ITEM 14 - Information

July 16, 2003

Review of Proposed Scenarios to be Tested in the Regional Mobility and Accessibility Study

Staff Recommendation: Receive briefing on the proposed alternative land use and transportation scenarios to be tested in the regional mobility and accessibility study.

Issues: None.

Background: At work sessions prior to the March, April, May and June 2003 TPB meetings, Board members have discussed the development of proposed scenarios to be tested in the study. These scenarios have been developed with guidance from a Joint Technical Working Group composed of members from the TPB Technical Committee, the Planning Directors' Technical Advisory Committee, and the MWAQC Technical Advisory Committee, and the Citizen Advisory Committees to the TPB, MWAQC and the Metropolitan Development Policy Committee (MDPC).

Item #14

Metropolitan Washington Council of Governments
777 North Capitol Street, N.E.
Washington, DC 20002-4239

MEMORANDUM
July 8, 2003

To: Transportation Planning Board

From: Robert E. Griffiths,
Technical Services Director, COG/TPB

Subject: Alternative Scenarios Proposed for Testing in the TPB Regional Mobility and Accessibility Study

Summary

With guidance from a Joint Technical Working Group composed of members from the TPB Technical Committee, the Planning Directors' Technical Advisory Committee, and the Metropolitan Washington Air Quality Committee (MWAQC) Technical Advisory and with the very active involvement of the Citizen Advisory Committees to the TPB, MWAQC and the Metropolitan Development Policy Committee (MDPC), five proposed land use scenarios have been developed for testing in the TPB's Regional Mobility and Accessibility Study ***(Attachment A).*** In addition to these five land use scenarios, a regional HOV/HOT lanes scenario has also been proposed for testing in this study ***(Attachment B).*** While the development of these alternative scenarios have been discussed at special work sessions held prior to the March, April, May and June TPB meetings, staff believes it is now timely to brief the entire Board on the alternative scenarios before the detailed coding of the alternative scenarios begins later this summer.

Background

In an amendment to the 2000 Constrained Long-Range Transportation Plan for the National Capital Region (CLRP) the TPB called for a special regional study entitled "Improving Regional Mobility and Accessibility Study." The stated purpose of this study is to:

> ***"evaluate alternative options to improve mobility and accessibility between and among regional activity centers and the regional core." This study "shall include the identification of 'additional highway and transit circumferential facilities and capacity, including Potomac River crossings where necessary and appropriate, that improve mobility and accessibility between and among regional activity centers and the regional core' (Vision Goal 2, Strategy 5) and that take into consideration the adopted land use plans of individual jurisdictions. The study shall also include the development of 'a regional congestion management program, including coordinated regional bus service, traffic operations improvements, transit, ridesharing, and telecommuting incentives, and pricing strategies.' (Vision Goal 5., Strategy 1.)"*** **[TPB Resolution TPB R12-2001]**

A Joint Technical Working Group (JTWG) composed of members of the TPB Technical Committee, the Planning Directors' Technical Advisory Committee and the MWAQC Technical Advisory Committee was established to provide the TPB with technical insight and guidance on this study. In addition, the TPB's Citizen Advisory Committee and the citizen advisory committees to MWAQC and MDPC were also invited to participate in the meetings of the JTWG.

During the past two years the JTWG has provided continuing technical guidance to staff in the development and conduct of a work plan to carry out the TPB's Regional Mobility and Accessibility Study. These work plan activities have included: (1) development of Measures of Effectiveness (MOEs), (2) analysis of the 2000 CLRP using the study MOEs and identification of its shortcomings relative to the TPB Vision, (3) specification of the elements of a Regional Congestion Management Program to be tested as part of this Study ***(Attachment C),*** and (4) development of proposed alternative land use and transportation scenarios for testing.

Current Status of Regional Mobility and Accessibility Study Scenarios

The JTWG has achieved consensus in recommending four of the five alternative land use scenarios proposed for testing and expects to resolve the few remaining minor issues with the fifth land use scenario very shortly. The regional HOV/HOT lanes scenario has been sketched out conceptually, but detailed specifications, such as entry and exit points and number of lanes by HOV/HOT segment remain to be worked out.

Next Steps and Schedule

The "Coordinated Regional Bus and Transit Service" element of the recommended Regional Congestion Management Program must be further detailed so that it can be coded and modeled. COG/TPB, WMATA and local jurisdiction transportation staff have recently begun discussions on the best way to accomplish this work task.

Second**,** the transportation assumptions for each alternative land use scenario must be explicitly specified so that the detailed coding of the additional highway and transit facilities required for these alternative scenarios can begin. A Transportation Scenarios subgroup of the TPB Technical Committee has just started work on developing these transportation facility assumptions.

Third, the detailed specifications for the regional HOV/HOT lanes scenario or any other transportation scenario that may involve Potomac River crossings must be developed so that the land use considerations and assumptions required for these transportation scenarios can be assessed and developed. The Transportation Scenarios subgroup will have responsibility for developing the detailed transportation facilities assumptions and the Planning Directors will be asked to assess and develop the corresponding land use assumptions for these scenarios.

It is hoped that development and some coding of the detailed specifications for the alternative land use and transportation scenarios can be completed by September 2003.

(Attachment A)

TPB Regional Mobility and Accessibility Study
Alternative Land Use Scenarios

This document contains the descriptions and maps for four of the five draft alternative land use scenarios for the TPB Regional Mobility and Accessibility study.

These Scenarios are:

(1) "Higher Household Growth in Region"

(2) "More Households in Inner Areas and Clusters"

(3) "More Jobs in Outer Areas"

(4) "The Region Undivided"

A fifth alternative land use scenario, a **"Transit-Oriented Development"** scenario is still being refined by the Planning Directors Technical Advisory Committee and the entire Joint Technical Working Group for the Regional Mobility and Accessibility Study. The additional work on this fifth scenario should be completed within the next month.

(1) Higher Household Growth in Region– Scenario 1

Definition of Scenario:

Additional households beyond the COG Round 6.3 2030 forecasts would be added to the metropolitan Washington region. Correspondingly, commuting and other vehicle trips from areas outside the region would be reduced by an amount equivalent to the number of trips that would have been made by the additional households if they had located outside of the Washington region.

Rationale:

To examine the transportation impacts of reducing the forecast growth in long distance commuting trips to the Washington region from external areas by providing more future housing opportunities for workers to both live and work in the metropolitan region.

Assumptions:

- An additional 225,000 households beyond the Round 6.3 forecasts will be added to region by 2030.

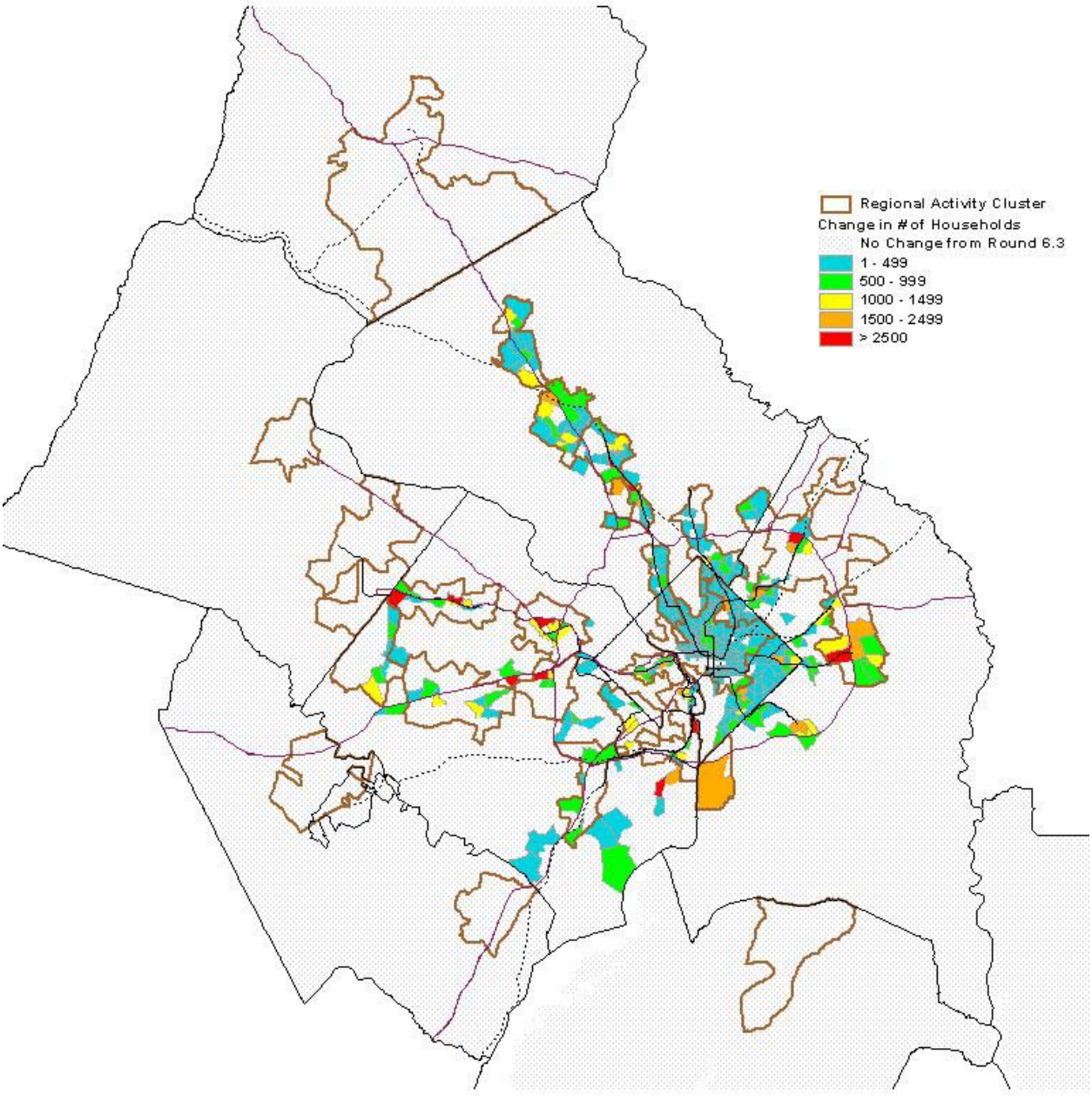
- The additional 225,000 households would be sub-allocated to the inner suburban and core area jurisdictions in direct proportion to their 2030 employment. No additional households would be sub-allocated to the outer suburban jurisdictions, which are already forecast to increase by 286,000 households.

- The appropriate Planning Director will sub-allocate their jurisdiction's additional high household growth increment to regional activity clusters, transit centers, and/or other areas within their jurisdictions where the Planning Director believed that the additional household growth increment could be logically accommodated in a concentrated fashion. As much as possible, emphasis will be placed on adding growth in the Activity Clusters.

- Allocation of growth will not necessarily be based on existing planning (or zoning), in other words, Planning Directors can allocate growth beyond what is outlined in their existing plans or zoning.

- COG staff will reduce forecast vehicle trips from outside the TPB modeled region equivalent to those that would have been made by the additional 225,000 households.

Higher Household Growth in Region - Scenario 1
Number of Additional 2030 Households (Above Round 6.3 Forecasts)



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DRAFT June 25, 2003

Changes in number of households are shown by Transportation Analysis Zone (TAZ)

(2) More Households in Inner Areas and Clusters – Scenario 4a

Definition of Scenario:
Place more of the forecast 2010 to 2030 household growth in areas closer to major regional employment concentrations in core area jurisdictions and, to the extent possible, improve the mix of job and housing opportunities within regional activity clusters.

Rationale:
To examine the transportation impacts of reducing average commuting distances by providing more housing opportunities closer to major regional employment concentrations in the inner areas of the region and by improving the mix of job and housing opportunities within regional activity clusters.

Assumptions:

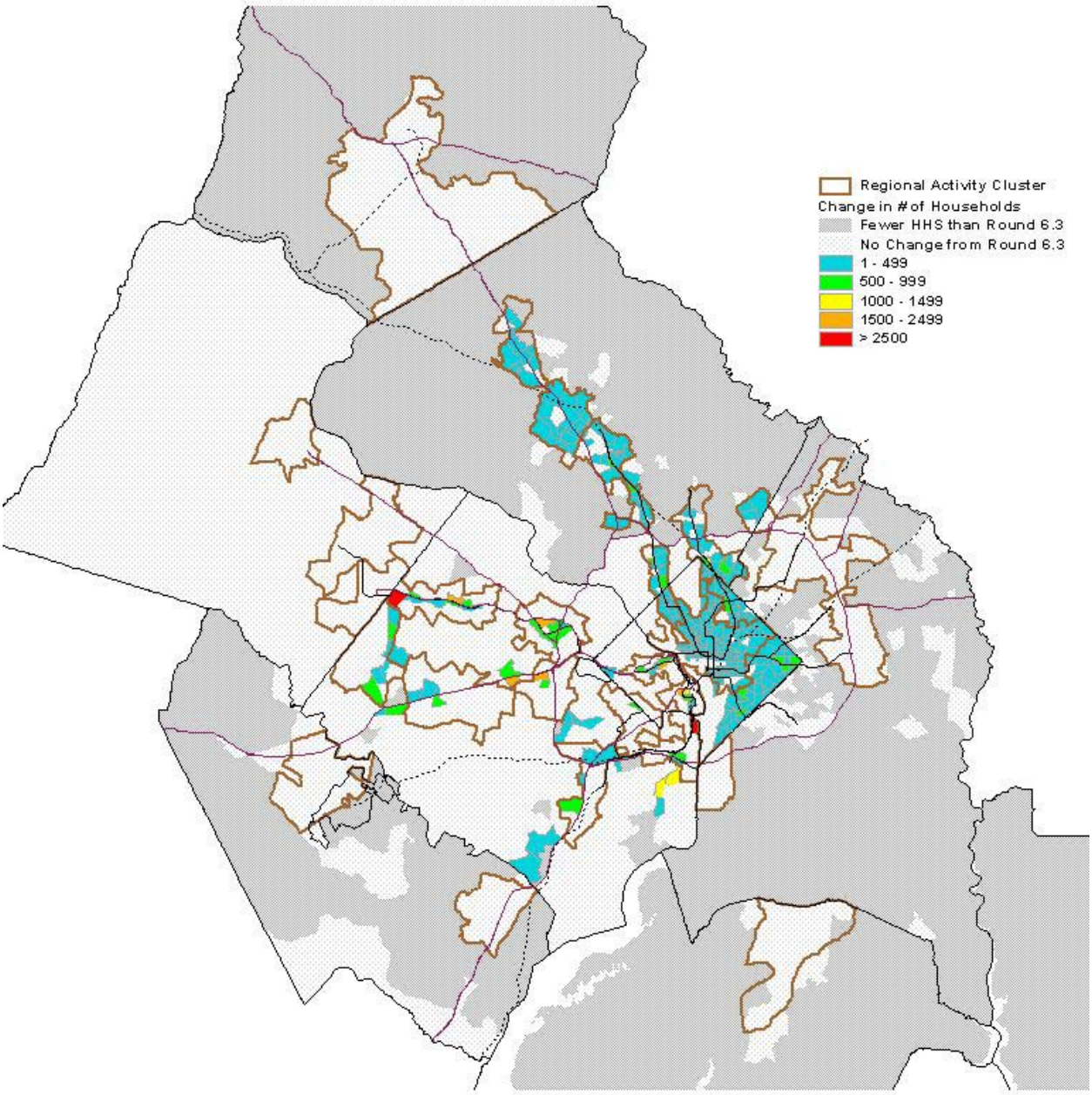
- The 2010 to 2030 household growth increment assumed for core area jurisdictions (DC, Arlington and Alexandria) will be doubled. Slightly more additional households were added to Arlington and slightly less additional households were added to DC to achieve an equal 2.49-jobs/household ratio for both DC and Arlington.

- The 2010 to 2030 household growth increment for Montgomery, Prince George's and Fairfax County/Cities will be adjusted such that each of the Inner Suburban Jurisdictions has a 1.66 jobs/household ratio. This equal 1.66 jobs/households ratio is achieved by reducing the forecasted 2010 to 2030 household growth increment for Prince George's County by 38,000 households, increasing Fairfax County/Cities growth increment by 32,000 households and increasing Montgomery County's growth increment by 5,500 households.

- The 2010 to 2030 household growth increment for the outer suburban jurisdictions of Prince William, Stafford, Charles and Calvert will be reduced by one-half. Because Loudoun County forecasts a desirable 1.62 jobs/household ratio for 2030, Loudoun County's Round 6.3 household growth increment will remain unchanged for this scenario. The 2010-2030 household growth increment for Frederick will be reduced by 10,447 households so it also attains a desirable 1.62-jobs/household ratio. .

- Re-allocating some of the forecast 2010-2030 household growth from areas outside of activity clusters to region's core area jurisdictions and activity clusters would improve the jobs-housing balance throughout the region in 2030.

More Household Growth in Inner Areas and Clusters - Scenario 4a
Change in Number of Forecast 2030 Households



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DRAFT June 25, 2003

Changes in number of households are shown by Transportation Analysis Zone (TAZ)

(3) More Jobs in Outer Areas – Scenario 4b

Definition of Scenario:
Place more of the forecast 2010 to 2030 job growth in the outer suburban jurisdictions that are projected to have more workers than jobs in 2030.

Rationale:
To examine the transportation impacts of reducing average commuting distances by providing more employment opportunities closer to major residential concentrations of workers in the outer areas of the regions.

Assumptions:

- The 2010 to 2030 employment growth increment assumed for the outer suburban jurisdictions will be increased by 78,700 jobs. (This is equivalent to 1.6 times the number of households shifted from the outer suburbs to core area jurisdictions in Scenario 4A).

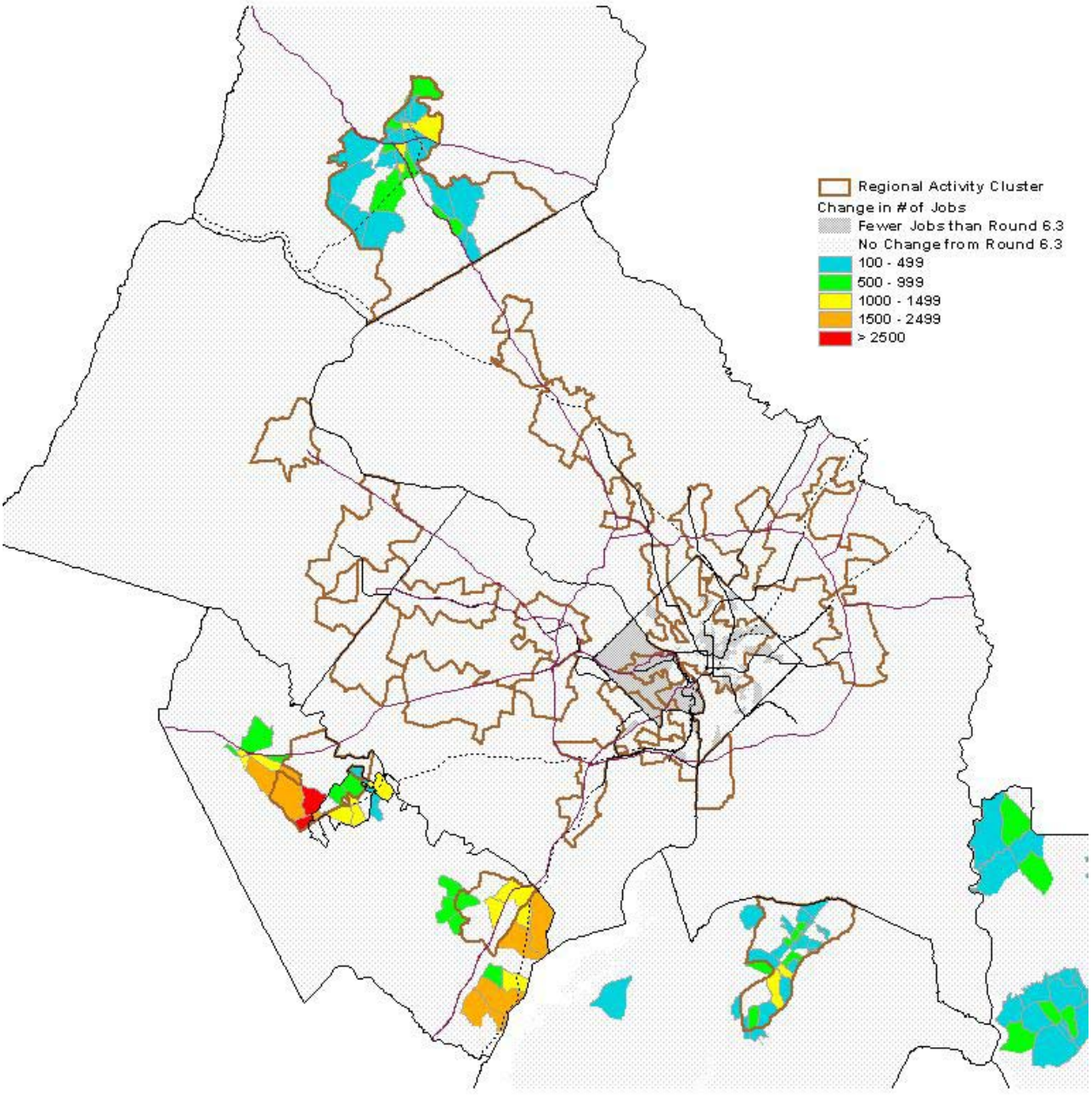
- The 2010 to 2030 employment growth increment assumed for the outer suburban jurisdictions will be adjusted such that Loudoun and Frederick Counties have a 1.62-jobs/household ratio; Prince William Counties/Cities has 1.39-jobs/household ratio, and Stafford, Charles and Calvert have a 1.03-jobs/household ratio. Because Loudoun County forecasts a desirable 1.62 jobs/household ratio for 2030, Loudoun County's Round 6.3 2010 to 2030 job growth increment will remain unchanged for this scenario.

- The 2010 to 2030 employment growth increment for core area jurisdictions (DC, Arlington, Alexandria) will be reduced by 78,700 and the District and Arlington will have an equivalent 2.60 jobs/household ratio.

- The 2010 to 2030 employment growth increment for the inner suburban jurisdictions (Montgomery, Prince George's and Fairfax Counties) will remain unchanged from Round 6.3.

- Re-allocating some of the forecast 2010-2030 job growth from the region's core area jurisdictions to its outer suburban jurisdictions would improve the jobs-housing balance throughout the region in 2030.

More Jobs in Outer Areas - Scenario 4b
Change in Number of Forecast 2030 Jobs



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DRAFT June 25, 2003

Changes in number of jobs are shown by Transportation Analysis Zone (TAZ)

(4) Region Undivided – Scenario 3

Definition of Scenario:
More future job and household growth in areas east of 16th NW in the District of Columbia, east of I-95 in Maryland and east of I-95 in Virginia.

Rationale:

The purpose of scenario would be to examine the transportation impacts of a land use scenario that addresses some of the problems noted in the Brookings' "A Region Divided"[1] report.

Assumptions:

- More 2010-2030 household and employment growth would be assumed in areas east of 16th NW in the District of Columbia, east of I-95 in Prince George's County (and part of Montgomery County between 16th NW in DC, and I-95 in Prince Georges's) in Maryland and east of I-95 in Arlington County, Alexandria, Fairfax County and Prince William County in Virginia, particularly in areas around transit stations.

- No change in forecast 2030 regional jobs and household totals would be assumed for this scenario.

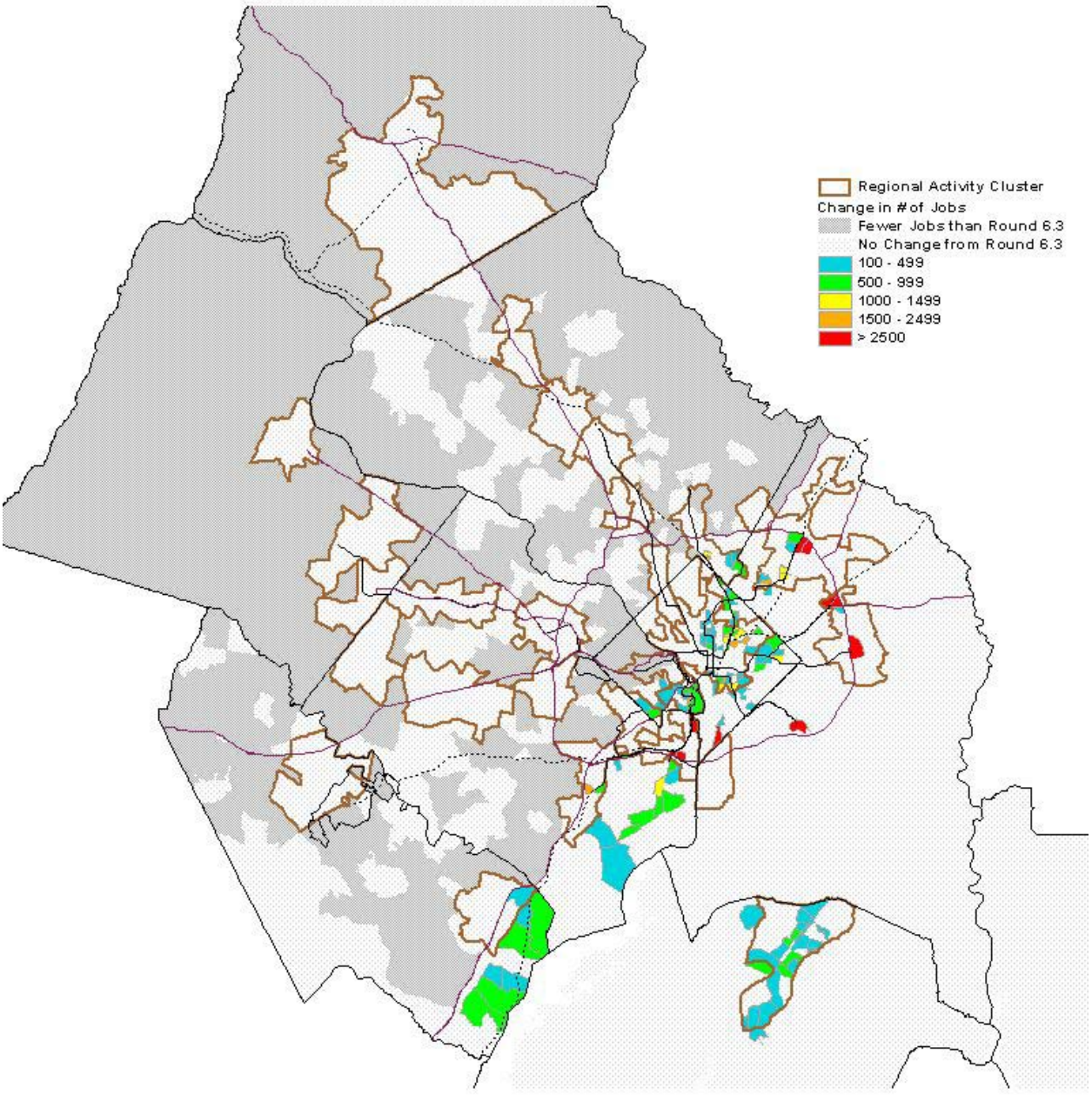
- All 2010 to 2030 job growth outside of regional activity clusters in the western portion of the region will be re-allocated to the eastern portion of the region.

- Some of the forecast household growth outside of regional activity clusters in the west will also be shifted to the east. The exact amount of household growth to be re-allocated to the east is a detail yet to be worked out, but the intent is to achieve a desirable jobs-household balance in both the eastern and western portions of the region.

- Jurisdictions in the eastern portion of the region receiving additional job and household growth will place it within their regional activity clusters, near transit centers, or in other areas within their jurisdiction in a concentrated fashion (e.g. new Regional Activity Clusters).

[1] "A Region Divided, The State of Growth in Greater Washington, D.C.", 1999, The Brookings Institution. The report documents a number of disparities in the eastern versus western portions of the region. Among the issues cited by the report are: "The Income Divide"; "The Race Divide"; "The School Divide"; "The Job Divide"; and "The Transportation Divide".

Region Undivided - Scenario 3
Change in Number of Forecast 2030 Jobs



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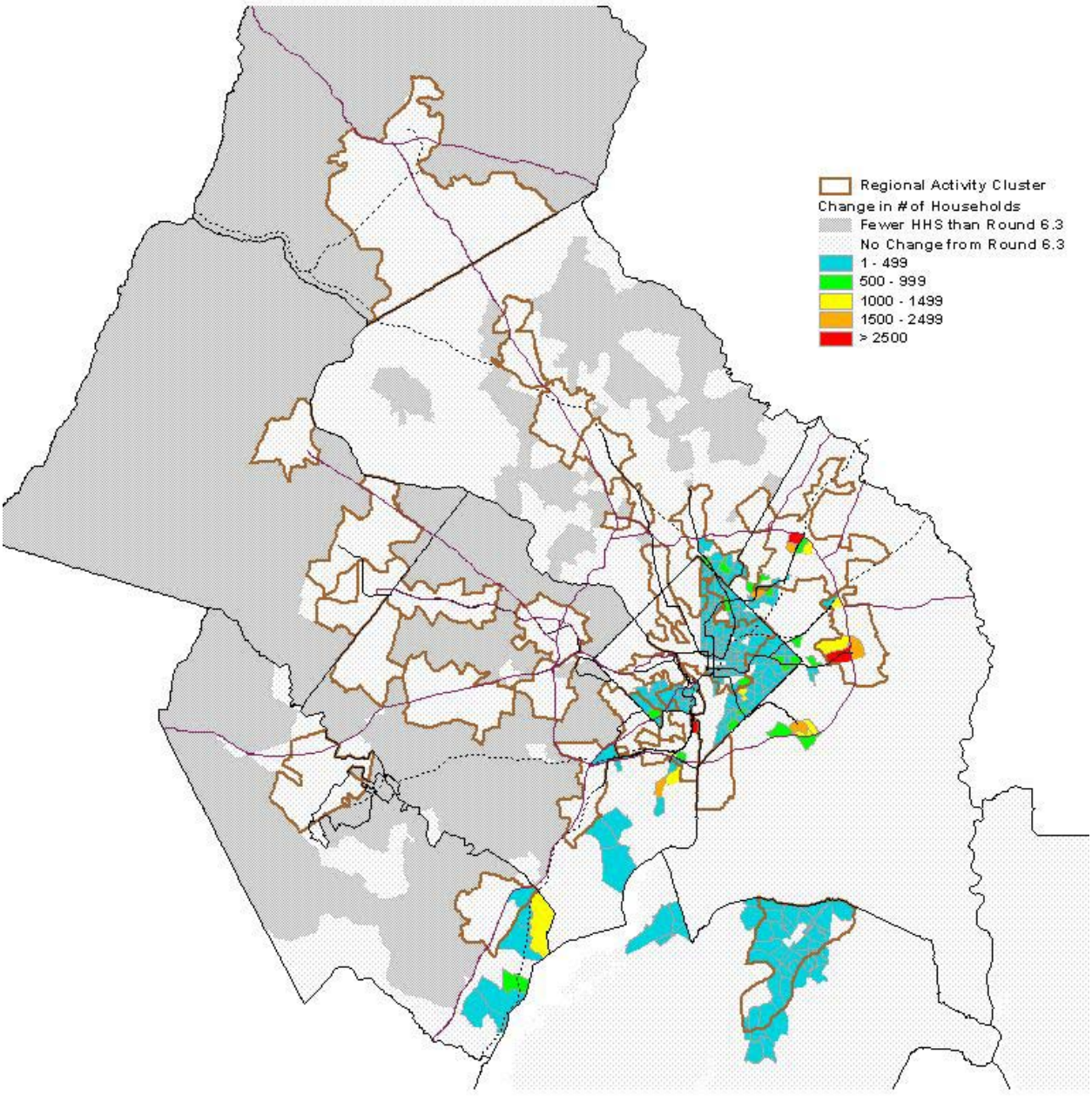
Changes in number of jobs are shown by Transportation Analysis Zone (TAZ)

Region Undivided - Scenario 3
Change in Number of Forecast 2030 Households



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Changes in number of jhouseholds are shown by Transportation Analysis Zone (TAZ)

(Attachment B)

Draft May 30, 2003

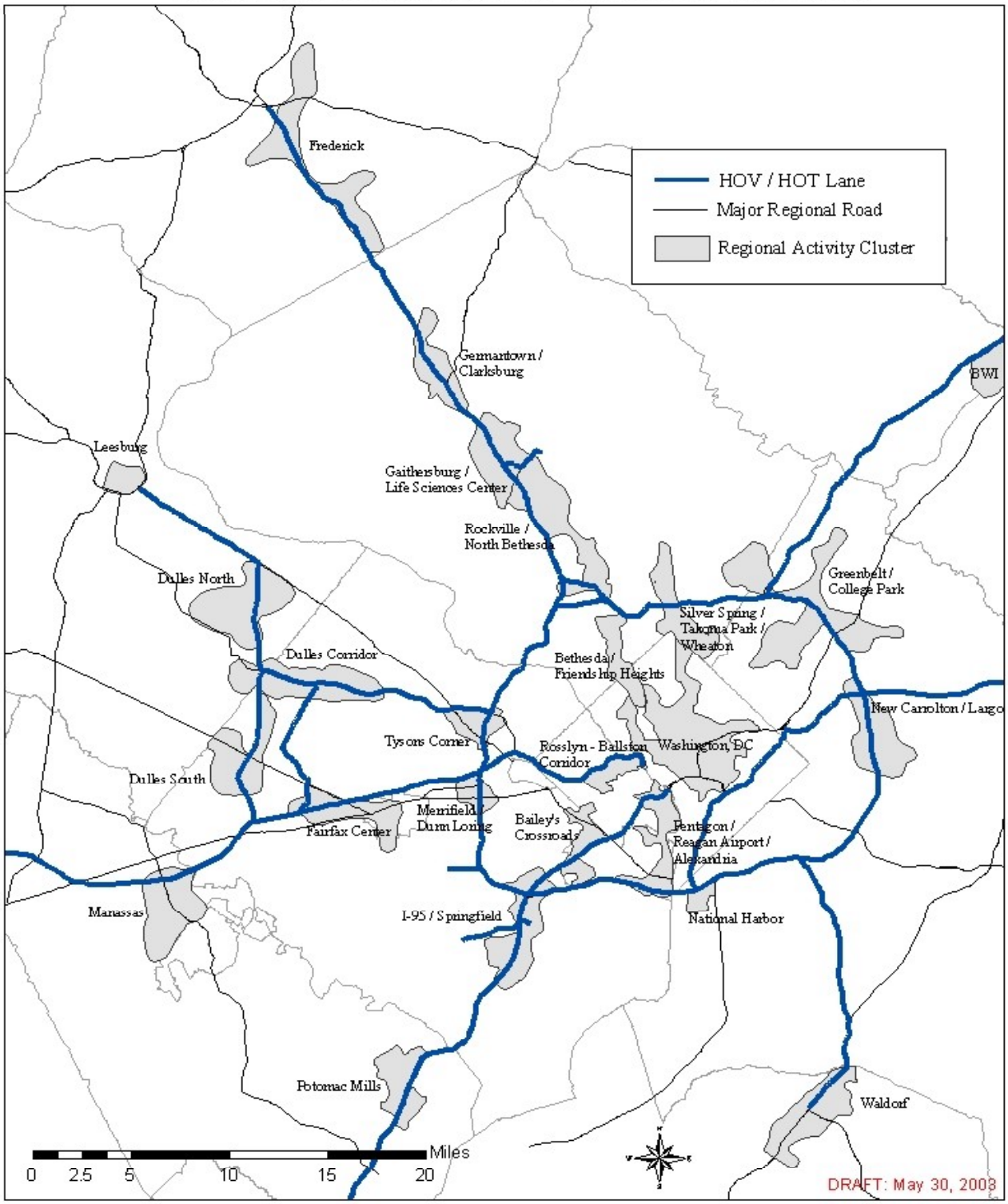
HOV/HOT Alternative Transportation Scenario
For
Regional Mobility and Accessibility Study

After testing the Regional Congestion Management elements for the Regional Mobility and Accessibility Study (i.e. recommended Metrorail, regional bus, and traffic operations improvements - the CLRP plus), the testing of a regional system of High Occupancy Vehicles/High Occupancy Toll (HOV/HOT) lanes connecting the major regional activity centers and clusters might be an insightful next increment of transportation improvements to examine. This scenario would build off of the region's existing and planned HOV facilities to create a system of HOV/HOT lanes around the Capital Beltway and in each major transportation corridor. This scenario would also include and build off all the specified elements of the Regional Congestion Management element and would specifically support serving the region's activity centers with a family of bus services similar to that recommended in the Regional Bus Study. Further, in support of implementing the TPB's Vision, this scenario would interconnect the region's major activity centers, provide enhanced accessibility and mobility to them and encourage the greater use of carpooling and transit. Another advantage of such a scenario is that it could literally pay for itself and may also provide a means of paying for enhanced transit services in the corridors.

Major HOV/HOT Lanes to be tested in this alternative transportation scenario would

1. The entire Capital Beltway (I-495/-I95)
2. I-270 from City of Frederick to the Capital Beltway (I-495)
3. I-95 from the Baltimore Beltway (I-695) to the Capital Beltway (I-495)
4. US Route 50 from Annapolis to Kenilworth Avenue
5. MD Route 5 from Waldorf
6. I-295 from Capital Beltway to Anacostia Freeway
7. Anacostia Freeway/Kenilworth Avenue from I-295 to Route 50
8. I-95 from Stafford/Prince William County Line to 14th St Bridge
9. I-66 from Fauquier/Prince William County Line to Theodore Roosevelt Bridge
10. Dulles Toll Road (VA 237) from Dulles Greenway to Capital Beltway (I-495)
11. VA 28 from I-66 to VA 7
12. VA 7 from VA 28 to US Route 15
13. Fairfax County Parkway from I-66 to Dulles Toll Road
14. Braddock Road from Burke Lake Road to I-95
15. Franconia-Springfield Parkway from Sydenstricker Road to Frontier Drive

Alternative Transportation Scenarios: Enhanced HOV / HOT Lanes



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(Attachment C)

DRAFT March 19, 2003

Regional Mobility and Accessibility Study

Recommended Regional Congestion Management Program Elements

A. Coordinated Regional Bus and Transit Service

1. Guiding Policies and Goals
    - Create a more integrated transit network of Metrobus, Metrorail and local bus systems
    - Double transit ridership by 2025—WMATA Board Policy
    - Improve reliability
    - Provide better information

2. Expand/Introduce Neighborhoods and Activity Center Circulator
    - New routes serving neighborhoods and activity centers that feed Metrorail or other line-haul services. At destination station riders use a circulator to employment locations.
    - Fixed and flexible circulators that connect the areas between two or more Metrorail stations and/or connect residential areas to Metrorail or other line-haul services

3. Create a Family of Bus Service to Compliment and Extend Metrorail
    - Network of RapidBus, Priority Bus and Strategic routes as high priority overlay corridors
    - RapidBus concept: Running way priority, level or low floor boarding, off-vehicle or SmarTrip and ITS enhancements
    - Priority bus concept: Preferential lanes, signal prioritization, AVL and advanced technology buses
    - Strategic corridors are regional roadways that would have an increased level of bus service in a regional or national crisis
    - Increase WMATA base fleet by 32% by 2013
    - Implement WMATA 10-Year Capital Improvement Plan direct express service, corridor running-way and transit center improvements

4. Use ITS Technology to Integrate, Coordinate and Improve Transit Service
    - Provide better real-time information (through the internet, phones, palm pilots and deploy automatic vehicle location (AVL) and electronic messaging signs at transit centers)
    - Expand SmarTrip card program to all transit systems

5. Implement WMATA 10-Year Capital Improvement Plan Recommendations
    - Implement 75% 8-car train operations (by 2013)
        - Implement all 6-car trains by 2003
        - Take delivery of an additional 300 new rail cars by 2013

        - Install upgraded traction power, train control, and system upgrades
        - Expand/build new rail maintenance yards/shops to support system growth and expansion
    - Service Improvements
        - Reconfigure Blue and Orange Line service patterns
    - Improve Access to Metrorail
        - Enhance bus service by the addition of 460 buses by 2013;
        - Add/replace bus garages
        - Improve bicycle and pedestrian access
    - Station improvements
        - Construct station connectors: Metro Center to Gallery Place/Chinatown and Farragut North to Farragut West
        - Enhance six core stations (Metro Center, Gallery Place/Chinatown, Union Station, Farragut North, and Farragut West)
    - Line Connectors (for operational flexibility)
        - Construct Orange-Blue and Blue-Yellow Line Connection Projects
        - Potomac Avenue pocket track

B. Traffic Operations Improvements

1. Improve management of arterial road system
    - Re-optimize traffic signals on a continuing basis (e.g. at least once every three years)
    - Upgrade and enhance signal timing technology
    - Spot improvements that include minor changes to turning lanes and intersection geometrics
    - Increase access management

2. Increase coverage and improve management of freeway system
    - Additional cameras, detectors and other traffic congestion monitoring sensors
    - Selected use of ramp metering technology

3. Improve incident response systems on arterials and freeways
    - Additional monitoring of traffic operations
    - Improved traffic management measures
    - Reduce response time to traffic accidents and other incidents
    - Additional emergency response vehicles

4. Increase real-time information for highway and transit travel
    - Increase real-time information through the internet, phones, palm pilots, and electronic messaging signs
    - Deploy automatic vehicle location (AVL) for buses

C. Ridesharing

1. Ridesharing Incentives
    - Provide the same level of benefits to carpoolers as transit riders (e.g. Metrochek)

2. Youth education (K-12) Campaign
    - Educate young people on the benefits of using alternative modes (transit, ridesharing and telecommuting)

D. Telecommuting Incentives

1. Increase the percentage of the workforce telecommuting at least one day a week from 15% currently to 35% in 2025

2. Telecommuting incentives include federal government policies that encourage greater telecommuting by federal employees and tax credits for both employers and employees. Technological capacity limitations would need to be addressed to allow more employees to telecommute.

E. Bicycle and Pedestrian Improvements

1. Improve pedestrian facilities near rail stations and bus stops
    - TERM M-93 estimated that improved pedestrian facilities added an additional 2,500 persons walking to rail stations, a reduction of 4,300 daily vehicle trips and a reduction of 63,000 daily VMT

    - Provide easier and safer access to bus stops through relocation or crosswalks, removal of barriers, pedestrian bridges, lighting, and other safety improvements

2. Improve bicycle parking at transit stations
    - Covered parking for bicycles