that each Task Force member has a unique perspective on the deliberations that accompanied this task. In that light, we want to share our perspective on the source of the philosophical conflicts that presented themselves in this process. We do this in an effort to help the Planning Board through its own decision-making process; at the same time we acknowledge that the Task Force and its individual members may not share our perspective.

PERSPECTIVES ON CONGESTION

The Task Force created five major evaluation criteria to determine whether land use and transportation are successfully balanced. These criteria assessed whether proposed facilities and facility improvements:

- Provided a transportation system that efficiently and reliably moves people, goods and services locally, countywide and regionally
- Supported balanced and orderly growth
- Protected the natural environment from negative impacts of growth and transportation
- Ensured the cost-effectiveness of public investment in transportation
- Improved pedestrian and traffic safety.

Who would not desire a future where congestion is reduced, environmental resources are protected and travel is safer, all at low cost? The problem is that none of the facility networks and land uses modeled in TPR II yield all of the results all of the time.

Building more highways can increase travel speeds, but this alternative has high costs and significant environmental impacts. We can reduce environmental impacts with more transit options and fewer roads, but congestion levels will still increase. All of the evaluation criteria the Task Force noted are important, but each person defines and weighs these criteria differently when evaluating alternative futures. The deadlock in pursuing consensus on a transportation network is indicative of a conflict of values over the future of the county.
What developed in the Task Force is a *continuum* of opinion. These opinions range from "add all facilities that reduce congestion and connect the county to airports" to "reduce vehicle miles of travel per capita, avoid environmental impacts and promote transit." A full set of values lies within these extremes and is worthy of expression. Central to this division are approaches to traffic congestion.

Congestion occurs when the number of vehicles trying to get to the same place at the same time exceeds the capacity of the facilities available to serve that demand. Congestion is a mismatch between the supply of roads and the demand for travel at a given time. Congestion affects motorists as well as people attempting to travel by bus, to make deliveries, cross the street or just exit their driveway. In its worst form, the delays caused by congestion erode the time we spend with our families, reduce access to services and affect where we live, work and shop. Congestion decreases our quality of life and adds to our stress and aggravation.

Congestion can be reduced by increasing the supply of facilities or by decreasing the demand to travel at congested times. At the risk of oversimplifying complex ideas, the following is an attempt to illustrate the dichotomy between two general approaches to congestion, which we have labeled "Supply Siders" and "Demand Managers." This description is a composite of ideas expressed within the Task Force.

Supply Siders

The traditional way government has addressed congestion is to increase the supply of transportation facilities. Building more roads in the right places can reduce congestion. This has not been the case in the recent past in Montgomery County, however, as growth has outstripped our infrastructure improvements.

In recent years, the Washington D.C. metropolitan area has added employment and retail centers, entertainment venues and housing without adding or improving the connections between these centers or the jurisdictions in which they lie. Residents from one jurisdiction pass through another to reach their homes and jobs. The last segment of freeway constructed in Montgomery County was only two miles long, from I-270 to Shady Grove Metro. The existing roadway network is so close to its carrying capacity that the slightest incident can cause major delays. The answer a Supply Sider proposes to this problem is to enrich the roadway network by widening roadways and providing new parallel links, both north-south (such as I-270, Great Seneca Highway, Midcounty Highway, Clopper Road) and east-west (I-495, Randolph Road, Montrose Parkway, ICC, MD 28/198).

Certainly, land use is a source of travel demand. When a particular location and land use becomes successful, other land uses are attracted to it. This development creates more demand for roadway capacity and increases congestion for all users.

Supply Siders define successful planning as the accommodation of growth without increasing congestion. At present and for the foreseeable future, the car best meets the needs of the individual. From the Supply Siders' perspective, the purpose of government is to build roads to meet the needs of residents and businesses.

A "market accommodation" philosophy stands behind the Supply Siders' set of values. In this line of thinking, land use should be market driven. Existing and proposed zoning in master plans substantially reflects this market. The intentional manipulation of land use policy away from market forces to reduce future roadway demand would result in less growth and less wealth for the county. If, for example, policies were enacted to restrict the market by reducing the amount of housing in less dense areas, less housing would be built. This would be true even if county policy permitted more housing in dense areas. That is because the market is different at different densities. It is hard to convince families with children that multifamily housing is a preferred lifestyle. Similarly, giving businesses only the choice of multistory buildings may cause companies that want something else to locate elsewhere. But even businesses outside Montgomery County can create traffic on our roads, as motorists drive to and from them from locations in the county.

Public policy changes that are "anti-car," such as limits on the number of parking spaces or taxes on parking or on miles traveled, would inhibit the county's competitive position. Employers would be likely to flee to jurisdictions that do not have such restrictions. However, policies that induce additional transit ridership by making transit more attractive (by providing rider amenities, increasing service or decreasing the price to riders) are not objectionable.

In a policy environment that provides "carrots" (positive reasons to change) or "sticks" (penalties for undesirable activities), carrots for transit use are fine, sticks that limit car use are abhorrent. It is bad policy to penalize citizens for car usage. The market for car-oriented development remains strong. The individual freedom inherent in car travel cannot be matched by transit alternatives. Even in the best transit oriented development projects, a large portion of residents drive.

Building significant transportation facilities allows people to live farther from work, yet still spend the same amount of time commuting. The ability to travel longer distances at higher speeds increases the number of possible locations people can choose to live. But increasing projected vehicle miles traveled is not a problem for the Supply Sider who values greater choice in housing and job locations. Increasing car accessibility is a key tenet of the Supply Siders' point of view.

But only the most radical Supply Sider, pointing solely to the high transit operating costs borne by the public, is anti-transit all the time. Most Supply Siders would support transit but measure the success of the new transit facilities by their ability to reduce travel on roadways. Transit must be so good that it attracts riders without the need to increase the direct cost of car travel, as demand managers often try. By this standard, adding new highways reduces traffic more than enhancing transit. Increasing the supply of transit alone will not decrease congestion, they argue.

Supporters of roadway solutions do not ignore the environmental impacts of roadways. Engineering can minimize and somewhat mitigate environmental effects when road alignments cannot be built to avoid sensitive environmental areas. The possibility of negative impacts is not denied. Planning concurrently for pedestrian and bicycle movement, safe pedestrian crossings and access to adjacent neighborhoods and activity centers also can minimize localized community impacts. If economic development is one's primary value, however, not building a roadway because of environmental and community impacts is not an option.

Demand Managers

Conversely, Demand Managers argue that the very idea that a jurisdiction could build its way out of congestion with more roads is flawed. The relationship between supply and demand in the transportation arena is clear; increasing the capacity of roadways ultimately creates more demand than the greater capacity can accommodate. As soon as a new highway is built, people who had avoided the road during the peak hour change their habits and use it. Meanwhile, users of mass transit shift to cars as a faster alternative.

When we expand the capacity of transportation facilities, we increase demand for development in areas proximate to that facility. When highways are improved and the time needed to travel between home and work is reduced, people can and do choose to live greater distances from their jobs. Some may move from areas served by transit areas to areas oriented to cars. Thus, new highways increase the amount of vehicles miles traveled and supply creates demand in a cycle that creates an insatiable appetite for more roads. Congestion is never cured.

Demand Managers question the wisdom of building highways, because new highways increase energy consumption (by increasing vehicle miles traveled), exacerbate pollution and often become congested soon after they are completed. Moreover, the social costs of car use are not internalized. Air and water are polluted; air pollution leads to health problems; and accidents increase as more cars are driven and more miles are traveled. The costs of poor health caused by car-generated air pollution are borne, not by motorists, but by individuals susceptible to lung problems. The costs of a degraded environment are borne mostly by aquatic habitat, which are offset somewhat by human restoration efforts, but again, the driver does not absorb the cost.

To a Demand Manager, congestion is a sign of bad land use policy. Demand Managers want to reduce the reasons people travel by car and reduce the distances between destinations. The poster child of non-sustainable development is the isolated concentration of single-family houses that require residents to use more than a quart of gasoline to drive to the store and get a quart of milk. Balancing jobs, housing and retail uses, then, is the Demand Manager's preferred mix of land use.

To Demand Managers, growth in vehicle miles traveled per capita is a measure of the failure of land use policy. It means that activities have spread farther apart. It means more energy will be consumed, more land converted to parking lots, and more pollutants going into our air and water.

Demand Managers say that the "free market" idealized by Supply Siders is a myth as large as curing congestion. The market is always distorted by public policies. How land is zoned, how parking is required or priced, how roadways and transit are priced, and how land is taxed all affect the market. Demand Managers want these market factors adjusted to favor land use in locations and densities that reduce the need for car trips. Even if these changes reduce the county's growth rate, demand is diminished, they argue.

Demand Managers contend that providing transit alternatives is more likely to cure congestion than massive road building. Transit is more sustainable because it requires less energy, has a smaller footprint on the landscape (in locations where a separate right-of-way is needed), and produces less pollution. Moreover, transit provides a travel choice to people who cannot afford cars and/or do not have the capability to drive a car. This issue will become more prominent as our population ages and car-oriented neighborhoods trap people who cannot drive in their homes. As a matter of public policy, transit should be favored as a more equitable solution for people who cannot afford a car, for every worker in the household and for people who cannot drive a car themselves.

Demand Managers want a future where people have more ability to choose a transit-oriented lifestyle. In that new future, if people choose to use roadways, they are choosing to endure congestion. Congestion is tolerable as long as a reasonable opportunity to use transit exists.

The success of our region is based on a quality of life that includes abundant rural open spaces and access to natural stream valleys. The CEOs who locate their companies in Montgomery County because of our schools and educated work force will stay, grow and bring more business to the area. Congestion has not extinguished the attractiveness of New York City, Chicago, Los Angeles or Atlanta. Why would the Washington D.C. region's economy collapse due to congestion when no other area in the country has had that experience?

As a group, Demand Managers do not believe all roads are bad. Roads with limited direct environmental impacts and that serve to reduce local concentrations of

congestion are acceptable. Roads that provide better access to transit are also beneficial. However, new freeways that facilitate long commutes are not acceptable, nor are roadways that put more pressure on the agricultural wedge.

Demand Managers argue that new freeways should be judged by their ability to reduce congestion. However, none of the facilities we tested were capable of doing that to any significant degree. Demand Managers do not believe that the environmental effects of new highways can be fully mitigated. Even assuming that environmental impacts could be mitigated, the centrifugal effect of new highways, bringing development pressure upon the agricultural reserve and undeveloped areas outside the county, makes them intolerable.

PERSPECTIVES ON THE WORK OF THE TPR II TASK FORCE

Supply Siders and Demand Managers look at different things when judging a network of transportation solutions. For Supply Siders, average speed, reductions in congested lane miles, and accessibility are paramount. A Demand Manager, meanwhile, looks at environmental impacts, reductions in vehicle miles traveled, proximity of jobs and housing to transit and pedestrian facilities, increased transit trip shares and transit trip times to key locations. In TPR II, no network that we tested was acceptable to both viewpoints. Each group, examining the same data, settled on a network that worked best from their standpoint. Even where data did not exist, opinions were strong, based on different visions for the county.

Can we build our way out of congestion? If you measure congestion by average vehicle speed, we can. But it would carry a very high cost; require building corridors through environmentally sensitive areas and increase total travel. To reduce congestion in 2025, Montgomery County would need to devote 10 times the existing resources for transportation. Even under this scenario, congestion would still exist, but with more highways, more people could travel faster. By 2050, additional right-of-ways, beyond the ones tested in TPR II, would need to be created or expanded to hold congestion at existing levels.

Adding transit did not reduce congestion levels in any of our tests. This was true even with an alternative land use that placed more growth near transit corridors and forecasted a more balanced geographic mix of jobs and housing. This scenario did reduce travel times between areas connected by transit right-of-ways, however, and increased accessibility by transit to jobs and housing.

As a single facility, the Intercounty Connector is, was and will continue to be a divisive issue, carrying both travel benefits and environmental costs. Supply Siders insist the ICC is the only acceptable link to BWI. The only alternative suggested to improve airport accessibility was a connection from I-270 to Dulles Airport via a new bridge. But there was no facility network or policy that persuaded the Demand Managers to agree to an alternative that included the ICC.

Even though the majority of vehicles in Montgomery County travel north and south, the greatest deficiency in the county's network are east-west connections. Every network that we tested without the ICC showed very high congestion for motorists who would cross Rock Creek Park.

Even so, Montgomery County clearly needs improvements to its roadway and transit systems and changes to its land use pattern to improve accessibility in the future. Despite their divergent and varied opinions, Task Force members reached more agreement than the absence of a recommended network would indicate. In the final analysis, the networks proposed by the Supply Siders and Demand Managers differed on only ten projects.

For who is right and who is wrong? Obviously the question is not that simple. We need to both reduce demand and increase supply. The attached report provides staff's perspective on how to weigh these competing values and our recommendations for land use changes and a transportation network that best implement the General Plan vision for the future of Montgomery County.

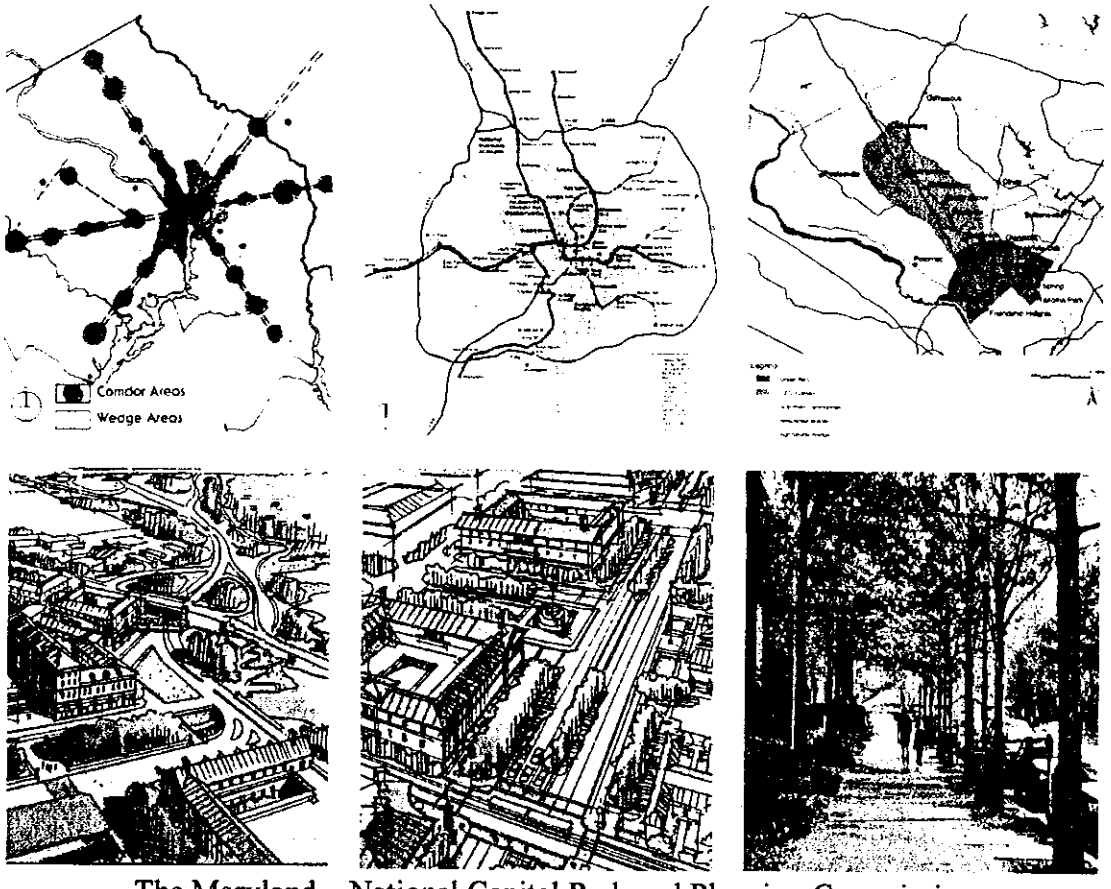
CRL:kcw

mmo to mcpb re TPR II.doc

TRANSPORTATION POLICY REPORT II

STAFF REPORT

December 14, 2001

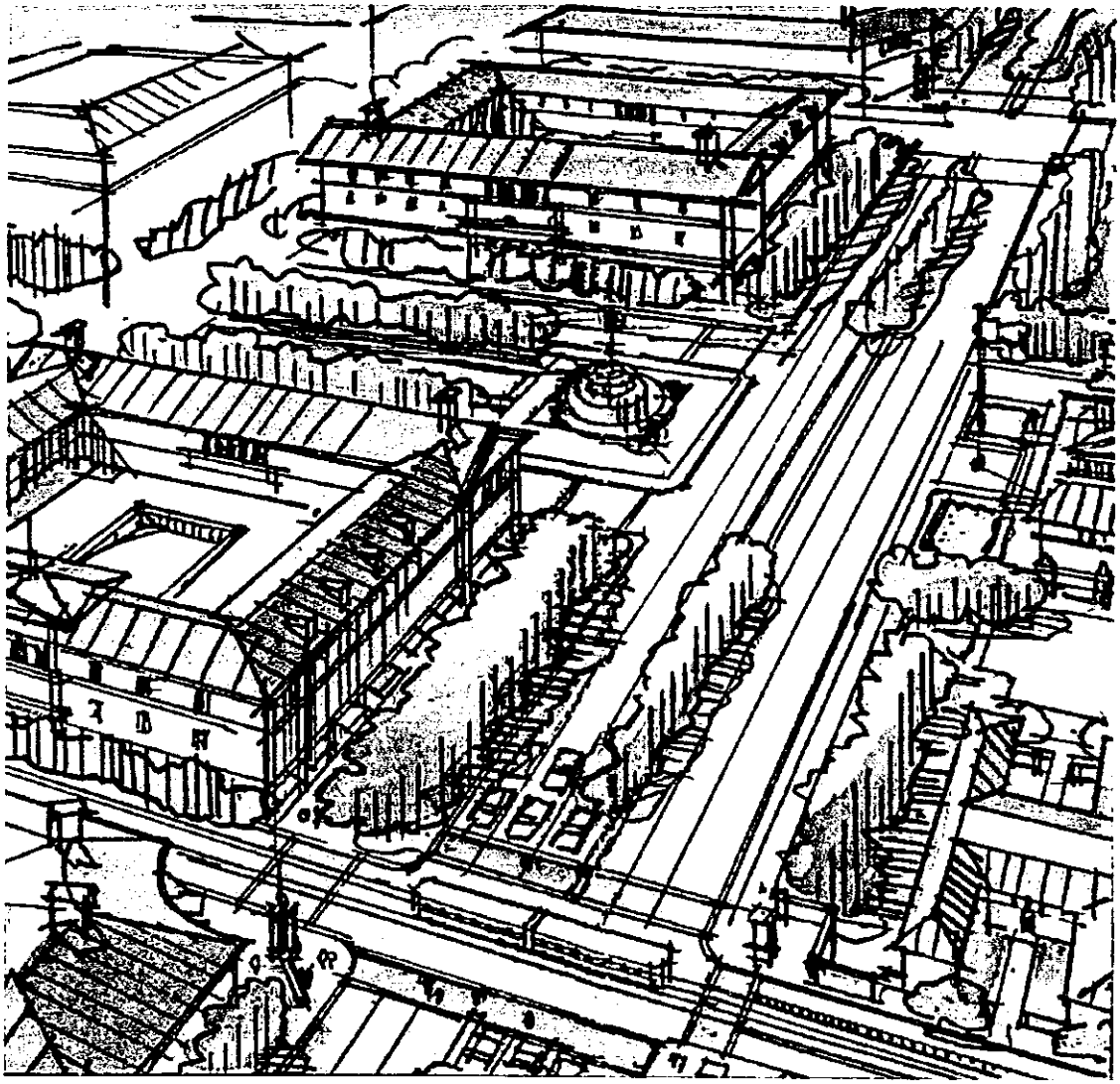


The Maryland – National Capital Park and Planning Commission

STAFF REPORT

This staff report contains the following sections:

SUMMARY OF STAFF RECOMMENDATIONS



SUMMARY OF STAFF RECOMMENDATIONS

Land Use Recommendations

Establishing a Quality of Life Agenda

Creating vibrant communities and business centers is the focus of the land use recommendations in the Transportation Policy Report. Unique land use characteristics and development patterns will reduce demand on the transportation system. The following land use recommendations begin to establish a quality of life agenda that improves mobility, and uses the existing transportation system.

Guide Development to Metro Station Areas and Activity Centers - Establish mixed-use activity centers in selected locations within the County. In the near term the staff recommends a focus on the following Metro stations areas and activity centers:

- Shady Grove Metro Station area
- MCPS/Montgomery College
- Twinbrook
- Fortune Parc
- Wheaton CBD Metro Station revitalization area
- White Oak/FDA Center
- Langley Park Transit Center

Balance Jobs and Housing: Improve the balance of jobs and housing as described in the following:

- Balance jobs and housing county-wide – plan for a county-wide balance of jobs and housing (e.g. jobs equal to the number of workers in each household)
- Improve the balance of jobs and housing in I-270 Corridor – Increase the opportunities for housing concurrently with employment
- Improve the balance of jobs and housing in the Eastern County – Support employment center growth at the White Oak/FDA Center
- Improve the balance of jobs and housing at the neighborhood scale – examine opportunities to live near work at locations of higher density such as Metro stations
- Re-examine jobs and housing in Clarksburg, Germantown and Gaithersburg due to the removal of portions of M-83

Long-Term Vision for Arterials: Improve the visual and functional qualities of arterials and older commercial strips. In the near-term, staff recommends focusing on MD 355 (Rockville Pike) in the upcoming Master Plan for the Gaithersburg and Vicinity Area.

Recommended Transportation Network

In the final round of scenario tests (Round 3), the Task Force developed two scenarios: one with a road emphasis, one with a transit emphasis. These were based on different transportation

network and land use pattern assumptions. The Master Plan land use and transportation network served as a base against which to compare these scenarios.

At the end of the Round 3 tests, the Task Force was unable to reach consensus on a package of transportation facilities. Staff has developed a network that attempts to build on the common elements included in both the road-emphasis and transit-emphasis scenarios. This staff network is described in this section of the report.

Given the contentious issue of east-west roadway connections, two alternatives were tested: the staff network with the ICC on the Master Plan alignment and the staff network with the western arterial. Travel forecasts were conducted for both networks and results are presented for purposes of comparison. (The discussion of these east-west alternatives is discussed in a separate section of this report. Appendix A provides a complete list of the staff network facilities as well as the 2025 and 2050 alternatives tested in TPR II Round 3.)

Transit Facilities

Montgomery County is served by an extensive and diverse transit system. The system includes major facilities and services such as the two legs of the Metrorail Red Line on the Washington Metropolitan Area Transit Authority (WMATA) Metrorail system (Metrorail or Metro), MARC commuter rail, WMATA Metrobus service, Ride-On bus service operated by the Montgomery County Department of Public Works and Transportation (DPWT), HOV lanes on I-270, local shuttle services, and transportation management associations (TMAs). The diversity of this system allows for the consideration of a wide variety of future transit improvements.

One of staff's underlying principles in developing the future transit network was to build on the successful Metrorail network. Each of the major transit initiatives proposed for construction would tie well to the Metrorail system, in effect increasing the reach of Metrorail service.

Under the adopted CLRP, transit ridership is anticipated to increase 50 percent between 1998 and 2025, by which time only the Georgetown Branch light rail transit (LRT) between Bethesda and Silver Spring would be added as new facility. Even with this increase, the transit mode share would remain relatively constant, at around 17 percent of work trips. This is an indication of how much "new" person travel is being generated in the county.

Today about one-half of Montgomery County Metrorail riders access the system by automobile. Staff has focused future improvements in areas where pedestrian access to transit can play a much larger role. An expanded transitway system can provide locations for denser, mixed-use development, expanding the capacity for residents to walk to transit and increasing jobs and household accessibility by transit.

Staff recommends the following major transit improvements: the Corridor Cities Transitway (CCT) as either a busway or LRT from the Shady Grove Metro station to Clarksburg, the Inner Purple Line LRT from Bethesda to New Carrollton, a LRT extension from the Inner Purple Line to the U.S. Food and Drug Administration (FDA) site in White Oak, the Georgia Avenue

Busway, and a HOV network including lanes on I-270 and the Capital Beltway (I-495, Beltway).[1]

- The **Corridor Cities Transitway** (CCT) is planned to serve the communities of Rockville (King Farm), Gaithersburg, the Life Sciences Center, Germantown and Clarksburg. A dedicated alignment, primarily at-grade, would begin at the Shady Grove Metro station and terminate at the Clarksburg Town Center. Various alternatives to extend the transitway to Frederick have been proposed, but Frederick County has not identified an alignment.

  Determining whether bus rapid transit (BRT) or light rail transit (LRT) is most appropriate for the CCT is beyond the scope of the TPR II. However, the adopted alignment can accommodate either mode. Roughly 80 percent of the alignment is secured in dedication or reservation. Modeling results assumed that the operating characteristics for either mode were roughly the same, resulting in similar ridership forecasts that show little difference between BRT and LRT.

  The CCT would help address the future heavy travel demand in the rapidly growing I-270 corridor and provide additional capacity through one the county's major traffic bottlenecks (the convergence of I-270, MD 355 and Clopper Road at Great Seneca Creek just north of Gaithersburg). In the TPR II analysis, about one-third of the CCT's ridership would occur between Shady Grove and the Life Sciences Center and about one-half would occur south of Metropolitan Grove. Extending the Red Line from Shady Grove to Metropolitan Grove was examined in comparison, but the CCT was found to provide the more cost-effective solution.

- The **Inner Purple Line** from Bethesda to New Carrollton would expand upon the Georgetown Branch, extending it east from Silver Spring through Langley Park and College Park and terminating at New Carrollton. The TPR II analysis has found that the Georgetown Branch removes the need for circuitous trips on the Metro Red Line. A trip that takes 35 minutes through downtown Washington today would take nine minutes on the Georgetown Branch.

  Projected ridership for the Georgetown Branch is good, with about 7,000 to 10,000 peak period passengers (and approximately 25,000 daily riders) by 2025. The demand in the peak direction, if not accommodated by light rail transit, would require buses running on East-West Highway (MD 410) at less than two-minute headways to meet demand levels.

  For the entire Inner Purple Line, the segment between Bethesda and Silver Spring would have the highest passenger demand. However, the segment from Silver Spring to Langley Park also had strong demand, with volumes decreasing along the line east of College Park.

- The **FDA Light Rail Line** would serve as a spur connection to the Inner Purple Line. It would connect with the Inner Purple Line at Langley Park and travel north along New Hampshire Avenue (MD 650) to the FDA site and White Oak. The FDA LRT would significantly boost ridership on the Inner Purple Line and provide an option for travelers

[1] Because HOV lanes constitute both a highway improvement and a transit improvement when used by buses, the HOV recommendations are discussed in both the transit and highway sections.

around the congested Colesville Road/Columbia Pike (U.S. 29) corridor through Four Corners. MD 650 has less severe right-of-way limitations in this area than does U.S. 29.

- The **Georgia Avenue Busway** would operate as a two-way, two lane facility in the median of Georgia Avenue (MD 97) from the Glenmont Metrorail station north to Olney. The analyses conducted during the feasibility study and TPR II show ridership estimates justifying the need for the facility. The facility would carry the equivalent of a travel lane at capacity during peak periods. This facility would capitalize on the investment in the Glenmont Metrorail station. Right-of-way impacts would be minimal.

- A **comprehensive HOV system** with express bus operations is recommended, including an extension of the existing lanes on I-270 to I-70 in Frederick County and the implementation of HOV lanes on the Beltway. Effective system connectivity between these major facilities is essential to their successful operation. Developing efficient connections to Metrorail stations and high-density employment centers should be high priorities.

- The expansion and enhancement of the county's **bus system** should be pursued to improve service and increase ridership using cost-effective approaches. Roadway capacity enhancements (particularly at intersections), intelligent transportation systems (ITS) technologies, and rigorous route planning should be undertaken expeditiously to increase service and make the best use of transit resources.[2]

Highway Facilities

The staff's recommended highway network addresses the county's most heavily traveled corridors, including I-270, I-495, and U.S. 29. It also includes significant improvements to east-west travel and mobility throughout the county.

These improvements are necessary given the rapid growth of Gaithersburg, Germantown and Clarksburg; increasing regional travel generated outside the county; and the need to strengthen major activity centers inside the Beltway. Some of the larger projects are described below. (Individual projects in the staff-recommended highway network are listed in Appendix A.)

- Staff recommends the addition of **HOV lanes along I-270.** North of Montgomery Village Avenue/Quince Orchard Road (MD 124), I-270 would have three general-purpose lanes and one HOV lane in each direction (an alternative labeled in many reports as "6+2 HOV total") until Clarksburg Road (MD 121). North of MD 121, I-270 would have two general-purpose lanes and one HOV lane in each direction ("4+2 HOV total") until reaching I-70 in the City of Frederick. These lanes would expand the reach of the existing HOV network, and when combined with the Beltway HOV, would form a powerful regional transportation asset for use by HOVs and express buses.

- The staff network also adds a general-purpose lane in each direction on both I-270 spurs ("6+2 HOV total" on each spur) to improve mobility downcounty and improve accessibility to the Rock Spring activity center.

[2] Roadway capacity enhancements and ITS technologies are considered transit improvements inasmuch as they improve bus operations.

- Two new interchanges along I-270 are added in the staff network: one at Newcut Road Extended in Clarksburg and another at Watkins Mill Road Extended north of Gaithersburg.

- The major highway and arterial network within the I-270 corridor would receive significant improvements in the staff network. Most of the changes are detailed in current master plans. These improved roads include Ridge Road (MD 27), Woodfield Road (MD 124), Brink Road, Wightman Road, Clopper Road (MD 117), Great Seneca Highway (MD 119), and Muddy Branch Road.

- The **Capital Beltway High Occupancy Vehicle (HOV)** project would add one HOV lane in each direction on the Beltway between the American Legion Bridge and I-95 in Prince George's County. These lanes would add significant capacity to the Beltway and integrate it with the existing and expanded HOV network along I-270 and its spurs (see above). This integration would form a building block for a regional HOV system that allows for express bus services to link key activity centers.

- All eight master-planned interchanges on Columbia Pike (**U.S. 29**) are included:

    - Spencerville Road/Sandy Spring Road (MD 198) and Blackburn Road, including the road realignment of U.S. 29 between MD 198 and Dustin Road
    - Briggs Chaney Road
    - Fairland Road
    - Randolph Road
    - Greencastle Road
    - Musgrove Road
    - Tech Road and Industrial Parkway
    - Stewart Lane

    There would also be an interchange at U.S. 29 and the Eastern Connector (see below). U.S. 29 is the major north-south facility in the eastern part of the county and carries substantial local and regional traffic. The master plans call for the construction of these interchanges to relieve congestion and provide for local east-west movement.

- The **Eastern Connector** between Columbia Pike (U.S. 29) and U.S. 1 in Prince George's County would be constructed along the ICC Master Plan alignment (MPA) right-of-way. The Eastern Connector would have two general-purpose lanes and one HOV lane in each direction ("4+2 HOV total"). The Eastern Connector provides a much-needed connection between the eastern part of the county and I-95.

- The staff network includes the master-planned **Montrose Parkway** as a four-lane facility from Montrose Road to Veirs Mill Road (MD 586), with a grade-separated interchange at Rockville Pike (MD 355) and Montrose Road/Randolph Road. In addition, Veirs Mill Road would be widened to six lanes between Twinbrook Parkway and Randolph Road to add capacity for traffic leaving the Montrose Parkway at its eastern terminus. These projects provide congestion relief in North Bethesda, Twinbrook, and Aspen Hill.

- Concerning east-west travel, the staff network would widen Norbeck Road (MD 28)/ Spencerville Road (MD 198) to four lanes between Georgia Avenue (MD 97) and U.S. 29. A discussion of higher capacity east-west connections, such as the ICC, follows in a separate section.

- Finally, the staff network relieves many of the congestion "hot spots" throughout the county by upgrading these intersections to grade-separated interchanges. These interchanges within the non-freeway network include MD 355 at MD 27, MD 355 at Nicholson Lane, MD 97 at MD 28, MD 97 at Randolph Road, Randolph Road at MD 586, Randolph Road at Connecticut Avenue (MD 185), and Randolph Road at New Hampshire Avenue (MD 650).

East-West Roadway Connections

How to provide for east-west highway movement has been the single most complex and controversial transportation issue of the past decade in Montgomery County. Large amounts of data have been prepared and analyzed, and TPR II added to this base of information. Staff reviewed previous work while preparing the analysis for TPR II to learn what we could from it. On this issue, we present the Board a range of alternatives, identify a preferred one, and explain the reasons for our recommendations.

The provision of east-west movement between I-95 and I-270 above the Capital Beltway is a trade-off between the auto mobility provided by new or widened roads, and the accompanying impacts on natural resources and existing communities that would fall in the path of roadway changes. Several studies have verified that the travel demands for east-west movement require significant improvements. An Intercounty Connector was included as a freeway in each of the master plans adjacent to the ICC alignment. The ICC Draft Environmental Impact Statement (DEIS) showed high travel demands. The State of Maryland Transportation Solutions Group (TSG) concluded that a new roadway connection was needed, without recommending how it should be accomplished.

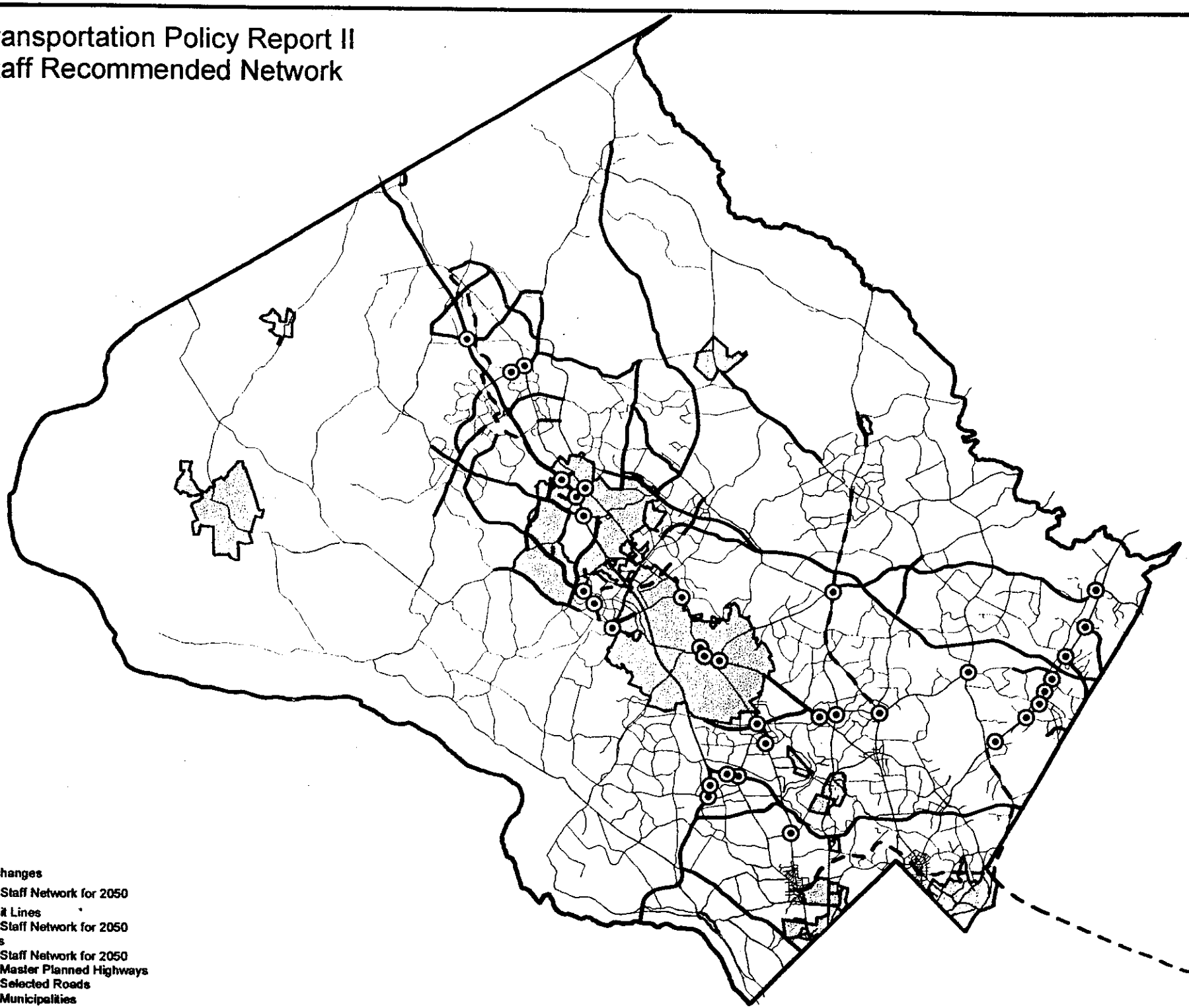
The following advantages and disadvantages include subjective elements put forward by opponents and proponents:

As advantages, the ICC would:

- Increase average speed and accessibility countywide and in particularly within the Georgia Avenue and Eastern areas of the county
- Reduce congestion and increase speeds across the Rock Creek screenline
- Relieve or reduce congestion at many intersections and on some local roads
- Increase network reliability by adding redundancy to the county freeway system, providing an alternative to the Beltway
- Connect the I-270 corridor to BWI airport
- Enhance the county's attractiveness to business
- Support existing land use and travel behavior
- Connect the housing resource area east of Rock Creek to the jobs west of Rock Creek
- Add HOV lanes to the network for cross-county bus operations.

Transportation Policy Report II
Staff Recommended Network

12/7/2001



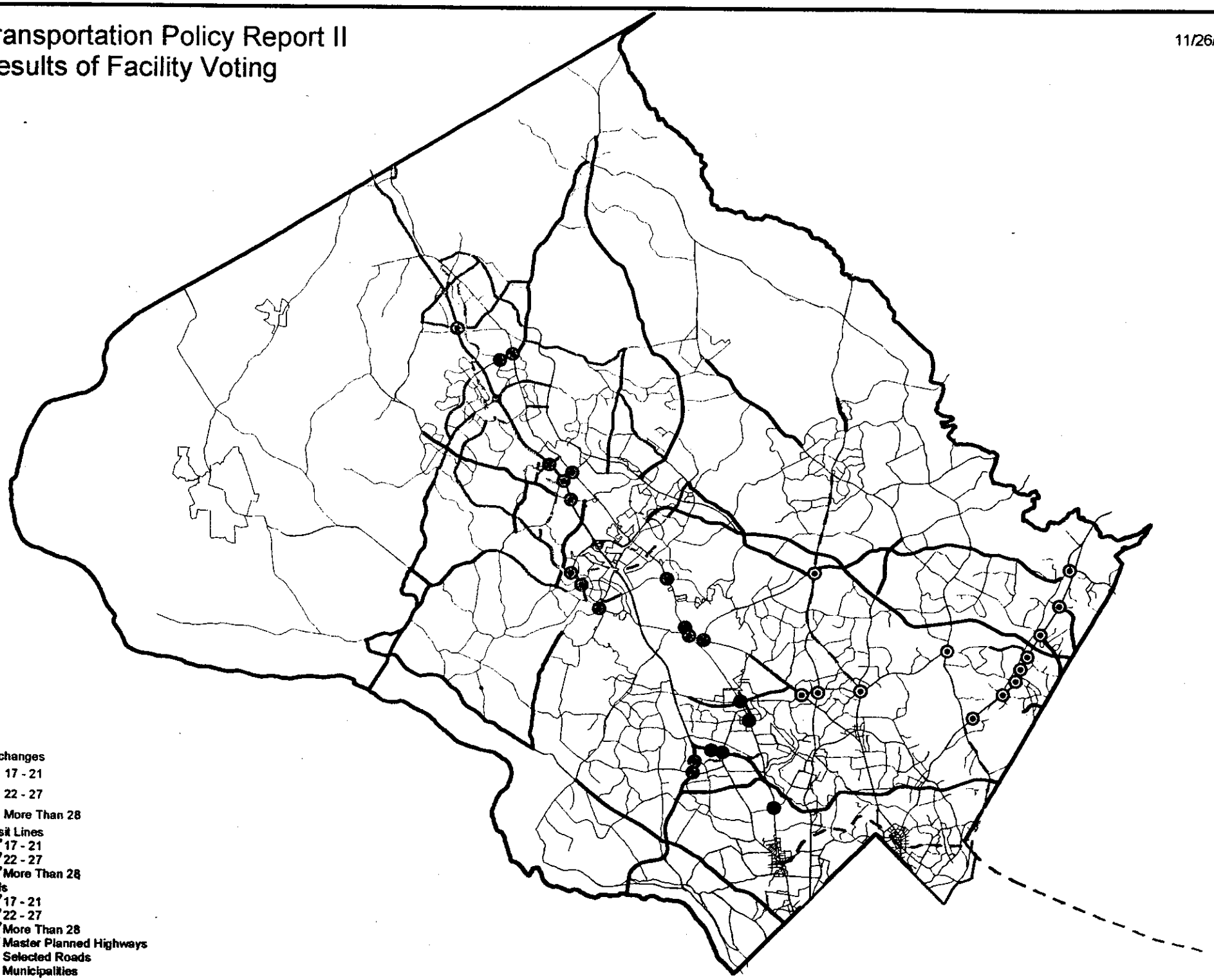
Interchanges
- Staff Network for 2050

Transit Lines
- Staff Network for 2050

Roads
- Staff Network for 2050
- Master Planned Highways
- Selected Roads
- Municipalities
- Montgomery County

Transportation Policy Report II
Results of Facility Voting

11/26/2001



As disadvantages, the ICC would:

- Increase vehicle miles traveled (VMT) countywide and increase average trip distance
- Increase total congested VMT countywide
- Negatively affect the environment in a number of irreparable ways by splitting interior forests, impinging on wetlands in a high quality watershed, reducing parkland, and potentially decreasing air quality (see increased VMT)
- Absorb fiscal resources that might otherwise be spent on transit
- Adversely affect local neighborhoods.
- The full Master Plan alignment is problematic under current environmental regulations
- Many intersections would still be over desirable congestion levels .
- The ICC may have a sprawl-inducing impact on land use.

Staff Recommendations on the ICC

The following recommendations are based on a number of findings about the roadway network in the corridor between Shady Grove Road and U.S. 29.

Staff have reviewed the extensive forecasting done for the TPR II, and part of the Upper Rock Creek Master Plan analysis that examined in detail many of the roadway alternatives in the western part of the ICC corridor.

From this analysis, staff recommends that the Planning Board and County Council:

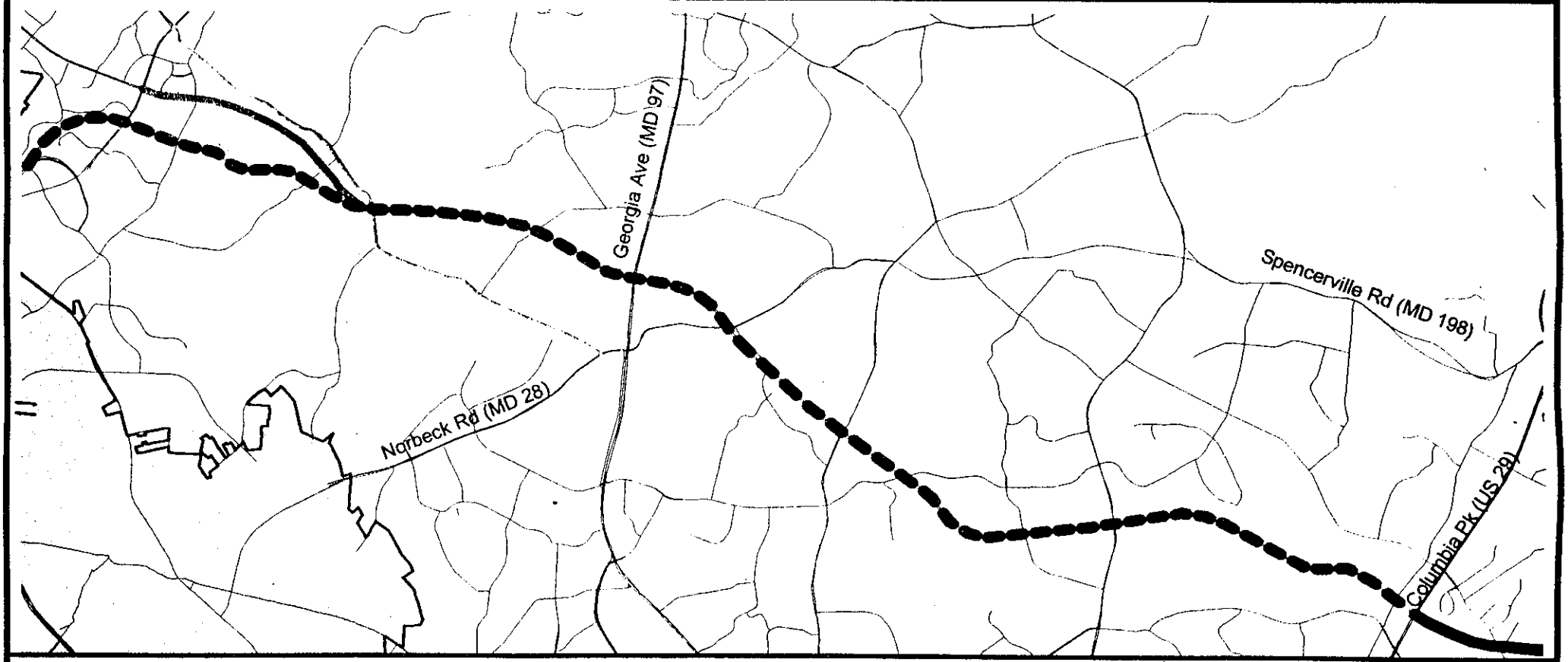
- Make a decision about the ICC in the section between MD 28 and U.S. 29. Staff recommends completing an EIS for the Master Plan ICC alignment, to determine if a roadway configuration and environmental mitigation that will allow for a four-lane freeway with two additional bus/HOV (six lanes total) lanes can be constructed between I-370 and U.S. 29. After completion of the EIS and the accompanying documentation, consider a public referendum on the project. If the EIS and the referendum support building the ICC, then begin project planning and programming.

- Irrespective of any ICC decisions, construct the Eastern Connector in the ICC right-of-way from the master plan ICC interchange with U.S. 29 to U.S. 1. The Maryland State Highway Administration (SHA) soon will begin detailed planning for the Eastern Connector to determine how intersections are to be handled and what the cross section should be.

- If it is determined that the full ICC cannot be built, build the Western Connector, a four-lane major arterial highway between the I-370 and MD 28, with at-grade intersections. This would provide the critical link between housing in the Georgia Avenue corridor and the jobs and other activities in the I-270 corridor. Four lanes are consistent with the number of lanes that will be on MD 28/MD-198 from MD 97 to US 29 and the at-grade intersections will create a link in balance with the remaining sections to the east.

Transportation Policy Report II
Staff ICC Recommendations
Option 1

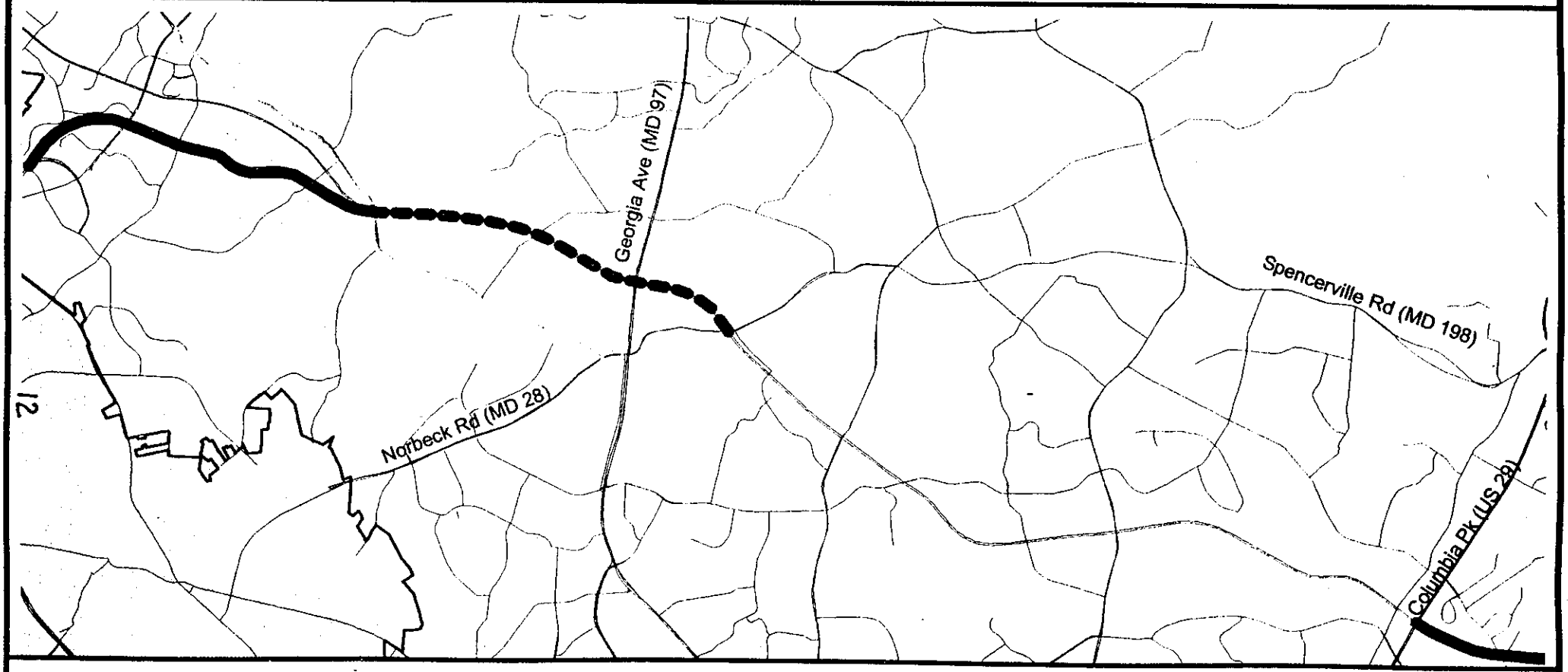
12/11/2001



Staff ICC Recommendations
- Eastern Connector (US 29 to US 1) -- Build Regardless of Decision on Full ICC
- Muncaster Mill Rd (MD 115) Widening -- Not Recommended
- ICC Master Plan Alignment -- Complete EIS, Consider Public Referendum
- Midcounty Highway (Shady Grove Rd to ICC) -- Build With Full ICC
- Master Planned Highways
- Selected Roads
- Municipalities

Transportation Policy Report II
Staff ICC Recommendations
Option 2

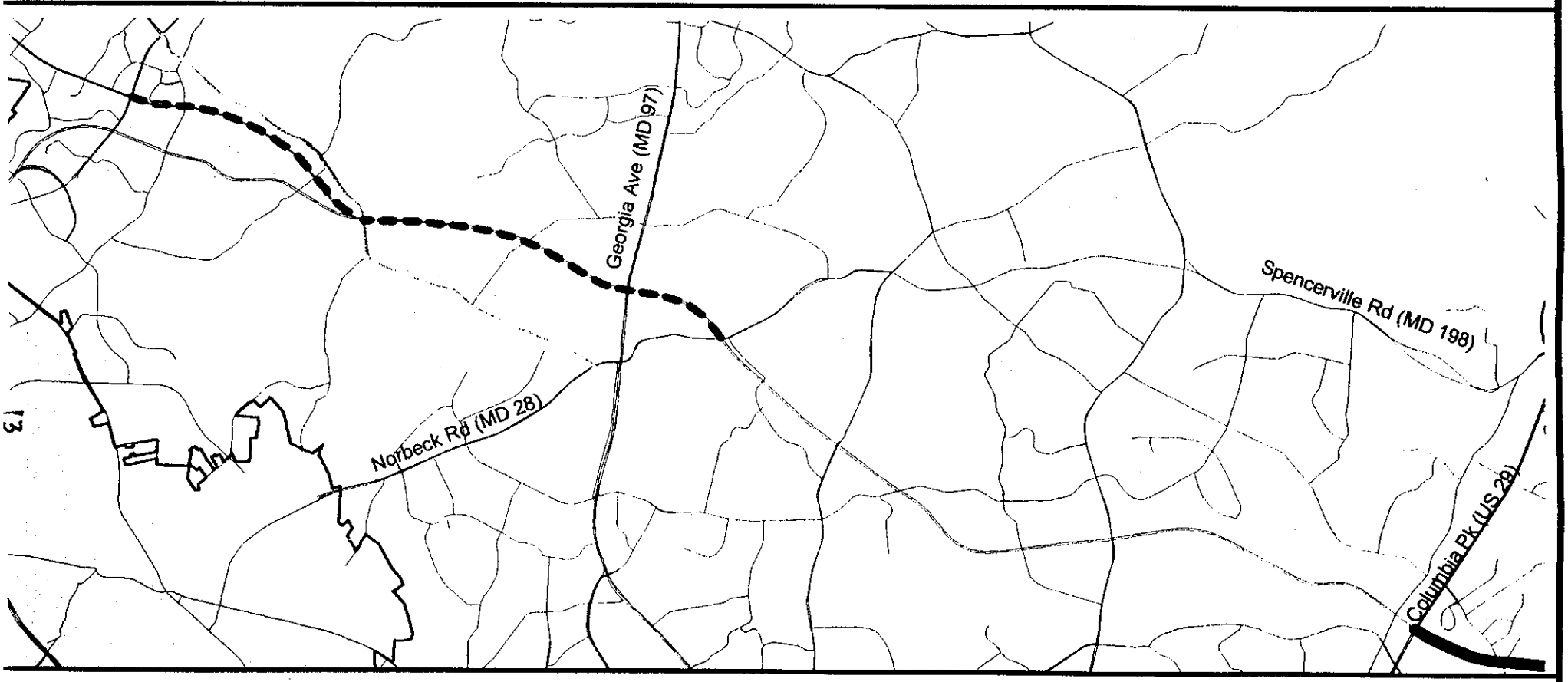
12/11/2001



Staff ICC Recommendations
Eastern Connector (US 29 to US 1) -- Build Regardless of Decision on Full ICC
Muncaster Mill Rd (MD 115) Widening -- Not Recommended
Western Connector (I-370 to MD 28) -- Build If ICC Not Feasible
Master Planned Highways
Selected Roads
Municipalities

Transportation Policy Report II
Staff ICC Recommendations
Option 3

12/11/2001



Staff ICC Recommendations
Eastern Connector (US 29 to US 1) -- Build Regardless of Decision on Full ICC
Muncaster Mill Rd (MD 115) Widening -- Not Recommended
Midcounty Highway Extension (Shady Grove Rd to ICC Master Plan Alignment, Continue Via ICC Master Plan Alignment Right of Way to MD 28) -- Build if Full ICC and Western Connector Not Feasible
Master Planned Highways
Selected Roads
Municipalities

- If the full ICC is built, then also build the Midcounty Highway extension from the current intersection of Midcounty Highway and Shady Grove Road to the ICC, as shown in the master plan. This four-lane major highway would provide a needed network connection to areas east of I-270. This is one instance where the staff is recommending a facility that did not get a majority of Task Force votes.[3]

- If the decision is made not to construct either the full ICC or the Western Connector, then construct the Midcounty Highway extension from the Shady Grove Road to the point where the Master Plan alignment for Midcounty Highway intersects the ICC MPA right-of-way, then continue along the ICC MPA to reach MD 28. This alternative is preferable to widening Muncaster Mill Road (MD 115).

Table 1. Rock Creek Screenline

Scenario	Number of Lanes	Capacity (veh/hr)	Pk Hour Volume	Avg Vol/Cap	Avg Speed
1998 Base, Existing Network	6	7,980	6,465	0.81	15.8
2025 CLRP, Existing Network	6	7,980	7,375	0.92	10.8
2050 Base, Existing Network	6	7,980	7,665	0.96	8.4
2050 MP, Extension of M-83*	10	13,300	11,430	0.86	15.1
2050 Transit, Widen MD 115*	8	10,640	9,735	0.91	11.2
2050 Staff, Full ICC	12	21,180	17,175	0.81	24.7

* Note: M-83 is Midcounty Highway Extended; MD 115 is Muncaster Mill Road.

Table 1 presents travel forecast data for the ICC corridor, specifically those roadways crossing Rock Creek, including MD 28, Muncaster Mill Road, and the ICC alternatives. Six scenarios are shown: the 1998 Base, 2025 CLRP and 2050 Base all have the existing network assumptions crossing the screenline; the 2050 Master Plan network, which assumes a four-lane extension of Midcounty Highway; the 2050 Transit-Emphasis network, which assumes a widened four-lane Muncaster Mill Road; and the 2050 Staff network, which includes the full six-lane ICC (with HOV lanes). The capacity of the roadways crossing the screenline are presented along with the forecasted peak hour traffic volumes in both directions. The average volume-to-capacity ratio gives an indication of the amount of capacity that would be used and the congestion levels that would result. Average speed is a clear indicator of the performance of the roadways crossing the screenline.

The data show the following:

- Without any roadway improvements to the screenline, congestion levels would increase and the average speed would continue to drop from roughly 16 miles per hour in 1998 to 11 mph in 2025. If no improvements were made by 2050, the average speed would

[3] The section of Midcounty Highway from Shady Grove Road to the ICC ROW received 16 affirmative votes from the Task Force, one vote short of the 17 required to keep a project "in play."

approach 8 mph. This would result in long delays and lost accessibility to jobs and households for central areas of the county. Some additional capacity is essential.

- The Intercounty Connector would provide significantly more capacity at much higher speeds than any of the alternatives. The peak hour capacity with the ICC is roughly double the screenline capacity if only Muncaster Mill Road is widened. The screenline speed for the 2050 staff network with the ICC is about 25 miles per hour, significantly higher than any other alternative and an improvement over existing conditions.

- Staff found that widening MD 115 did little to increase movement between Shady Grove Road and MD 28 and did not significantly improve speeds in the corridor. Average speed for the Rock Creek screenline would be about 11 mph in 2050 with the widening. In tests conducted for the Upper Rock Creek Master Plan, it was found that, even if Muncaster Mill Road were widened to four lanes, traffic would seek other routes because of the circuitous nature of this road in relation to the jobs and housing that it connects to in the Georgia Avenue and I-270 area. This widening also would be very disruptive in terms of impacts on environmental resources and households along it.

- An extension of the Midcounty Highway as a four-lane major highway would increase the screenline capacity by 66 percent and result in an average screenline speed of more than 15 mph, which is close to the existing speed.

The ICC is the most significant project in the proposed network in terms of increasing average speeds in the county, a key measure of system performance. The ICC would increase the average speed of all county travel by seven percent, even with increased VMT overall. Increasing VMT can be seen as a benefit in term of allowing more travel or a negative because of the effects on air quality.

Many significant benefits would be found at the District level,[4] especially in the Eastern County and Georgia Avenue. In particular, improvements would include 19-percent increases in district-level average speed, reductions in the percent of congested lane miles and increased accessibility to jobs and households by auto and transit (due to bus services on the ICC HOV lanes). Access to jobs from homes in the Georgia Avenue district increased 10 percent, indicating how this area is becoming cut off from adjacent areas in the absence of roadway improvements.

The impacts of the full ICC on Montgomery County environmental resources are profound. Building the ICC is a choice in favor of accessibility and against the environment.

The ICC was included in the transportation network when all the current County Master Plans were adopted. Removing any major portion of the ICC, or all of it, would require a re-examination of zoning and development patterns and the transportation network throughout much of the County and particularly the middle and eastern portions. The effects on the Shady Grove area would be to cut it off from many county households.

[4] For TPR II analysis below the countywide level, the county is divided into smaller areas called Districts. There are five (5) Districts: I-270 Corridor, Georgia Avenue, Eastern County, Inside the Beltway, & Rural.

Network Costs

Table 2 summarizes the estimated capital costs for the Master Plan and staff recommended network in two ways. One shows the costs by transit and roadways, the other the costs by section of the County. The costs for projects that travel through the rural district are included in the other areas.

Major Transportation Facilities Not Recommended By Staff

Although TPR II examined many road and transit projects, much of the Task Force's attention was focused on a few major facilities, the Intercounty Connector being one. Some of the other high-profile facilities not recommended by staff include the Midcounty Highway crossing Great Seneca creek, a new Potomac River crossing, and the Outer Purple Line.

Midcounty Highway North of Montgomery Village Avenue

The comments at the public forums and review of the environmental and community constraints on extending Midcounty Highway from its current terminus at Montgomery Village Avenue to MD 27 have convinced staff that this section is not feasible to construct. It is *reluctantly* recommended that this be deleted from the Master Plans.[5] However, this action must be accompanied by an update to the land use sections of the Clarksburg and Germantown Master Plans by reducing the total development levels to be commensurate to what the reduced roadway network would support.

This section of Midcounty Highway was intended to connect this part of the county with activity areas to the east, and little additional capacity on other roads is available. There is no good travel option from Montgomery Village Avenue to the north except MD 355, and that road, as well as the remaining area network, is already slated for widening to the master plan maximum. Removing this roadway makes sense from an environmental and community disruption perspective but would create transportation capacity deficiencies that must be rebalanced.

Outer Purple Line

Staff has not included the Outer Purple Line in our recommendations. The Maryland Department of Transportation (MDOT) Capital Beltway Corridor Study provided information that augmented the TPR II forecasting work on the Outer Purple Line. The findings of the MDOT study, supported by recent actions by the Planning Board and the Montgomery County Council, are that the Inner Purple Line is more desirable as a way to connect communities and serve potential high transit use areas. It is also more feasible from a cost perspective. The Inner Purple Line would have a greater percentage of trips where pedestrians walked to the stations, while the Outer Purple Line would rely heavily on automobile access.

---

[5] This section of Midcounty Highway received 16 affirmative votes on the Task Force. The northernmost section of Midcounty Highway, from MD 27 to MD 355 in Clarksburg, received a majority (24) of Task Force votes and appears in the staff network. The CLRP contains Midcounty Highway from MD 27 to Middlebrook road; this section would have to be removed from the CLRP concurrent with its deletion from the Master Plan.

Table 2 - Transportation Network Cost Comparison

Transit and Road Project Cost Comparision for 2050 Scenarios

Type of Project	Base Master Plan	Staff Network with ICC	Staff Network w/ Western Connector
Transit			
Cost (in Millions)	$ 1,236	$ 2,403	$ 2,403
% of Total Cost	*20%*	*26%*	*28%*
Road			
Cost (in Millions)	$ 4,794	$ 6,786	$ 6,300
% of Total Cost	*80%*	*74%*	*72%*
Total Cost	$ 6,031	$ 9,189	$ 8,703

Cost Comparisions by Area for 2050 Scenarios

Project Area	Base Master Plan	Staff Network with ICC	Staff Network w/ Western Connector
Georgia Ave & Eastern Co. (Includes ICC or Western Connector)			
Cost (in Millions)	$ 904	$ 2,862	$ 2,342
% of Total Cost	*15%*	*31%*	*27%*
I-270			
Cost (in Millions)	$ 4,779	$ 4,368	$ 4,402
% of Total Cost	*79%*	*48%*	*51%*
Inside Beltway			
Cost (in Millions)	$ 347	$ 1,960	$ 1,960
% of Total Cost	*6%*	*21%*	*23%*
Total Cost	$ 6,031	$ 9,189	$ 8,703

Ridership forecasts showed that the Inner Purple Line would carry roughly 25 to 30 percent more riders per mile than the Outer Purple Line. This finding is significant because the TPR forecasts assumed the same speed and operating characteristics for both the Inner and Outer lines, while the MDOT study assumed significantly higher speeds for the Outer line. If it assumed that the Georgetown Branch segment will be operational when the Outer Purple Line is built, ridership per mile would be even lower on the Outer Purple Line.

Potomac River Crossings: The "Techway"

The Techway received a good deal of study during the TPR II process. Alignments studied included the 1) "High Techway" as a 6-lane limited access road and bridge from I-270 into Virginia, and 2) "Low Techway" as a 4-lane arterial bridge and associated widenings and extensions of the current arterial network.

Travel forecasts showed that significant demand would exist for both alternatives. The High Techway would carry about 10,000 vehicles and the Low Techway would carry about 5,900 vehicles in both directions in the peak hour (the existing Legion Bridge carries about 16,000 vehicles in the peak hour). The demand is approaching the assumed capacity for either bridge. The High Techway would have a much bigger impact on countywide traffic, increasing countywide VMT by 18% and average speed by 8%. The Low Techway would increase countywide VMT by 4% and average speed by 3%. Forecasts also show that many of the trips using the bridge would travel between the Dulles Corridor and I-270 corridor, but most trips would not extend further east over to Georgia Avenue or beyond.

The VMT increases from the High Techway cause both the percent of the lanes at congested levels and the percent of VMT at congested levels to increase. (4% increase in congested VMT and 2% increase in congested lane miles.)

Although there are certainly some transportation technical benefits for the Techway, the environmental and community impacts outweigh the benefits. The road would cross the C&O Canal (National Park Service Property) and county parkland as well. The High Techway alternative impacts the environment at the bridge and also along the eight-mile alignment of the connecting freeway. Although a particular route was tested, any alignment would negatively impact existing communities. The areas impacted include: 86 acres of Combined Wetlands/Floodplain/Stream/ Lake, 25 acres of Parkland/Biodiversity, and 42 acres of significant forest. The High Techway would impact about 183 buildings. Tunneling, as some have suggested, would dramatically increase cost. The High Techway changes the focus of the region. The center of gravity of Montgomery County's accessibility to and from suburban employment centers would be moved further from the Core.

The Low Techway bridge's direct environmental impacts are less, but still significant. The areas impacted include: 14 acres of Combined Wetlands/Floodplain/Stream/Lake, 3 acres of Parkland/Biodiversity, and 4 acres of significant forest. The Low Techway would impact about 2 buildings directly in the potential right-of-way.

The connection from the bridge to the existing roadway system at any point is problematic. The Low Techway would be connected to MD 118, MD 28, and River Road. The extended MD 118 would negatively impact an existing community in ways completely unanticipated by the

existing and proposed master plan. Traffic on the three connecting roads would roughly double with the new bridge. As a result, speeds would decrease by ten miles per hour on MD 118.

The accessibility gains are precisely where they are least desired. There is little benefit to the County in making Darnestown more accessible to the Dulles Corridor. This is a low density wedge area of the county where the General Plan would affirm that land use. As a matter of political will, the zoning could be maintained but the Techway would create market pressures to increase zoning density where it is not planned to do so.

Priorities for the Staff Recommended Transportation Network

Staff offers the following as a general sequence of implementation for the many projects included in the staff-recommended transportation network. Because project planning and construction often take many years, in some cases these projects would be undertaken on parallel tracks and not sequentially. Staff have relied on the following general policy objectives in determining how to set the priorities:

- Supporting existing communities and those locations where development has already been approved.
- Remove major intersection delay points by building interchanges.
- Build a larger transitway network: light rail, busways or HOV lanes.
- Serve east-west travel.

Sequence of Implementation

1. Build all projects in the Constrained Long Range Plan (CLRP), which includes the Georgetown Branch Light Rail between Bethesda and Silver Spring and the full Montrose Parkway and funds for WMATA to increase Metrorail service to the ends of the Red Line, plus the following projects that should be added to the CLRP as soon as possible (Objective: *To support current communities and remove intersection delays at major intersections*):

    - Veirs Mill Road (MD 586) widening to six lanes between Twinbrook Parkway and Randolph Road
    - Clopper Road (MD 117) widening to six lanes between Seneca Creek State Park and Quince Orchard Road (MD 124)
    - Norbeck Road (MD 28) and Spencerville Road (MD 198) widening to four lanes between Georgia Avenue (MD 97) and Columbia Pike (U.S. 29)
    - Grade-separated interchange at MD 355 and Cedar Lane
    - Grade-separated interchange at Randolph Road and MD 586
    - Grade-separated interchange at Randolph Road and Connecticut Avenue (MD 185)
    - Grade-separated interchange at Randolph Road and New Hampshire Avenue (MD 650)
    - Grade-separated interchange at MD 355 and Nicholson Lane
    - Grade-separated interchange at Great Seneca Highway (MD 119) and Sam Eig Highway
    - Grade-separated interchange at Darnestown Road and Shady Grove Road

2. Complete the Environmental Impact Statement (EIS) for the Inter County Connector (ICC). (Objective: *Support communities, and serve east-west travel*)

3. Build the southern section of the Corridor Cities Transitway (CCT) from Shady Grove Metro to an interim terminus. (Objective: *Build transitway network*)

4. Build the remainder of the inner purple line east of Silver Spring. (Objective: *Build transitway networks*)

5. Build the Capital Beltway (I-495) High Occupancy Vehicle (HOV) lanes between the American Legion Bridge and I-95. (Objective: *Build busway/HOV network*)

6. Build I-270 HOV lanes from current terminus to Montgomery County/Frederick County line (Objective: *Build Busway/HOV network*)

7. Build the ICC on the Master Plan Alignment (MPA) or the Western Connector[6] (Objective: *Serve existing communities and improve east-west travel*)

8. Build the Georgia Avenue Busway from the Glenmont Metro to Olney (Objective: *Build Transitway network*).

Funding of Transportation Facilities and Operations

One clear finding from the TPR II analysis is that the current level of transportation capital funding will not provide a transportation system that meets the county's needs from many perspectives. This finding is reflective of similar reviews of the future at the regional level. The MWCOG recently published its Year 2000 Annual Report entitled, "Facing the Transportation Funding Crisis."

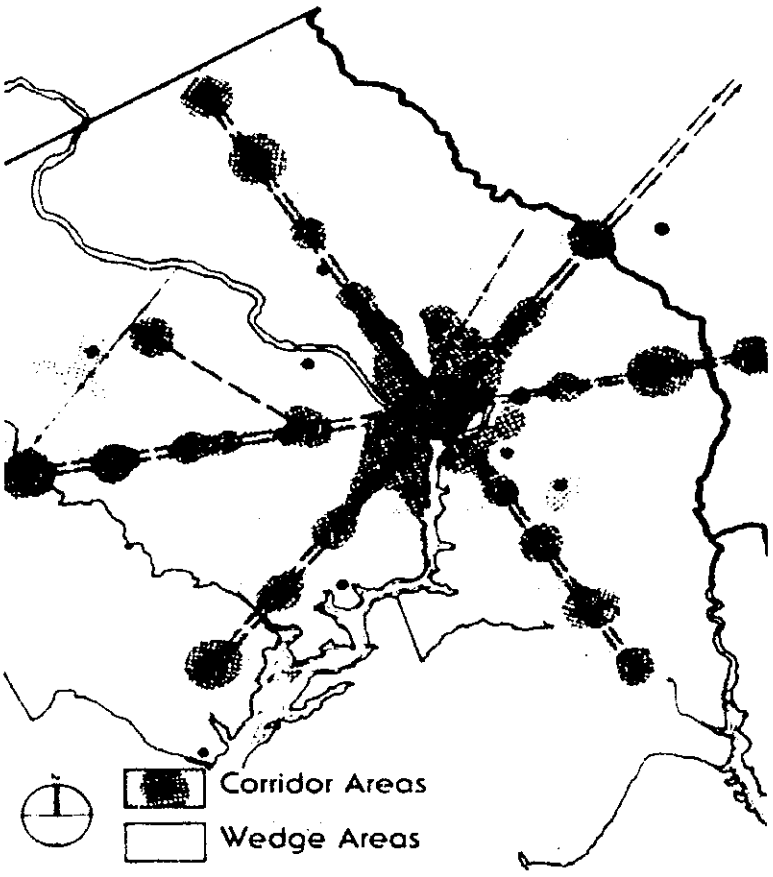
The cost estimates for the staff network are in the range of $8 to $9 billion in capital costs. This is several times what is seen as available given current funding patterns. To meet this level of capital expenses and operate it in the future will require a combination of federal, state and county resources. The Task Force had several funding recommendations and the Staff concurs with these. However, the severity of this problem cannot be overstated. For example, the Metrorail system -- the backbone of the regional transportation network -- is severely underfunded and will have capacity constraints unless additional funds for new equipment and operations are allocated. The funding issue may end up being the most difficult of all the issues identified in TPR II.

[6] See separate section on the ICC.

Table 3 - Cost Buildup of Transportation Network Priorities

Project Name	Improvement Type	From	To	Lanes	Cost ($M, Year 2001)	Cumulative Cost ($M, Year 2001)
CLRP Network	N/A	N/A	N/A	N/A	$1,488	
Veirs Mill Rd. (MD 586)	Widening	Twinbrook Pkwy.	Randolph Rd.	6	$42	$1,530
Clopper Rd. (MD 117)	Widening	Seneca Creek State Park	Quince Orchard Rd. (MD 124)	6	$16	$1,546
Norbeck Rd. (MD 28) and Spencerville Rd. (MD 198)	Widening	Georgia Ave.	US 29	4	$113	$1,659
Rockville Pike (MD 355) at Cedar Lane	New Interchange	N/A	N/A	N/A	$66	$1,725
Randolph Rd at Veirs Mill Rd. (MD 586)	New Interchange	N/A	N/A	N/A	$29	$1,754
Randolph Rd. at Connecticut Ave. (MD 185)	New Interchange	N/A	N/A	N/A	$29	$1,783
Randolph Rd. at New Hampshire Ave. (MD 650)	New Interchange	N/A	N/A	N/A	$66	$1,849
Rockville Pike (MD 355) at Nicholson Lane	New Interchange	N/A	N/A	N/A	$66	$1,915
Sam Eig Hwy. at Great Seneca Hwy. (MD 119)	New Interchange	N/A	N/A	N/A	$66	$1,981
Shady Grove Rd. at Darnestown Rd. and Wooton Pkwy.	New Interchange	N/A	N/A	N/A	$66	$2,047
Complete EIS for ICC	Study	N/A	N/A	N/A	$3	$2,050
Corridor Cities Transitway	Light Rail	Shady Grove	Life Sciences Center	N/A	$121	$2,171
Inner Purple Line	Light Rail	Silver Spring	New Carrollton	N/A	$850	$3,021
Capital Beltway (I-495)	Widening (add 1 HOV lane each way)	American Legion Bridge	I-95	10 (8+2 HOV)	$578	$3,599
I-270	Widening	Mont. Village Ave. (MD 124) / Quince Orchard Rd. (MD 124)	Clarksburg Rd. (MD 121)	6 + 2 HOV	$420	$4,019
ICC (MP alignment)	New Road	I-370	US 1	6 lanes 4 + 2 HOV	$1,434	$5,453
Georgia Avenue (MD 97)	Busway	Glenmont Metro	Olney	N/A	$69	**$5,522**

BACKGROUND OF THE TRANSPORTATION POLICY REPORT



BACKGROUND OF TRANSPORTATION POLICY REPORT

The land use vision and transportation network proposed here addresses the future needs of Montgomery County for the year 2050. It was developed through an intensive planning effort that included detailed technical analysis, advice and participation from nationally recognized consultants and extensive public involvement.

TPR I, completed in 1999, found that, given projected household and employment growth for the year 2020 (as estimated by the Council of Governments), combined with a variety of "affordable" transportation networks, the quality of Montgomery County's transportation system would decline significantly.

A 34-member citizen Task Force representing civic groups, employers, special interest groups, local governments and government agencies and individuals led TPR II. The Task Force developed scenarios that tested combinations of transportation facilities and land use against a set of criteria, known as Measures of Effectiveness (or MOEs), defined by the group. The Task Force agreed on several policy recommendations that address land use, growth, funding issues, the bus system and transportation demand management (TDM). A prominent element of TPR II was a public involvement program that involved citizens and organizations that have not traditionally participated in transportation or land use planning. This extensive outreach gave the Task Force and staff a broad picture of Montgomery County's transportation needs.

The Task Force's final report will contain its recommendations, as well as pro-con statements on each of the major facilities, the results of their analysis and appendices that detail the forecasting process and other elements of TPR II.

This staff report proposes a land use and transportation network, augmented by supportive policies, to carry out the vision of the General Plan. This transportation system would provide citizens a variety of ways to travel about Montgomery County and the region. This approach recommends the building and widening of roads where appropriate, as well as improving and expanding transit, pedestrian and bicycling facilities and ride sharing alternatives.

An important feature of the proposed network is the coordinated planning of road and transit service with land use to maximize the benefits of serving and coordinating development with public investments in transportation. This network would link land use policies that shape communities with a transportation system that connects them and focuses on the connections that link local and regional business and residential centers.

Shaping The Future

This staff report is an effort to develop a comprehensive transportation and land use response to future needs. Our ability to identify a probable range of future conditions is critical to maintaining Montgomery County's exceptional quality of life and our global competitive edge. However, it is important to be realistic about our ability to foresee the future.

In transportation planning, staff examines existing land use and travel behavior and applies these relationships to future land use and transportation facilities. *Revolutionary changes or single large-scale events can affect the future significantly.* Predicting these important events and their

outcomes is beyond the scope of this project. For example, emergency preparedness is now on the top of many agendas, but the Task Force never discussed this issue. The history of transportation is one of technological innovation, from ships and canals to trains, cars and aircraft. Just this month, a motorized gyro-balanced scooter was touted as *the* future of transportation. This report does not assume or forecast any leaps in technology. If electronic communication dramatically increases the number of people who work at home, the severity of future congestion forecast in this report would be overestimated.

The proposals that emerged through the TPR process represent the most promising and reasonable transportation alternatives we have developed. The following range of probable conditions underpin this proposed network:

Condition #1: Dynamic Forces

- A *changing economy* demonstrating specialization, concentration, and often accompanied by "back office" functions in surrounding counties.

- A *growing region* characterized by dispersed concentrations of vibrant employment, housing, and recreation centers.

- Burgeoning *electronic communication options* that allow many business functions to locate almost anywhere in the region, thereby blurring the lines between work and home, while possibly affecting conventional transportation patterns.

- A *maturing county* reflecting an aging population, infrastructure, and an increasing portion of growth occurring as redevelopment.

- An increasingly *diverse* immigrant population that is generally younger and growing faster than the population as a whole.

- A continuing need to provide *emergency response* services, a necessary roadway network function, the need for which has been recognized for decades, yet made more visible in recent months.

Condition #2: Transportation Infrastructure

The public debate over new and/or expanded facilities will be complicated by the following six factors that directly contribute to "policy gridlock":

- The *funding* available for new or expanded transportation facilities has not kept pace with increases in demand. Other important priorities such as security and education compete with transportation projects for public funds. Any additional commitment to transportation funding may be perceived as a reduced commitment to other priorities.

- Maturing counties have *less vacant land*, particularly in urban areas. That means the financial and social cost of buying land for transportation facilities is much more expensive.

- Established neighborhoods often view new transportation facilities as *potentially threatening* to community quality of life. Such facilities often increase traffic and create inconveniences for neighboring land uses.

- Many residents want to *preserve green space* rather than build more transportation facilities.

- Tighter environmental laws and a better understanding of the potential *environmental impacts* of construction have made some planned transportation projects extremely costly or infeasible.

- There are no perfect answers. There are negative attributes to every large project that must be weighed against potential benefits.

Condition #3: Community Values and Perspectives

To create a transportation network and land use pattern that protects Montgomery County's exceptional quality of life, we must have a grasp of how people want to live and what they value. TPR II's public involvement effort helped to guide our recommendations and, hopefully, will be used in future Planning Board and County Council deliberations. The complete record of public deliberation in TPR II was transmitted with the Task Force Report.

A glimpse into public sentiment reveals a range of likes and dislikes that reflect the values and needs of our citizens. A number of shared community values emerged, including economic well-being, transportation choice, easy access to jobs, affordable housing, neighborhood livability and open space protection. Each of these is an element that contributes to quality of life.

Many citizens who expressed opinions felt that a balance of road and transit improvements and expansions would help relieve congestion and address connectivity problems. Although they entered the process with divergent backgrounds, viewpoints, and civic and business priorities, these citizens articulated the need to break "policy gridlock" and better manage transportation needs in the future.

The process uncovered many recurrent sentiments:

- Citizens generally support master plan visions and recommendations but stressed that *implementation of capital projects* to deliver those recommendations is woefully lacking.

- *Roadway connections* to key local and regional destinations are missing from current plans and projects, particularly connections to BWI and Dulles.

- The county needs an *enhanced bus system* that makes more effective connections between places where people live and work. Strong sentiment was expressed for improving the image of transit.

- Smaller *community-focused transportation improvements* could make neighborhoods more livable.

- Many citizens view the county as an urban community but view *government response to transportation* as suburban.

Staff Comments on Task Force Findings

The Task Force recommendations address measures of effectiveness, policy, facilities, the bus network, and transportation demand management (TDM). Each of these subject areas affect land use. In addition to the following summary, the Task Force's specific recommendations can be found in the Appendix.

The Task Force's **Measures of Effectiveness** (MOEs) articulate the goals and objectives the Task Force used to evaluate facilities and transportation networks. These measures value alternatives that provide a broader range of transportation choices and more efficient land-use patterns, improve sidewalks and pedestrian pathways, provide facilities for bikes and establish mixed-use communities. Staff concurs with the Task Force's findings in most cases; some of the Task Force's specific MOE recommendations on other actions and data needs deserve careful review because of the difficulty of determining future values.
The Task Force's **growth policy** recommendations support transit-oriented and mixed-use development and suggest a comprehensive vision for planning, redeveloping and improving major thoroughfares. Staff concurs with these growth policies.

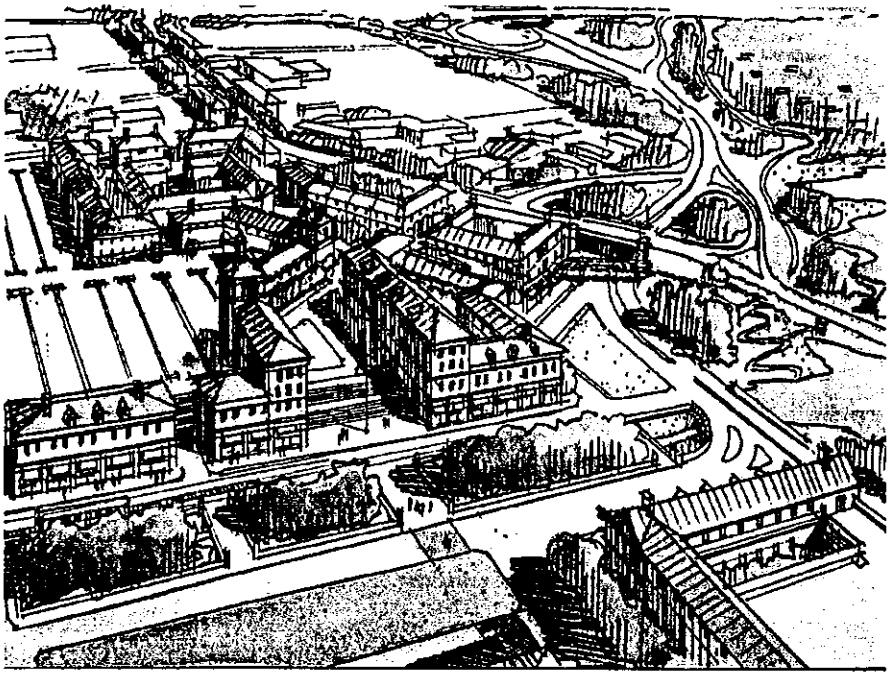
The Task Force's **land use policy** recommendations include exploring opportunities for more housing at Metro stations and at other activity centers; placing more jobs in eastern Montgomery County at the White Oak/FDA site and the West Farm Technology Park; developing the Montgomery County Public School site with the addition of a transit stop on the Metro Red Line; and supporting master plans that provide a long-term vision. All of these policies are consistent with staff views.

Staff supports the Task Force's **transit-oriented design policy** that articulates land use and transportation facility initiatives and recommends the implementation of several urban design measures.

Roadway and transit facilities, including the Corridor Cities Transitway and new MARC and Metro stations in the I-270 transit package, the Inner Purple Line, and the Georgia Avenue Busway endorsed by the Task Force reflect the staff's future land use vision. Staff also concurs with **local road improvements** that work to complete the network near transit and critical to making transit-oriented communities work.

The Task Force's recommendation of an improved and augmented **bus network** will provide county residents and businesses a comprehensive and compatible bus network that strongly supports the staff's land use vision. The Task Force's **transportation demand management** (TDM) recommendations are consistent with the County's on-going efforts to encourage use of transit and other non-auto modes, and reduce peak-hour auto travel.

LAND USE VISION, PRINCIPLES AND ACTIONS



LAND USE VISION, PRINCIPLES AND ACTIONS

Land Use Vision: Establishing a Quality of Life Agenda

Montgomery County is uniquely positioned over the next fifty-years to address quality of life issues. Significant park and open spaces will be of great value as the region grows and land is developed. This land use vision establishes a priority to protect and enhance existing communities and open space resources, and to confirm the General Plan, known as "Wedges and Corridors". The General Plan guides the County's growth by concentrating jobs and housing inside the Beltway and along the I-270 Corridor, and protecting large areas of the County for agricultural and open space uses.

This land use vision directs growth to mixed-use activity centers and Metro station areas. As an example, job growth will be directed to the White Oak/FDA activity center in the eastern part of the County, and housing growth will be directed to the I-270 Corridor concurrently with job growth. Opportunities to improve the balance of jobs and housing within planning areas will reduce commutes and enable people to live close to work. Development will be focused in areas with existing infrastructure and services including transit stations, schools and other community facilities. Master Plans will foster the creation of communities that offer access to a mix of uses, an interconnected system of local streets, quality streetscapes, and transportation choices (roads, rail transit, buses, walking and bicycling).

This vision would support transit-oriented development by providing sufficient density at the County's activity centers and Metro station areas to support a mix of uses served by a range of transit and vehicular transportation options. This vision includes providing a range of transportation options for work and recreation activities to reduce the dependence on the automobile. They also include significant attention to issues of community character and safety.

Agricultural and rural open space preservation will continue. Some future jobs and housing growth will be shifted from rural areas to designated growth areas.

Principles and Policies Making the Vision a Reality

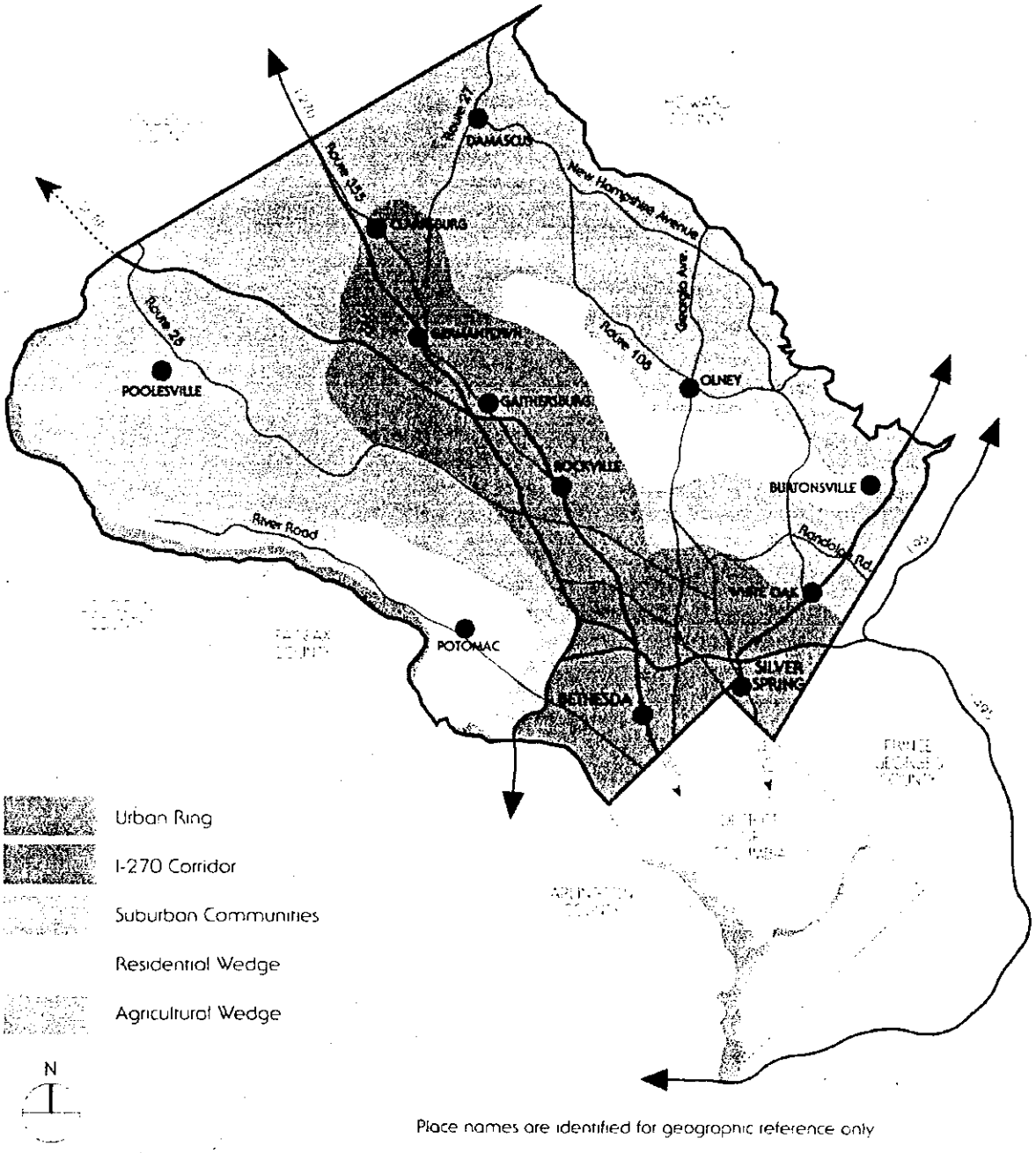
The land use and transportation vision focuses on establishing communities that respond to significant challenges. These challenges include responding to the needs of our diverse population and demographic trends in Montgomery County.

Principles And Policies for Land Use: Principles and policies for implementing the land use vision provide a framework for defining quality of life in our communities. These principles and policies are intended to reduce the need and cost for providing transportation infrastructure.

The Task Force established a set of land use principles and policies that address quality of life issues. Although an alternative land use was developed for testing purposes, the TPR Task Force elected not to recommend changes to the existing master plans. Recognizing the need to increase community input, to improve the knowledge of land availability, and to understand the need for other community facilities before recommending specific land use changes, the TPR Task Force recommends implementing broad land use changes through the master plan process.

WEDGES and CORRIDORS

The General Plan



Place names are identified for geographic reference only

The staff supports the policies and principles recommended by the Task Force as described in the following:

- Examine opportunities to improve the balance of jobs and housing within planning areas in order to reduce commutes and enable people to live close to work.

- Explore opportunities for more housing at Metro stations areas and in other activity centers, where appropriate.

- Continue to support the preservation of agriculture and open space in the rural areas through such measures as the purchase of land or easements and the strengthening of the Transfer of Development Rights (TDR) program.

- Place more jobs in the East at the FDA/Percontee sites and at the West Farm Technology Park.

- Plan for a new activity center at Langley Park with a balance of jobs and housing, preferably in conjunction with the development of the Inner Purple Line.

- Support more housing at appropriate locations in the I-270 Corridor.

- Develop the Montgomery County Public School site with the addition of a new transit stop on the Metro Red Line.

- Focus development in areas with adequate infrastructure including schools and other community facilities.

- Support master plans that provide a long-term vision that improves the visual and functional qualities of the county's arterials such as MD 355 and Georgia Avenue.

- Examine opportunities to reduce congestion and improve visual quality through such land use measures as creating mixed-use nodes or centers, reserving land for open space and civic uses, and clustering developments.

Principles and Policies for Metro Station Areas and Activity Centers: The principles and policies described in the following apply to Metro stations areas and other activity centers served by transit include the following:

- Variety of uses: Plan for a mix of housing, office, and retail uses that provide opportunities to walk to work and travel for short distances to services.

- Focus communities toward transit: Plan for the pedestrian, and frequent and reliable transit choices.

- Create attractive and safe local streets for people: Plan for an interconnected local street system including ample sidewalks, crosswalks, lighting, and trees that encourage the use by pedestrians and bikes in addition to automobiles and transit vehicles.

- Provide public facilities, and open space and recreation opportunities within communities: These facilities and spaces should be provided within walking distance to reduce the need for long distance travel by automobile.

- Design the community for livability: Orient buildings to streets, locate larger parking facilities behind buildings, and encourage the joint use of Metro properties instead of single use parking structures.

- Plan for infill development: Plan for an appropriate increase in density, and encourage the retention of institutions in existing neighborhoods.

- Plan for revitalization: Encourage public/private partnerships and establish incentive zoning.

Additionally, the TPR Task Force developed policy recommendations that support transit-oriented development through land use measures, transportation facility initiatives, and urban design measures at Metro station areas and activity centers. Staff support implementing these policies through the Master Plan process.

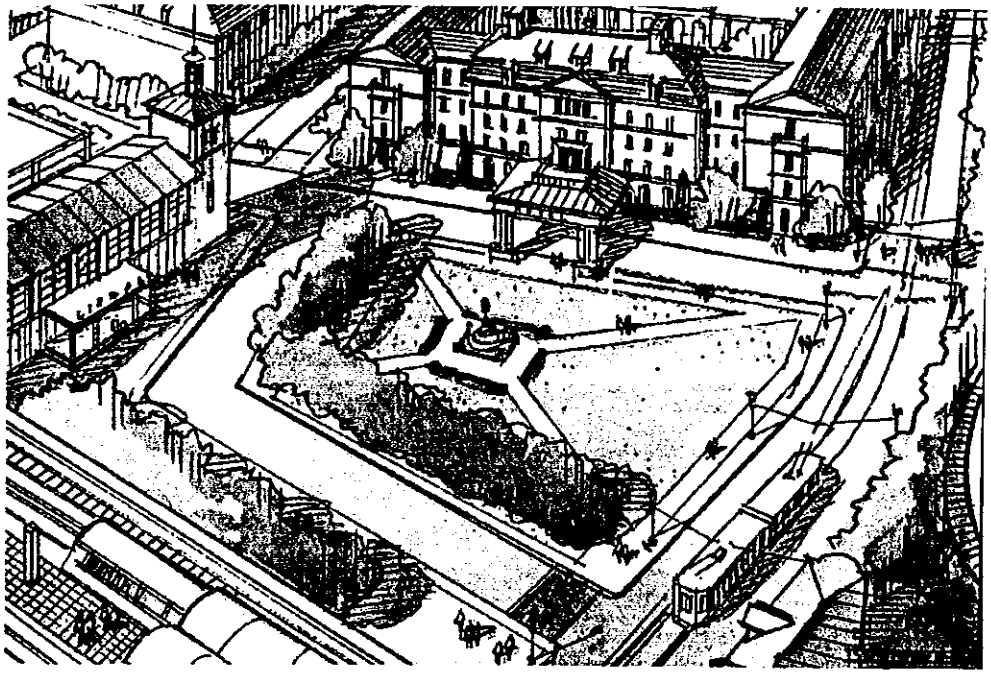
Principles and Polices for Balancing Jobs and Housing: Fostering a balance of jobs and housing within the framework of the General Plan is a critical feature of the existing master plan process. This balance is achieved when the number of jobs is equal to the number of workers in each household. The projected ratio of jobs and households applied countywide is in balance. This is not the case in major sub-areas of the County. Existing master plans already establish principles that attempt to provide this balance. Achieving this balance will reduce some of the current dependence on the automobile and have the positive effect of reducing demands on the transportation system. As new master plans are approved, establishing this balance should continue to be a feature. Findings indicate improving the balance of jobs and housing would accomplish the following:

- Reduce vehicle miles traveled
- Increase percentage of County jobs accessible by walking, biking or transit
- Take advantage of existing infrastructure including Metro

Principles and Policies for Arterials: The arterials provide a first impression of the County and a front door to existing and future communities. Improving the visual and functional qualities of these arterials should be a high priority. As part of the quality of life agenda, transportation planning should recognize this need to improve arterials.

Guide Development to Metro Station Areas and Activity Centers

Create mixed-use activity centers in selected locations within the County



RECOMMENDED LAND USE PLANNING ACTIONS

RECOMMENDED LAND USE PLANNING ACTIONS NECESSARY TO IMPLEMENT THE LAND USE VISION

The following paragraphs summarize the actions to implement quality of life, and improve the balance of jobs and housing. In the near term (the year 2025), the Department will continue to explore opportunities to implement land use and policy recommendations through the master plan process by: 1) creating additional mixed-use activity centers in selected locations within the County, 2) identify the opportunities to balancing jobs and housing at a variety of levels, and 3) improving the visual and functional qualities of the County's older commercial strips. These three actions are described in the following:

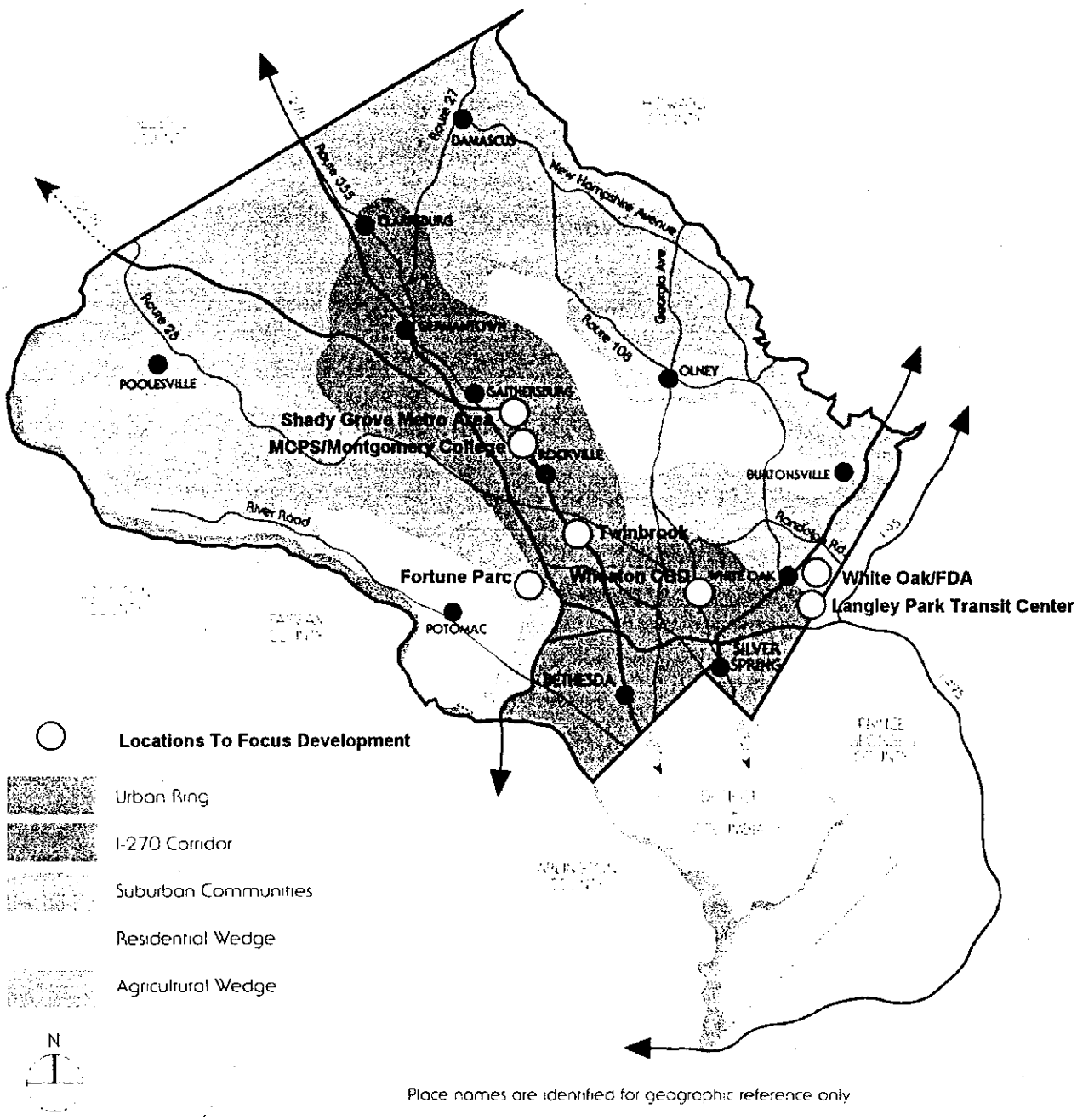
Guide Development to Metro Station Areas and Activity Centers: The Department should focus efforts on Master Plan revisions at the Shady Grove transit station area, creating a new Metro station in Rockville at the Montgomery County Public School site, improving the Twinbrook Metro station area, and guiding development at the White Flint Metro station site. Opportunities for Metro station area development exist in the Wheaton CBD, Glenmont, and a future Langley Park Metro station in conjunction with the Inner Purple Line. Limited, countywide opportunities exist in less dense activity centers with a mix of uses and housing types, and bus service. Providing mixed use at Metro stations and activity centers could increase reverse commuting, provide a diversity of housing types including housing for the elderly, and provide transit options that reduce auto dependence.

Preliminary work at Shady Grove, Twinbrook, and Wheaton CBD Metro Station Areas through a recent charrette process explored ideas on land use, development programs, and conceptual planning. Each of the three charrettes accommodated future growth at Metro stations in an attractive and positive way. Public endorsement of these concepts and the charrette process will be incorporated into upcoming master plan revisions. In the near-term, staff recommends focusing on locations where market demand and transportation infrastructure combine to create development opportunities as follows:

- Shady Grove Metro Station area
- MCPS/Montgomery College
- Twinbrook
- Fortune Parc
- Wheaton CBD Metro Station revitalization area
- White Oak/FDA Center
- Langley Park Transit Center

Continued work with residents and businesses through design charrettes and the Master Planning and Regulatory Planning processes will establish community identity, appropriate density, and easy access to transit while establishing compatibility with existing development.

Locations
To Focus Development



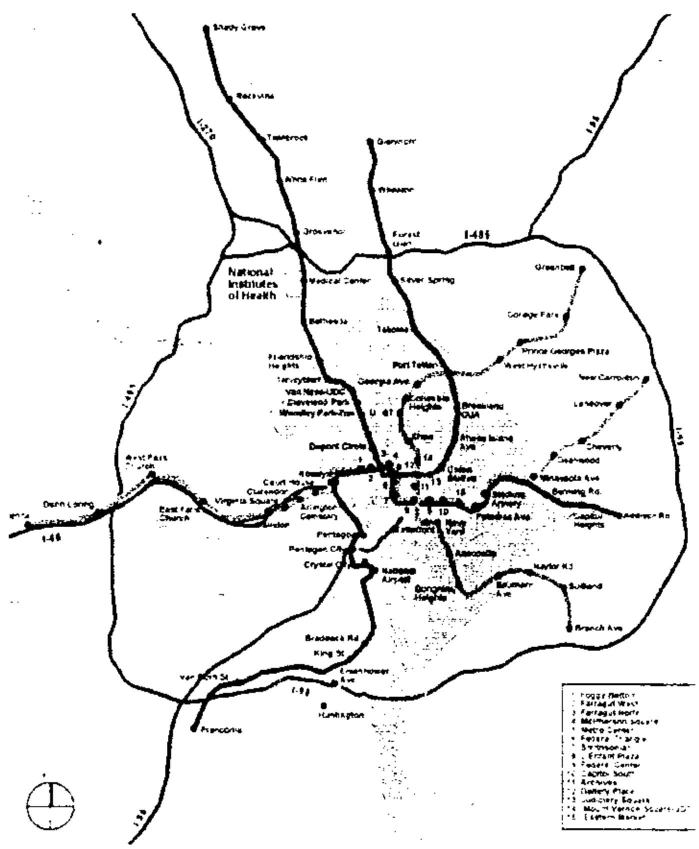
Balancing Jobs and Housing

The following actions identify the opportunities to balance jobs and housing at a variety of levels.

- Balance jobs and housing county-wide: Plan for a county-wide balance of jobs and housing (e.g. 1.6 jobs for each household) .
- Improve the balance of jobs and housing in I-270 Corridor: Increase the opportunities for housing concurrently with employment .
- Improve the balance of jobs and housing in the Eastern County: Support employment center growth at the White Oak/FDA Center.
- Improve the balance of jobs and housing at the neighborhood scale: Examine opportunities to live near work at locations of higher density such as Metro stations.
- Re-examine jobs and housing in Clarksburg, Germantown and Gaithersburg due to the removal of portions of M-83.

Provide a Vision for Arterials: Improve the visual and functional qualities of arterials and address traffic congestion of the older commercial strips. Ever increasing north-south traffic and retail development have made these older corridors congested, unattractive, and unsafe for pedestrian movement. As new development replaces obsolete buildings and land uses, opportunities are created to rethink the auto-dominant land use pattern. Clustering a variety of uses and densities, and improving the physical relationship with streets and sidewalks creates attractive pedestrian-oriented shopping and living environments. A corridor study or functional plan for these important corridors could be used to recommended improvements. In the near-term, staff recommends focusing on MD 355 (Rockville Pike) in the upcoming Master Plan for the Gaithersburg and Vicinity Area.

EVALVATION OF RECOMMENDED TRANSPORTATION NETWORK



EVALUATION OF RECOMMENDED TRANSPORTATION NETWORK

A significant portion of the TPR II planning effort was focused on evaluating transportation facilities. Much of the discussion on community building in this report highlighted the role that transit-oriented development would have in building communities. However, while many activity centers would be located at rail transit stations, the future transportation system should include roadways, bus service and pedestrian facilities so that the entire population is served.

New and improved roads are needed to keep up with the growth expected over the next 50 years. New and improved transit service, including rail lines and bus routes, will provide residents with alternative modes for traveling. In addition, supportive policies developed by the Task Force's TDM and bus work groups are a critical part of the package of improvements.

The staff network is composed primarily of facilities that are in master plans. Travel forecasts have confirmed that virtually all of the master planned facilities are needed. However, the analysis also shows that some additional improvements are needed, including major transitways and an expansion of the High Occupancy Vehicle (HOV) lane network.

HOV lanes accommodate both carpools and buses and can form part of a network that provides high quality bus service between key activity centers, in locations where light rail or Metrorail is not available or time efficient for the user.

One master planned roadway has received special discussion: the Intercounty Connector (ICC). Travel forecasts performed for TPR II showed this facility to be critical to reducing future congestion. However, it has faced years of community opposition and carries significant environmental impacts. Staff has developed phased recommendations for the Board's consideration.

General Findings From Staff Analysis Of Travel

The forecasting and evaluation tasks of TPR II were conducted in three rounds of scenario testing. These tests were used to narrow the list of projects under consideration and to describe future conditions of the county's transportation network. The following discussion is grouped into three categories: projected changes to travel patterns, future mobility and congestion levels and accessibility to jobs and households.

Travel

Existing trends point to a future where growth will make today's traffic congestion problems worse. Changes in development patterns will affect travel patterns in a number of ways:

- As the county matures, changing travel patterns are placing greater burdens on the transportation system. More people live and work in the suburbs than in the District of Columbia. This trend will become more dominant in the future. Circumferential (suburb-to-suburb) travel is increasing at a much more accelerated rate than the traditional radially-oriented travel to D.C.

- The total number of north-south work trips will continue to be greater than east-west work trips, although there will be more growth in east-west travel. For example, today, trips between jobs inside the Beltway and homes in the I-270 corridor are roughly double the number of trips between jobs in the I-270 corridor and Montgomery County homes east of Rock Creek. However, the roadway and transit network available to serve the growing number of east-west trips is much more constrained than that available and planned for north-south travel.

- As congestion continues to increase, trip lengths are expected to get shorter as people try to reduce their time spent commuting. As a result, the percentage of residents staying within the county to work is expected to increase slightly, from 58 percent in 1997 to 65 percent in 2025. Scenarios that included adding highway capacity across the Potomac River forecast the percent of people working in the county at 61 percent.

- Travel within corridors will increase dramatically. For example, work trips that begin and end within the I-270 corridor are projected to grow 70 percent between 2000 and 2025.

- Countywide transit mode shares are expected to remain relatively constant in the future, accounting for 17 to 20 percent of trips, even when significant transit improvements are made. Suburban-to-suburban trips, which represent the most rapidly growing segment of travel, are very difficult to serve with fixed-route transit such as light or heavy rail. This is true even when land use changes are made to bring some jobs and households closer to existing and proposed rail stations.

Mobility

Most of the transportation facilities considered in TPR II were proposed to improve mobility; i.e., to improve the performance of the transportation system in the movement of people and goods. Some of the changes in mobility include the following:

- The percentage of travel occurring in congested conditions will increase if new capacity is not added beyond current plans. The 1998 base scenario showed 19 percent of VMT occurring on congested road segments. By 2025, under the Constrained Long Range Plan CLRP),[7] the percent of congested VMT would climb to 30 percent, and by 2050, under current master plans, this percentage would reach 32 percent.

- None of the transportation scenarios tested was found to have congestion levels better than today's system. Only when significant highway improvements, equivalent to all of the master-planned facilities, were made by the year 2025 did average speed and congestion approach current conditions.

- The most significant bottlenecks in the county occur at stream valley crossings because of the limited number of alternate routes. In particular, movement on roads crossing Great Seneca Creek and Rock Creek showed the greatest capacity deficiencies in the county.

[7] The CLRP is the 25-year fiscally constrained transportation plan for the Washington Region. County facilities are submitted by Maryland and Montgomery County officials and adopted by the Metropolitan Washington Council of Governments (MWCOG).

- Although congestion cannot be eliminated, improvements to the most severely congested links and intersections will result in significant timesavings when totaled over all travelers.

Accessibility

Transportation planners long have recognized that travel is a derived demand, meaning that people travel to participate in activities and fulfill other basic needs. No one drives at the peak hour of traffic to enjoy the experience. Accessibility is an important goal for the transportation system. Accessibility means being able to reach activities such as work and shopping within a reasonable travel time (in TPR II, peak hour trip times less than 45 minutes were considered reasonable). This concept highlights the link between transportation and land use. As congestion increases on roadways, or as the network stays static while development moves outward, accessibility decreases in the absence of land use changes. A few key points to consider:

- Accessibility can be improved by expanding highways, but transit networks provide accessibility gains that are not subject to congestion delays.

- Compact, transit-oriented land use can provide large increases in accessibility, even as mobility is declining, by clustering important activities closer together and close to the high-capacity transportation networks such as rail or busways.

- Although none of the future scenarios were forecasted to reduce congestion, all of the future scenarios showed improvements in accessibility simply because of the projected growth in jobs and households during the next 50 years.

Comparison of the Staff Network with Master Plan Network

The staff-recommended network differs from the master plan network in the following ways:

- The ICC, as noted above.

- Midcounty Highway between Montgomery Village Avenue (MD 124) and Ridge Road (MD 27) is in current master plans but is *not* included in the staff network, as noted above.

- Capital Beltway HOV lanes are in the staff network but *not* in current master plans.

- The staff network would remove the master planned widenings of Georgia Avenue (MD 97) between Olney and the Montgomery County/Howard County line, as well as Olney-Laytonsville Road/Damascus Road (MD 108) widening between the Damascus Central Business District (CBD) and the Town of Laytonsville. These facilities were not justified in terms of travel demand and do not support smart growth principles.

- The master planned North Bethesda Transitway is not included in the staff network because of its high cost, relatively low ridership, and the ability to serve the travel demands with buses.

- Clopper Road (MD 117) is reduced from the master-planned six lanes to four lanes though Seneca Creek State Park to reduce the environmental impacts on the park. Six lanes are retained on other sections and the transition will be made where the lanes can be terminated at cross streets.

- An additional lane was added to each of the I-270 spurs in each direction to reduce future congestion levels. This was introduced in the Task Force testing, and staff found it beneficial enough to warrant further study. Issues of right-of-way and engineering feasibility have not been explored, but it is *not consistent* with current master plans.

- The staff network interchanges on Randolph Road are not in current master plans, except for Randolph Road at MD 97.

Comparison of Measures of Effectiveness (MOEs)

Tables 4-5 compares the transportation and environmental MOEs for the staff network with the Master Plan network. For some transportation measures, the Master Plan network performs better than the staff network at the county level. This is primarily due to the large influence of the master plan connection of Midcounty Highway between its current terminus at Montgomery Village Avenue and MD 27, which is not included in the staff network.

Another major difference between the staff network and the Master Plan network is that the Master Plan network *does not include the ICC between I-370 and U.S. 29.* This is because the testing for TPR II has defined the Master Plan base without the ICC to allow for comparisons with scenarios that do or do not contain it. Staff did not have a full Master Plan network to compare against in time for this review.

Examining the countywide MOEs, staff has found that the Master Plan and staff network perform very similarly on most of the auto mobility and congestion-related measures. However, on the accessibility and transit measures, the staff network is superior because it builds on the Master Plan network, with a greatly expanded transitway and HOV system.

The staff network (with the ICC) has two percent more lane miles and eight percent more vehicle miles traveled than the Master Plan as modeled. This is due primarily to the inclusion of the ICC and the Beltway HOV lanes in the staff network. Average countywide speed is projected to be about seven percent greater with the staff network, again due in large part to the ICC. The percentage of the county lane miles that are congested stays about the same in both networks, although the total congested VMT is greater in the staff network.

Table 4 - Comparison of 2050 Staff Network with Master Plan Scenario

TRANSPORTATION MOE's *COUNTY LEVEL SUMMARY*	1998 Base	2050MP	2050 Staff w/ ICC		2050 Staff w/ W.Connect	
			Total	Pct Change Vs. 2050MP	Total	Pct Change Vs. 2050MP
Trip Totals & Avg Trip Time						
Auto Person, P.M. Peak Period (3-hour)						
Total Trips	521,899	758,884	758,461	-0.06%	756,566	-0.31%
Avg Trip Time	17.59	18.92	19.24	1.68%	19.12	1.07%
Tot Person Trav Time (Hours)	153,016	239,299	243,189		241,132	
Average Distance (Miles)	7.6	7.4	7.7		7.4	
Transit Person, P.M. Peak Period (3-hour)						
Total Trips	44,707	78,886	80,429	1.96%	81,419	3.21%
Avg Trip Time	46.98	41.83	41.28	-1.33%	40.93	-2.16%
Tot Person Trav Time (Hours)	35,007	55,002	55,333	0.60%	55,541	0.98%
Average Distance (Miles)	9.6	9.1	9.2	1.28%	9.1	0.54%
Highway System						
Countywide, P.M. Peak Hour (VMT, and VHT in Thousands)						
Total Vehicle Trips (SOV, HOV, & Truck)	162,610	237,223	237,223	0.00%	236,495	-0.31%
Lane Miles	2,474	3,102	3157	1.77%	3093	-0.29%
VMT	1,458.37	2,158.70	2,341.50	8.47%	2,243.20	3.91%
VHT	52,059	103.2	104.4	1.16%	103.5	0.29%
Avg V/C Ratio	0.60	0.68	0.68	0.00%	0.68	0.00%
Avg Speed (mph)	28.0	20.9	22.4	7.18%	21.7	3.83%
% Congested VMT (V/C >= 0.80)	19.11%	32.30%	32.70%	1.24%	34.24%	6.01%
Total Congested VMT	278.7	697.3	765.8	9.82%	768.1	10.15%
% Congested Lane Miles	7.10%	15.76%	15.93%	1.07%	16.79%	6.51%
Accessibility						
Countywide (in thousands) :						
Avg. Number of Jobs Accessible in 45 min (Auto)	1355.2	1,626.10	1,702.30	4.69%	1,654.70	1.76%
Avg. Number of Hholds Accessible in 45 min (Auto)	772.1	763.6	805.4	5.47%	777.7	1.85%
Avg. Number of Jobs Accessible in 45 min (Transit)	171.1	373.6	416.8	11.56%	414.1	10.84%
Avg. Number of Hholds Accessible in 45 min (Transit)	99.0	203.6	233.7	14.78%	232.3	14.10%
Work Transit Mode Share	16.84%	17.13%	17.30%		17.61%	

Table 5: Comparison of 2050 Staff Network with Master Plan - Environmental MOEs

Environmental Factors:	*2050 MP*	*2050 Staff Network (ICC)*	*Pct Change w/ 2050MP*	*2050 Staff Network (WC)*	*Pct Change w/ 2050MP*
Wetlands (acres)	15.77	63.86	305%	39.21	149%
Floodplain (acres)	143.68	270.04	88%	228.40	59%
Stream/Lake (acres)	394.29	703.59	78%	644.39	63%
Wet/Flood/Stream Total	443.95	824.34	86%	744.03	68%
Parkland (acres)	110.95	298.49	169%	271.01	144%
Bioacres (acres)	25.6	136.38	433%	60.46	136%
Topten (acres)	15.02	91.04	506%	30.50	103%
Park/Bioacres/Topten	115.6	378.59	228%	272.01	135%
Interior (acres)	5.23	56.07	972%	54.75	947%
Significant (acres)	74.28	191.48	158%	168.53	127%
Direct Forest (acres)	79.51	247.55	211%	223.28	181%
Interior Forest (acres)	17.33	117.80	580%	114.82	563%
# of play. fields	15	28	87%	27	80%
Well Service area (acres)	402.05	235.80	-41%	235.88	-41%
# of buildings	161	330	105%	320	99%

43

The transportation MOEs also show that the staff's expanded transitway network would increase transit accessibility to jobs and housing. Transit improvements include not only the Inner Purple Line and FDA connector, but also some express bus service to take advantage of the I-270 and Beltway HOV lanes. Jobs accessible within 45 minutes by transit went up by 12 percent, and households from jobs by 15 percent.

District Level Findings

Evaluating transportation changes at the county level is problematic because of the large base of travel that these changes must be compared against and also because increases and decreases can cancel each other out countywide. At the district level, changes are more apparent (see Tables 6-8 for the district level MOEs).

The Eastern County district showed significant impacts when the Intercounty Connector and the light rail extension to White Oak were added:

- Lane-miles and VMT increased by 25 percent.
- Average speed increased by 18 percent.
- Percent congested lane miles dropped from 16.4 percent to 10.2 percent.
- Auto accessibility to jobs increased by 3.7 percent and to households by 5.6 percent.
- Transit accessibility to jobs and households would more than double.

The Georgia Avenue Corridor district also showed large improvements from adding the Intercounty Connector:

- Lane miles increased by 5 percent and VMT increased by 11 percent.
- Average speed increased by 19 percent.
- Percent congested lane miles dropped from 14.9 percent to 9.4 percent.
- Auto accessibility to jobs increased by 10 percent and to households by 2 percent. The fact that accessibility to jobs went up so significantly while households did not underscores the importance of connecting the jobs in the I-270 corridor with the households in the Georgia Avenue corridor.
- Transit accessibility to jobs increased by 19 percent and to households by 15 percent.

Table 6 – District Level Summary of Staff Network, 2050 Master Plan Scenario

TRANSPORTATION MOE's ***SUB-REGION / CORRIDOR LEVEL SUMMARY***	**Eastern County**	**Georgia Ave. Corridor**	**I-270 Corridor**	**Inside Beltway**	**Rural**
Highway System					
Note: Lane Miles, VMT, and VHT in Thousands					
P.M. Peak Hour:					
Lane Miles	253	316	1,306	483	745
VMT	204.2	215.3	900.3	441.6	397.2
VHT	8.9	11.4	38	23.1	21.8
Avg V/C Ratio	0.69	0.66	0.64	0.76	0.65
Avg Speed	22.9	18.8	23.7	19.1	18.3
% Congested VMT (V/C >= 0.80)	25.34%	25.32%	26.17%	52.58%	31.01%
Total Congested VMT	51.8	54.5	235.6	232.2	123.2
% Congested Lane Miles	16.44%	14.90%	4.84%	7.13%	13.61%
Accessibility					
(in thousands) :					
Avg. Number of Jobs Accessible in 45 min (Auto)	1,743.90	1,638.40	1,160.20	3,046.60	872.10
Avg. Number of Hholds Accessible in 45 min (Auto)	936	976.10	658.6	936.3	713.6
Avg. Number of Jobs Accessible in 45 min (Transit)	58.8	310.3	352.2	855.5	19.1
Avg. Number of Hholds Accessible in 45 min (Transit)	41	236.6	135.6	435.9	22.7

Table 7 – District Level Summary of Staff Network, 2050 Staff Network (with ICC)

TRANSPORTATION MOE's ***SUB-REGION / CORRIDOR LEVEL SUMMARY***	**Eastern County**	**Georgia Ave. Corridor**	**I-270 Corridor**	**Inside Beltway**	**Rural**
Highway System					
Note: Lane Miles, VMT, and VHT in Thousands					
P.M. Peak Hour:					
Lane Miles	278	331	1,301	521	727
VMT	257.1	239.5	948.2	490.8	405.8
VHT	9.6	10.7	41.5	23.7	18.9
Avg V/C Ratio	0.68	0.64	0.66	0.75	0.65
Avg Speed	26.9	22.3	22.8	20.7	21.5
% Congested VMT (V/C >= 0.80)	24.36%	16.97%	29.39%	55.41%	27.57%
Total Congested VMT	62.6	40.6	278.7	272	111.9
% Congested Lane Miles	10.19%	9.44%	5.87%	6.21%	9.75%
Accessibility					
(in thousands) :					
Avg. Number of Jobs Accessible in 45 min (Auto)	1,808.00	1,803.40	1,235.10	3,094.00	914.30
Avg. Number of Hholds Accessible in 45 min (Auto)	989.2	995.70	711.1	954.9	748.5
Avg. Number of Jobs Accessible in 45 min (Transit)	145.4	368.8	384.4	915.6	25.7
Avg. Number of Hholds Accessible in 45 min (Transit)	98.9	272.1	151.8	495.4	29.1

Table 8 – District Level Summary of Staff Network, 2050 Staff Network (with Western Connector)

TRANSPORTATION MOE's ***SUB-REGION / CORRIDOR LEVEL SUMMARY***	**Eastern County**	**Georgia Ave. Corridor**	**I-270 Corridor**	**Inside Beltway**	**Rural**
Highway System					
Note: Lane Miles, VMT, and VHT in Thousands					
P.M. Peak Hour:					
Lane Miles	247	313	1,291	521	721
VMT	208.6	211.5	936.4	494.2	392.5
VHT	8.7	10.5	41.2	24.1	19
Avg V/C Ratio	0.66	0.64	0.66	0.76	0.65
Avg Speed	23.9	20.1	22.8	20.5	20.7
% Congested VMT (V/C >= 0.80)	25.22%	21.00%	30.18%	56.62%	27.68%
Total Congested VMT	52.6	44.4	282.6	279.8	108.7
% Congested Lane Miles	17.74%	12.78%	6.16%	6.48%	11.04%
Accessibility					
(in thousands) :					
Avg. Number of Jobs Accessible in 45 min (Auto)	1,784.60	1,705.80	1,175.40	3,083.40	881.80
Avg. Number of Hholds Accessible in 45 min (Auto)	949	981.80	674	948.3	733.7
Avg. Number of Jobs Accessible in 45 min (Transit)	137.1	354.5	384.3	916.1	25.2
Avg. Number of Hholds Accessible in 45 min (Transit)	91.5	270.2	150.6	494.8	28.4

The I-270 corridor district shows a decrease in many transportation MOEs because of the removal of Midcounty Highway from the network:

- While lane miles are one percent lower in the staff network, VMT would be five percent higher. VMT can increase when cars are forced to take a more circuitous route to get around a gap in the roadway network.

- Average speed is about four percent lower with the staff network.

- Percent congested lane miles increases from 4.8 percent to 5.9 percent.

- Auto accessibility to jobs increased by six percent and to households by eight percent. The ICC could affect the increases in accessibility as well.

- Transit accessibility to jobs increased by 9 percent and to households by 11 percent.

SUPPORTIVE TRANSPORTATION POLICIES

SUPPORTIVE TRANSPORTATION POLICIES

Transportation Demand Management (TDM) Recommendations

TDM recommendations approved by the Task Force recommend that the county:

1. Encourage employers to provide transit passes to employees.

2. Encourage employers to provide cash to employees who elect to forego parking permits (parking cash-out). Encourage employers to coordinate parking cash-out with employer-provided transit pass benefits.

3. Set an example by improving the programs for all county government employees.

4. Make real-time bus information available at major bus stops and also through the Internet to computers and to pagers and cell phones.

5. Open more commuter stores.

6. Provide protected bus shelters with adequate space for lighting, wheelchairs and, wherever possible, accessible by sidewalks.

7. Continue to improve walking and bicycle access to transit stops and other destinations.

8. Continue to encourage telecommunications as an alternative to travel whenever possible.

9. Create an information booklet showing all TDM opportunities and incentives available to people and businesses in Montgomery County.

Staff believes that many of the Task Force's TDM recommendations have considerable merit and therefore supports them for near-term funding and implementation. These measures would help achieve more efficient and effective operation of the county's transportation system. They are relatively low cost items that deserve prompt funding consideration.

Most of the recommendations would entail some important new initiatives. Recommendations 1 and 2 would require additional resources to allow a significant expansion of the employer outreach efforts of the DPWT Commuter Services Section. Most of recommendation 3 would require implementation of new or enhanced transit-friendly policies by county government and M-NCPPC. Recommendation 4 calls for Ride-On, and especially WMATA and MTA, to catch up with recent technological advances and make a commitment to implement real-time bus information, which is already being provided or planned by some other transit providers in the Baltimore-Washington region and around the nation. Recommendation 5 would require a county commitment to replicate and expand on the successful experience of the Silver Spring storefront operation. Recommendation 6 puts a new emphasis on making bus shelters more pedestrian-friendly.

The remaining recommendations are not new. For example, recommendation 7 calls for continuing to improve access to transit, which the county is already doing, but this effort could be accelerated. Recommendation 8 calls for continuing to encourage telecommunications, which the county's employer-outreach initiatives are designed to do. Recommendation 9 calls for the development of informational material that is already available in various formats and may simply need to be updated on a timely basis.

Bus Service Recommendations

The Task Force adopted the following bus service recommendations, which are listed in an abridged version below:

1. Aggressively continue to pursue a bus routing system that better interconnects activity centers and has more frequent service, greater penetration into residential and employment areas, and extended hours.

2. Provide bus service that has many safe and convenient transfer nodes, preferably at retail and other activity centers.

3. Put in final form, approve, and implement DPWT's guidelines for bus stops.

4. Encourage WMATA to purchase buses that are more comfortable and user-friendly, similar in quality, but not necessarily the same size, as the ones that are being purchased by the county for Ride-On.

5. Expand efforts, in partnership with other transit providers in the region, to make real-time bus information available at select bus stops and through the telephone and Internet to computers, pagers, and cellular phones.

6. Expand the county's marketing and promotional efforts to better inform potential bus users about the service features of the region's bus system in order to overcome socioeconomic stereotypes of buses, and improve customer service.

7. Pursue opportunities to construct queue jumpers and to allow real time adjustments to traffic signals to provide buses a time advantage over general-purpose traffic.

Staff believes these recommendations have considerable merit and supports them for future funding and implementation. The intent is to make bus service more appealing and more responsive to the needs of potential riders. The cost of enhancing bus service, consistent with these recommendations, however, would be substantial. Therefore, solid county and regional commitments are needed to proceed in these directions.

Recommendations 1 and 2, which would significantly alter and enhance the existing bus routing and transfer system, would require the greatest policy and funding commitment. Recommendations 3 and 4 would provide physical amenities at bus shelters and in buses that would make using bus service a more appealing option for more people. Recommendation 5 reinforces the TDM recommendation that calls for real-time bus information in order to take the uncertainty out of waiting for a bus. Recommendation 6 places emphasis on producing new

informational materials that can help overcome stereotypes relating to bus usage and on improving customer service.

In staff's view, recommendation 7 is the only one that requires adjustment. Pursuing enhancements such as queue jumpers and real time adjustments to traffic signals are two good ways to give buses a time advantage, however, some mention of the greater benefits achieved by creating exclusive lanes for buses is also needed. As general purpose lanes get more congested, buses will get stuck in clogged traffic long before they reach the traffic signals and their schedules will be severely disrupted unless they have dedicated lanes. A bus lane can be provided by either adding a lane to an existing road or by converting an existing general-purpose lane for bus use. Either option can be difficult to implement, however, but if governmental policy is to make transit a priority in the travel stream, such bus lanes will become more necessary in the future.

Parking Tax Recommendations

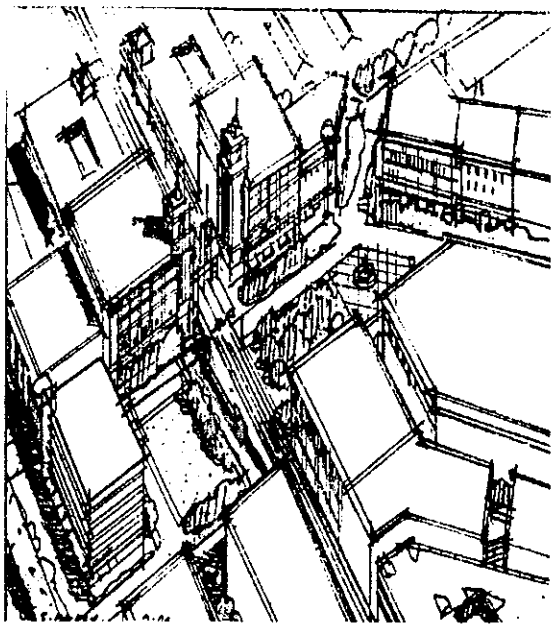
Increases in parking taxes on the order of $3 per space per day were raised during Task Force discussions. Supporters held that such a measure would make transit more cost-competitive with the automobile by removing the direct or indirect subsidy of free or low-cost parking. One reason this was not included in the Task Force's final recommendations or in staff recommendations was that business community members were concerned that parking impact fees would place the county at a competitive disadvantage with other jurisdictions and hurt economic growth.

There is reason to believe that parking impact fees could have a positive rather than a negative impact on economic competitiveness. Developers still would have the option of building as many spaces as they want but could simply make a payment that would be used to fund alternatives to driving alone in the area. The TDM and bus projects that result would provide commuters with more choices and actually make the county more appealing for businesses.

A related issue deals with the financial impact of parking impact fees on existing businesses that have long-term leases and a significant number of parking spaces. A parking tax could be in the hundreds of thousands of dollars annually on individual properties, and some owners may have limited ability to pass the tax onto parking users. There also are many places where parking fees are already imposed. Should these areas increase the fees as much as those where parking is now free? These questions do not have good answers at this time.

Over the years, Montgomery County has introduced many tools for managing growth that were meant to preserve the county's quality of life. These tools were adopted even though most other jurisdictions, particularly those in neighboring states, did not have them. The adequate public facilities ordinance, the growth policy, and traffic impact fees are three prominent examples. Similar concerns were raised before these tools were adopted, but the county's economic health has not been harmed. Given the need to raise revenues to improve the quality of TDM and bus options in the county, staff believes the Board should consider further study of parking fees. However, many issues must be resolved before such fees are ready for implementation.

APPENDIX



Comprehensive List of Projects with CLRP and 2050 Tests

TEMP_ ID	Project Name	Improvement Type	From	To	Lanes	C L R P	*2050 Base Master Plan*	*2050 Staff Network With ICC*	*2050 Staff Network With Western Connector*	Project Length (Miles)	Estimated Capital Cost ($M2001)
	I-270 Corridor										
	Interchanges										
1	Frederick Rd. (MD 355) at Ridge Rd. (MD 27)	New Interchange	N/A	N/A	N/A		X	X	X	n/a	$ 66
2	I-270 at Clopper Rd. (MD 117)	Upgrade Interchange, Include Park-and-Ride Lot	N/A	N/A	N/A	X	X	X	X	n/a	$ 9
3	I-270 at Democracy Blvd. and Fernwood Rd.	Upgrade / New Interchange	N/A	N/A	N/A	X	X	X	X	n/a	$ 22
4	I-270 at Newcut Rd. Extended	New Interchange	N/A	N/A	N/A		X	X	X	n/a	$ 41
7	I-270 at Rockledge Connector and Old Georgetown Rd. (MD 187)	Upgrade / New Interchange	N/A	N/A	N/A	X	X	X	X	n/a	$ 29
8	I-270 at Watkins Mill Rd. Extended	New Interchange	N/A	N/A	N/A	X	X	X	X	n/a	$ 100
9	Key West Ave. at Great Seneca Hwy.	New Interchange	N/A	N/A	N/A		X	X	X	n/a	$ 66
10	Ridge Rd. (MD 27) at Observation Dr.	New Interchange	N/A	N/A	N/A		X	X	X	n/a	$ 29
11	Rockville Pike (MD 355) at Montrose Rd. and Randolph Rd. and Montrose Pkwy.	New Interchange	N/A	N/A	N/A	X	X	X	X	n/a	$ 85
12	Rockville Pike (MD 355) at Nicholson Lane	New Interchange	N/A	N/A	N/A		X	X	X	n/a	$ 66
13	Rockville Town Center	Interchange improvements at MD 355/Middle Ln., MD 355/MD 28, and MD 28/MD 586/MD911	N/A	N/A	N/A		X	X	X	n/a	$ 200
14	MD 355 at Gude Dr.	Upgrade/New Interchange	N/A	N/A	N/A		X	X	X	n/a	$ 66
15	Sam Eig Hwy. at Great Seneca Hwy. (MD 119)	New Interchange	N/A	N/A	N/A		X	X	X	n/a	$ 66
16	Shady Grove Rd. at Darnestown Rd. and Wooton Pkwy.	New Interchange	N/A	N/A	N/A		X	X	X	n/a	$ 66
17	Rockville Pike at Marinelli Rd.	Intersection Improvements	N/A	N/A	N/A		X	X	X	n/a	$ 5
18	Connecticut Ave. at University Blvd. West	Intersection improvements	N/A	N/A	N/A			X	X	n/a	$ 5
19	Summit Ave. at Knowles Ave.	Intersection improvements	N/A	N/A	N/A			X	X	n/a	$ 5
20	Connecticut Ave. at Plyers Mill Rd.	Intersection improvements	N/A	N/A	N/A			X	X	n/a	$ 5
20.1	Frederick Rd. (MD 355) at Montgomery Village Ave. (MD 124)	New Interchange	N/A	N/A	N/A		X	X	X	n/a	$ 66

Comprehensive List of Projects with CLRP and 2050 Tests

TEMP_ ID	Project Name	Improvement Type	From	To	Lanes	C L R P	*2050 Base Master Plan*	*2050 Staff Network With ICC*	*2050 Staff Network With Western Connector*	Project Length (Miles)	Estimated Capital Cost ($M2001)
	Highways										
21	Brink Rd. - Wightman Rd.	Widening	Ridge Rd.	Goshen Rd.	4	X	X	X	X	3.46	$ 43
22	Chapman Ave. Extended	Extension	Bou Ave.	Executive Blvd.	4	X	X	X	X	1.28	$ 63
23	Clarksburg Rd. (MD 121)	Widening	Stringtown Rd.	Newcut Rd. Ext.	6/4		X	X	X	1.49	$ 21
24	Clopper Rd. (MD 117)	Widening	Richter Farm Road	Quince Orchard Rd. (MD 124)	6			X	X	4.58	$ 145
24.1	Clopper Rd. (MD 117)	Widening	MD 121	MD 124	6		X			5.97	$ 190
24.2	Damascus Rd. (MD 108)	Widening	1200 ft East of Howard Chapel Rd.	Laytonsville Rd.	4		X			3.91	$ 54
25	Damestown Rd. (MD 28)	Widening	Riffle Ford Rd.	Key West Ave.	4		X	X	X	3.36	$ 40
27	Father Hurley Blvd.	Widening / Extension	Crystal Rock Dr.	Germantown Rd. (MD 118)	6	X	X	X	X	1.5	$ 5
27.1	Georgia Avenue (MD 97)	Widening	Norbeck Rd. (MD 28)	Howard Co. Line	6		X			9.36	$ 304
28	Germantown Rd. (MD 118)	Widening / Extension	I-270	Existing Watkins Mill Rd.	6	X	X	X	X	1.85	$ 6
29	Germantown Rd. (MD 118)	Widening	Clopper Rd.	Seneca Creek	6		X	X	X	2.52	$ 78
31	Goshen Rd. & Goshen Rd. Extended	Widening & New Road	Odenhal Ave.	Brink Rd	6/2	X	X	X	X	2.99	$ 36

Comprehensive List of Projects with CLRP and 2050 Tests

TEMP_ ID	Project Name	Improvement Type	From	To	Lanes	C L R P	*2050 Base Master Plan*	*2050 Staff Network With ICC*	*2050 Staff Network With Western Connector*	Project Length (Miles)	Estimated Capital Cost ($M2001)
32	Great Seneca Hwy. (MD 119)	Widening	Darnestown Rd.	Middlebrook Rd.	6	X	X	X	X	7.92	$ 18
33	Gude Dr.	Extension	Shady Grove Rd.	Key West Ave.	4		X	X	X	0.61	$ 10
34	Hyattstown Bypass (MD 109 Extended)	New Road - Bypass	Existing Frederick Rd. (MD 355) North of Hyattstown	Existing Frederick Rd. (MD 355) South of Hyatts-town	2		X	X	X	0.51	$ 5
35	I-270	Widening	Mont. Village Ave. (MD 124) / Quince Orchard Rd. (MD 124)	Clarksburg Rd. (MD 121)	6 + 2 HOV		X	X	X	6.92	$ 420
36	I-270	Widening	Clarksburg Rd. (MD 121)	I-70	4+2 HOV		X	X	X	14.7	$ 735
37	I-270	Widening	Mont. Village Ave. (MD 124) / Quince Orchard Rd. (MD 124)	I-70	8 (6+2 HOV)					21.62	$ 1,313
38	Coherent HOV network - I-270 Spurs	Widening (add 1 lane Northbound on west spur) Note: west spur only	N/A	N/A	8 (6+2 HOV)					2.12	$ 68
38.1	Coherent HOV network - I-270 Spurs	Widening (add 1 lane each way on both spurs)	N/A	N/A	8 (6+2 HOV)			X	X	4.14	$ 251
39	Longdraft Rd.	Widening	Quince Orchard Rd. (MD 124)	Clopper Rd. (MD 117)	4		X	X	X	1.62	$ 20
40	Midcounty Hwy. (M-83)	New Road	Shady Grove Rd.	String-town Rd.	6/4		X			10.86	$ 207
41	Midcounty Hwy. (A-305)	New Road	Stringtown Rd.	Frederick Rd. (MD 355)	2		X	X	X	1.34	$ 14

Comprehensive List of Projects with CLRP and 2050 Tests

TEMP ID	Project Name	Improvement Type	From	To	Lanes	C L R P	*2050 Base Master Plan*	*2050 Staff Network With ICC*	*2050 Staff Network With Western Connector*	Project Length (Miles)	Estimated Capital Cost ($M2001)
42	Midcounty Hwy (M-83)	New Road	Shady Grove Rd.	ICC ROW at Muncaster Mill Rd, (MD 115)	4		X		X	2.25	$ 34
43	Middlebrook Rd.	Widening	Germantown Rd. (MD 118)	Midcounty Hwy.	6	X	X	X	X	1.15	$ 12
44	Montrose Pkwy. (Western section)	New Road	Montrose Rd.	MD 355	4	X	X	X	X	3.14 (desc. entire length)	$ 70
44.1	Montrose Pkwy. (Eastern section)	New Road	MD 355	Veirs Mill Rd. (MD 586)	4	X	X	X	X	3.14 (desc. entire length)	$ 60
45	Muddy Branch Rd.	Widening	West Diamond Ave.	Darnestown Rd. (MD 28)	6		X	X	X	2.84	$ 60
46	Nebel St.	New Road	Randolph Rd.	Chapman Ave.	4	X	X	X	X	0.44	$ 10
47	Newcut Rd. / Extension	New Road / Widening	Clarksburg Rd. (MD 121)	Ridge Rd. (MD 27)	4		X	X	X	3.93	$ 63
48	Olney - Laytonsville Rd. (MD 108)	Widening	Laytonsville Town Line	Olney Mill Rd.	4		X	X	X	3.96	$ 55
48.1	Laytonsville Rd. (MD 108)	Widening	Damascus Rd. (MD 108)	Laytonsville Town Line	4		X			2.57	$ 36
50	Ridge Rd. (MD 27)	Widening	Frederick Rd. (MD 355)	Main St. Damascus (MD 108)	6/4					6.54	$ 106
50.1	Ridge Rd. (MD 27)	Widening	Frederick Rd. (MD 355)	Midcounty Hwy. (M-83)	6		X	X	X	0.98	$ 18

Comprehensive List of Projects with CLRP and 2050 Tests

TEMP_ ID	Project Name	Improvement Type	From	To	Lanes	C L R P	*2050 Base Master Plan*	*2050 Staff Network With ICC*	*2050 Staff Network With Western Connector*	Project Length (Miles)	Estimated Capital Cost ($M2001)
50.2	Ridge Rd. (MD 27)	Widening	Midcounty Hwy. (M-83)	Skylark Rd.	4		X	X	X	1.18	$ 15
51	River Rd. (MD 190)	Widening	Falls Rd. (Md 189)	Capital Beltway (I-495)	4					3.37	$ 42
52	River Rd. (MD 190)	Widening	Seneca Rd (MD 112)	Falls Rd (MD 189)	4					6.46	$ 113
53	Shady Grove Rd.	Widening	Briardale Rd.	Muncaster Mill Rd. (MD 115)	6	X	X	X	X	1.22	$ 5
54	Snouffer School Rd.	Widening	Goshen Rd.	Woodfield Rd. (MD 124)	4	X	X	X	X	2.6	$ 22
55	Stringtown Rd.	Widening	I-270	Midcounty Hwy.	4	X	X	X	X	1.41	$ 20
57	**Techway (low-techway)** (desc. of Potomac River crossing alternative with non- highway attributes)	New Road (arterial)	MD 118 to Bridge near Blockhouse Point	Fairfax County Pkwy.	4					4.59	$ 140
26	Damestown Rd. (MD 28) (piece of low-techway)	Widening	German-town Rd (MD 118)	Riffle Ford Rd	4					2.8	$ 39
30	Germantown Rd. (MD 118) (piece of low-techway)	Widening	Seneca Creek	Dames-town Rd. (MD 28)	4					2.87	$ 36
48.2	Piney Meetinghouse Rd. (piece of low-techway)	Widening	Shady Grove Rd.	River Rd. (MD 190)	4					3.83	$ 53
52.1	Seneca Rd. (MD 112) (piece of low-techway)	Widening	River Rd. (MD 190)	Dames-town Rd. (MD 28)	4					1.91	$ 27
58	Veirs Mill Rd. (MD 586)	Widening	Twinbrook Pkwy.	Randolph Rd.	6		X	X	X	1.98	$ 42
59	Watkins Mill Rd. Extended	New Road	Frederick Rd. (MD 355)	Clopper Rd. (MD 117)	4	X	X	X	X	0.79	$ 34
60	Woodfield Rd. (MD 124) and Woodfield Rd Extended	Widening	Midcounty Hwy.	Ridge Rd. (MD 27)	6/5/2	X	X	X	X	11.79	$ 170

Comprehensive List of Projects with CLRP and 2050 Tests

TEMP_ ID	Project Name	Improvement Type	From	To	Lanes	C L R P	*2050 Base Master Plan*	*2050 Staff Network With ICC*	*2050 Staff Network With Western Connector*	Project Length (Miles)	Estimated Capital Cost ($M2001)
	Transit										
61	Clarksburg	New Transit Center	N/A	N/A	N/A	X	X	X	X	n/a	$ 3
62	Corridor Cities Transitway	Busway	Shady Grove Metro	Clarksburg	N/A					13.7	$ 500
62.1	Corridor Cities Transitway	Light Rail	Shady Grove Metro	Clarks-burg	N/A		X	X	X	13.7	$ 700
62.2	Corridor Cities Transitway	Busway	Shady Grove Metro	Metropolita n Grove	N/A					5.76	$ 210
62.3	Corridor Cities Transitway	Light Rail	Metropolitan Grove	Clarks-burg	N/A					7.94	$ 406
62.4	Corridor Cities Transitway	Light Rail	Shady Grove	Life Sciences Center	N/A					3.31	$ 121
64	Germantown	New Transit Center	N/A	N/A	N/A	X	X	X	X	n/a	$ 2
65	Germantown	New Park-and-Ride Lots	N/A	N/A	N/A		X	X	X	n/a	$ 4
~~66~~	~~MARC Frederick Extension~~	~~Extension~~	~~Point of Rocks~~	~~Frederick~~	~~N/A~~	X	X	X	X	~~n/a~~	
67	MARC North Bethesda	New MARC Station	Between Bou Ave. and Montrose Pkwy. ROW	N/A	N/A	X	X	X	X	n/a	$ 3
68	MCPS Metro Station	New Metro Station	Between Rockville and Shady Grove Metro Stations	N/A	N/A			X	X	n/a	$ 40
69	Metropolitan Grove	Metrorail Extension	Shady Grove	Metropolita n Grove	N/A					4.36	$ 881
70	North Bethesda Transitway	New Transitway - People-Mover	Montgomery Mall	Grosvenor via Rock Spring Park	N/A		X			2.5	$ 86
71	North Bethesda Express Bus	Express Bus	Montgomery Mall	Grosvenor via Rock Spring Park	N/A			X	X	n/a	$ 5
72	Shady Grove West	New Park-and-Ride and bus transfer facility	N/A	N/A	N/A	X	X	X	X	n/a	$ 4

Comprehensive List of Projects with CLRP and 2050 Tests

TEMP_ ID	Project Name	Improvement Type	From	To	Lanes	C L R P	*2050 Base Master Plan*	*2050 Staff Network With ICC*	*2050 Staff Network With Western Connector*	Project Length (Miles)	Estimated Capital Cost ($M2001)
	INSIDE THE BELTWAY										
	Interchanges										
73	Rockville Pike (MD 355) at Cedar Lane	New Interchange	N/A	N/A	N/A			X	X	n/a	$ 66
	Highways										
74	Capital Beltway (I-495)	Widening (add 1 HOV lane each way)	American Legion Bridge	I-95	10 (8+2 HOV)			X	X	14.4	$ 578
75	River Road (MD 190)	Widening	Capital Beltway (I-495)	D.C. Line	6		X	X	X	4.36	$ 81
	Transit										
76	Georgetown Branch	New Trolley/Trail Connection	Bethesda	Silver Spring	N/A	X	X			4.4	$ 256
78	Inner Purple Line	Light Rail	Tysons Corner	New Carrollton	N/A					21.4	$ 1,819
78.1	Inner Purple Line	Light Rail	Bethesda	College Park	N/A					8.4	$ 714
78.2	Inner Purple Line	Light Rail	Bethesda	New Carrollton	N/A			X	X	14.4	$ 1,224
	Silver Spring	New Transit Center				X	X	X	X		$ 8
	Takoma/ Langley	New Transit Center				X	X	X	X		$ 3
	GEORGIA AVENUE AND EASTERN COUNTY										
	Interchanges										
79	Georgia Ave. (MD 97) at Norbeck Rd.	New Interchange	N/A	N/A	N/A	X		X	X	n/a	$ 48
80	Georgia Ave. (MD 97) at Randolph Rd.	New Interchange	N/A	N/A	N/A	X	X	X	X	n/a	$ 46
81	Randolph Rd. at Connecticut Ave. (MD 185)	New Interchange	N/A	N/A	N/A			X	X	n/a	$ 29
82	Randolph Rd. at New Hampshire Ave. (MD 650)	New Interchange	N/A	N/A	N/A			X	X	n/a	$ 66
83	Randolph Rd at Veirs Mill Rd. (MD 586)	New Interchange	N/A	N/A	N/A			X	X	n/a	$ 29
84	US 29 at 4 intersections (funded) (Fairland not funded for CLRP)	New Interchanges	N/A	N/A	N/A	X	X	X	X	n/a	$ 282
85	US 29 at 4 intersections (not funded)	New Interchanges	N/A	N/A	N/A		X	X	X	n/a	$ 170

Comprehensive List of Projects with CLRP and 2050 Tests

TEMP ID	Project Name	Improvement Type	From	To	Lanes	C L R P	*2050 Base Master Plan*	*2050 Staff Network With ICC*	*2050 Staff Network With Western Connector*	Project Length (Miles)	Estimated Capital Cost ($M2001)
	Highways										
86	Briggs Chaney Rd.	Widening	Automobile / Castle Blvd.	PG County Line	4	X	X	X	X	1.24	$ 15
87	Brookeville Bypass	New Road - Bypass	North of Brookeville	Ave. South of	2		X	X	X	1.02	$ 33
88	Fairland Rd.	Widening	Paint Branch	PG County Line	4		X			2.55	$ 6
88.1	Fairland Rd.	Widening	Paint Branch	US 29	4			X	X	1.34	$ 3
89	Greencastle Rd.	Widening	US 29	PG County Line	4		X	X	X	1.57	$ 20
90	ICC (MP alignment)	New Road	I-370	US 1	6 lanes 4 + 2 HOV			X		16.39	$1,434
90.1	ICC - Western Connector (run along MP alignment)	New Road	I-370	MD 28	6 lanes 4 + 2 HOV				X	9.69	$ 848
91	ICC - Eastern Connector	New Road	US 29	US 1	6			X	X	1.32	$ 116
93	Muncaster Mill Rd. (MD 115)	Widening	Shady Grove Rd.	Norbeck Rd. (MD 28)	4				X	4.77	$ 66
94	Norbeck Rd. (MD 28) and Spencerville Rd. (MD 198)	Widening	Georgia Ave.	US 29	4		X	X	X	8.16	$ 113
95	Layhill Rd. (MD 182)	Widening	Park Vista Dr.	Norwood Rd.	4		X	X	X	1.88	$ 24
96	Norwood Rd.	Widening	Doctor Bird Rd. (MD 182)	New Hampshire Ave. (MD 650)	4					2.93	$ 41
99	A-287 (FDA Access)	New Road	FDA	Powder Mill Rd.	4		X	X	X	1.68	$ 28

Comprehensive List of Projects with CLRP and 2050 Tests

TEMP_ ID	Project Name	Improvement Type	From	To	Lanes	C L R P	*2050 Base Master Plan*	*2050 Staff Network With ICC*	*2050 Staff Network With Western Connector*	Project Length (Miles)	Estimated Capital Cost ($M2001)
	Transit										
100	Augmented Bus Network	New bus network using timed transfers	Countywide	N/A	N/A			X	X	n/a	$ 41
100.1	Bus Improvements	Standard Bus Improvments (separate from Augmented Network)	Countywide	N/A	N/A	X	X	X	X	n/a	$ 59
101	FDA / West Farm	Light Rail	Langley Park	White Oak via New Hampshire Ave. (MD 650)	N/A			X	X	3.88	$ 198
102	Georgia Avenue (MD 97)	Busway	Glenmont Metro	Olney	N/A		X	X	X	9	$ 69
105	Frederick Rd (MD 355)		Brink Rd	Midcounty Hwy (A-305)	4		X	X	X	2.85	$ 40
		Total Estimated Capital Cost ($Millions 2001)				$ 1,488	$ 6,031	$ 9,189	$ 8,703		