2000

Update to the Financially Constrained Long-Range Transportation Plan for the National Capital Region

National Capital Region
Transportation Planning Board

ABSTRACT

TITLE: 2000 Update to the Financially Constrained Long-Range Transportation Plan for the National Capital Region

DATE: May 15, 2002

AUTHOR: Wendy K. Klancher

AGENCY: Metropolitan Washington Council of Governments
National Capital Region Transportation Planning Board

ABSTRACT: This official long-range transportation plan for the National Capital Region identifies the capital improvements, studies, actions, and strategies that the region proposes to carry out by the year 2025. It is "financially constrained" to include only projects that the region can afford to build and operate during the 2000-2025 period. The plan is updated at least every three years; this is the second major three-year update since the plan was first published in 1994. The document summarizes regional plans and programs as of October 18, 2000. Major improvements, studies, and actions included in the plan are described in this document. However, detailed descriptions of these major projects as well as descriptions of small-scale projects not shown here are contained in separate supplementary documents titled *Inputs for the FY2001-2006 Transportation Improvement Program and the 2000 Constrained Long-Range Plan (CLRP).* One document includes project descriptions submitted by the District of Columbia and Federal Lands Highway Division, one the Washington Metropolitan Area Transit Authority (WMATA), another document includes Suburban Maryland and a fourth contains project descriptions for Northern Virginia.

The National Capital Region Transportation Planning Board (TPB) at COG is the designated Metropolitan Planning Organization (MPO) for transportation for the region. Members of the TPB include representatives of local governments; state transportation agencies; the Maryland and Virginia General Assemblies; the Washington Metropolitan Area Transit Authority; and non-voting members from the Metropolitan Washington Airports Authority and federal agencies.

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2000 UPDATE TO THE FINANCIALLY CONSTRAINED LONG-RANGE TRANSPORTATION PLAN FOR THE NATIONAL CAPITAL REGION

NATIONAL CAPITAL REGION
TRANSPORTATION PLANNING BOARD

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TPB R24-2002
May 15, 2002

METROPOLITAN WASHINGTON COUNCIL OF GOVERNMENTS
NATIONAL CAPITAL REGION TRANSPORTATION PLANNING BOARD
777 North Capitol Street, N.E.
Washington, D.C. 20002

RESOLUTION ON APPROVAL OF 2000 UPDATE TO THE FINANCIALLY CONSTRAINED LONG-RANGE TRANSPORTATION PLAN FOR THE NATIONAL CAPITAL REGION

WHEREAS, the National Capital Region Transportation Planning Board (TPB), which is the metropolitan planning organization (MPO) for the Washington Region, has the responsibility under the provisions of the Transportation Equity Act for the 21st Century (TEA-21) for developing and carrying out a continuing, cooperative and comprehensive transportation planning process for the Metropolitan Area; and

WHEREAS, the final planning regulations issued by the Federal Highway Administration (FHWA) and the Federal Transit Administration (FTA) on October 28, 1993 require: "the metropolitan transportation planning process shall include development of a transportation plan addressing at least a twenty year planning horizon.", and state: "The transportation plan shall be reviewed and updated at least triennially in nonattainment and maintenance areas ..."; and

WHEREAS, on September 21, 1994, the TPB approved the first financially-constrained long-range plan (CLRP) published as *The Long-Range Transportation Plan for the Washington Region* ; and

WHEREAS, on July 17, 1997, the TPB approved the first triennial update to the CLRP which was approved for publication on July 15, 1998 as the document:*1997 Update to the Financially Constrained Long-Range Transportation Plan for the Washington Region* ; and

WHEREAS, TPB actions affecting the CLRP have occurred between July 17, 1997 and October 18, 2000 including updated land use and population and employment forecasts, air quality conformity information, amendments to project listings, project completions, and changes in federal regulations; and

WHEREAS, for each of the amendments to the CLRP since 1997, there has been a 30-day public comment period on the proposed changes, and the comments and staff responses to them were reviewed and approved by the TPB; and

WHEREAS, on October 18, 2000, the TPB approved the second triennial update to the CLRP; and

WHEREAS, the document entitled: *2000 Update to the Financially Constrained Long-Range Transportation Plan for the National Capital Region* has been prepared to

document the most recent three-year update to the CLRP; and

WHEREAS, in February 2002, the TPB Citizens Advisory Committee provided comments on a draft version of the document and responses were incorporated into the draft, and

WHEREAS, in March 2002, the TPB Technical Committee recommended favorable action on the 2000 update document by the Board, and

WHEREAS, since the briefing on the draft document at the April 17, 2002 TPB meeting, comments were received from the District Division of Transportation and the Washington Metropolitan Area Transit Authority (WMATA), and the final draft document incorporating responses to these comments was available at the May 15, 2002 TPB meeting,

NOW, THEREFORE, BE IT RESOLVED THAT THE NATIONAL CAPITAL REGION TRANSPORTATION PLANNING BOARD approves the document entitled: *2000 Update to the Financially Constrained Long-Range Transportation Plan for the National Capital Region*.

Adopted by the Transportation Planning Board at its regular meeting on May 15, 2002.

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EXECUTIVE SUMMARY

The *2000 Update to the Financially Constrained Long-Range Transportation Plan for the National Capital Region* identifies the capital improvements, studies, actions, and strategies that the region proposes to carry out by the year 2025. The plan has been prepared in accordance with federal regulations based on the Transportation Efficiency Act for the 21st Century enacted in 1998. Significant among these federal regulations are:

- The plan is financially realistic;
- The plan conforms with federal Clean Air Act requirements;
- The plan considers a number of "planning factors"; and
- Plan development has included opportunities for the participation of interested citizens and organizations.

The National Capital Region Transportation Planning Board (TPB), made up of governments and agencies from around metropolitan Washington, is responsible for development of the long-range plan. This plan is known popularly as the "CLRP", or constrained long-range plan, because of the federal requirement that it be financially constrained. The first CLRP to be developed under these financial constraint requirements was approved by the TPB in 1994, with an expectation that the plan would undergo an update at least every three years. A second CLRP was approved in 1997. This document is the 2000 update of the 1997 documentation of the CLRP. The most significant change from the 1997 documentation is that the 2000 plan's performance is measured against the TPB's Vision policy goals and objectives. This assessment is described in Chapter 5 and provides more information on transportation conditions forecast for 2025 given the limited transportation improvements included in the 2000 CLRP.

The 2000 CLRP is little changed from its immediate 1997 predecessor. This 2000 plan accounts for a number of changes in the region since 1997, including the adoption of the TPB Vision. This Vision serves as an overall blueprint and policy direction for transportation in the region into the 21st Century. Other changes include the completion of some projects, the deferral of some, and the addition of a few. The addition of fixed guideway rail in the Dulles Corridor was perhaps the single most significant change in the plan between 1997 and 2000, the culmination of extensive studies and participation among elected officials and citizens. The 2000 CLRP accounts for changes in federal regulations, in the financial outlook of the region, and in population and employment forecasts for the region.

1.

INTRODUCTION: A LONG-RANGE TRANSPORTATION PLAN

This document presents the constrained long-range transportation plan (CLRP) for the Washington region through the year 2025. The plan and the process by which it was developed reflect federal planning regulations. The Intermodal Surface Transportation Efficiency Act of 1991 (ISTEA) first established the requirement that metropolitan long-range transportation plans must be financially constrained, among other things. The Transportation Equity Act for the 21st Century (TEA-21), which was enacted in 1998, upheld and streamlined many of the provisions of ISTEA. Federal planning regulations have not been promulgated for TEA-21. To comply with federal regulations, the plan includes only those projects that the region can actually afford to build and operate during the 2000-2025 time frame of the plan, once the costs of maintaining the current transportation system have been considered. For this reason, the plan is termed a "financially constrained" long-range plan. Unlike the major plan revision which first took place in 1994, this 2000 update of the plan is little changed from its 1997 predecessor, with only the incorporation of a small number of project completions or project additions as needed.

The plan addresses a number of other federal requirements, including meeting national air quality standards, contributing to annual emissions reductions, and considering the relationship between land use and transportation. Greatly expanded opportunities for interested citizens and organizations to participate in each stage of the plan's development were provided.

This introductory chapter highlights how the long-range plan was developed, how it relates to past and ongoing planning efforts, and how it addresses the major federal planning requirements.

DEVELOPMENT OF THE LONG-RANGE PLAN

This plan has been prepared by the National Capital Region Transportation Planning Board (TPB), the federally designated Metropolitan Planning Organization (MPO) for the Washington metropolitan area. The TPB is made up of representatives of 18 local governments, the departments of transportation of Maryland, Virginia, and the District of Columbia, the state legislatures, and the Washington Metropolitan Area Transit Authority (WMATA). Member jurisdictions are shown in Figure 1-1.

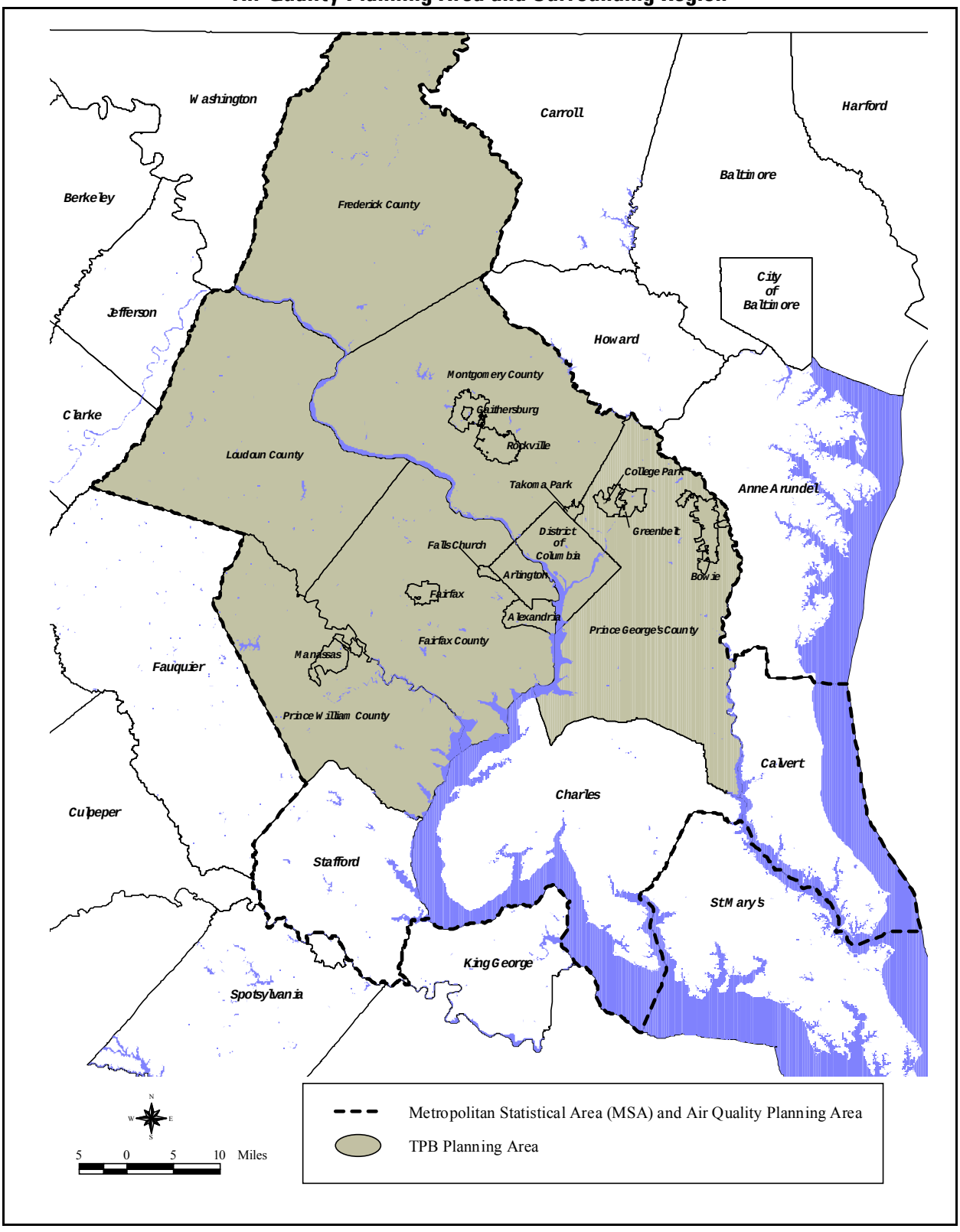
The TPB meets monthly and receives staff support from the Metropolitan Washington Council of Governments (COG). The TPB advises the COG Board of Directors on transportation matters that affect the region. In addition to preparing long-range transportation plans, the TPB is responsible for developing the annual Transportation Improvement Program (TIP), a federally required budgetary and programming document that shows how specific projects in the CLRP will be implemented during a six-year period.

Figure 1-2 shows the metropolitan planning area for which the TPB is responsible. This area, when expanded to include Charles and Calvert counties in Maryland and Stafford County in Virginia, comprises the Washington Metropolitan Statistical Area (MSA), and has been designated an air quality "serious non-attainment area" for its failure to meet federal ozone standards. It is this area that is the focus of air quality plans developed for the Washington region.

Stafford County, Virginia is a member the Fredericksburg Area Metropolitan Planning Organization (FAMPO). Because Stafford County is part of the Washington air quality non-attainment area, its projects are included in the transportation networks used to test the region's plans and programs for conformity with federal clean-air requirements, and are included in this plan for informational purposes; however, FAMPO holds planning, programming, and project selection responsibilities for Stafford. Charles and Calvert counties in Maryland, although not members of the TPB, are also part of the regional air quality non-attainment area; their projects are also included in the air quality conformity assessment.

Figure 1-1: TPB Member Jurisdictions

Figure 1-2
TPB Planning Area, Metropolitan Statistical Area (MSA)/
Air Quality Planning Area and Surrounding Region



CONTEXT FOR LONG-RANGE PLAN

The Washington region's first long-range transportation plan was prepared in the 1960s, when the region was much smaller. The first plan was an ambitious one, envisioning three ring roads around the central city and an extensive rail transit system linking the suburbs to the downtown core. Through the years, the 1966 plan was pared back, but it continued to serve as the basic blueprint for the region's transportation system. One ring road—the Capital Beltway—was constructed, and the 103-mile Metrorail system is now complete. The set of projects that remained in the plan, as of 1997—the most recent update—was comparatively modest.

Since that first plan was developed the Washington area has grown dramatically, becoming the fourth largest metropolitan area in the United States[1]. The population since the 1960s has more than doubled. The number of jobs has surged as well, particularly in suburban areas, and travel on the region's roads has skyrocketed. Recognizing these changes, local and state officials, business and community leaders, members of environmental and civic groups, and many concerned citizens prepared comprehensive reports calling for a new "vision" to shape the region's development.[2] Within the framework of these reports, the TPB began development of a regional transportation Vision in 1995.

In 1998, the TPB unanimously adopted its long-range transportation Vision, which is the transportation policy framework intended to guide regional transportation investments into the new century. It contains eight goals and associated objectives and strategies that will help the region reach those goals. The TPB Vision incorporates all of the "planning factors" specified in federal law and regulations.

The Vision is the product of a three-year development process. Through the "Getting There" outreach component, which included public opinion surveys and brainstorming sessions in every part of the region, the TPB collected more than 2,200 ideas. The outreach brought in low-income people, including those who depend on public transportation, and sought out the participation of minorities, senior citizens and non-English speaking residents. Three citizen task forces met almost every other week for several months to develop three different alternatives for the development of the region's transportation system over the next 50 years. More than 130 individuals and representatives of interested organizations regularly attended these meetings.

In the final phase of the visioning process a consensus was developed based on the three task force reports, other regional studies, and public input. As chairman of the steering committee overseeing this final phase, Mayor John Mason of the City of Fairfax, Virginia guided the Vision to completion.

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[1] The Washington-Baltimore Consolidated Metropolitan Statistical Area (CMSA) is ranked the fourth largest metropolitan area in terms of population. Census 2000 PHC-T-3. Ranking Tables for Metropolitan Areas: 1990 and 2000. Source: U.S. Census Bureau, April 2, 2001.

[2] MWCOG/Task Force on Growth and Transportation, *A Legacy of Excellence for the Washington Region,* June 1991. See also: Adams, Bruce, et.al., *The Report of the Partnership for Regional Excellence,* presented to MWCOG, July 1993.

In the 2000 CLRP, the Vision replaces the Policy Element that was contained in earlier versions of the CLRP. As such, it provides the general policy framework for continuing transportation system planning and implementation for the National Capital Region.

Policy Goals

In developing the long-range plan, the TPB was guided by the TPB Vision policy goals and objectives. The entire TPB Vision is presented in Chapter 2. The eight broad goals are presented in Table 1-1.

Table 1-1
The TPB Vision Policy Goals

1. The Washington metropolitan region's transportation system will provide **reasonable access at reasonable cost** to everyone in the region.

2. The Washington metropolitan region will develop, implement, and maintain an interconnected transportation system that enhances quality of life and promotes a strong and growing economy throughout the entire region, including a **healthy regional core and dynamic regional activity centers** with a mix of jobs, housing, services and recreation in a walkable environment.

3. The Washington metropolitan region's transportation system will give priority to **management, performance, maintenance, and safety of all modes and facilities**.

4. The Washington metropolitan region will use the **best available technology** to maximize system effectiveness.

5. The Washington metropolitan region will plan and develop a transportation system that enhances and protects the region's **natural environmental quality, cultural and historic resources, and communities**.

6. The Washington metropolitan region will achieve better inter-jurisdictional **coordination of transportation and land use planning**.

7. The Washington metropolitan region will achieve **enhanced funding mechanisms** for regional and local transportation system priorities that cannot be implemented with current and forecasted federal, state, and local funding.

8. The Washington metropolitan region will support options for **international and inter-regional travel and commerce**.

To develop the plan, each local, state, or regional agency with the authority to construct projects or implement policies submitted to the TPB a set of proposed capital improvements and strategies that, in its view, would best meet one or more of the TPB Vision Policy Goals while remaining within projected revenues. The implementing agencies were asked to describe each proposed project and strategy, as well as its purpose and anticipated contribution to the TPB Vision. Due to their number, these descriptive statements are presented in other volumes. Chapter 5 assesses the anticipated effects of the plan on each of the eight TPB Vision Policy Goals, and documents that each of the required planning factors has been considered. There have been only a small number of changes in the projects included in the plan since 1997, and these are described in Chapter 4.

Financial Resources

To address the requirement that the plan be financially realistic, a study was conducted for the TPB in 2000.[3] The study projected the revenues that each state would have available for transportation through the year 2025 and compared the projected revenues to the estimated costs of maintaining and operating the current transportation system together with the expected costs of implementing the long-range plan. The total expenditures over the 25 years of the plan are equal to the total expected revenues or $76.8 billion. Overall, almost $62 billion or **80 percent of the total expenditures are for operations and preservation of the region's transportation system**. About $15 billion, or 20 percent are for expanding the transportation system. Transit expenditures are $40 billion or 52 percent of the total and highway expenditures are $36.8 billion or 48 percent.

Project Review and Selection Process

The development of this long-range plan was integrated with the preparation of the region's Transportation Improvement Program for fiscal years 2001 to 2006. Those projects included in the 2000-2005 TIP for which funds had already been committed were considered a starting point for both the CLRP and the 2001-2006 TIP. Additional projects of interest to the implementing agencies and local governments were then selected for inclusion in the plan, with attention to their contributions to the TPB Vision and federal regulations—in particular, their likely effects on air quality—and the availability of projected revenues to implement them. The plan, which is described in Chapter 4 of this report, includes many projects that were part of earlier plans and have longstanding funding commitments from the region's state and local governments.

On the occasion of all CLRP amendments and updates, TPB staff analyzed the air quality impacts of the plan, with the proposed changes, as described in the following section. Concurrent with this activity, the TPB and implementing agencies worked to develop a set of transportation emissions reduction measures (TERMs) that would reduce future emissions and help to ensure that the plan meets federal air quality requirements. In general, TERMs are strategies designed to reduce automobile travel or

[3] Cambridge Systematics, Inc, Analysis of Resources for the Financially Constrained Long Range Transportation Plan for the Washington Area, prepared for MWCOG/TPB, October 2000.

make it more efficient. As described in Chapter 4, the TERMs that were selected include expanded ridesharing incentives, telecommuting supports, outreach to employers to promote alternative commuting modes, bicycle improvement projects, and a speed limit enforcement measure. Many of these TERMs also serve as components of a congestion management system (CMS). The CMS for the Washington region is fully incorporated into the CLRP. Additionally, at all stages of the plan's development, a variety of opportunities were provided for public involvement.

Air Quality Assessment

As required by the Clean Air Act Amendments of 1990 (CAAA), the long-range plan has been evaluated for its likely effects on the region's air quality. The proposed facilities and policies in the plan have been analyzed with a set of forecasting models maintained by COG. The analysis examines the levels of pollutant emissions from motor vehicles that are projected to occur at specific points in time as the plan is implemented. The air quality analysis shows that with a set of transportation emissions reduction measures in place, the CLRP is in conformity with the requirements of the CAAA. These requirements are discussed in Chapter 2; the plan's impacts on the region's air quality are fully described in a technical report.[4]

Public Involvement

During the preparation of this plan, numerous opportunities were provided for public participation. As required by federal regulations, the TPB has developed a formal policy on public involvement. The first policy statement was adopted by the TPB on September 21, 1994. In 1998, the TPB commissioned a consulting firm, ICF Kaiser, to review and make recommendations on how the public involvement process might be improved. The ICF Kaiser report recommended, among other things, that the CAC needed to have a clearer role in the TPB's decision-making process and should include a wider cross-section of stakeholders. In October 1999, after months of discussion and public comment, the TPB voted to create an enhanced CAC, turning it into a body with 15 appointed members instead of the previous open-membership committee.[5] All changes to the plan have followed this public involvement policy, including 30-day public notice and comment periods for all changes, public comment opportunities at all TPB meetings, public involvement opportunities at technical subcommittees of the TPB, and review of the document and all changes by the TPB's Citizens Advisory Committee.

[4] TPB Air Quality Conformity Determination of the 2000 Constrained Long-Range Plan and the FY2001-2006 Transportation Improvement Program for the Washington Metropolitan Region. National Capital Region Transportation Planning Board. Metropolitan Washington Council of Governments, October 18,2000.

[5] MWCOG/TPB, "Public Involvement Process," As Amended October 1999.

ORGANIZATION OF REPORT

This chapter has introduced the long-range plan, described how it meets federal planning requirements, and placed it in the context of the TPB Vision. Chapter 2 documents the process used to develop this plan. Chapter 3 provides an overview of transportation facts, trends, and issues in the Washington region. The plan itself is presented in Chapter 4. Chapter 5 is an assessment of the plan in light of the TPB's Vision goals and objectives. Chapter 6 presents summaries of the public comments received on the plan, along with responses.

Several types of additional information incorporated by reference in this plan can be found in separate volumes. These include the assessment of the plan's effects on regional air quality, entitled *TPB Air Quality Conformity Determination of the 2000 Constrained Long-Range Plan and the FY2001-2006 Transportation Improvement Program for the Washington Metropolitan Region* dated October 18, 2000, and hundreds of detailed project description forms that are bound separately in *Inputs for the FY2001 – 2006 Transportation Improvement Program and the 2000 Constrained Long-Range Plan (CLRP).* One document includes project descriptions submitted by the District of Columbia and Federal Lands Highway Division, one the Washington Metropolitan Area Transit Authority (WMATA), another document includes Suburban Maryland and a fourth contains project descriptions for Northern Virginia. All of these documents are available from the COG Information Center (202) 962-3256.

2.

TRANSPORTATION PLANNING PROCESS

Since 1965, the National Capital Region Transportation Planning Board (TPB) has been responsible for developing long-range transportation plans for the Washington region. Such plans are required for each metropolitan region receiving federal transportation funds. In 1994, following the then-new regulations for metropolitan planning issued by the U.S. Department of Transportation, the long range plan became a financially constrained long range plan (CLRP). The federal regulations require the plan to be comprehensively updated every three years, and hence the CLRP was updated in 1997 as well as in 2000.

The 2000 CLRP has been shaped in response to federal laws and regulations for metropolitan transportation planning. Two pieces of federal authorizing legislation for transportation, enacted in the last decade, provide the foundation for many requirements reflected in the plan. The Intermodal Surface Transportation Efficiency Act of 1991 (ISTEA) first established the requirement that metropolitan long-range transportation plans must be financially constrained, among other things. The Transportation Equity Act for the 21st Century (TEA-21), which was enacted in 1998, upheld and streamlined many of the provisions of ISTEA. Federal planning regulations have not been promulgated for TEA-21.

Since the last CLRP update in 1997, the TPB has implemented several enhancements to its policy framework and to the planning process that are reflected in the 2000 update. These include the adoption of the TPB Vision in 1998 and the approval of an enhanced public involvement process in 1999.

The purpose of this chapter is to review the major federal requirements for the long-range plan, describe how the plan meets those requirements, and present the policy framework provided by the TPB Vision. Chapter 5 describes how plan's performance in relation to the TPB Vision.

OVERVIEW OF FEDERAL REQUIREMENTS

Federal regulations cover all aspects of the long-range planning process that the TPB must follow to remain eligible for federal funding. The CLRP must meet federal regulations involving financial constraint, air quality conformity, Title VI and other requirements including a Congestion Management System (CMS). A financial plan must show how the updated long-range plan can be implemented with expected revenues. The regulations also affect the programming of projects in the Transportation Improvement Program (TIP) that must accompany the plan, the way in which the air quality impacts of transportation are to be assessed in each document, and the scope of the resulting plan and TIPs.

Some of the major federal planning process requirements include:

- Consideration of "planning factors" specified in federal law and regulation that deal with the efficient management of existing facilities; the effect of transportation policy decisions on land use and development; the efficient movement of freight; the social, economic, and environmental effects of transportation decisions; and several other issues. The TPB Vision incorporates all of the planning factors;

- A demonstration of conformity with plans for meeting national air quality standards;

- The development of a financial plan that demonstrates how the long-range plan can be implemented with revenues "reasonably expected to be available";

- The development of a Congestion Management System "that provides for effective management of new and existing transportation facilities through the use of travel demand reduction and operational management strategies";

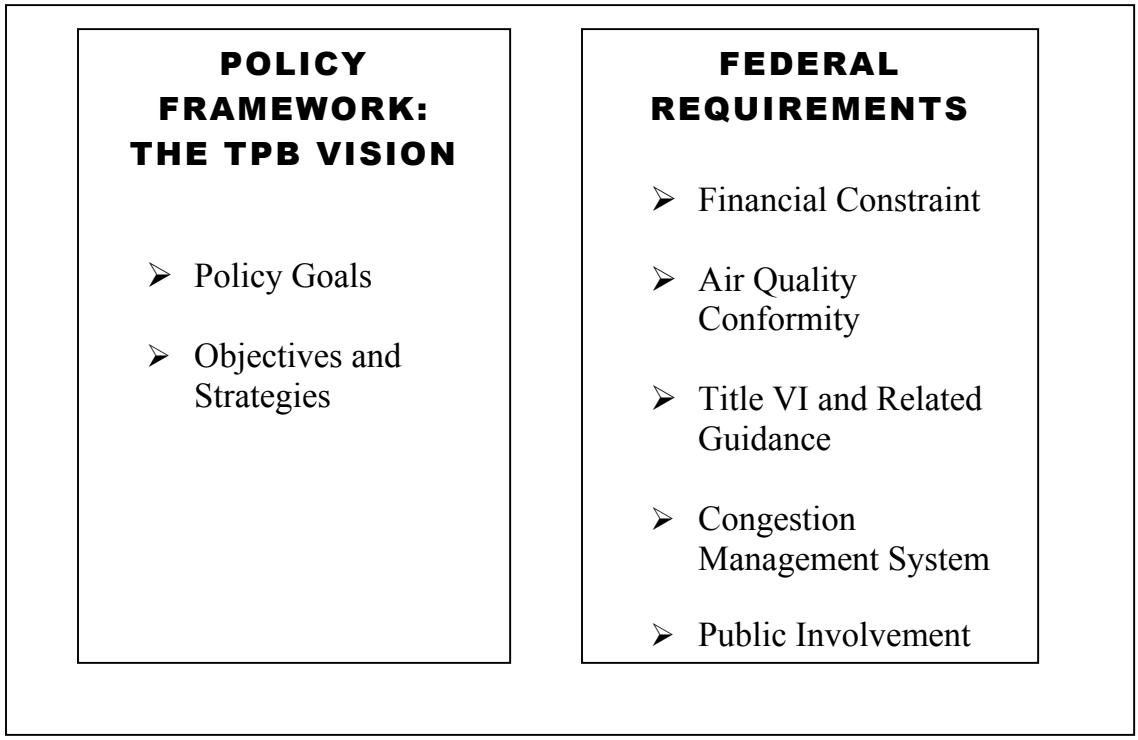
- The inclusion of "a proactive public involvement process...that supports early and continuing involvement of the public in developing plans," with a formal comment period of at least 30 days for plan amendments;

- Review the formal plan in an annual meeting. The plan must be updated at least every three years; and

- Consideration of the needs of low-income and minority populations and persons with disabilities; and a review of the impacts of the plan on low-income and minority populations as Title VI and related guidance require.

Information on how these requirements were met is presented in the following section.

Figure 2-1: Key Criteria for Developing the Constrained Long-Range Plan (CLRP) and Transportation Improvement Program (TIP)



MEETING THE FEDERAL REQUIREMENTS

Air Quality Conformity

The Clean Air Act Amendments (CAAA) of 1990 require that the transportation actions and projects in the CLRP and TIP support the attainment of the federal health standard for ozone. Ozone is a harmful gas formed when volatile organic compounds (VOCs) and nitrogen oxides (NOx) react with sunlight. Almost one-third of the man-made VOC and NOx emissions that cause ozone in the Washington region come from cars, trucks, and buses. The CLRP and the TIP are required to meet air quality conformity requirements as specified in the amended Environmental Protection Agency (EPA) regulations issued in August, 1997 and in supplemental guidance issued on May 14, 1999.

Because the Washington area is classified as a "serious" non-attainment area for ozone, the Clean Air Act Amendments required the District of Columbia, Maryland and Virginia to submit State Implementations Plans (SIPs) that demonstrate how the Washington region would reduce emissions to meet three key targets. These include 1) a 15 percent reduction in emissions from 1990 levels by 1996, 2) an additional 9 percent reduction between 1996 and 1999, and 3) the attainment of the federal health standard for ozone by 1999.

The 15 percent VOC reduction plan was submitted to EPA in January 1994, and the 9 percent emissions reduction plan (contained as a key element of the "Phase I Attainment Plan") was approved in October, 1997 by the Metropolitan Washington Air Quality Committee (MWAQC) and was submitted by the states to EPA in December, 1997.

MWAQC prepared an updated Phase I Attainment Plan, which was submitted by the states to EPA in May 1999. The Phase II Attainment Plan, which demonstrated attainment by 1999 but for ozone transport, was completed and submitted to EPA in April 1998. An updated Phase II Attainment Plan, focusing on attainment of the ozone standards by 2005, was approved by MWAQC in March 2000 and subsequently was approved by EPA in January 2001.

The Results of the Air Quality Conformity Assessment of the Plan

The air quality conformity assessment of the proposed long-range plan was conducted by COG staff and is presented in a technical report[1]. The air quality conformity analysis of the 2000 CLRP and the FY2001-2006 TIP involved tests to determine that future emissions will be within the mobile source emissions budgets for VOC and NOx established as part of the attainment planning. This assessment included the projected emissions for the actions and projects expected to be completed in the 2001, 2005, 2015, 2020 and 2025 analysis years. The analysis showed that estimated emissions are within the mobile source budgets for each pollutant and no additional emission reduction measures (TERMs) need to be programmed to demonstrate conformity. TERMs previously programmed are described further in Chapter 4. Interagency agreements on air quality conformity assessment are spelled out in a set of TPB consultation procedures.[2] The air quality determination found that the 2000 CLRP and FY 2001-2006 conform to the requirements of the Clean Air Act Amendments of 1990.

Financial Feasibility

Under federal planning regulations, the region must be able to implement the projects in the long-range plan within the time frame of the plan with revenues that are reasonably expected to be available. In other words, the plan must be financially realistic about expected transportation costs and revenues and only include new facilities that can be funded while maintaining the existing transportation infrastructure. For this reason, the plan is termed a financially "constrained" long-range plan (CLRP). Specifically, the plan must:

[1]Air Quality Conformity Determination of the 2000 Constrained Long-Range Plan and the FY2001-2006 Transportation Improvement Program for the Washington Metropolitan Region. National Capital Region Transportation Planning Board. Metropolitan Washington Council of Governments, October 18,2000.

[2] Transportation Planning Board Consultation Procedures with Respect to Transportation Conformity Regulations Governing TPB Plans and Programs, National Capital Region Transportation Planning Board, Metropolitan Washington Council of Governments, May 20, 1998.

- Forecast the annual revenues from federal, state, local, and private funding sources, such as dedicated tax revenues, bond proceeds, impact fees, transit fares, and tolls that can reasonably be expected to be available;

- Project the annual costs of operating and maintaining the existing system;

- Estimate the annual costs of constructing and operating the improvements and new facilities in the plan; and

- Propose new revenue sources to cover any shortfalls.

In order to update the plan, the TPB requested that the region's transportation agencies and local jurisdictions project the total expected revenues, identify the expenditures to operate and preserve the existing highway, Metrorail, bus, commuter rail, bicycle and pedestrian systems, and then include only those improvements and projects that can be accommodated within the remaining revenues. The state and local transportation agencies worked closely with Cambridge Systematics Inc. to coordinate the assumptions and methodologies used to make the 25-year forecasts of revenue and expenditures.[3] The extensive financial analysis and the project submissions were reviewed by the TPB Technical Committee and the TPB at work sessions and meetings during the spring of 2000.

Revenue and cost projections were developed for the District of Columbia, Suburban Maryland, Northern Virginia, a regional category and then totaled. Projections were not made at the county or city level. All of the revenue and cost projections were made in constant 2000 dollars.

Summary of Revenues in the Long-Range Plan

The total anticipated revenues over the 25-year period of the plan are $76.8 billion. Table 1 presents the expected revenues in columns for the District of Columbia, Suburban Maryland, Northern Virginia, and the region. Regional revenues are not allocated to specific jurisdictions and include forecasted WMATA fares, federal funds anticipated for WMATA preservation, and special federal funding identified for the replacement of the Woodrow Wilson Bridge.

The combined category of federal/state and District revenues account for about 60 percent of the total forecasted revenues. The local jurisdictions in Maryland and Virginia revenues account for about 13 percent of the total. Private/tolls, including developer contributions, represent about 1 percent of the total. Transit fares provide about 16 percent of the total. Special and regional federal revenues provide about 10 percent of the total. The special federal revenues are anticipated federal grants under the Federal Transit Administration Section 5309 New Starts or other federal grants.

[3] Cambridge Systematics, Inc, Analysis of Resources for the Financially Constrained Long Range Transportation Plan for the Washington Area, prepared for MWCOG/TPB, October 2000.

These total $2.5 billion over twenty five years, or an average of $100 million per year, which is about 10 percent of the current level of the national federal transit program.

Summary of Expenditures in the Long-Range Plan

The total expenditures over the 25 years of the plan are equal to the total expected revenues or $76.8 billion. Table 2 shows the expenditures in columns for the District of Columbia, Suburban Maryland, Northern Virginia, and a regional category. Regional expenditures not allocated to specific jurisdictions include the fares for WMATA transit operation, federal funds for WMATA preservation, and federal funds for the replacement of the Woodrow Wilson Bridge.

Overall, almost $62 billion or **80 percent of the total expenditures are for operations and preservation of the region's transportation system**. About $15 billion, or 20 percent are for expanding the transportation system. Transit expenditures are $40 billion or 52 percent of the total and highway expenditures are $36.8 billion or 48 percent.

Funding Limitations Identified

In the previous financial analysis of the 1997 CLRP[4], issues were raised about the region's projected revenues being sufficient to adequately rehabilitate and preserve the region's transit and highway systems. For this 2000 CLRP update, WMATA conducted an extensive financial analysis of the funding needed for preserving the Metrorail and Metrobus systems and to accommodate Metrorail ridership growth over the 25-year period. As shown at the bottom of Table 2, the request by WMATA for preservation (called the infrastructure renewal program (IRP)) for the 103 mile Metrorail system is $6.508 billion, while the funds committed are $5.761 billion, or about 88 percent of the total requested. The WMATA analysis also indicated that the IRP funding needs "ramp-up" sharply beginning in 2006. No funding is committed to the WMATA request of $1.5 billion to accommodate the projected Metrorail ridership growth.

Addressing the CLRP Funding Limitations

As the TPB was adopting the 2000 CLRP, it reviewed the performance of the plan in relation to the goals in the TPB Vision adopted in 1998. The review identified two immediate challenges:

- Identify reliable sources of funding to rehabilitate and maintain the region's transportation system adequately; and
- Address projected gridlock on the transit and roadway networks.

When the 2000 CLRP was adopted, the TPB approved a resolution expressing its "serious concerns over the inability of the 2000 CLRP to meet the goals of the TPB

[4]Price Waterhouse LLP, 1997 Update Analysis of Financial Resources for the Constrained Long Range Plan, prepared for MWCOG/TPB, November 1997.

Vision due to a shortfall in transportation funding." It also committed to a high-level meeting of state DOT officials, state legislators, representatives from Congress, and other regional leaders to review and discuss the region's transportation funding needs. The presentation materials from this meeting were made into an attractive brochure and included in a video which was shown on many of the local cable TV networks as part of an outreach program for the general public to build consensus and support for regional action.

Table 2-1
Anticipated Revenues for the 2000 Update of the Financially Constrained Long-Range Plan
2001-2025

Millions of Constant 2000 Dollars

	District of Columbia	Suburban Maryland	Northern Virginia	Regional	TOTAL
Federal/State	10,865	19,250	14,912		45,027
Local Jurisdictions		6,861	3,303		10,164
Private/Tolls	25	183	715		923
Sub-Total	10,890	26,294	18,930	0	56,114
Local Transit Fares		331	899		1,230
WMATA Fares/Other				11,516	11,516
Sub-Total	0	331	899	11,516	12,746
WMATA Fed Preservation (IRP)				3,941	3,941
Special Federal*					
New York Ave. Station	25				25
Silver Spring Transit Center		15			15
Largo/Addison Rd.		237			237
Georgetown Branch LR		202			202
Potomac Yards Station			35		35
BRT/Rail to Dulles			970		970
Other Transit	225	457	334		1,016
Sub-Total Special Federal	250	911	1,339		2,500
Woodrow Wilson Bridge				1,500	1,500
GRAND TOTAL	11,140	27,536	21,168	16,957	76,801

*New Starts, Other

Table 2-2
Expenditures of the 2000 Update of the Financially Constrained Long-Range Plan
2001-2025

Millions of Constant 2000 Dollars

	District of Columbia	Suburban Maryland	Northern Virginia	Regional	TOTAL
Highway					
Operation/Preservation	5,801	12,101	8,001		25,903
Expansion		3,949	4,317		8,266
Other	653		72		725
Woodrow Wilson Bridge		200	200	1,500	1,900
Sub-Total	6,454	16,250	12,590	1,500	36,794
Transit					
Local/Commuter Rail		5,510	2,139		7,649
WMATA					
Operating	3,896	3,469	2,920	11,516	21,801
Preservation (IRP) 103 mile	666	644	***607***	3,941	***5,858***
Preservation (IRP) Extension	49	48	43		140
Accommodate Ridership Growth					0
New Starts					
New York Ave. Station	75				75
Silver Spring Transit Center		38			38
Largo/Addison Rd.		400			400
Georgetown Branch LR		337			337
Potomac Yards Station			58		58
BRT/Rail to Dulles			2,034		2,034
I-66 Improvements outside Beltway			315		315
Other Projects and Studies			128		128
Other New Starts - Federal		457	334		791
State/Local		383			383
Sub-Total	4,686	11,286	8,578	15,457	40,007
GRAND TOTAL	11,140	27,536	21,168	16,957	76,801
Revenues - Expenditures	0	0	0	0	0
WMATA Request					
Preservation (IRP)103 miles	939	909	719	3,941	6,508
Preservation (IRP) Extension	49	48	43		140
Accommodate Ridership Growth	564	545	431		1,540
Total	1,552	1,502	1,193	3,941	8,188

Bold Italics Numbers include $97m for debt service; $5.761b in total will be available for WMATA

Public Involvement Process

After passage of ISTEA, the TPB took immediate steps toward setting up a new public involvement process. Workshops and special forums were hosted throughout the region. A monthly bulletin, the TPB News, was established. (By 2000, the distribution for TPB News was more than 2,500.) A 20-minute public comment period was held before every TPB meeting. A Citizens Advisory Committee (CAC) was set up in 1993 to discuss key issues and proposals scheduled for discussion by the TPB.

During development of the Vision, the TPB gained practical experience with active forms of outreach. The TPB conducted public opinion surveys and brainstorming sessions in every corner of the region. Special sessions were held for low-income and minority communities.

In 1998, the TPB commissioned a consulting firm, ICF Kaiser, to review and make recommendations on how its public involvement process might be improved to draw upon lessons from past experiences and help to create the regional consensus needed to implement the ambitious goals of the Vision.

The ICF Kaiser report recommended, among other things, that the CAC needed to have a clearer role in the TPB's decision-making process and should include a wider cross-section of stakeholders. With these recommendations in hand, a special TPB task force met on a regular basis throughout 1999 to develop proposed changes in the public involvement process.

In October 1999, after months of discussion and public comment, the TPB voted to create an enhanced CAC, turning it into a body with 15 appointed members instead of the previous open-membership committee. The existing CAC voted for six individuals to serve on the Committee for the year 2000, and the TPB appointed nine additional members. The changes also mandated geographic representation: the CAC was required to include five members each from the District of Columbia, Northern Virginia, and Suburban Maryland. Furthermore, the public involvement process states that CAC members should represent environmental, business, and civic interests in transportation, including appropriate representation from low-income groups, minority, groups, and persons with disabilities.

The new CAC was also given a clearer role. A new two-part mission called upon the CAC to 1) promote public involvement, and 2) provide "independent, region-oriented citizen advice to the TPB." The changes required the CAC annually to hold at least six of its monthly meetings outside of the offices of COG— two in each of the three main TPB jurisdictions.

These changes were implemented in 2000 during the period when the CLRP triennial update was being prepared. Public meetings were held in Takoma Park, downtown D.C., the City of Fairfax, Hyattsville, Anacostia, and Arlington. The meetings were used as an opportunity to include the public in the CLRP update process and, in particular, provide information on the funding shortfall that became apparent during the plan update.

The ICF Kaiser report also called for the increased utilization of representative polling techniques and focus groups to obtain citizen views on transportation. Throughout 1999, these techniques were used to convey key themes from the Vision and solicit citizen input. To get input on the approach that the TPB and its partners should take in the 2000 CLRP, an extensive public education and outreach campaign was launched in 1999. A brochure, called "Making the Vision a Reality Together," was widely disseminated and focus groups were conducted throughout the region.

In general, the public responded positively when presented with the key concepts from the Vision. They agreed with the need to better coordinate land use and transportation, the need to preserve our existing transportation systems, and the need to provide more funding for transportation priorities. But the public also understood that no "silver bullet" will solve our transportation problems. Rather, a package of solutions is needed, including improvement to public transit, highways, and bicycle and pedestrian facilities. The public's understanding of the complexity of our problems was consistent with the Vision, which promotes multi-modal solutions to complex challenges.

In 2000, during the preparation of the CLRP, the TPB received a record number of public comments. More than 5,000 cards, letters, phone calls and public statements were received. As required, a 30-day period was provided for public comments on the plan. The public comments that were received and information on how these comments were addressed, was disseminated in a memorandum that was approved by the TPB. In each of the amendments to the plan since 1997, there has been a 30-day public comment period on the proposed changes, as well as discussions with the TPB Citizens Advisory Committee. See Chapter 6 for details on the dates of comment periods and the comments received.

Title VI Requirements And Related Guidance

Executive Order 12898, *Federal Actions to Address Environmental Justice in Minority Populations*, dated February 11, 1994, requires Federal agencies to identify and address disproportionately high and adverse human health and environmental effects, including interrelated social and economic effects of their programs, policies, and activities on minority populations and low-income populations.

In December of 1998 the US Department of Transportation/Federal Highway Administration released Order 6640.23 "*FHWA Actions to Address Environmental Justice In Minority and Low-Income Populations*". Order 6640.23 "establishes policies and procedures for the Federal Highway Administration (FHWA) to use in complying with Executive Order 12898".[5] The document states that Executive Order 12898 is "primarily a reaffirmation of the principles of Title VI of the Civil Rights Act of 1964 (Title VI) and related statutes, the National Environmental Policy Act (NEPA), 23 U.S.C. 109(h) and other Federal environmental laws, emphasizing the incorporation of those provisions with the environmental and transportation decisionmaking processes."

[5]This order can be viewed online at :http://www.fhwa.dot.gov/legsregs/directives/orders.htm

Furthermore, "These requirements will be administered to identify the risk of discrimination, early in the development of FHWA's programs, policies, and activities so that positive corrective action can be taken. In implementing these requirements, the following information should be obtained where relevant, appropriate, and practical:

(1) population served and/or affected by race, or national origin, and income level;
(2) proposed steps to guard against disproportionately high and adverse effects on persons on the basis of race, or national origin; and,
(3) present and proposed membership by race, or national origin, in any planning or advisory body that is part of the program."

The Unified Planning Work Program for FY 2000 described several activities to address the social, economic, and environmental impacts of candidate projects and actions on minority populations and low-income for the 2000 update of the CLRP. Special outreach efforts to obtain comments on the 2000 CLRP was conducted in low-income and minority communities.

For the first time, the TPB undertook a special study in 1999 to assess how the long-range plan impacted low-income and minority populations. The study, titled "A Regional Accessibility Analysis of the 1999 Constrained Long-Range Plan (CLRP) and Impacts on Low-Income and Minority Populations", measured the number of jobs in the year 2020 that will be accessible within 45 minutes by auto and transit. Accessibility for low-income and minority citizens was compared with accessibility for the population at large. The study found that high levels of congestion on the major interstates and arterials are expected to contribute to a significant loss in accessibility to jobs by auto for the regional population at large. Accessibility to jobs by transit will generally increase. In general, these trends were roughly the same for low-income and minority groups as for the entire regional population. The results of this study were used as an input to the development of the 2000 CLRP. The study will be an on-going TPB activity and will be updated when the necessary 2000 Census data becomes available.

In order to increase public input from low-income communities, minority communities, and persons with disabilities, the TPB hosted a workshop in June 2000 called "Ensuring Access for All." The event was intended to obtain suggestions on methods that the TPB might use to reach out to these communities. The workshop also received ideas about the effects that key transportation issues in the region are likely to have on these groups.

Workshop participants offered common-sense suggestions about public participation. "Go *where* the people are, *when* they are going to be there, and make it clear that people are not wasting their time by giving input," several attendees said. Others suggested the TPB needed to develop new methods for getting out information with clear messages to which people can respond.

Based upon these ideas, the TPB determined it would establish a special advisory committee to address the concerns of low-income, and minority persons and persons

with disabilities. The Access for All advisory committee, which will be partly funded through a grant from the Federal Transit Administration, will identify projects, programs, services and issues that are important to these groups, and are in need of improvement. The committee began work in 2001 and will be composed of low-income and minority community leaders and persons with disabilities.

Congestion Management System

Federal regulations established a set of management systems to enhance the performance of federally funded transportation facilities. The TPB is responsible for developing a Congestion Management System (CMS), defined as a "systematic process that provides information on transportation system performance and alternative strategies to alleviate congestion and enhance the mobility of persons and goods." The CMS is intended to enhance the region's planning procedures by providing information and proposing measures to deal with congestion on major corridors in the region. The CMS component of the CLRP documents that serious consideration has been given to strategies that provide the most efficient and effective use of existing and future transportation facilities, including alternatives to highway capacity increases for single-occupant-vehicles (SOVs).

CMS requirements are addressed in both ISTEA and TEA-21; federal regulations published in the *Federal Register* on December 19, 1996 are in effect. Federal regulations require consideration of congestion management strategies in cases where single-occupant-vehicle capacity is proposed. A congestion management documentation form was completed for any project to be included in the CLRP or Transportation Improvement Program (TIP) that significantly increases the single occupant vehicle carrying capacity of a highway. The form documents how alternative strategies to reduce congestion were considered as alternatives to single-occupant vehicle capacity expansion in the study or proposal for the project. A sample of the congestion management form is shown in Figure 3-2.

The States of Maryland and Virginia and the District of Columbia also undertake management systems activities that may provide information and input to the region’s plans and programs. Pavement Management Systems and Bridge Management Systems keep track of the conditions, reconstruction, and replacement needs of bridges and roadways. Also undertaken are state-level congestion management studies or programs, focusing on congested corridors or to manage traffic during major construction projects.

Figure 2-2: Questions From the Congestion Management Documentation Form for The 2000 CLRP

Sample Questions From the Congestion Management Documentation Form Used in the Electronic 2000 CLRP Submission Process

a. Description of the traffic congestion conditions that necessitate the proposed project

b. Indicate whether the proposed project's location is subject to or benefits significantly from any of the following in-place congestion management strategies:

- ☐ Metropolitan Washington Commuter Connections program (ridesharing, telecommuting, guaranteed ride home, employer programs)
- ☐ A Transportation Management Association is in the vicinity
- ☐ Channelized or grade-separated intersection(s) or roundabouts
- ☐ Reversible, turning, acceleration/deceleration, or bypass lanes
- ☐ High occupancy vehicle facilities or systems
- ☐ Transit stop (rail or bus) within a 1/2 mile radius of the project location
- ☐ Park-and-ride lot within a one-mile radius of the project location
- ☐ Real-time surveillance/traffic device controlled by a traffic operations center
- ☐ Motorist assistance/hazard clearance patrols
- ☐ Interconnected/coordinated traffic signal system
- ☐ Other in-place congestion management strategy or strategies (briefly describe below)

c. List and briefly describe how the following categories of (additional) strategies were considered as full or partial alternatives to single-occupant vehicle capacity expansion in the study or proposal for the project.

a. Transportation demand management measures, including growth management and congestion pricing
b. Traffic operational improvements
c. Public transportation improvements
d. Intelligent Transportation Systems technologies
e. Other congestion management strategies
f. Combinations of the above strategies

d. Could congestion management alternatives fully eliminate or partially offset the need for the proposed increase in single-occupant vehicle capacity? Explain why or why not.

e. Describe all congestion management strategies that are going to be incorporated into the proposed highway project

f. Describe the proposed funding and implementation schedule for the congestion management strategies to be incorporated into the proposed highway project. Also describe how the effectiveness of strategies implemented will be monitored and assessed after implementation.

National Capital Region Transportation Planning Board
Metropolitan Washington Council of Governments

CMS Forms

RELATIONSHIP OF THE CLRP TO OTHER PLANNING EFFORTS

The development of the long-range plan took place in the context of several interrelated planning efforts, including:

- The development of the Transportation Improvement Program (TIP);
- State and metropolitan air quality planning activities, including identification of transportation control measures;
- The design of a Congestion Management System;
- The preparation of state, local and WMATA transportation plans;
- Revisions to the region's demographic forecasts; and
- Technical improvements to the travel demand forecasting models used to assess the plan and TIP.

The intricate procedural and technical connections among these activities made the development of this plan a highly complex process.

The TPB Vision, CLRP, TIP and Other Planning Efforts

The TPB Vision is the *policy framework* for long-range regional transportation planning. The TPB Vision includes goals and objectives for the transportation system but does not include specific projects or programs.

The financially **Constrained-Long Range Plan (CLRP)** is a *comprehensive plan of transportation projects* that the TPB realistically anticipates can be funded and implemented over the next 25 years.

The **Transportation Improvement Program (TIP)** provides detailed information showing *projects in the CLRP that will be completed over the next six-year period.*

COG's **Cooperative Forecasts** *measure future population, households and employment growth over the next 20 to 30 years* through a cooperative process with its local governments. These forecasts are used as inputs to the regional transportation models.

The 2000 CLRP was amended to include the **Regional Mobility and Accessibility Study.** The study will *analyze the 2000 CLRP and alternative land use and transportation scenarios* in order to better understand the plans inadequacies to address the goals of the TPB Vision.

The Transportation Improvement Program

Each year, the TPB prepares a program for implementing the long-range plan and other transportation projects using federal, state or local funds. This document, known as the Transportation Improvement Program (TIP), provides detailed funding and phasing information showing which of the planned projects and strategies will be implemented in the next six fiscal years and how they will be funded and staged.

Like the long-range plan, the TIP is subject to a federal review process and must meet certain air quality requirements. The TIP includes portions, or phases, of major highway and transit construction projects selected for implementation from the long-range plan, as well as many smaller projects including bicycle trails, bus and rail vehicle

rehabilitation, traffic signal systems, park-and-ride lots, and other types of projects. The TIP may also include Transportation Emissions Reduction Measures (TERMs), which are actions or strategies to reduce emissions from motor vehicles by reducing the number of vehicle trips or the distance traveled. TERMs have a special status within the TIP. Once committed, they must receive funding priority.

Many of the facilities and projects in the TIP are staged over several years. For example, a highway improvement project typically consists of a preliminary engineering phase, a right-of-way acquisition phase, and one or more years of construction. Although the entire project is contained in the long-range plan, in some instances only portions, or phases, of the project are programmed in the six-year TIP.

The preparation of the 2000 CLRP Update was integrated with the TPB's preparation of the TIP for fiscal years 2001-2006. Those projects included in the previous year's TIP for which funding had already been committed were considered a starting point for the plan and the FY 2001-2006 TIP. Additional projects of interest to the implementing agencies and local governments were selected for inclusion in the CLRP, with particular attention to their contributions to the Vision, their likely effects on air quality, and the availability of projected revenues to implement them.

State, Local and WMATA Plans

The TPB planning process is integrally linked to transportation planning efforts at the state and local levels. Historically, the TPB's role has been to foster regional consensus on a set of projects developed by state, regional and local agencies. This process has been termed a combination "bottom up, top down" approach in which most project proposals are developed by the implementing agencies, while regional priority projects and coordinated strategies are encouraged, where appropriate, by the TPB.

This plan reflects the contributions of numerous state and local planning efforts conducted throughout the region. Many of the studies and plans that underlie the proposals in this document were years in the making and themselves reflect consensus-seeking efforts at the local and state levels. In addition to the local comprehensive plans of the jurisdictions of the region, some of major jurisdictional plans in the region include:

- Northern Virginia 2020 Transportation Plan[6], a comprehensive study identifying multi-modal transportation solutions completed in June 1999.

- The 1999 Maryland Transportation Plan, the statewide transportation plan prepared by the Maryland Department of Transportation, which establishes a vision for the future with goals and policies to guide transportation decision making over the next 20 years.[7]

[6]*Northern Virginia 2020 Transportation Plan.* Northern Virginia Transportation Coordinating Council. June 1999.
[7] 1999 *Maryland Transportation Plan: Transition to the 21st Century.* Maryland Department of Transportation. January 1999.

- The Transportation Plan for the District of Columbia: A Transportation Vision, Strategy, and Action Plan for the Nation's Capital.[8] A strategic transportation plan published by the Department of Public Works in 1997 that provides the blueprint for a transportation system that supports a dynamic vision for the District.
- The Future of Transit in Maryland, Report of the Transit Advisory Panel which set a statewide goal of at least one million transit riders per day by the year 2020 in January 1999[9].
- The Washington Metropolitan Area Transit Authority's 1999 Transit Service Expansion Plan which describes the need for improved Metrorail access and capacity, increased bus service, new rail segments and dedicated bus/HOV facilities over the next 25 years.[10]

Coordination with Other Metropolitan Areas

The TPB coordinates its technical activities with neighboring metropolitan areas to ensure consistency across regional boundaries. The Baltimore Metropolitan Council is the metropolitan planning organization for the Baltimore region. Some Baltimore region projects are included in TPB analysis networks; TPB travel demand forecasts include demographic inputs for Carroll, Howard and Anne Arundel counties in Maryland. Similarly, Stafford County, Virginia, is a member of the Fredericksburg Area Metropolitan Planning Organization (FAMPO); FAMPO has transportation planning and programming responsibilities for Stafford County. As part of the Washington air quality non-attainment area, Stafford County projects are included in the transportation networks for air quality conformity analysis and are included in this plan for informational purposes. Charles and Calvert counties are also included in the air quality non-attainment area, but are not members of the TPB. The Maryland Department of Transportation conducts transportation planning for these counties.

POLICY FRAMEWORK: THE TPB VISION

In 1998, the TPB unanimously adopted its long-range transportation Vision, which is the transportation policy framework intended to guide regional transportation investments into the new century. It contains eight goals and associated objectives and strategies that will help the region reach those goals. The TPB Vision incorporates all of the "planning factors" specified in federal law and regulations.

The Vision is the product of a three-year development process. Through the "Getting There" outreach component, which included public opinion surveys and brainstorming sessions in every part of the region, the TPB collected more than 2,200 ideas. The outreach brought in low-income people, including those who depend on public

[8] *Transportation Plan for the District of Columbia: A Transportation Vision, Strategy, and Action Plan for the Nation's Capital.* Government of the District of Columbia, Department of Public Works. 1997.
[9] The Future of Transit in Maryland, One Million Riders a Day by the Year 2020. Report of the Transit Advisory Panel January 1999.
[10] Transit Service Expansion Plan. Washington Metropolitan Area Transit Authority. April 1999

transportation, and sought out the participation of minorities, senior citizens and non-English speaking residents. Three citizen task forces met almost every other week for several months to develop three different alternatives for the development of the region's transportation system over the next 50 years. More than 130 individuals and representatives of interested organizations regularly attended these meetings.

In the final phase of the visioning process a consensus was developed based on the three task force reports, other regional studies, and public input. As chairman of the steering committee overseeing this final phase, Mayor John Mason of Fairfax guided the Vision to completion.

In the 2000 CLRP, the Vision replaces the Policy Element that was contained in earlier versions of the CLRP. As such, it provides the general policy framework for continuing transportation system planning and implementation for the National Capital Region.

The Vision statement is provided below, along with its goals, objectives and strategies. The Vision's Action Agenda is also provided.

Vision Statement

IN THE 21ST CENTURY, THE WASHINGTON METROPOLITAN REGION REMAINS A VIBRANT WORLD CAPITAL, WITH A TRANSPORTATION SYSTEM THAT PROVIDES EFFICIENT MOVEMENT OF PEOPLE AND GOODS. THIS SYSTEM PROMOTES THE REGION'S ECONOMY AND ENVIRONMENTAL QUALITY, AND OPERATES IN AN ATTRACTIVE AND SAFE SETTING—IT IS A SYSTEM THAT SERVES EVERYONE. THE SYSTEM IS FISCALLY SUSTAINABLE, PROMOTES AREAS OF CONCENTRATED GROWTH, MANAGES BOTH DEMAND AND CAPACITY, EMPLOYS THE BEST TECHNOLOGY, AND JOINS RAIL, ROADWAY, BUS, AIR, WATER, PEDESTRIAN AND BICYCLE FACILITIES INTO A FULLY INTERCONNECTED NETWORK.

Policy Goals

1. The Washington metropolitan region's transportation system will provide **reasonable access at reasonable cost** to everyone in the region.

2. The Washington metropolitan region will develop, implement, and maintain an interconnected transportation system that enhances quality of life and promotes a strong and growing economy throughout the entire region, including a **healthy regional core and dynamic regional activity centers** with a mix of jobs, housing, services and recreation in a walkable environment.

3. The Washington metropolitan region's transportation system will give priority to **management, performance, maintenance, and safety of all modes and facilities**.

4. The Washington metropolitan region will use the **best available technology** to maximize system effectiveness.

5. The Washington metropolitan region will plan and develop a transportation system that enhances and protects the region's **natural environmental quality, cultural and historic resources, and communities**.

6. The Washington metropolitan region will achieve better inter-jurisdictional **coordination of transportation and land use planning**.

7. The Washington metropolitan region will achieve **enhanced funding mechanisms** for regional and local transportation system priorities that cannot be implemented with current and forecasted federal, state, and local funding.

8. The Washington metropolitan region will support options for **international and inter-regional travel and commerce**.

Policy Goals, Objectives and Strategies

Goal 1. The Washington metropolitan region's transportation system will provide reasonable access at reasonable cost to everyone in the region.

A. Objectives:

(1) A comprehensive range of choices for users of the region's transportation system.

(2) Accurate, up-to-date and understandable transportation system information which is available to everyone in real time, and is user-friendly for first-time visitor and residents, regardless of mode of travel or language of the traveler.

(3) Fair and reasonable opportunities for access and mobility for persons with special accessibility needs.

(4) Convenient bicycle and pedestrian access.

B. Strategies:

(1) Plan, implement, and maintain a truly integrated, multi-modal regional transportation system.

(2) Plan and implement a tourist-friendly system that encourages the use of transit and provides international signage and information.

(3) Make the region's transportation facilities safer, more accessible, and less intimidating for pedestrians, bicyclists, and persons with special needs.

(4) Plan and implement a uniform fare system for transit and commuter rail.

(5) Adopt a regional transit planning process and plan, with priority to uniformity, connectivity, equity, cost effectiveness and reasonable fares.

Goal 2. The Washington metropolitan region will develop, implement, and maintain an interconnected transportation system that enhances quality of life and promotes a strong and growing economy throughout the entire region, including a healthy regional core and dynamic regional activity centers with a mix of jobs, housing and services in a walkable environment.

A. Objectives:

(1) Economically strong regional core.

(2) Economically strong regional activity centers with a mix of jobs, housing, services, and recreation in a walkable environment.

(3) A web of multi-modal transportation connections which provide convenient access (including improved mobility with reduced reliance on the automobile) between the regional core and regional activity centers, reinforcing existing transportation connections and creating new connections where appropriate.

(4) Improved internal mobility with reduced reliance on the automobile within the regional core and within regional activity centers.

(5) Efficient and safe movement of people, goods, and information, with minimal adverse impacts on residents and the environment.

B. Strategies:

(1) Define and identify existing and proposed regional activity centers, taking full advantage of existing infrastructure, for the growth and prosperity of each jurisdiction in the region.

(2) Encourage local jurisdictions to provide incentives for concentrations of residential and commercial development along transportation/transit corridors within and near the regional core and regional activity centers, such as zoning, financial incentives, transfer of development rights, priority infrastructure financing, and other measures.

(3) Encourage the federal government to locate employment in the regional core and in existing and/or planned regional activity centers.

(4) Give high priority to regional planning and funding for transportation facilities that serve the regional core and regional activity centers, including expanded rail service and transit centers where passengers can switch easily from one transportation mode to another.

(5) Identify and develop 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.

(6) Intercept automotive traffic at key locations, encouraging "park once," and provide excellent alternatives to driving in the regional core and in regional activity centers.

(7) Develop a system of water taxis serving key points along the Potomac and Anacostia Rivers.

Goal 3. The Washington metropolitan region's transportation system will give priority to management, performance, maintenance, and safety of all modes and facilities.

A. Objectives:

(1) Adequate maintenance, preservation, rehabilitation, and replacement of existing infrastructure.

(2) Enhanced system safety through effective enforcement of all traffic laws and motor carrier safety regulations, achievement of national targets for seatbelt use, and appropriate safety features in facility design.

B. Strategies:

(1) Factor life-cycle costs into the transportation system planning and decision process.

(2) Identify and secure reliable sources of funding to ensure adequate maintenance, preservation, and rehabilitation of the region’s transportation system.

(3) Support the implementation of effective safety measures, including red light camera enforcement, skid-resistant pavements, elimination of roadside hazards, and better intersection controls.

Goal 4. The Washington metropolitan region will use the best available technology to maximize system effectiveness.

A. Objectives:

(1) Reduction in regional congestion and congestion-related incidents.

(2) A user-friendly, seamless system with on-demand, timely travel information to users, and a simplified method of payment.

(3) Improved management of weather emergencies and major incidents.

(4) Improved reliability and predictability of operating conditions on the region's transportation facilities.

(5) Full utilization of future advancements in transportation technology.

B. Strategies:

(1) Deploy technologically advanced systems to monitor and manage traffic, and to control and coordinate traffic control devices, such as traffic signals, including providing priority to transit vehicles where appropriate.

(2) Improve incident management capabilities in the region through enhanced detection technologies and improved incident response.

(3) Improve highway lighting, lane markings, and other roadway delineation through the use of advanced and emerging technologies.

(4) Establish a unified, technology-based method of payment for all transit fares, public parking fees, and toll roads in the region.

(5) Utilize public/private partnerships to provide travelers with comprehensive, timely, and accurate information on traffic and transit conditions and available alternatives.

(6) Use technology to manage and coordinate snow plowing, road salting operations, and other responses to extreme weather conditions, and to share with the public assessments of road conditions and how much time it will take to clear roadways.

(7) Use advanced communications and real-time scheduling methods to improve time transfers between transit services.

(8) Develop operating strategies and supporting systems to smooth the flow of traffic and transit vehicles, reduce variances in traffic speed, and balance capacity and demand.

(9) Maintain international leadership in taking advantage of new technologies for transportation, such as automated highway systems and personal rapid transit.

Goal 5. The Washington metropolitan region will plan and develop a transportation system that enhances and protects the region's natural environmental quality, cultural and historic resources, and communities.

A. Objectives:

(1) The Washington region becomes a model for protection and enhancement of natural, cultural, and historical resources.

(2) Reduction in reliance on the single-occupant vehicle (SOV) by offering attractive, efficient and affordable alternatives.

(3) Increased transit, ridesharing, bicycling and walking mode shares.

(4) Compliance with federal clean air, clean water and energy conservation requirements, including reductions in 1999 levels of mobile source pollutants.

(5) Reduction of per capita vehicle miles traveled (VMT).

(6) Protection of sensitive environmental, cultural, historical and neighborhood locations from negative traffic and developmental impacts through focusing of development in selected areas consistent with adopted jurisdictional plans.

B. Strategies:

(1) Implement a regional congestion management program, including coordinated regional bus service, traffic operations improvements, transit, ridesharing, and telecommuting incentives, and pricing strategies.

(2) Develop a transportation system supportive of multiple use and higher density (commercial and residential) in the regional core and regional activity centers as a means of preserving land; natural, cultural and historic resources; and existing communities.

(3) Support regional, state and federal programs which promote a cost-effective combination of technological improvements and transportation strategies to reduce air pollution, including promoting use of transit options, financial incentives, and voluntary emissions reduction measures.

(4) Develop a regional tourism initiative to encourage air and train arrival in the region, and additional transit access and automobile parking at the termini of Metrorail/rail services.

(5) Provide equivalent employer subsidies to employees with the intent of "leveling the playing field" between automobile and transit/ridesharing.

(6) Plan and implement transportation and related facilities that are aesthetically pleasing.

(7) Implement a regional bicycle/trail/pedestrian plan and include bicycle and pedestrian facilities in new transportation projects and improvements.

(8) Reduce energy consumption per unit of travel, taking maximum advantage of technology options.

Goal 6. The Washington metropolitan region will achieve better inter-jurisdictional coordination of transportation and land use planning.

A. Objectives:

(1) A composite general land use and transportation map of the region that identifies the key elements needed for regional transportation planning—regional activity centers, principal transportation corridors and facilities, and designated "green space."

(2) Region-wide coordination of land use and transportation planning in accordance with the recommendations of the Partnership for Regional Excellence report approved by the COG Board of Directors in 1993.

B. Strategies:

(1) Develop a regional process to notify local governments formally of regional growth and transportation policy issues, and encourage local governments to specifically address such issues in their comprehensive plans.

(2) Identify an agreed-upon set of definitions and assumptions to facilitate regional cooperation.

(3) Ensure that major corridor studies include options that serve the regional core and regional activity centers shown on the regional map.

(4) Develop, in cooperation with local governments, model zoning and land use guidelines that encourage multiple use development patterns and reduce non-work automobile dependency.

(5) Plan for development to be located where it can be served by existing or planned infrastructure.

Goal 7. The Washington metropolitan region will achieve an enhanced funding mechanism(s) for regional and local transportation system priorities that cannot be implemented with current and forecasted federal, state, and local funding.

A. Objectives:

(1) Consensus on a set of critical transportation projects and a funding mechanism(s) to address the region's growing mobility and accessibility needs.

(2) A fiscally sustainable transportation system.

(3) Users of all modes pay an equitable share of costs

B. Strategies:

(1) Conduct outreach and education activities to promote public participation.

(2) Develop public support and approval for a specific set of regional and local transportation priorities and a funding mechanism(s) to supplement (and not supplant) priorities to be implemented with current and forecasted federal, state, and local funding.

Goal 8. The Washington metropolitan region will support options for international and inter-regional travel and commerce.

A. Objectives:

(1) The Washington region will be among the most accessible in the nation for international and inter-regional passenger and goods movements.

(2) Continued growth in passenger and goods movements between the Washington region and other nearby regions in the mid-Atlantic area.

(3) Connectivity to and between Washington Dulles International, National, and Baltimore-Washington International airports.

B. Strategies:

(1) Maintain convenient access to all of the region's major airports for both people and goods.

(2) Support efficient, fast, cost-effective operation of inter-regional passenger and freight rail services.

(3) Support the development of a seamless regional transportation system.

(4) Support coordinated ticketing and scheduling among Amtrak, MARC, VRE, WMATA, local bus and inter-city bus service.

(5) Develop a regional plan for freight movement.

Vision Action Agenda

By the year 2000, a strengthened TPB will adopt and ensure the implementation of a new Constrained Long-Range Plan through the year 2020 to include:

1. An enhanced transportation funding mechanism or mechanisms for the region that:

- allocates funding for a specific set of regional and local transportation priorities which are supported and approved by the public, but cannot be implemented with current and forecasted federal, state, and local funding;
- includes reliable sources of funding to ensure adequate maintenance and rehabilitation of the region's transit systems;
- facilitates a web of multi-modal transportation connections which provide convenient access to the regional core and the regional activity centers, reinforcing existing transportation connections and creating new connections where appropriate;
- recognizes the longstanding federal commitment to be an equal partner in providing adequate, long term funding to the region's transportation systems to support the federal city and the National Capital Region.

2. Better coordination of transportation and land use planning, including the creation of a composite regional map that identifies and integrates a system of regional transportation corridors and facilities, the regional core, regional activity centers, and "green space," and which will serve as the basis for future transportation planning and funding priorities.

3. Better management of the existing system, including a comprehensive regional information program that provides residents, businesses and out-of-town visitors up-to-date information on all travel options, and a seamless regional transit system with uniform technology accessing all elements of the system.

4. A regional congestion management system to achieve significant reduction in single occupant vehicles (SOVs) entering the regional core and regional activity centers by:

- maximizing Metrorail, MARC, VRE and other transit capacity by increased use of park-and-ride lots and connecting bus service;
- encouraging tourists/visitors to the area to use Metrorail, MARC, VRE and existing transit, especially during non-rush hours;
- designing and developing circulation systems that maximize the use of transit (rail, monorail, bus, jitney, etc.) and pedestrian and bicycle facilities;
- providing equivalent employer subsidies to employees with the intent of "leveling the playing field" between automobile and transit/ridesharing.

5. Coordination with adjacent regions including an inter-regional transportation plan that is predicated on the Washington region being a center in an inter-regional system.

Use of the Vision in Updating the CLRP

The TPB took a new approach to the CLRP update process in December 1999 when it approved a new Solicitation Document, which lays out the official process that the implementing agencies must follow when submitting projects for inclusion in the CLRP. For the first time the Solicitation Document required transportation agencies to explicitly consider the Vision as a policy framework when they submit projects and programs for inclusion in the CLRP. The new Solicitation Document required that every submission made by the state transportation agencies would now include a written description of how the project or program contributes to particular Vision goals.

In promoting a linkage between the Vision and the long-range planning process, the TPB emphasized key components of the Vision's Action Agenda. For example, the agencies were encouraged to consider the land use implications of transportation decisions. As a tool in this decision-making process, the TPB provided information to the implementing agencies on the composite regional map that is currently under development through a joint COG/TPB effort. This map, which is explicitly required by the Vision's Action Agenda, identifies a system of "regional transportation corridors and facilities, the regional core, regional activity centers, and 'green space.' " Chapter 5 provides additional information on the development of this composite regional map.

In addition, the TPB provided information about the results from the public outreach activities that were performed in order to get specific ideas from the public about how the Vision could be implemented.

To develop the plan, each implementing agency—those state, local and regional agencies with the authority to fund projects and programs, construct facilities, or implement policies—submitted to the TPB a set of proposed capital improvements and strategies that, in its view, would meet one or more regional goals and objectives. The agencies were asked to describe each project and its anticipated contributions to the TPB Vision goals on project description forms, along with the estimated cost and time frame for completion. Hundreds of forms were prepared. These forms were used by TPB staff in preparing the assessment and documentation of the plan. The major projects submitted for the plan were presented to the TPB and the public in May 2000.

It is important to note that the goals and objectives of the TPB Vision, which include the planning factors, are **designed to guide long-range planning at the system level**. While individual projects contribute to the attainment of these goals, and prospective information on their contributions is useful in reviewing the projects, the objectives have not been used to formally "rank" potential projects and strategies against one another. The TPB Vision, which contains overlapping themes and subjective, non-quantifiable terms, provides broad direction for developing individual projects, but all of the projects together create the plan. Chapter 5 presents a system-level assessment of the plan using the TPB Vision goals and objectives.

PROCESS FOR FUTURE PLAN UPDATES

The region's long-range transportation plan is an evolving document reflecting an ongoing consensus-building process. In accordance with federal regulations, the CLRP will be updated at least every three years, and a public meeting will be scheduled at least annually to discuss the plan. In the past, the CLRP has typically been amended annually in a process that includes an air quality conformity determination.

3.

TRANSPORTATION IN THE WASHINGTON REGION

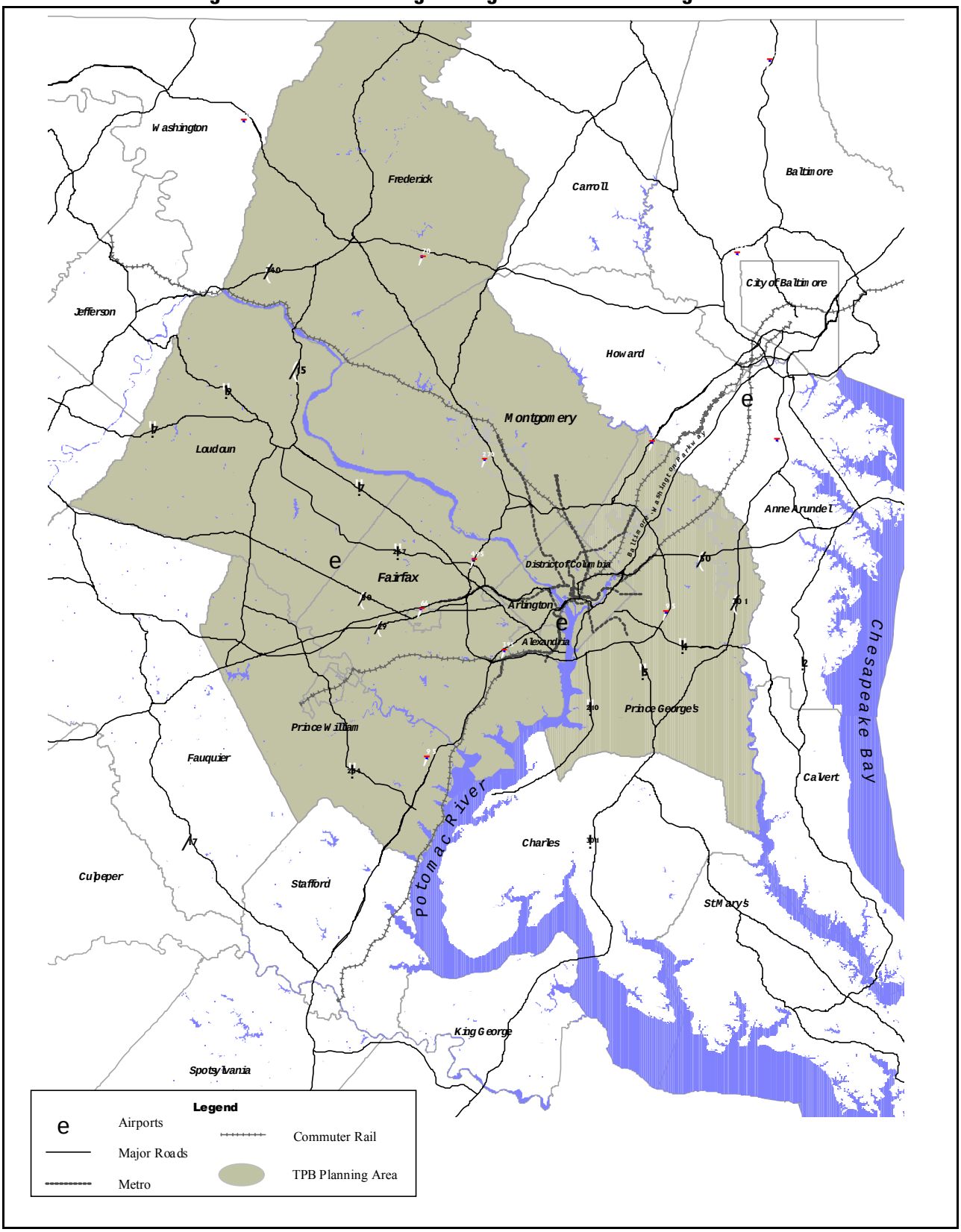
AREA GEOGRAPHY

Flanked by the Blue Ridge Mountains on the west and the Chesapeake Bay on the east, the Washington metropolitan area has grown from a small collection of communities along the Potomac River to a prominent international region of more than four million persons and two million jobs. In the earliest years of this nation's history, settlers sailed up the Potomac River from the lowlands of the Chesapeake Bay estuary to the area where the waters were no longer navigable. This section of the Potomac, known as Little Falls, marks the fall line, the geological feature where the rolling hills of the Piedmont yield to the sprawling flat lands of the tidal waters. It was here that the communities of Georgetown in Maryland (in present-day District of Columbia) and Alexandria in Virginia were established and became ports and trading centers linking the inland settlements with communities along the bay and other navigable waterways.

In the late 1700s the nation's capital was moved from Philadelphia to this area, thus shaping the destiny of the District of Columbia as a major world capital and, to be sure, the Washington region as a global economic center. Metropolitan Washington is part of the mid-Atlantic region on the eastern seaboard of the nation. It has often been considered the southern terminus of the northeastern "megalopolis," which spans from Washington to Boston and contains other prominent cities including Baltimore, Philadelphia, and New York. The Washington region ranks fourth among all metropolitan areas in the nation in terms of its population[1].

[1] The Washington-Baltimore Consolidated Metropolitan Statistical Area (CMSA) is ranked the fourth largest metropolitan area. Census 2000 PHC-T-3. Ranking Tables for Metropolitan Areas: 1990 and 2000. Source: U.S. Census Bureau, April 2, 2001.

Figure 3-1: The Washington Region and Surrounding Area



A Multi-State Region

The Washington region consists of the District of Columbia and the jurisdictions of Suburban Maryland and Northern Virginia, and spans the spectrum of regional development: extending from the urbanized central core through the well-established suburbs and ending in the rural fringe. The federal government, based on the results of the 1990 Census, redefined the Washington area to include even more jurisdictions than before, including two counties in West Virginia. In addition, it combined the Washington and Baltimore regions into one "consolidated" metropolitan area. This combined region is the fourth largest in the nation in population terms. The area covered by the long-range plan, as explained in Chapter 1 and shown in Figure 1-2, does not include all of the jurisdictions included in the new definition. Transportation planning in these other jurisdictions occurs almost exclusively at the local and state levels, and in cases where a regional process is already in place, transportation planning is carried out by other regional planning organizations.

The District of Columbia along with the City of Alexandria and Arlington County in Virginia are considered the **central jurisdictions** of the Washington area. The **inner suburbs** consist of Montgomery and Prince George's counties in Maryland and Fairfax County and the cities of Fairfax and Falls Church in Virginia. This group of jurisdictions is characterized by heavy growth that has taken place in the past few decades, and it is in this group that the majority of the region's residents live and work. Finally, the **outer suburbs** include Loudoun, Prince William, plus the cities of Manassas and Manassas Park in Virginia, and Frederick County in Maryland. (Charles and Calvert counties in Maryland and Stafford County, Virginia are within the Census-defined Metropolitan Statistical Area (MSA), but are not part of the TPB planning area; See Figure 1-1.)

While officially part of the Baltimore region, Howard and Anne Arundel counties in Maryland act very much like suburbs of the Washington region. A considerable number of the residents of these two counties commute to jobs in the Washington region, and consequently account for a significant level of travel on the area's transportation network.

METROPOLITAN GROWTH AND DEVELOPMENT

Recent Trends

The economy that has evolved in the region is inextricably linked to the role Washington plays as the nation's capital. The federal government is the region's largest employer and, along with the services sector, is the engine that drives the economy of metropolitan Washington. Throughout much of the post-World War II period, the federal government was the single largest employment sector among the major industries. During the 1980s, however, the services sector surpassed the federal government in the number of jobs held in the region, reflecting the tremendous growth in the services sector nationwide. (Although the services sector surpassed the federal government in the number of jobs, it is important to understand that, in the Washington area, the two are closely linked and the growth that occurred was due in large part to federal spending in the region.) In the 1990s the Washington region, along with the rest of the nation, experienced a dynamic economy, finishing the decade with record low unemployment rates.

Growth during the 1980s and 1990s fueled a surge in commercial construction, and with it came the emergence of suburban employment centers throughout the region. Examples of these centers in the Washington area include Tysons Corner in Virginia and New Carrollton in Maryland. Many of the new jobs that were added in the region were located in these suburban areas, and this resulted in shifting commuting patterns region-wide. In addition to many workers traveling to their jobs in the central core, a significant number of workers now commute to jobs located in the suburbs. In other words, typical commuting is not just radial (suburb-to-core) anymore, but also includes a significant amount of suburb-to-suburb travel.

The dominance of the federal government and the services sector highlights the nature of the regional economy: It is steeped in a long, white collar tradition and, compared to the economies of other major metropolitan areas, has a negligible manufacturing component. While production is not a big component of the regional economy, the distribution and sale of goods account for many jobs in the area. Generally speaking though, the output of the Washington region tends to be intangible items such as services or public policies, not durable goods such as automobiles or widgets.

The composition of jobs in the region (primarily government and services) has resulted in a highly educated labor force with one of the highest participation rates in the nation. Furthermore, the Washington region has one of the highest labor force participation rates among women nationwide. Subsequently, households with more than one member holding a full-time position are very common.

Growth Forecasts

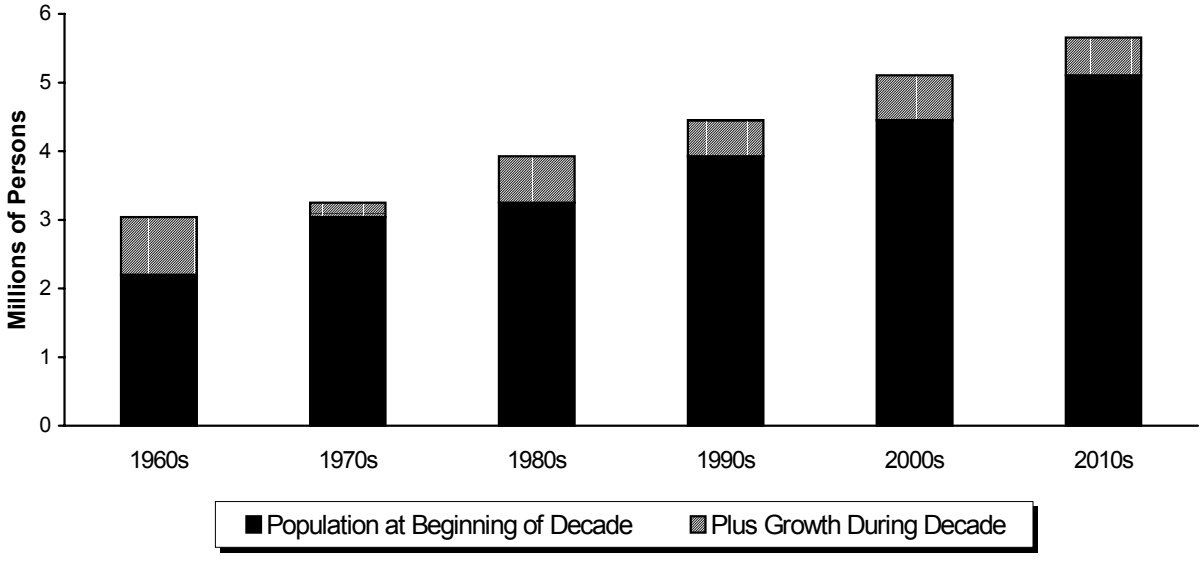
For the most part, the Washington region has enjoyed prosperous times characterized by substantial population and job growth during the second half of the 20th century. The challenge for planners throughout much of this period has been to accommodate the growth that has taken place, and adequately measure and plan for the growth that will occur in the future. COG, through a cooperative process with its local governments, attempts to measure future growth by preparing forecasts of population, households and employment for the Washington region. These forecasts are both short- and long-term because they cover an approximate 30-year period in five-year increments.

The metropolitan transportation planning process relies on these forecasts as inputs to the regional transportation models, which are technical tools used in the planning process to project the amounts and types of travel by persons and vehicles in the area. The forecasts are updated through an iterative process, and the transportation models are run again to reflect the latest available information. At its April 2000 meeting, the COG Board of Directors approved the latest forecasts of population, households and employment. This version is known as the Round 6.2 Cooperative Forecasts and covers the period up to 2025, the same period covered by the long-range plan.

Population Growth

The comparatively healthy economy of the Washington region during the past few decades fueled strong population growth in the region. In 1960, the population of the Washington region was 2.2 million, but by 2000, the population had more than doubled, to 4.5 million. This contrasts with what is forecast for the region in 2025. According to the Round 6.2 forecasts, metropolitan Washington is expected to have a population of 5.9 million people by the year 2025, representing a gain of 1.4 million people (31 percent) from the 2000 level. In other words, the population in the Washington region grew at an average annual rate of 1.8 percent between 1960 and 2000, but is expected to increase annually by only 1 percent between 2000 and 2025. Table 3-1 shows the population forecasts for the region and Figure 3-2 shows the growth trends (past and anticipated) for six decades. The huge growth of the 1960s and the slow growth of the 1970s are clearly shown in Figure 3-2.

Figure 3-2
Population Trends 1960-2020



Based on Washington MSA data (Table 3-1).

Table 3-1
Round 6.2 Cooperative Forecasts of Population by Jurisdiction
(in Thousands)

Jurisdiction	*2000*	*2010*	*2025*	*Absolute Growth 2000-2025*	*Percent Growth 2000-2025*
District of Columbia	518.1	554.7	648.4	130.3	25.1%
Arlington County	192.0	201.4	218.1	26.1	13.6%
City of Alexandria	127.1	135.3	146.1	19.0	15.0%
Central Jurisdictions	837.2	891.4	1,012.6	175.4	21.0%
Montgomery County (1)	855.0	945.0	1,020.0	165.0	19.3%
Rockville (2)	51.8	59.1	60.0	8.2	15.9%
Prince George's County	784.6	852.4	940.9	156. 3	19.9%
Fairfax County (3)	968.2	1,112.9	1,203.7	235.4	24.3%
City of Fairfax	21.7	22.7	22.8	1.2	5.4%
City of Falls Church	10.4	10.7	10.9	0.5	4.8%
Inner Suburbs	2,639.9	2,943.7	3,198.3	558.4	21.2%
Loudoun County	172.2	304.2	508.2	336.0	195.1%
Prince William County	286.1	350.5	405.7	119.6	41.8%
Manassas & Manassas Park	43.2	45.4	46.4	3.2	7.4%
Calvert County (4)	75.0	87.0	100.5	25.5	34.0%
Charles County (4)	123.2	150.1	195.9	72.7	59.0%
Frederick County	194.9	238.3	303.4	108.5	55.7%
Stafford County (5)	78.6	96.0	122.0	43.4	55.2%
Outer Suburbs	973.1	1,271.5	1,682.1	708.9	72.8%
Northern Virginia	1,899.5	2,279.1	2,683.9	784.4	41.3%
Suburban Maryland	2,032.7	2,272.8	2,560.7	528.0	26.0%
Washington MSA	4,450.3	5,106.6	5,893.0	1442.7	32.4%

Source: Metropolitan Washington Council of Governments

Notes: (1) Forecasts for years 2001 to 2025 include all of Takoma Park.
(2) Included in Montgomery County total.
(3) Includes Fairfax County group quarters population in the Massey Complex.
(4) Tri-county Council for Southern Maryland develops ten-year incremental population, housing unit and employment forecasts for Calvert County and Charles County.
(5) Source: Rappahanock Area Development Commission. The estimates for 2025 are control totals provided by the Virginia Employment Commission (VEC) and should only be used for transportation planning purposes. Incremental five-year estimates have been developed for the purpose of transportation modeling and air quality analysis.

Distribution of Population Growth

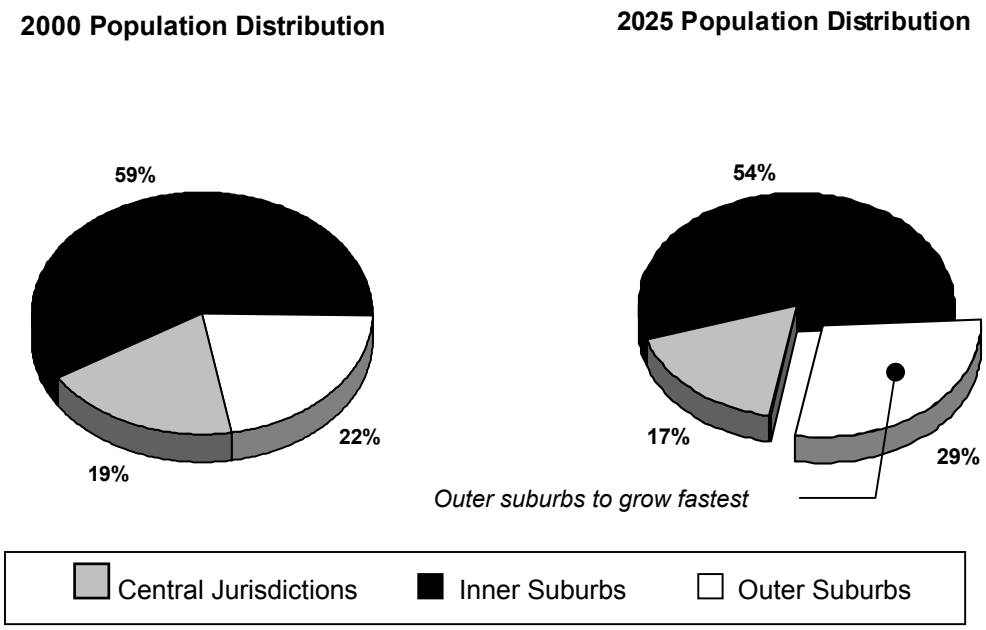
The largest increase in population will take place in the region's outer suburbs. For the first time, both the absolute growth and percent growth of the outer suburbs will surpass that of the inner suburbs. Loudoun County will grow from more than 172,000 people in 2000 to over half a million people in 2025, a jump of over 195 percent.

Prince William County in Virginia and Frederick County in Maryland will grow by more than 42 percent and 56 percent respectively.

Although the outer suburbs will bear the largest growth, the inner suburbs will remain the population stronghold. Montgomery, Prince George's and Fairfax Counties are projected to grow from a combined total of over 2.6 million residents in 2000 to almost 3.2 million residents in 2025, more than a 20 percent increase.

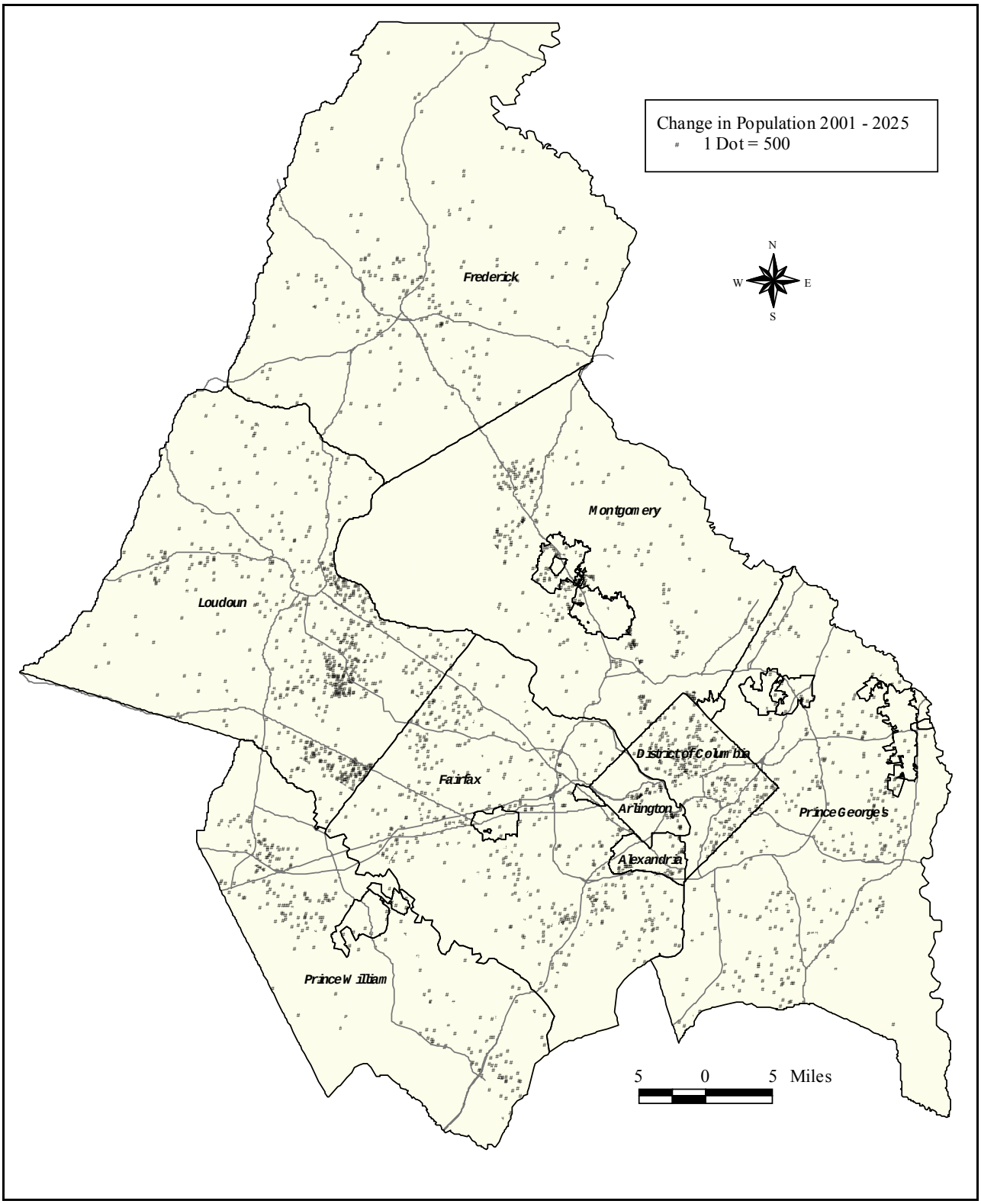
The region's central jurisdictions will grow more slowly. In Arlington County and the City of Alexandria, population will increase by 13 and 14 percent, respectively. The District of Columbia will experience an end of short-term population loss and will grow by 25 percent over the forecast period. Figures 3-3 and 3-4 show how growth between 2000 and 2025 will affect the overall population distribution region wide.

Figure 3-3
Shifts in Population Distribution



Based on Washington MSA data (Table 3-1).

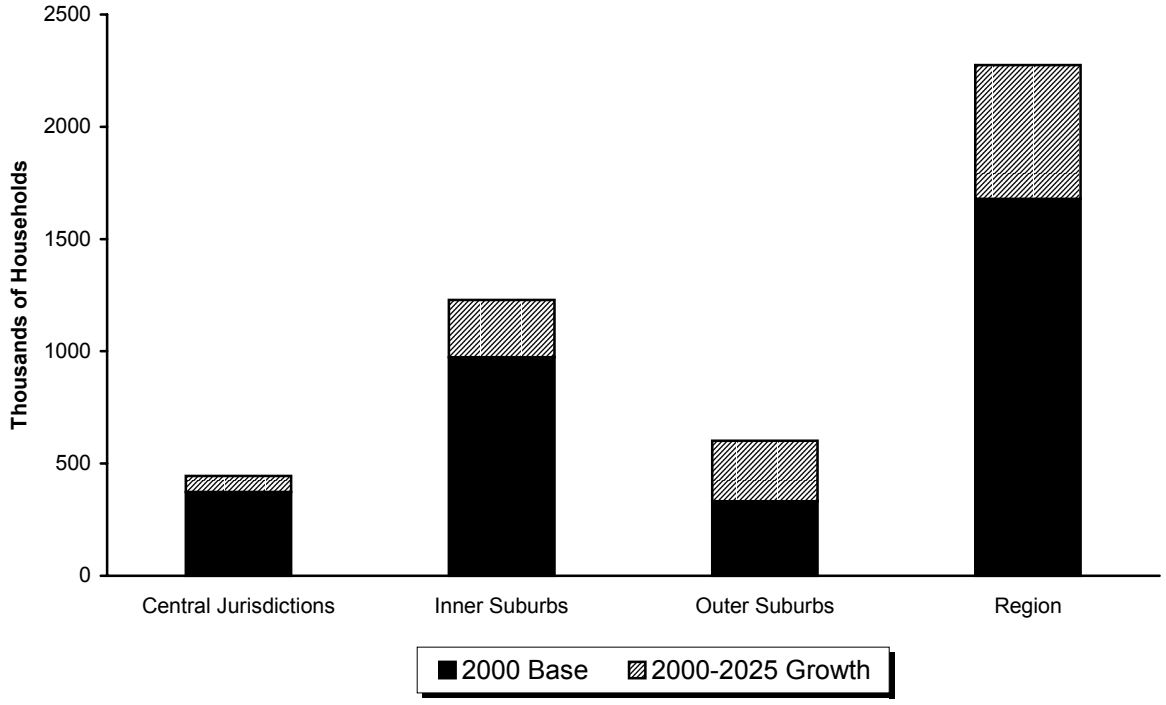
Figure 3-4
Change in Population: 2001 – 2025



Household Growth

The forecast increase of more than 595,000 households during the 2000 to 2025 forecast period reflects the growth in population and in migration to the region. The largest number of new households will be in Loudoun, Fairfax, and Montgomery counties, which collectively contribute nearly 45 percent of the household growth during the forecast period. Loudoun County will grow the most rapidly of all jurisdictions, adding nearly 119,000 households to a 2000 base of 61,000 households. Overall, households are forecast to increase at a slightly higher rate than the population, reflecting a continued national and regional trend toward smaller households. Figure 3-5 shows how the household growth is distributed around the region.

Figure 3-5
Distribution of Household Growth



Based on Washington MSA data (Table 3-2).

Table 3-2
Round 6.2 Cooperative Forecasts of Households by Jurisdiction
(in Thousands)

Jurisdiction	*2000*	*2010*	*2025*	*Absolute Growth 2000-2025*	*Percent Growth 2000-2025*
District of Columbia	221.8	235.4	265.9	44.1	19.9%
Arlington County	90.1	97.4	107.4	17.3	19.3%
City of Alexandria	61.5	65.5	70.9	9.4	15.3%
Central Jurisdictions	373.4	398.3	444.3	70.8	19.0%
Montgomery County (1)	317.5	356.5	402.0	84.5	26.6%
Rockville (2)	18.0	20.5	20.6	2.6	14.7%
Prince George's County	290.4	322.6	368.0	77.6	26.7%
Fairfax County (3)	353.4	412.5	445.0	91.7	25.9%
City of Fairfax	8.2	8.6	8.7	0.5	5.9%
City of Falls Church	4.7	4.9	5.0	0.3	6.4%
Inner Suburbs	974.2	1,105.1	1,228.7	254.5	26.1%
Loudoun County	60.6	108.1	179.3	118.7	195.9%
Prince William County	94.7	120.1	140.4	45.7	48.3%
Manassas & Manassas Park	14.7	15.6	16.2	1.5	10.2%
Calvert County (4)	23.4	28.4	34.1	10.7	45.9%
Charles County (4)	42.0	53.3	75.3	33.4	79.5%
Frederick County	70.6	88.2	114.7	44.1	62.6%
Stafford County (5)	25.7	32.0	41.4	15.7	61.1%
Outer Suburbs	331.6	445.7	601.5	269.9	81.4%
Northern Virginia	713.5	864.8	1,014.3	300.8	42.2%
Suburban Maryland	743.9	848.9	994.2	250.4	33.7%
Washington MSA	1,679.2	1,949.1	2,274.4	595.2	35.4%

Source: Metropolitan Washington Council of Governments

Notes: (1) Forecasts for years 2001 to 2025 include all of Takoma Park.

(2) Included in Montgomery County total.

(3) Includes Fairfax County group quarters population in the Massey Complex.

(4) Tri-county Council for Southern Maryland develops ten-year incremental population, housing unit and employment forecasts for Calvert County and Charles County.

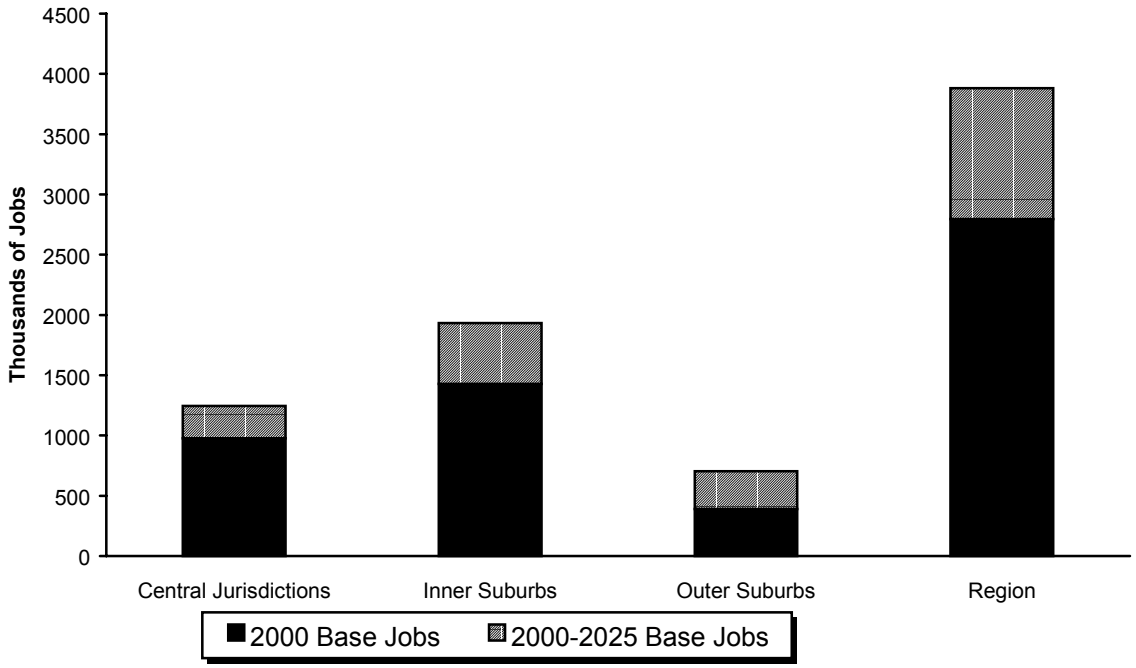
(5) Source: Rappahanock Area Development Commission. The estimates for 2025 are control totals provided by the Virginia Employment Commission (VEC) and should only be used for transportation planning purposes. Incremental five-year estimates have been developed for the purpose of transportation modeling and air quality analysis.

Employment Growth

Employment in the region is forecast to grow by 39 percent between 2000 and 2025. As shown in Table 3-3 on page 3-15, the central jurisdictions will gain more than 257,000 jobs by the year 2025.

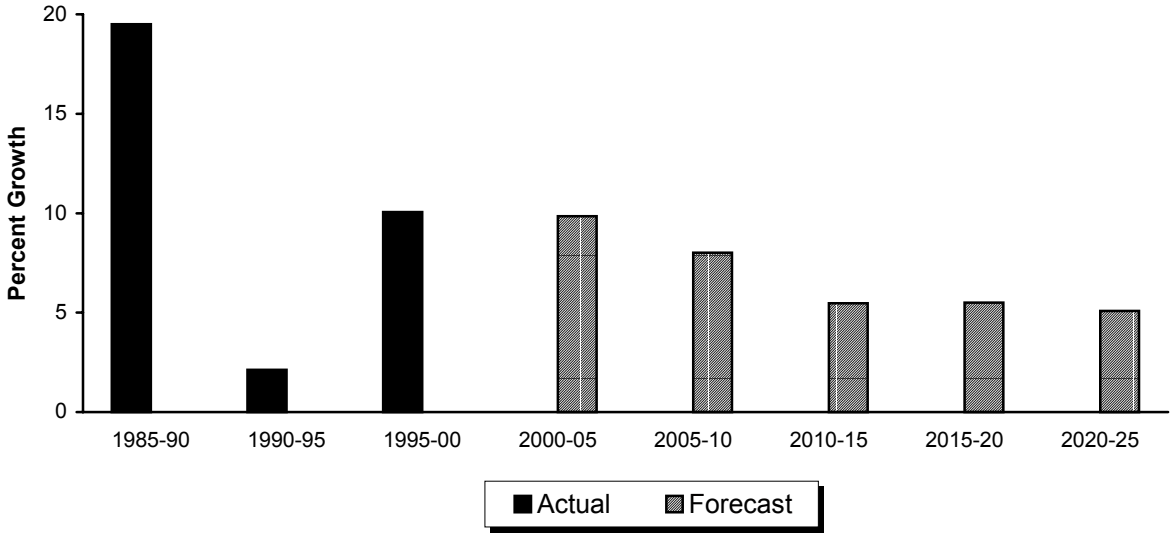
Noteworthy is the fact that while the District of Columbia will maintain the largest number of jobs of any single jurisdiction, collectively the jurisdictions outside the traditional central business core will witness the largest percentage growth and maintain the lion's share of jobs. Employment in the inner suburbs will increase from more than 1.4 million in 2000 to over 1.9 million in 2025, an increase of 36 percent. Figure 3-6 illustrates employment growth throughout the region.

Figure 3-6
Distribution of Employment Growth



Based on Washington MSA data (Table 3-3).

Figure 3-7
Employment Growth Rates



Based on Washington MSA data (Table 3-3).

Although employment in the outer suburbs will remain below that of the central jurisdictions and inner suburbs, it will almost double in the 25-year period. Employment in the outer suburbs will increase from 390,800 jobs in 2000 to 702,300 in 2025, an increase of 80%. Figure 3-7 compares past employment growth rates to those that are anticipated in the future and Figure 3-8 illustrates the changes in employment across the region by 2025.

Figure 3-8
Change in Employment: 2000 - 2025

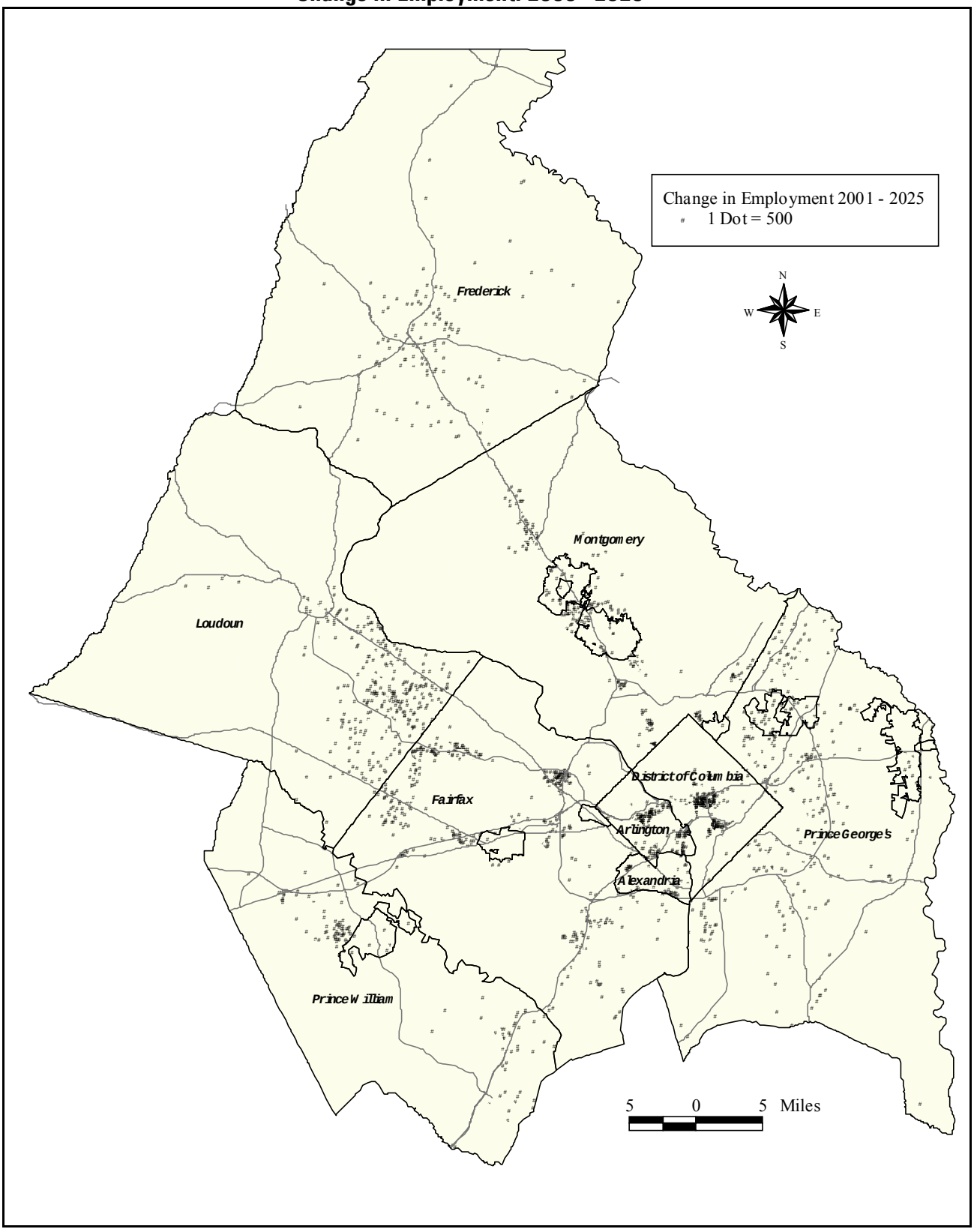


Table 3-3
Round 6.2 Cooperative Forecasts of Employment by Jurisdiction
(in Thousands)

Jurisdiction	*2000*	*2010*	*2025*	*Absolute Growth 2000-2025*	*Percent Growth 2000-2025*
District of Columbia	678.0	752.0	831.2	153.2	22.6%
Arlington County	201.2	236.9	294.7	93.4	46.4%
City of Alexandria	98.6	110.4	119.0	20.5	20.8%
Central Jurisdictions	977.8	1,099.3	1,244.9	267.1	27.3%
Montgomery County (1)	536.0	626.0	675.0	139.0	25.9%
Rockville (2)	73.0	83.0	87.3	14.3	19.6%
Prince George's County	325.3	385.2	488.3	162.9	50.1%
Fairfax County (3)	526.4	644.4	727.8	201.4	38.3%
City of Fairfax	30.8	32.6	32.7	1.9	6.0%
City of Falls Church	9.4	9.6	9.7	0.3	3.2%
Inner Suburbs	1,428.0	1,697.7	1,933.5	505.5	35.4%
Loudoun County	85.3	145.5	232.8	147.5	172.9%
Prince William County	90.6	118.5	152.7	62.0	68.4%
Manassas & Manassas Park	21.6	24.7	25.4	3.8	17.7%
Calvert County (4)	24.8	28.3	29.7	4.9	19.8%
Charles County (4)	50.6	58.2	63.2	12.5	24.8%
Frederick County	99.7	120.7	162.5	62.8	63.0%
Stafford County (5)	18.2	25.4	36.1	17.9	98.2%
Outer Suburbs	390.8	521.3	702.3	311.5	79.7%
Northern Virginia	1,082.2	1,348.0	1,630.8	548.6	50.7%
Suburban Maryland	1,036.4	1,218.4	1,418.6	382.2	36.9%
Washington MSA	2,796.6	3,318.3	3,880.7	1,084.1	38.7%

Source: Metropolitan Washington Council of Governments

Notes: (1) Forecasts for years 2001 to 2025 include all of Takoma Park.

(2) Included in Montgomery County total.

(3) Includes Fairfax County group quarters population in the Massey Complex.

(4) Tri-county Council for Southern Maryland develops ten-year incremental population, housing unit and employment forecasts for Calvert County and Charles County.

(5) Source: Rappahanock Area Development Commission. The estimates for 2025 are control totals provided by the Virginia Employment Commission (VEC) and should only be used for transportation planning purposes. Incremental five-year estimates have been developed for the purpose of transportation modeling and air quality analysis.

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TRAVEL OPTIONS

The Washington region offers a rich array of options for both personal travel and goods movement. The major types of transportation facilities and transportation services in the area are described briefly in the sections that follow.

Highways

The road network is the foundation of the transportation system in the Washington region. This network consists of freeways, principal arterials, minor arterials, collectors, and local streets, each designed to provide a specific type of service. A large portion of the monies available for the transportation system are used to maintain and utilize this infrastructure as efficiently as possible.

The region has a designated portion of the National Highway System (NHS), illustrated in Figures 3-9 and 3-10. This system includes all of the interstate highways and other major roads in the region. The region's NHS is part of a nationwide system approved by Congress and the Federal Highway Administration (FHWA). The roadways designated on this system are eligible for NHS funds and transit facilities in NHS corridors may also be eligible for NHS funds.

HOV Facilities

The region's highway system includes a number of facilities that are reserved for high-occupancy vehicles (HOVs). The exclusive bus and carpool lanes on I-395 opened in the early 1970s and are among the most effective people moving facilities in the country. HOV lanes also can be found on I-66, I-270, US 1 and Washington Street in Alexandria, the Dulles Toll Road (VA 267), and I-95. HOV lanes increase the capacity of the highway network, moving more people in fewer cars. The HOV facilities currently operating in the region are presented in Figure 3-11.

Metrobus/Metrorail

The Washington Metropolitan Area Transit Authority (WMATA) operates the Metrorail and Metrobus service in the region. The Metrorail system radiates out from the downtown core, and Metrobuses feed into the Metrorail stations, creating a comprehensive mass transit network covering more than 1,500 square miles. About one million trips were made on Metrorail and Metrobus, collectively, on an average weekday in 2000.

Figure 3-9
National Highway System
Inside the Beltway

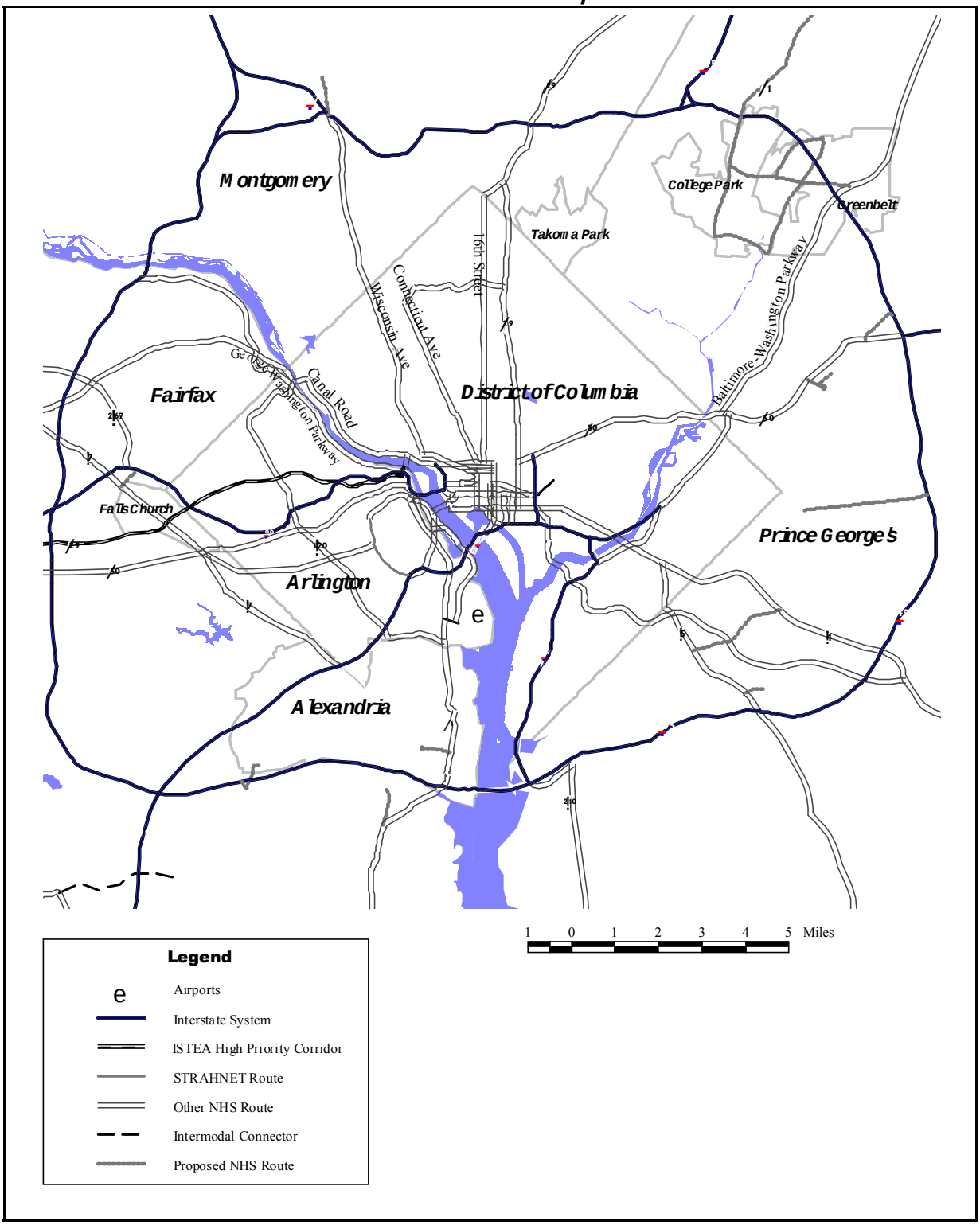


Figure 3-10
National Highway System
Washington Region

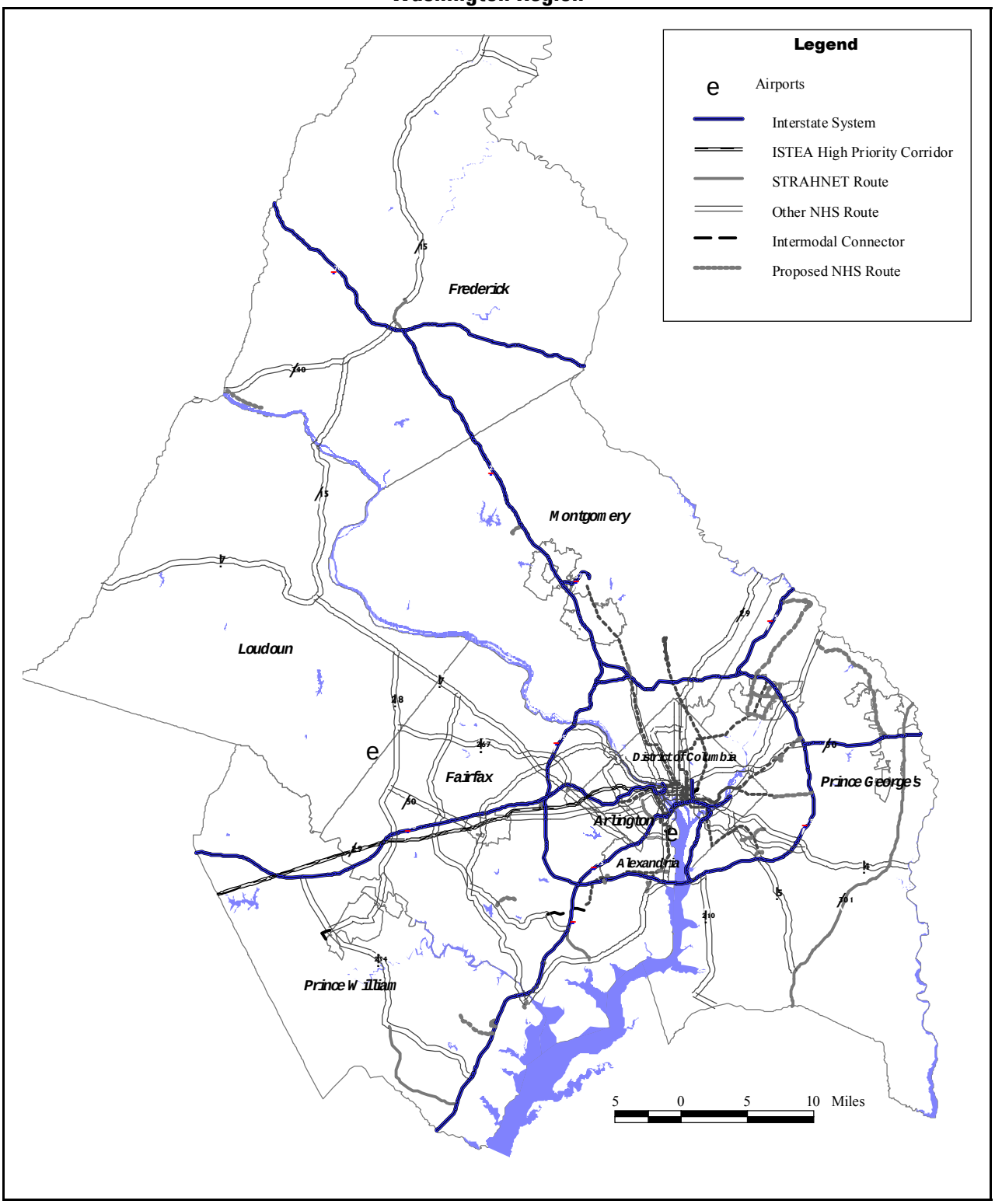
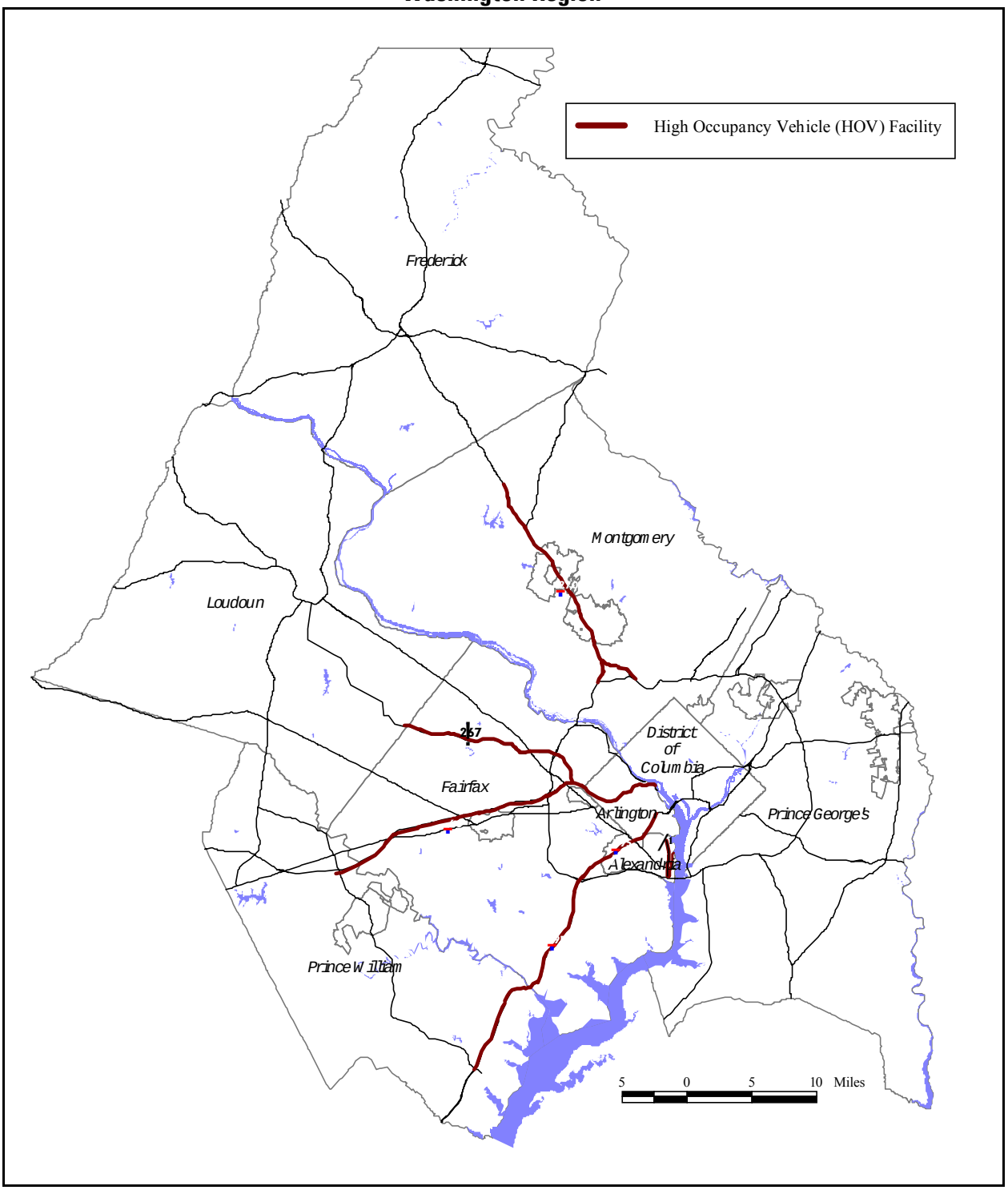


Figure 3-11
Existing HOV Facilities in the
Washington Region



The originally planned 103-mile Metrorail with a total of 83 stations, shown in Figure 3-12, was completed in 2001. Metrorail's 764 heavy-rail trains operate with three to six minute intervals between trains during peak periods and with six to sixteen minute intervals during off-peak periods. In 2000, an average of 620,000 trips per weekday were made on Metrorail. The number of commuting trips on Metrorail is increasing, but Metrorail's overall share of the total work travel is expected to remain relatively flat as more jobs are located outside of the central core.

WMATA operates approximately 1,400 Metrobuses with routes in the District of Columbia, Alexandria, and Arlington, Fairfax, Montgomery, and Prince George's counties. Since 1975, the Metrobus system has been transformed from a predominantly radial system serving the District of Columbia to a feeder network serving the Metrorail system. Metrobus also provides regional route service for trips not served by the rail system. Each time a new segment of the rail system has been opened, bus routes in the affected corridor or corridors have been modified either to serve or to turn back at the new stations. In 2000, an average of 510,000 trips per weekday were made on Metrobus.

Other Bus Services

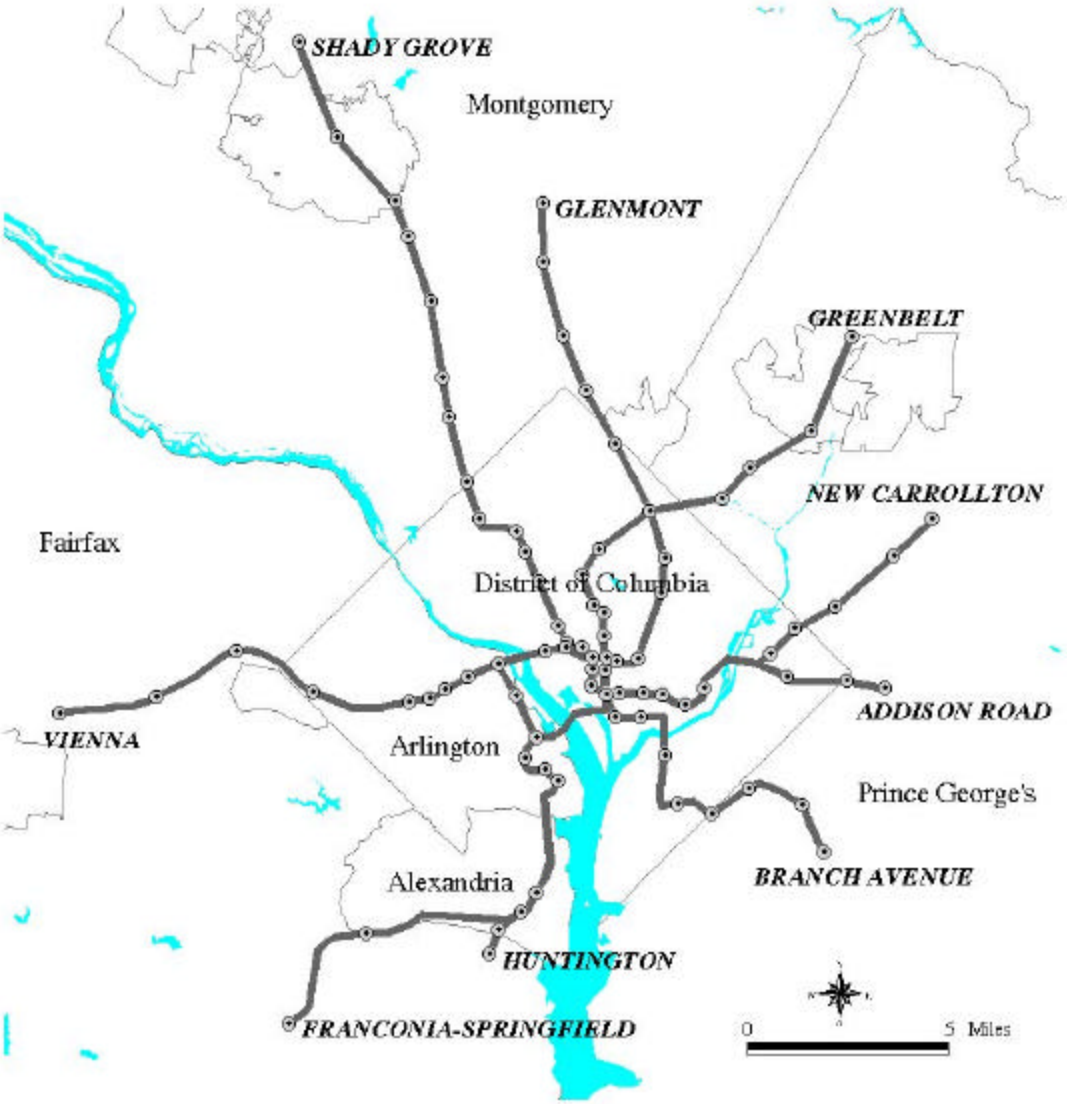
In addition to Metrobus service, several jurisdictions have their own local bus service. These include Montgomery County's Ride-On, Alexandria's DASH, Prince George's County's The Bus, Fairfax County's Connector, Loudoun Transit and the City of Fairfax's CUE systems. In addition, the CommuteRide system operates within Prince William County, Manassas, and Manassas Park. Several private commuter bus companies exist as well.

Commuter Rail

Two commuter rail services operate in the region, Virginia Railway Express (VRE) and Maryland Rail Commuter (MARC). The Virginia Railway Express provides commuter rail service to Union Station in Washington, D.C. on two routes, the Manassas and Fredericksburg lines. VRE runs eighteen trains each way every day on the Manassas Line, and twelve trains each way every day on the Fredericksburg Line. VRE provides about 9,300 trips per day.

MARC also provides commuter rail service to Union Station. Its service operates three routes, the Brunswick, Camden and Penn lines. A total of 81 trains on these three lines provide morning, midday, and evening service. On an average weekday, about 20,000 persons board MARC trains, the majority of these trips being commuting trips to or from downtown Washington.

Figure 3-12
103-Mile Metrorail System



Ridesharing

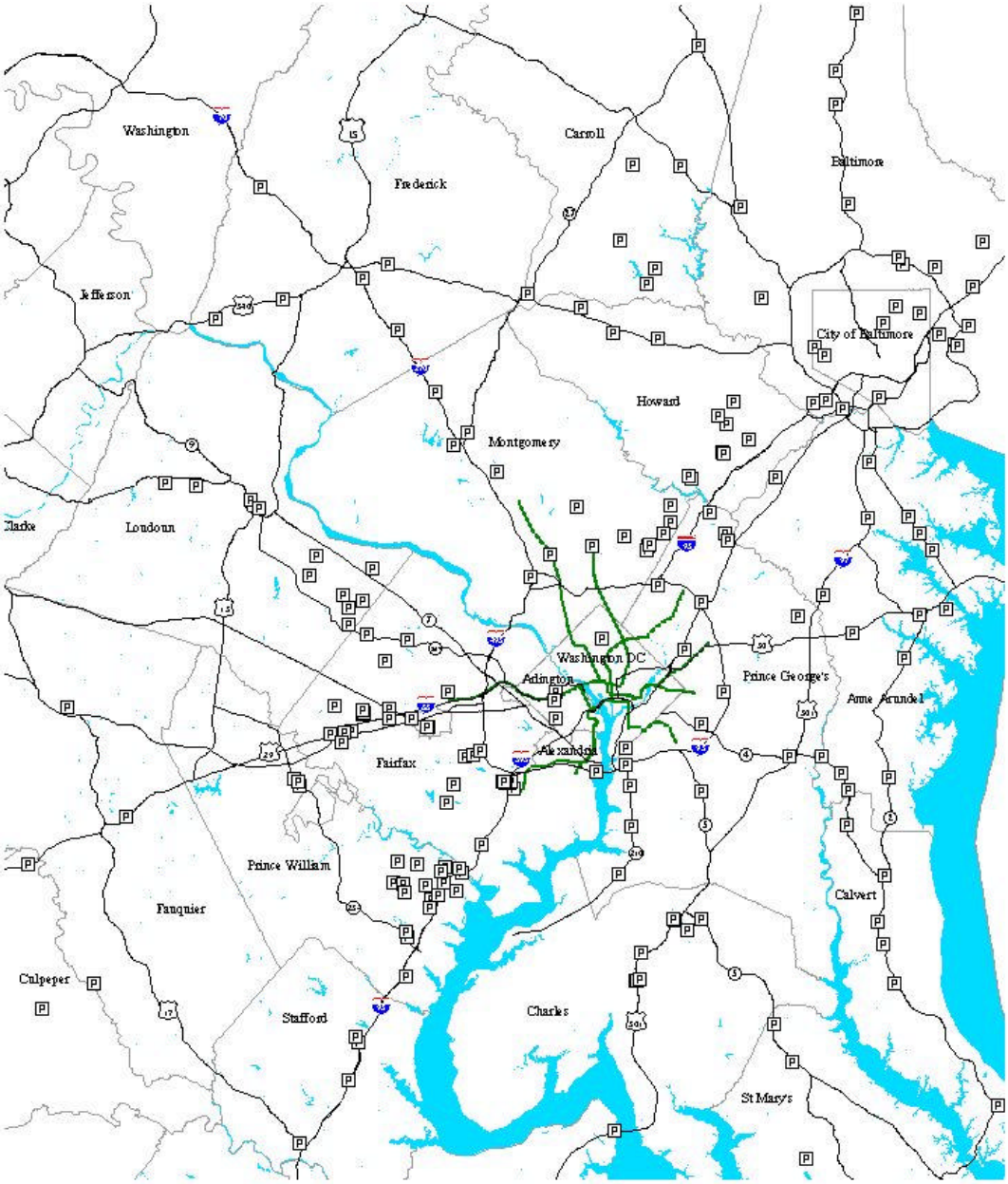
The Washington region is the carpool capital of the nation. According to the 1990 Census, almost 16 percent of Washington commuters used car or van pools to get to work. The high rate of ridesharing is encouraged by a number of factors, including the area's successful HOV lanes and an abundance of park-and-ride lots, which enable commuters to access a car or van pool or bus or rail service for their commute to work. The locations of park-and-ride lots within the Washington commuting area are illustrated in Figure 3-13.

Another resource that has helped the region attain such a high rate of carpooling is the Commuter Connections Program. Commuter Connections is a network of Washington metropolitan commuter transportation organizations coordinated by the Metropolitan Washington Council of Governments and TPB. It was known for more than 20 years as Ride Finders. As Commuter Connections, it has expanded its services to help businesses find transportation solutions vital to not only their own success, but to the economic development and quality of life of the entire region.

Commuter Connections assists businesses by identifying many opportunities for voluntarily complying with the Clean Air Act guidelines to reduce vehicle emissions. It promotes and facilitates telecommuting programs and other pollution reduction activities. Using a Geographic Information System software program, Commuter Connections matches commuters for ridesharing. Through its Commuter Operations Center, Commuter Connections provides support to 31 federal, state, and local government agencies and large employers.

In January 1997, Commuter Connections launched a regional Guaranteed Ride Home (GRH) program to "take the worries out of ridesharing." COG works with area businesses to guarantee that employees registered in their company rideshare program or with Commuter Connections have a ride home in case of an unexpected personal or family emergency, personal or family illness, or when required to work unscheduled overtime (a supervisor’s verification is required). GRH cannot be used for weather emergencies or acts of God. Eligible commuters may use the GRH program a maximum of four times per year. The GRH program is designed specifically for unexpected emergencies. It may not be used for personal errands, scheduled appointments, business-related travel or working late without a supervisor's request. Such programs are proven inducements for commuters to use alternatives to driving alone. Employees eligible for the GRH program are: ridesharers (carpoolers, vanpoolers); mass transit users (bus, train); bicyclists; and those who walk to work.

Figure 3-13
Locations of Park-and-Ride Lots
In the Washington Commuting Area



Additionally, Commuter Connections is currently planning a regional system of Traveler Information kiosks, and coordinates regional programs for teleworking as further encouragement to alternatives to the single-occupant vehicle. With teleworking, also known as telecommuting, employees work at home or perhaps at a satellite teleport center one or more days per week. Communications to their office is accomplished by phone, fax, modem, and teleconferencing, saving many hours of time, congestion, and energy consumption on the region's highways.

Overall, Commuter Connections provides one-stop shopping for commuters and businesses as a primary commuter information resource for Maryland, Virginia, and the District of Columbia.

Bicycle and Pedestrian Facilities

The Bicycle Plan for the National Capital Region is a component of the CLRP. A separate document outlines in greater detail the region's plan for building and improving bicycle facilities, summarized in Chapter 4 of the CLRP.

Both for the benefit of the environment and for the people they serve, bicycle and pedestrian facilities are important components of the region's transportation system. The Washington region currently enjoys more than 900 miles of on-street and off-street bikeways. Most jurisdictions in the area have developed bicycle transportation plans and have planners on staff to coordinate the bicycle/trail programs of the particular locality.

A trend in recent years has been to establish bicycle routes or multi-use trails along the rights-of-way of abandoned railroad corridors. An example of this type of design is the 45-mile long Washington & Old Dominion trail, which is now used by more than a million people annually. The recently completed Capital Crescent Trail from Georgetown to Bethesda is already very popular. In the District of Columbia, another rail-trail, the Metropolitan Branch Trail, is planned. When finished, it will go from Union Station to Silver Spring, Maryland.

Action has also been taken to encourage bicycling to Metrorail stations. Improved bicycle access, bicycle storage facilities, and permits to carry bikes on Metrorail trains during low ridership periods are current policies linking transit use with bicycling. As part of transportation air pollution controls, two new bicycling initiatives have been authorized. The first will provide 2,000 new bicycle racks in Maryland and Virginia. The second will develop materials on bicycle commuting for use in the Commuter Connections Employer Outreach program.

Transit for Persons with Disabilities

All Metrorail trains are wheelchair accessible, and all stations have elevators for riders who are unable to use the escalators. When an elevator is not working, Metrorail has a van service to transport patrons to the next-closest station. Metrorail runs a telephone information line that details the stations without operating elevators so passengers with disabilities may plan their route in advance.

WMATA also provides an on-call bus service as part of its Metrobus system. Currently, over 80 percent of the Metrobus fleet is equipped with wheelchair lifts. If riders require a lift-equipped bus, they may call ahead with their itinerary and WMATA will ensure that a lift-equipped bus will be on the route at the requested time. As Metrobuses are retired from the fleet, they are replaced with lift-equipped vehicles. WMATA expects to have a 100 percent wheelchair-accessible fleet by 2006. In addition, WMATA operates a paratransit system exclusively for persons with disabilities; over 14,000 persons are registered and use the system. Those who qualify are issued an identification card and are able to schedule curb-to-curb travel service.

Airports

Residents of the region have an abundance of airport capacity to meet their travel demands. Three major commercial airports are located in the Washington region. Washington National Airport, located in the central core of the region, serves domestic travel needs, while Washington Dulles International Airport, located in Loudoun County, Virginia serves both domestic and international routes. Baltimore-Washington International Airport, located in northern Anne Arundel County, Maryland near the city of Baltimore, is also accessible to many area residents and provides access to domestic and international destinations. In 2000, these three airports served 55.6 million arriving and departing air passengers. In addition to the major commercial airports, the region features a number of general aviation airports to serve non-commercial air activity such as corporate travel. The three major commercial airports also include general aviation facilities.

Intercity Rail

Amtrak offers intercity passenger service for the Washington region with approximately 60 trains per day. Washington, D.C. is the southern anchor of Amtrak's Northeast Corridor, which extends north to Boston. High-speed trains run between Washington's Union Station and New York's Pennsylvania Station in this corridor. Amtrak is the largest passenger carrier between New York and Washington.

Movement of Goods

Most of the Washington region's economy consists of government agencies and service and tourism industries. Freight movement in the region is, therefore, oriented towards delivery of office supplies, equipment and retail goods rather than heavy manufacturing materials. The freight sector plays an important part in the area's economy and is dominated by four modes: trucking, shipping, air cargo, and freight rail. Package express and postal services are also important to the region's economy.

Trucking is the backbone of the freight sector. On a tonnage basis, trucks carry about 71 percent of the inbound freight and 96 percent of the outbound freight in the region. Even when materials initially arrive by rail or water, trucks are often used to transport them to their final destinations.

Trucks represent between 3 percent and 8 percent of the traffic on most of the major routes in the Washington area. On the southern portion of I-495/I-95, however, between 12 and 15 percent of the traffic is comprised of trucks. Because trucks move in the general traffic stream, the region's trucking industry is vitally concerned with issues of congestion and access.

Water cargo accounts for 24 percent of the inbound freight and less than 1 percent of the outbound freight in the region. An additional 1 percent of the inbound freight and 4 percent of the outbound freight are transported by air. Trains carry about 4 percent of the inbound freight and less than 1 percent of the outbound freight.

TRAVEL PATTERNS

The tremendous growth experienced by the Washington region since 1960, coupled with the increasing suburbanization of both people and jobs as discussed earlier, has had profound implications for travel. Not only has there been an explosion in the overall number of trips made on the region's highways and transit facilities, but travel has shifted away from a predominantly suburbs-to-downtown orientation as trip-making between the suburbs has surged.

Travel to Work

The best source on current commuting trends is the 2000 U.S. Census; this data is not expected to be available until mid-2002. Commuting data from the 2000 Census will provide information on transit mode share, car occupancy and telecommuting. This information will be comparable to the 1990 Census data and will highlight emerging or continuing travel trends.

Earlier information highlights the increasingly suburban focus of work travel in the area, and in particular, the emergence of a significant suburb-to-suburb commuting market. They show, for example, that more than half of all work trips in the region were to jobs in the near and far suburbs; commuting to the downtown core accounted for less than a quarter of all trips to and from work. Moreover, most of the trips destined to suburban jobs began from suburban residences. In 1990 more than half of all commuting trips estimated to both start and end in the suburbs. This trend in suburb-to-suburb commuting is expected to continue into the future.

Measures of Congestion

The latest travel estimates for the highway system indicate that, for the region as a whole, the volume of traffic on the area's roadways outstripped the available highway capacity.

The amount of travel on the region's highways is typically measured in vehicle miles of travel (VMT). VMT is sometimes thought of as the "demand" for highway travel and is often compared to a similar measure, lane miles of roadway, which is used to indicate the highway "supply," or the ability of the road system to accommodate potential travel. As the imbalance between travel demand and capacity increases, certain roadways or travel corridors will experience greater levels of congestion. Between 2001 and 2025, VMT is forecast to increase 46% and lane miles only 13%.

Some "real-world" data collected in aerial surveys of the region's freeways illustrate where highway congestion is occurring. The survey, sponsored by the TPB in spring 1999, used density—the number of passenger cars per lane, per mile, at a given time—to measure congestion. Figures 3-15 and 3-16 show the sections of the highway system that are congested during the morning and evening rush hours.

The Metrorail system has been experiencing "transit congestion" with record numbers of riders and crowding. The duration of the rush hour on the transit system has also lengthened—more people are traveling both earlier and later making the peak periods last longer. The additional transit ridership has numerous benefits for the region, including reducing highway congestion and improving air quality—but the region needs the transit facilities to handle the additional ridership. Daily transit work trips increased 30% since 1994 on all the transit systems—the local bus systems, Metrorail and Metrobus and commuter rail. Work transit trips are important because they account for about 60% the total number of transit trips made on an average weekday. Work trips by transit are also important because they drive capacity needs for the transit system.

Figure 3-14
Locations of Peak Period Congestion on Washington Region Limited Access Highways, Weekday Mornings, Spring 1999

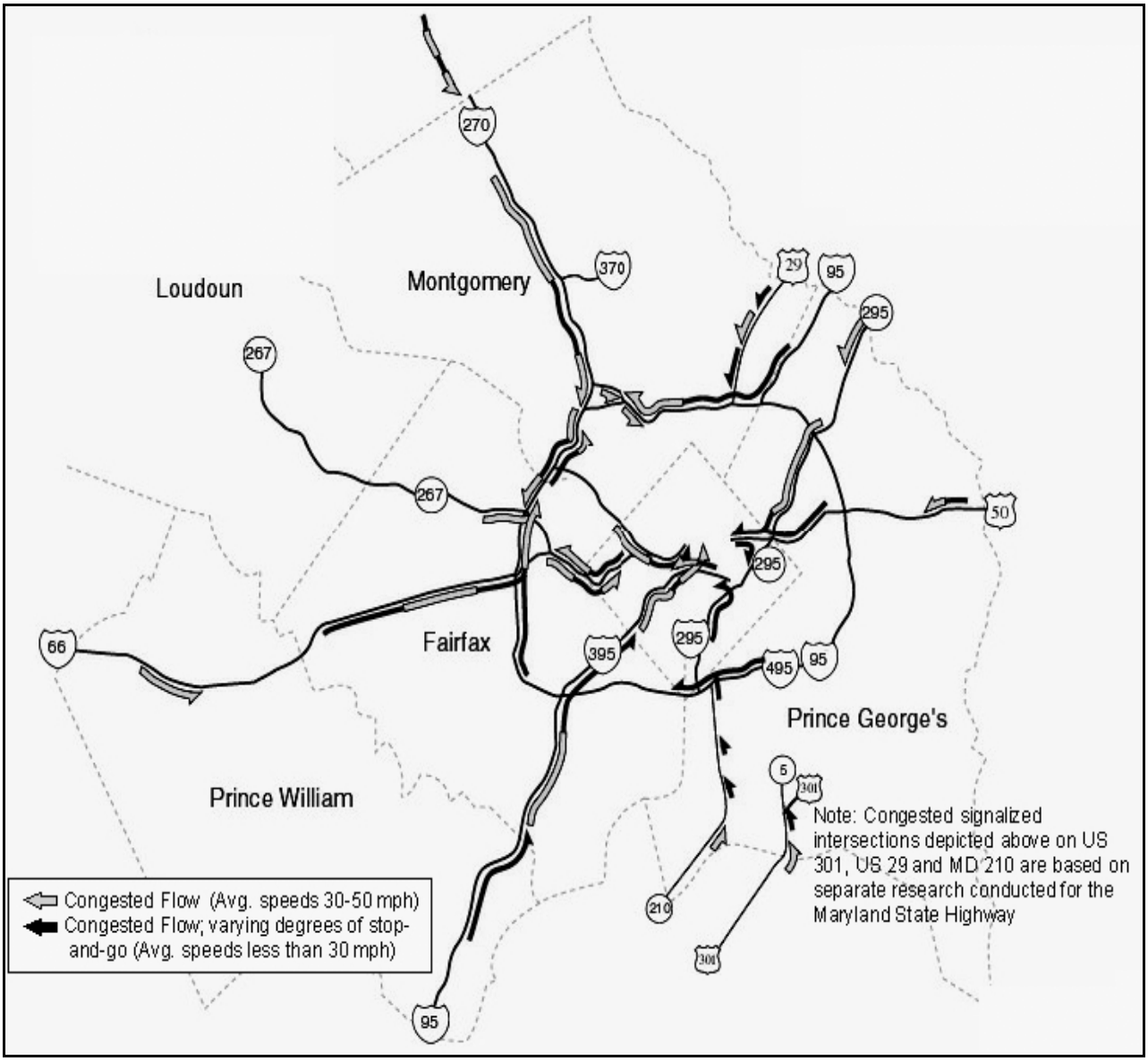
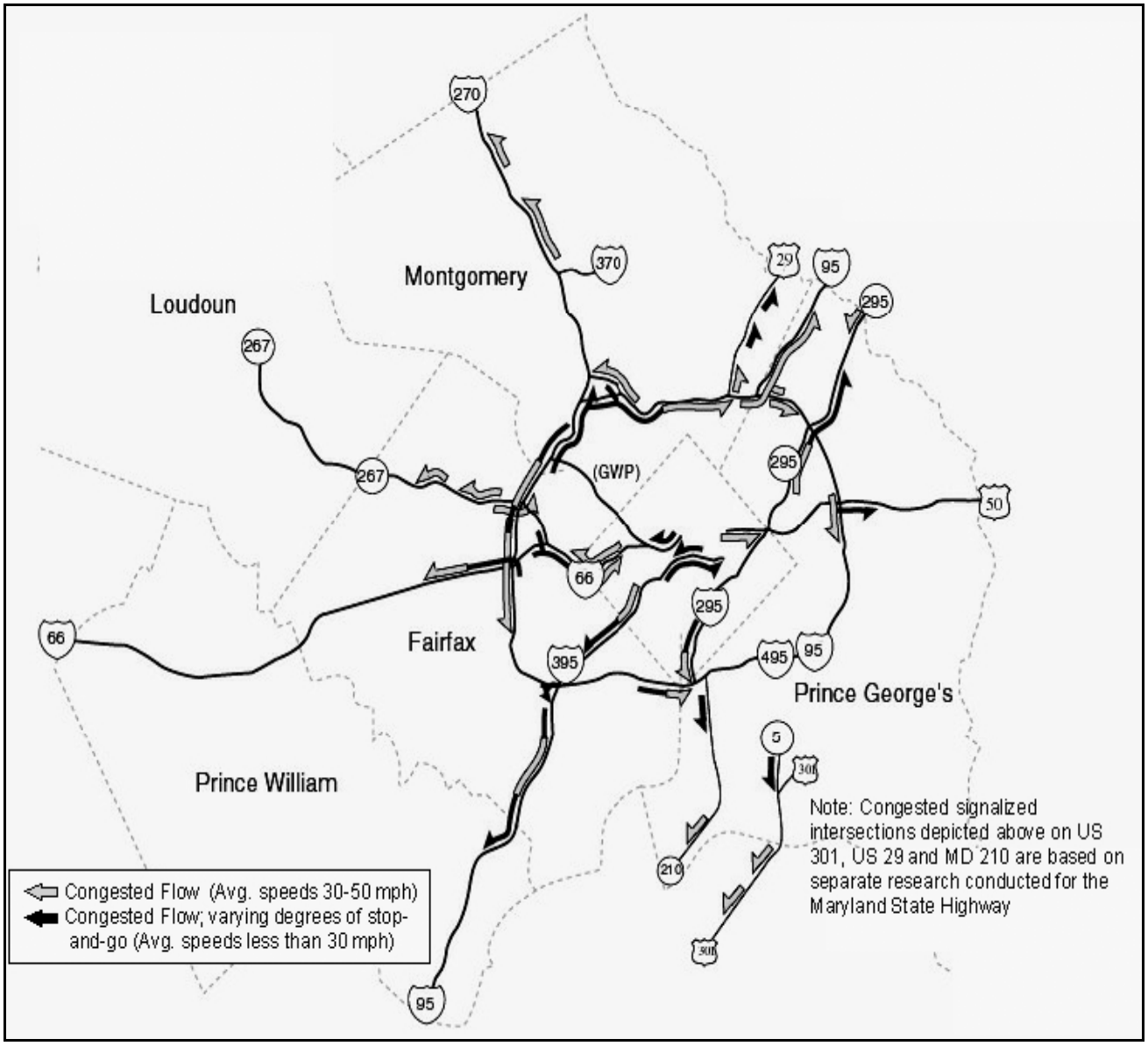


Figure 3-15
Locations of Peak Period Congestion on Washington Region Limited Access Highways, Weekday Evenings, Spring 1999



KEY ISSUES FACING THE REGION

What transportation policies and investments will best serve the region through the year 2025 and beyond? This challenging question has now been posed by state and local officials, by the TPB and other regional agencies, and by numerous citizen organizations. Many thoughtful suggestions have been put forward by individual residents, private associations and citizens' groups.

A variety of complex issues are involved in planning a regional transportation system for the 21st Century. These include financing, land use and transportation relationships, congestion, air quality, coordination of transportation modes, and strategies to manage the overall demand for travel. To the extent possible, these issues have been considered in developing this plan.

This section will briefly describe some of the key issues that were identified in developing this plan and that will need to be more fully considered in future updates to the long-range plan.

Maintaining, Operating and Managing Our Transportation System

At or near the top of the transportation agenda for every jurisdiction in the region is the challenge of maintaining the extensive transportation system in place today. During the next two decades, the operation and maintenance of the current highway and transit systems will consume about eighty percent of the available transportation revenues for Suburban Maryland and Northern Virginia, and almost all of the District's transportation revenues.

Once relatively minor issues in discussions of long-range planning, maintenance and operations costs are now central. They limit the region's ability to finance facility expansions. Indeed, unless major new funding sources are developed, it must be assumed that most of our future transportation system is in place today. The challenge then becomes how to manage that system—and modify it where necessary—for the greatest future benefit.

Actions to better manage existing highway facilities can take many forms, ranging from relatively simple capital investments such as traffic signal improvements, to regulatory approaches such as carpool lane restrictions or congestion pricing, which involves the use of fees to discourage unnecessary travel on congested facilities. This plan includes several new HOV facilities to encourage ridesharing, as well as promotional measures described in Chapter 4. It also includes a substantial investment in intersection and traffic signal improvements. The region’s Congestion Management Systems (CMSs), as well as the states’ pavement and bridge management systems, provide the region's implementing agencies with comprehensive information to better manage and operate these systems in the future. To encourage greater use of existing transit services, the plan includes park-and-ride lots at selected commuter rail stations, transit information and marketing initiatives, and bicycle connections at several Metrorail stations. Other measures with the potential to increase transit use are pedestrian improvements in areas served by bus or rail and financial incentives.

Limiting Traffic Growth and Reducing Automobile Emissions

It is well understood that automobile traffic has been increasing throughout the region, with negative effects on air quality, on travel time in many corridors, and in some instances, on the safety of both vehicle users and pedestrians. Beyond these impacts, many residents consider high volumes of automobile traffic generally detrimental to the quality of life in their communities.

Faced with large population and job growth forecasts, the challenge of limiting traffic growth, or mitigating its effects, is an enormous one. Not only will the region house more families and individuals than at present, but on average, their activities will be spread over a larger radius as both housing and employment centers become more decentralized.

Meanwhile, as travel demand grows, it is no longer possible (nor, would many argue, desirable) to increase the supply of roadway capacity to commensurate levels. Many factors tend to constrain new road construction to a minimal level, as evidenced by the modest construction program in this plan. First, most state and local governments cannot afford to build major new roads. Second, environmental and community concerns about new road construction and regulatory restrictions have reduced the political viability of large-scale road building as a way of "solving" traffic congestion problems.

In place of infrastructure solutions, it will be necessary to consider a larger range of demand management options that reduce the need for vehicular use in the first place. These include travel reduction methods such as telecommuting (working in or near the home), transit and ridesharing incentives, improved transit services, innovative land development and site planning techniques, and more controversial regulatory methods such as increased parking charges, employer-based controls on solo commuting, or direct pricing of road use. Some studies suggest that public subsidies for automobile use be removed. These and other approaches—including technological improvements to automobiles and fuels—can also help to reduce automobile emissions levels as required by the Clean Air Act Amendments of 1990 discussed in Chapter 4.

This plan features demand management through the inclusion of a telecommuting initiative, new HOV lanes and ridesharing incentives. These measures are described in more detail in Chapter 4. The Congestion Management System mentioned earlier will provide more information on congestion patterns and assess mitigation measures that can be applied in future updates to this plan.

A question for future plans is to what extent should more ambitious demand management strategies be pursued? Direct strategies to curb automobile use, such as user charges or restrictive parking taxes, though potentially the most effective tools available to reduce congestion and automobile emissions, may not be acceptable to the public in the near term. Any policies involving user charges for driving would need to be carefully developed, with special attention given to their potential impacts on low-income residents.

Serving Diverse Markets

The Washington region is a diverse international community that includes persons of numerous ethnic backgrounds and occupations. Over 40% of the region's population is non-white, a figure which includes many recent immigrants to the region[2]. Approximately one in five residents is less than 16 years of age[3]. Despite the region's overall affluence, close to a quarter of a million residents in 1990 were below the poverty level. In 1990, an estimated 36,000 persons have disabilities that make them eligible for specialized transportation services (paratransit).

Given the diversity of the region's households and their travel needs, how can future transportation systems best serve all of the region's residents? A number of issues deserve consideration, such as how to ensure that funds will be available to sustain adequate bus and paratransit service for those who depend on them; how best to provide services for the region's working parents, many of whom "commute" to day care centers before and after work; and what enhancements in highway design and automobiles will be needed to ensure the safety of elderly drivers, who represent a growing segment of the population. Another is identifying what transportation policies and investments can best serve the increasing number of non-work and weekend trips and multiple purpose trip "chains" (for example, a person routinely picking up a child and some groceries on the way home from work).

The movement of goods within and through the region also presents special issues to consider, including how to ensure efficient delivery to businesses, reduce truck accidents, and minimize the risks involved in the transportation of hazardous materials.

Serving Dispersed Population and Employment Centers

The decentralization or "suburbanization" of travel mentioned earlier and the emergence of "edge cities" are phenomena seen throughout the United States, and pose long-term challenges from every angle.

Serving such a far flung set of activities will be increasingly difficult without the ability either to expand the road system or to concentrate the trip ends into workable passenger loads for transit service. Will suburban growth continue unabated as congestion increases, or will transportation conditions inhibit housing and commercial real estate markets in the affected areas? Could local governments encourage alternative forms of residential and commercial development that might allow more trips to be made on foot or by public transit? Will extending rail service toward the edges of the region encourage more population dispersion? What type of circumferential (suburb-to-suburb) transportation services should be incorporated into future plans?

[2] Our Changing Region. Census 2000. Metropolitan Washington Council of Governments. Volume 1, Number 1. Figures provided are for the TPB Planning Area.
[3] Our Changing Region. Census 2000. Metropolitan Washington Council of Governments. Volume 1, Number 2. Figures provided are for the TPB Planning Area.

Moving Towards Intermodalism

Throughout the United States, each mode of transportation has historically been viewed in isolation from the others. The planning, construction and operation of each mode was often conducted by separate agencies with little communication or cooperation among them. A similar situation prevailed in the private sector, in which rail and motor freight carriers and airlines guarded their own niches in the market and were also restricted from many possible forms of collaboration by federal regulations. This situation has been changing very gradually during the past 20 years into one in which multi-modal planning of public facilities, and some forms of intermodal cooperation in the private sector, could begin to take place. Federal laws explicitly acknowledge the value of a more coordinated approach to the planning and operation of the various modes through several of its planning and management provisions.

This plan is multi-modal in its approach to developing a future transportation system. Highway, transit, bicycle and pedestrian improvements are included to improve transportation within the region; several ground access improvements have also been identified for the region's airports. A multi-modal approach will also be used to implement the studies included in the plan. As discussed in Chapter 4, each such study must consider the role alternative modes could play in solving the problems for which the study has been developed.

Of particular interest to many in the region are opportunities to expand the region's rail transit system, either by extensions to Metrorail or initiatives using other technologies such as light rail. Rail transit provides new people-moving capacity, generally with fewer environmental impacts than new highways, and in the right circumstances it can attract sufficient patronage to mitigate traffic growth on area roads. Rail transit is understood to work best in locations of relatively high density development. A problem in implementing effective rail service is obtaining the needed density soon enough—ideally, before or in tandem with facility construction—to justify the large public expenditures that are involved in both construction and operation. Coordinated development approaches can overcome this problem but are often difficult to arrange.

Financing New Facilities

As mentioned earlier, one of the key issues that will need to be addressed in future plans is how to finance proposed facilities that go beyond those included in this plan. There are proposed major projects in the region that have been identified or desired in the past, but exceed the financial constraints on the plan required by federal regulations. Many of these projects are in the plan under a “study” category.

Depending on the specific modal configuration and design chosen, the cost of these proposed projects could be more than twice that of implementing this plan. To implement many of these projects would involve billions of dollars, requiring the region to identify major new sources of funding. This could mean substantial increases in transportation user fees, such as tolls, gas taxes and parking charges. An effort to develop major new revenues would require substantial cooperation among the states

and local jurisdictions in the region, and much greater public commitment to transportation improvements.

4.

THE LONG-RANGE TRANSPORTATION PLAN

SUMMARY OF PLAN FEATURES

The long-range plan consists of capital improvements, studies, actions and strategies proposed for implementation by the year 2025. Because the majority of the projected revenues during this period are devoted to the operation and preservation of the region's existing intermodal transportation system, the capital improvements included in this financially constrained plan do not expand the system capacity greatly from previous plans.

The **major capital improvements** are summarized as follows:

- A new crossing of the Potomac River replacing the Woodrow Wilson Bridge will be constructed by 2007.

- By the year 2008, the Springfield interchange at the Beltway and I-95 will be complete.

- By 2025, a new light-rail line from Bethesda to Silver Spring in Maryland, two new Metrorail stations, a Metrorail extension to Dulles Airport in Virginia and to Largo in Maryland, and several new high occupancy vehicle (HOV) facilities will be open.

- During the 25-year period, many segments of the primary highways and secondary roads throughout the region are to be widened or upgraded.

- The new highway facilities include MD 201 Extended, MD 355 Bypass, MD 414 extended, and Willowbrook Parkway in Maryland, and the final sections of the Fairfax County Parkway, the VA 234/Manassas Bypass, the VA 28 Bypass (Tri-County Parkway), the US 50 Middleburg Bypass and the Battlefield Parkway in Virginia are to be completed.

In addition to the facilities that are shown to be built in the plan, numerous corridors are identified for study. After a study is completed, the project for the corridor will be sufficiently specified, and then can be *considered* for inclusion in the constrained plan. Only those projects for which funding can be identified can be considered for the plan. **Over 50 multi-modal transportation studies, including 9 potential Metrorail extensions**, are included in the plan.

STUDIES

The TPB included a new region-wide study, "Improving Regional Mobility and Accessibility Study" in the plan. This new study will evaluate alternative options to improve mobility and accessibility between and among regional activity centers and the regional core.

> "The study will 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 will 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.)
>
> The study will include short and long term analyses of primary and secondary impacts of any new facilities, both circumferential and within the regional core, on land use including on established communities and open space; on transit ridership; on total vehicle miles traveled and numbers of single occupancy vehicles; and on economic shifts within the region, especially to or from the regional core."

A map of the studies in the plan is shown in Figure 4-1. There are 11 major studies.

a. I-270
b. East/West Link Improvements
c. I-95/I-495 Capital Beltway (MD)
d. US 301/MD 5
e. MD 4 HOV
f. I-95/I-495 Capital Beltway (VA) (three separate studies)
g. Dulles Toll Road
h. I-66 (two studies)

Figure 4-1: Major Studies in the Long-Range Plan
As of November 2000

Key to Figure 4-1
Studies

TPB Regional Studies

I. Improving Regional Mobility and Accessibility Study

District of Columbia

1. Eastern Avenue
2. I-295 HOV
3. Southeast/Southwest Freeway reversible lanes
4. Metrorail extension to Ft. Lincoln
5. Metrorail extension to Adams Morgan
6. Metrorail extension to Georgetown
7. US 50, New York Ave., grade separate at Florida Ave., Study
8. US 50, New York Ave., grade separate at Bladensburg Road, Study
9. East Capitol Street, grade separate at Benning Road, Study)
10. Metrorail extension along New York Ave. (not shown)
11. New York Ave./I-395 Tunnel (not shown)
12. New York Ave. Corridor Improvements (not shown)
13. Pennsylvania Ave. Study and Tunnel option (not shown)
14. National Arboretum Access (not shown)
15. Alternative to Barney Circle Freeway (not shown)
16. New York Ave. Left Turn Traffic Lanes (not shown)
17. Missouri Ave./Georgia Ave./13th Street Interchange
18. Anacostia Park Visitor's Center Gateway (not shown)
19. Kennedy Center
20. Light Rail (not shown)

Maryland

21. I-270 MIS
22. East West Link Improvements
23. Georgia Avenue Transitway
24. I-95/I-495 Capital Beltway, American Legion Bridge to the Woodrow Wilson Bridge
25. US 301/MD 5
26. MD 4 HOV
27. Shady Grove to Clarksburg Transitway
28. North Bethesda Transitway
29. US 29 Busway
30. I-95 HOV
31. MD 3
32. Largo to Bowie Transitway

Virginia

33. I-95/I-495 Capital Beltway, Woodrow Wilson Bridge to I-95/I-395/I-495 interchange
34. I-95/I-495 Capital Beltway, Dulles Toll Road to the American Legion Bridge
35. Dulles Toll Road
36. I-66 Location Study (EIS)

37. Western Corridor Study
38. Metrorail from the Pentagon to Tysons Corner
39. Metrorail extension from Huntington to Tysons Corner
40. I-395 HOV access study
41. People Mover from Ft. Belvoir Proving Grounds to Springfield
42. US 1 Location Study
43. VA 28 improvements
44. US 29 improvements
45. VA 9 improvements
46. VA 7 and VA 244 corridors priority bus to bus rapid transit to light rail
47. US 50 priority bus eastern Loudoun Co. to Arlington Co.
48. VA 236 priority bus
49. I-495 express bus corridor
50. VA 7100 priority bus corridor
51. Columbia Pike light rail from Tysons Corner to Bailey's Crossroads and Bailey's Crossroads to Pentagon
52. US 1 light rail from Alexandria to Pentagon
53. Light rail from Manassas to Dulles
54. Metrorail, Dunn Loring to Maryland via Tysons Corner
55. Metrorail from Franconia/Springfield to Lorton/Ft. Belvoir
56. Metrorail Alternatives from Lorton/Ft. Belvoir to Potomac Mills Mall area in Prince William Co.
57. VA 28 Bypass, Tri-County Parkway
58. US 1 Corridor priority bus service (north and south of the Capital Beltway)
59. I-66 corridor express bus service

Studies Include Alternative Strategies

If people and goods are to travel efficiently throughout the region as population and economic activity continue to outpace the expansion of the transportation system, more effective management of the existing system will be necessary. The plan contains **a set of transportation emissions reduction measures (TERMs)** designed to reduce automobile emissions. It also contains **congestion management system (CMS)** components for the region. The CMS supports decision making by identifying and monitoring congestion problems (including projections of future congestion) and examining strategies that might help alleviate them. The results of these analyses can be used in developing plan updates. The other federally required management systems (pavement and bridge) also can provide information for updating the plan.

In addition to these plan components, **many existing local, state, and regional strategies have had and will continue to have an important influence on travel**. For example, the District of Columbia tax on commercial parking encourages commuters to consider transit and carpooling, and the regional Metrochek program helps employers provide subsidies to workers who commute by transit. A range of strategies that are currently adopted and in place are described at the end of this chapter. The most promising types of strategies, possibly expanded or modified, can be considered for future updates to the plan.

SUMMARY OF MAJOR CHANGES FROM THE 1997 PLAN

High Occupancy Vehicle (HOV) facilities will be considered in a number of corridors:

- In Maryland, extending existing HOV facilities on I-270 to Frederick, I-95 from Prince William County in Virginia to Howard County, the entire Maryland Beltway, MD 4 outside the Beltway, and MD 5, and U.S. 301 from the Beltway to Charles County.

- In the District, I-295 from East Capitol Street to the Beltway.

- In Virginia, I-395 HOV access will be studied.

The **transit portion of the plan** contains a greater commitment to capital investment as well as more transit studies than before. However, the transit portion of the plan represents only a small proportion of what might be included if financial constraints were less severe.

- In Maryland, a light rail line from Bethesda to Silver Spring is to be built by 2010. Metrorail is to be extended from Addison Road to Largo by 2005, new MARC rail service is planned from Point of Rocks to Frederick by 2001 with a new station at MD 355 and Randolph Road, and HOV will open on U.S. 50 by 2004 and on MD 4 by 2015.

- In Maryland, studies are indicated for a transitway in the I-270 corridor, a transitway in north Bethesda, a busway on U.S. 29, a transitway from Largo to Bowie, a transitway along Georgia Avenue and transit options in the U.S. 301/MD 5 corridor from La Plata to the Beltway.

- In the District of Columbia, a new Metrorail station will be built on the red line at New York Avenue. Three Metrorail extensions will be studied in the District, linking the current lines to Fort Lincoln, Adams Morgan and Georgetown.

- In Virginia, a new privately financed Metrorail station at Potomac Yards in Alexandria, two new VRE commuter rail stations, and a new express bus system, BRT and rail to the Dulles Airport are included.

- In Virginia, studies are indicated for five Metrorail extensions linking the current lines to Tysons Corner, Fort Belvoir, Potomac Mills, and Maryland, as well as light rail from Alexandria to the Pentagon and from Manassas to Dulles Airport. Priority and express bus studies include VA 7, VA 244, US 50, VA 236, I-495, Fairfax County Parkway, US 1, and I-66.

This financially-constrained plan reflects several changes to the set of highway, HOV, and transit facilities included in the 1997 long-range plan.

Highway improvements that have been added to the plan since 1997 include:

- Widening I-95 from six to eight lanes from Newington to VA 123.
- Widening the Beltway from eight to ten lanes to accommodate two HOV lanes in the peak hours from the Dulles Toll Road to the American Legion Bridge.
- Upgrading and widening US 301 from Bowie to the Charles County line.
- Nine other new principal highway improvements were advanced into the plan, including new construction, widenings of existing roads, intersection improvements, and interchange improvements.

THE MAJOR HIGHWAY, HOV, TRANSIT AND BICYCLE FACILITIES IN THE PLAN

Location and Description of Key Facilities

This section describes the major highway, HOV and transit facilities in the plan. Major bicycle facilities are also described. The locations of the major highway improvements[1], HOV facilities, and transit facilities included in the plan are indicated in Figure 4-2 (Highway Improvements) and Figure 4-3 (HOV and Transit Improvements). Following each map, and keyed to the numbers on the map, are brief descriptions of the proposed improvement or study, including the year by which an improvement is expected to be completed.

The projects shown on these maps are major or larger-scale facility improvements, but do not represent all of the projects in the plan. A complete listing of all projects is contained in several tables in the report on the results of the air quality conformity analysis.[2] For each project in the plan, these tables provide the specific project limits, the type of facility, the nature of the improvement (such as construct, upgrade or widen), and the time frame for completion.

The brief descriptions following the maps capture the essential features of the major improvements, and together with the general locations shown on the maps, provide an overall view of the major facilities in the plan. In developing the submissions for the plan, the implementing agencies prepared more than 700 project description forms which cover not only the major improvements shown on these maps, but include all of the minor arterial road projects and other transit projects that could not be shown on these maps but are included in the plan. Each form contains a complete project description, which includes its purpose and expected contribution to regional goals, as well as cost and funding information.

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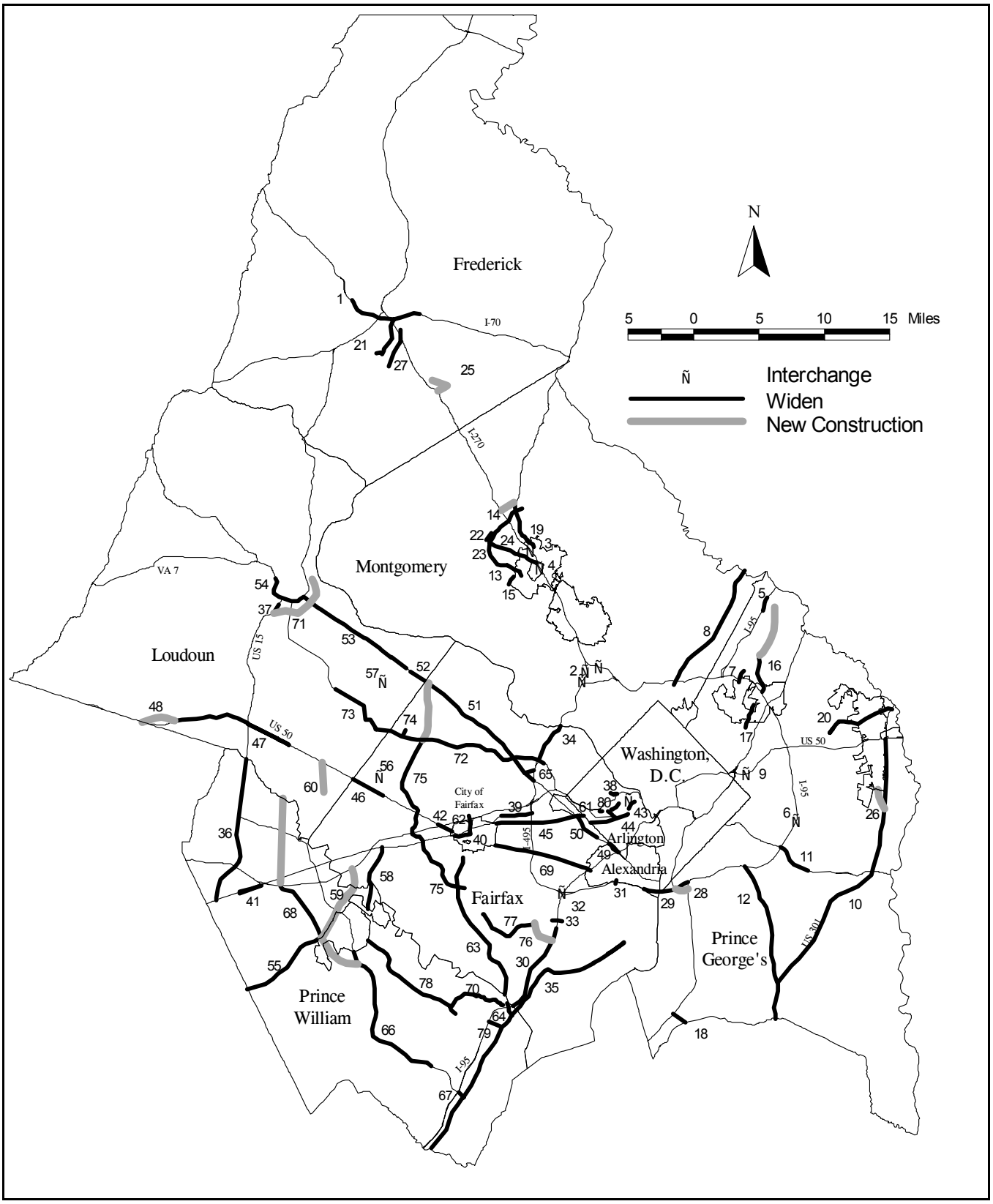
1 All projects that are on Interstates or on principal arterials are shown. Improvements on minor arterials are not indicated.

2 MWCOG/TPB, *Air Quality Conformity Determination of the 2000 Constrained Long Range Plan and the FY2001-2006 Transportation Improvement Program for the Washington Metropolitan Region,* October 18, 2000.

Figure 4-2: Major Highway Improvements in the Long-Range Plan
As of October 2000



Key to Figure 4-2
Highway Improvements

Maryland

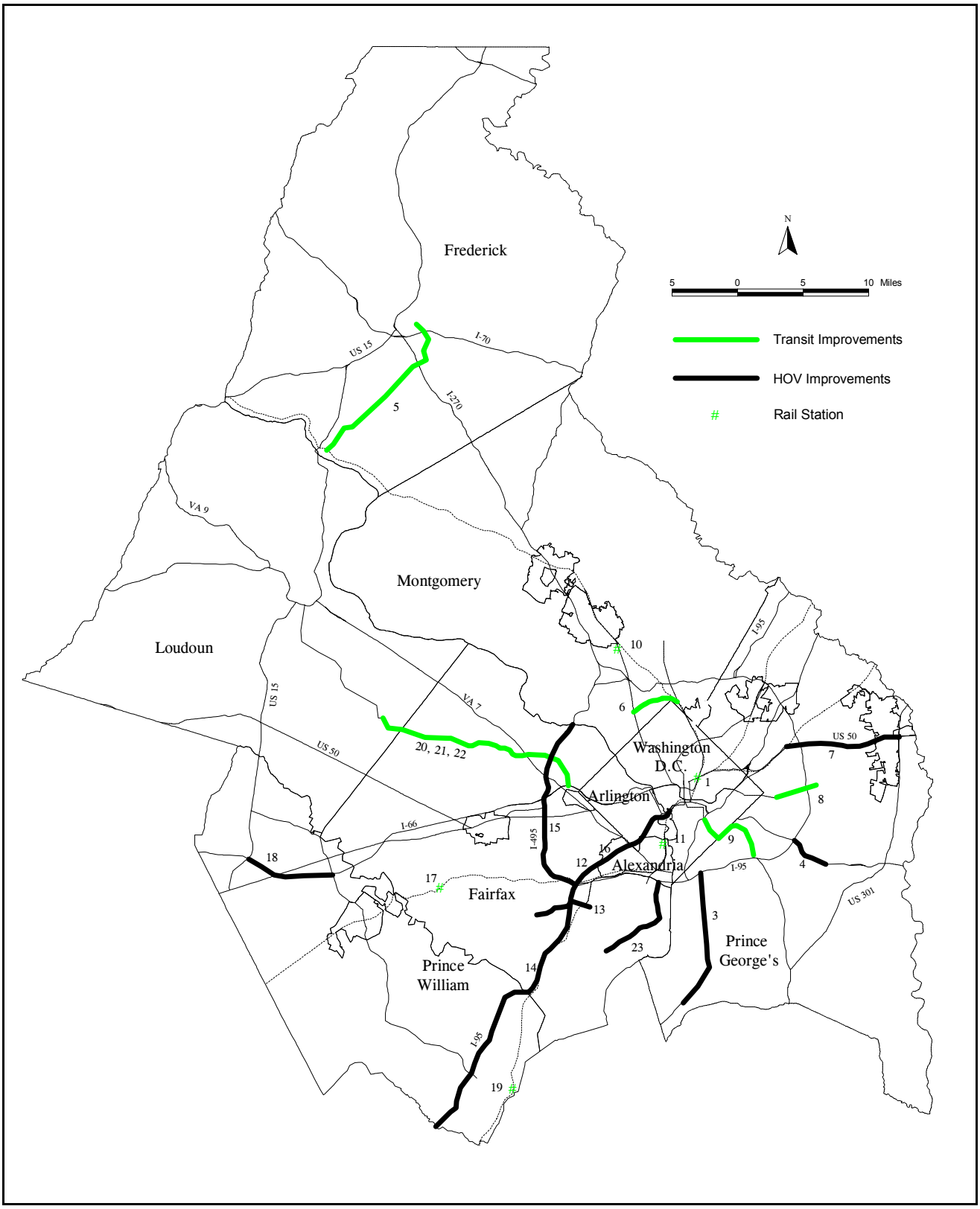
1. I-70, construct/widen to 6 lanes, Mt. Phillip Rd. to MD 144FA, 5.3 miles, 2010
2. I-270 Spurs, interchange improvements, 2000, 2010
3. I-270 interchange at Watkins Mill Rd., 2025
4. I-270, interchange at MD 117 with Park and Ride lot, 2003
5. I-95, interchange and CD lanes at Contee Road, north of MD 212 to north of MD 198, 5.5 miles 2010
6. I-95 interchange at Ritchie Marlboro Road, 2003
7. US 1, widen to 6 lanes from Cherry Hill Rd. to Sunnyside Ave., 0.96 miles, 2005
8. US 29, upgrade from MD 650 to Howard Co. line, 2005, 2006, 2025
9. US 50, interchange at Columbia Park Road, 2003
10. US 301, upgrade, widen to 6 lanes from MD 5 to US 50, 21.46 miles, 2020
11. MD 4 upgrade/widen to 6 lanes plus 2 HOV from MD 223 to I-95/I-495, 3.08 miles, 2010
12. MD 5, upgrade/widen to 4, 6, 7 lanes from US 301 at T.B. to I-95, 10.5 miles, 2000, 2005, 2010
13. MD 28, widen to 6 lanes from Riffleford Rd. to Great Seneca Highway, 3.36 miles, 2004
14. MD 118 extended, construct 2, 6 lanes, 2020
15. MD 124, widen to 4, 6 lanes from Airpark Rd. to Warfield Rd., 3.46 miles, 2020
16. MD 201 Extended, widen and construct 4 lanes from I-95/495 to MD 198, 7.32 miles, 2005, 2020
17. MD 201, widen to 6 lanes from Rittenhouse Road to Pontiac Street, 2.12miles, 2005
18. MD 228, widen to 4 lanes from MD 210 to west of Mattawoman Creek, 3.1 miles, 2000
19. MD 355, widen to 6 lanes from MD 124 to MD 27, 4.27 miles, 1999, 2010
20. MD 450, widen to 4, 6 lanes from MD 193 to west of US 301 and east of Whitfield Chapel Rd. to Seabrook Road, 7.57 miles, 2005, 2010
21. New Design Road, widen to 4 lanes, 2002
22. Father Hurley Blvd., widen to 4, 6 lanes, 2020
23. MD 119,Great Seneca Highway, widen to 6 lanes from Middlebrook Rd. to MD 124, 2015
24. Middlebrook Road , Middlebrook Road extended,widen to 6 lanes, 2020
25. MD 355 Relocated, construct 4 lanes, 2004
26. Willowbrook Parkway, construct 4 lanes from US 301 to MD 214, 2.8 miles, 2010
27. MD 85 widen to 4 lanes from English Muffin Way to Spectrum Dr., 2.13 miles, 2025
28. MD 414 extended, widen, construct 4 lanes from MD 210 to I-295, 3.75 miles, 2006

Virginia

29. I-95, Woodrow Wilson Bridge and approaches, build 12 lane bridge from VA 611 to MD 210, 2007
30. I-95, widen to 8 lanes from Newington to VA 123, 2005
31. I-95, Eisenhower Valley access, 2007
32. I-95/I-395/I-495 interchange reconstruction, 2008
33. I-95, LOV access at Franconia-Springfield Parkway to and from the west, 2010
34. I-495, widen to 10 lanes, Dulles Toll Road to American Legion Bridge, 2008
35. US 1, widen to 6, 7 lanes Stafford Co. line to VA 235 north, including interchange at VA 234, 2003, 2004, 2005, 2010
36. US 15, widen to 4 lanes US 29 to Loudoun County line, 2002, 2020
37. US 15,widen to 4 lanes from Leesburg city line to Evergreen Mill Rd., 2006
38. US 29, Lee Highway, widen to 6 lanes N. Quincy St. to N. Kenmore St., 2015
39. US 29, widen to 6 lanes Nutley St. to I-495, 2005, 2010
40. US 29, widen to 6 lanes from wcl Fairfax to Chain Bridge Rd., 2006 & Chain Bridge Rd. to Eaton Place, 2003
41. US 29, widen to 6 lanes from Virginia Oaks Dr. to I-66, including interchange at VA 619/VA 55, 2006

42. US 50, widen to 8 lanes from I-66 to wcl of Fairfax City, 2020
43. US 50 interchange at Courthouse Rd., 2005, upgrade to RT 1 from Pershing Dr. to Ft. Myer Dr., 2020
44. US 50, upgrade to Route Type 1 from Fairfax County line to Washington Blvd., 2020
45. US 50, widen to 6 lanes from ecl of City of Fairfax to Arlington Co. line, 2020
46. US 50, widen to 6 lanes from Loudoun County line to VA 661, 2020
47. US 50, widen to 4 lanes from US 50, Middleburg Bypass to VA 616, 2003, 2005, 2010
48. US 50, Middleburg Bypass, construct 2 lanes, 2010
49. VA 7, widen to 6 lanes from wcl Alexandria to I-395, 2005
50. VA 7, Leesburg Pike, widen to 6 lanes from 7-Corners to Baileys Crossroads, 2020
51. VA 7, Leesburg Pike, widen to 6, 8 lanes from I-495 to Rolling Holly Drive, 2001, 2003, 2005, 2010
52. VA 7, Leesburg Pike, widen to 6 lanes from Lakeland Drive to VA 228, 2001
53. VA 7, Leesburg Pike, upgrade and widen to 6 lanes, including interchanges from VA 7/US 15 east to Algonkian Parkway, 2003, 2005
54. VA 7/US 15 Bypass, widen to 6 lanes from VA 7 west to VA 7/US 15 east, 2006
55. VA 28, widen to 4, 6 lanes from Fauquier Co. line to VA 234 Bypass, 2007, 2010
56. VA 28, interchange at Barnesfield Rd., 2003
57. VA 28 interchange at VA 625, 2005
58. VA 28, widen to 5 lanes from Machen Rd. to Old Centerville Rd., 2001, 6 lanes from ncl of Manassas Park to US 29, 2025 and 7 lanes from Old Centerville Rd. to US 29, 2001, with interchange at US 29, 2001
59. VA 28 Bypass, Tri-County Parkway, construct 4, 6 lanes, from VA 234 Bypass to I-66, 2001, 2007, 2015
60. VA 28 Bypass, Tri-County Parkway, construct 4 lanes from VA 620 to US 50, 2001
61. VA 120, Glebe Road, widen to 6 lanes from US 50 to Henderson St., 2010
62. VA 123, widen to 6 lanes from US 50 to I-66, 2003
63. VA 123, widen to 4, 6 lanes from Prince William Co. line to VA 620, 2004, 2005, 2010, 2020
64. VA 123, widen to 6 lanes from US 1 to Devil's Reach Road, 2005, 2010
65. VA 123, widen to 8 lanes from VA 7 to I-495, 2010
66. VA 234, widen to 4 lanes from Waterway Drive to scl of Manassas, 2003, 2010
67. VA 234, widen to 6 lanes from US 1to I-95, including interchange at US 1, 2005
68. VA 234 Bypass, construct 4 lanes from VA 649 to VA 28, 2001, 4 lanes from I-66 to Loudoun Co. line, 2010 and upgrade to a freeway and widen to 6 lanes from VA 649 to I-66, 2020
69. VA 236, widen to 5, 6 lanes from I-395 to Pickett Road, 2004, 2020
70. VA 641, widen to 6 lanes from VA 3000 to VA 906, 2000, 2020
71. Battlefield Parkway, construct 4 lanes from Dulles Greenway to Cattail Branch, 2001, 2004, 2006, 2008, 2009
72. Dulles Access Road, widen to 6 lanes from airport to VA 123, 2010
73. Dulles Greenway, widen to 6 lanes from VA 772 to VA 28, with interchanges at VA 653 & VA 654, 2000, 2010
74. Elden Street/Centreville Road, widen to 6 lanes from Sterling Road to Monroe Street, 2003
75. Fairfax County Parkway, construct, 4, 5, 6 lanes from VA 123 to VA 7, 2000, 2001, 2010, including interchange at Monument Dr./Fair Lakes Parkway, 2005
76. Fairfax County Parkway, construct, widen to 2, 6 lanes from VA 636 to VA 4600, 2005, 2010
77. Fairfax County Parkway, upgrade to Route Type 1 from Fullerton Rd. to Franconia/Springfield Parkway, 2005
78. Prince William Parkway, widen to 6 lanes from VA 776 to VA 640, 2025
79. Prince William Parkway, construct 4 lanes from I-95 to US 1, 2004
80. Wilson Blvd., widen to 6 lanes from N. Frederick St. to N. George Mason Dr., 2010 and N. Quincy St. to Washington Blvd., 2020

Figure 4-3: Major Transit and HOV Improvements in the Long-Range Plan
As of October 2000



Key to Figure 4-3
Major Transit and HOV Improvements

District of Columbia

1. New York Avenue Metro Station, 2005
2. H Street passengerway to Union Station (not shown), 2004

Maryland

3. MD 210, HOV from MD 228 to I-495, 2007
4. MD 4, HOV from MD 223 to I-495, 2015
5. MARC rail extension from Point of Rocks to Frederick, 2002
6. Georgetown Branch Trolley from Bethesda to Silver Spring, 2010
7. US 50 HOV from US 301 to west of MD 410, 2004
8. Metrorail extension from Addison Road to Largo, 2005
9. Metrorail from Anacostia to Branch Avenue, 2001
10. Montrose Crossing MARC station at MD 355 and Randolph Road, 2015

Virginia

11. Metrorail/VRE station at Potomac Yards, 2010
12. I-395 HOV, restripe to 3 lanes, 2010
13. Fairfax County Parkway/Franconia Springfield Parkway HOV, 2010
14. I-95 HOV, extend HOV lanes from Quantico Creek to Stafford County line, 2005 and restripe to 3 lanes from Quantico Creek to I-495/I-395 intersection, 2010
15. I-495 HOV, from I-95/I-395 interchange to American Legion Bridge, 2006, 2007, 2008
16. I-395, add HOV access to and from south at Seminary Road interchange, 2010
17. Western Fairfax VRE station, 2004
18. I-66 HOV from VA 234 to US 15, 2003, 2005
19. Cherry Hill VRE station, 2000
20. Dulles Fixed Guideway Transit, expanded bus service, 2001
21. Dulles Fixed Guideway Transit, Bus Rapid Transit (BRT), 2003
22. Dulles Fixed Guideway Transit, Rail, 2010
23. US 1, HOV lanes from VA 235 north to south city line of Alexandria, 2025
24. Intra-Woodbridge OmniLink bus service expansion (not shown)
25. I-95/I-395 Transit Service Enhancements from Stafford Co. line to Potomac River (not shown)

In September of 2000, the TPB released the plan and TIP submissions and made all project forms available for public review and comment. Copies of the forms, grouped by state, were made available for review at the COG Information Center. For the first time, the maps above were made available on the Internet and most of the project forms are linked to the listings at http://www.mwcog.org/trans/clrplist.htm. The forms for all of the projects included in the plan are contained in separate documents, which contain forms for the Washington Metropolitan Area Transit Authority, the District of Columbia and Federal Lands Highway Division, Suburban Maryland, and Northern Virginia.

Pedestrian and Bicycle Facilities

In addition to the transit, highway and HOV facilities, the long-range plan includes a number of new bicycle facilities, many of which will also serve pedestrians. Projects in various phases of planning include:

- the Metropolitan Branch Trail in the District of Columbia;
- the Anacostia River Trail and the Watts Branch Trail reconstruction in the District of Columbia;
- the Cross-County Trail between Great Falls and Fort Belvoir in Fairfax County;
- the Monocacy River Greenway from Pennsylvania to the Potomac River in Frederick County;
- the Northwest Branch Greenway in Montgomery County, which will extend the existing Northwest Branch Trail to Olney;
- the Potomac Heritage National Scenic Trail, following the Potomac River in Prince William, Fairfax, Loudoun, and Prince George's Counties;
- the Washington, Baltimore, and Annapolis Trail in Prince George's County which will follow the WB&A Railroad Right of Way; and
- trails along Prince William Parkway and other roads in Prince William County.

In 1995, the TPB approved the *Bicycle Plan for the National Capital Region*[3] as part of the CLRP. This Bicycle Plan portion of the CLRP includes both funded, committed improvements and bicycle/pedestrian corridors under study (but not committed for funding). This bicycle plan is further described later in this

[3] MWCOG, *The Bicycle Element of the Long-Range Transportation Plan for the National Capital Region*, July 1995.

chapter. The Bicycle Plan is currently being updated by the TPB's Bicycle and Pedestrian Technical Subcommittee.

THE COSTS OF THE FACILITIES IN THE PLAN

The final analysis for the plan[4], the project description forms, and the FY2001-06 TIP provide the projected capital costs for the projects included in the plan. The highway, High Occupancy Vehicle (HOV), transit, and bicycle/pedestrian facilities proposed in the plan are estimated to cost $14.7 billion for the region through the year 2025. System expansion costs of the plan are shown in Table 4-1.

Transit costs, which include about $2 billion for the Metrorail extension to Dulles Airport operations, preservation, and expansion, account for about 30% of the total. Highway and HOV costs account for about 70%. Bicycle and pedestrian costs are not shown in the table since totals are not available for these projects, many of which are specified as components of larger road or transit projects.

[4] Cambridge Systematics, Inc, *Analysis of Resources for the Financially Constrained Long Range Transportation Plan for the Washington Area*, prepared for MWCOG/TPB, October 2000

Table 4-1
System Expansion Costs Of The Plan's Major Facilities
(Millions of 2000 dollars)

	Highways, Bridges, HOV	Transit	Woodrow Wilson Bridge	TOTAL 2001 - 2025
Regional			1,500	1,500
District Of Columbia		75		75
Suburban Maryland	3,949	1,615	200	5,764
Northern Virginia	4,317	2,869	200	7,386
Total Expansion Cost	8,266	4,559	1,900	14,725

TRANSPORTATION EMISSIONS REDUCTION MEASURES

The plan includes a set of regional Transportation Emissions Reduction Measures (TERMs), previously designed to offset a slight increase in mobile emissions that are otherwise projected to occur during the implementation period of the plan. This section summarizes several regional TERMs included in the plan. All TERMs are intended to reduce either the number of vehicle trips (VT), vehicle miles of travel (VMT), or both. Several of the TERMs have been coordinated or implemented through COG's regional Commuter Connections program. Most TERMs have been implemented, are ongoing, or are under development to be implemented in the near term; however, the following TERMs have been adopted for a long-term time frame, to help reduce emissions in the years of the CLRP beyond the closest six years (those contained in the region's Transportation Improvement Program, or TIP). Additionally, there are a number of state, regional, and local programs and activities that contribute to the region's air quality as TERMs.

Employer Outreach

The Employer Outreach TERM aims to market and implement employer-based Transportation Demand Management (TDM) programs to the private sector. This measure was launched as part of Commuter Connections in tandem with the Guaranteed Ride Home program (see below). A Transportation Demand Management Specialist coordinates the regional outreach efforts of the program. An Employer Outreach Ad-Hoc Group was also formed to address specific concerns of the participating jurisdictions and to develop the details for the implementation of the program. A regional employee commuter survey tabulation effort, and TDM sales training and technical assistance for Employer Services sales representatives have been undertaken. Also developed was a software system to be used by all jurisdictions as a contact management system, providing access to a database of the region's employers.

An additional component of employer outreach focuses on bicycles. This TERM was designed to provide information on bicycling to Commuter Connections representatives, and within Commuter Connections literature and Internet Web site, to encourage bicycling as an alternative to automobile trips.

Guaranteed Ride Home

The Guaranteed Ride Home (GRH) TERM offers commuters using alternative transportation (rideshare, transit, bicycle, or walking) a ride home in the event of an unexpected personal emergency or unscheduled overtime. This measure includes:

- A GRH operations software system to keep track of registrants, and program usage;
- Contracts with various cab companies and a car rental company to provide services;

- A contracted vendor to provide daily operations services which include eligibility verification, dispatching accepted and verified rides, and entering and tracking information on the GRH software system; and

- A marketing campaign including printed and radio media, and mailings to all employers and residents in the Washington metropolitan region.

Telecommuting

Telework is one of the most cost effective measures for significantly reducing nitrogen oxides (NOx) emissions, thus the region established Commuter Connections as a Regional Telework Resource Center. The center performs the following functions:

- Education for employers and employees on the benefits of telecommuting through seminars;

- Encouragement of both public and private sector employers to establish telecommuting programs for their employees, and providing planning and technical assistance to help them successfully implement telecommuting programs and make use of telework centers around the region;

- Coordination of local, state and federal telecommuting and telework initiatives within the region; and

- Exchange of information with other telecommuting programs around the nation and world to ensure that the most effective new concepts and approaches are fully known and utilized in the Washington region.

Continuing activities in this measure include marketing efforts, the coordination of a regional Telecommuting Ad-Hoc Group, and evaluation of teleworking in the region.

Integrated Rideshare

This measure incorporates detailed transit service information from all major providers in the Washington Metropolitan Area Transit Authority (WMATA) and Maryland Transit Administration (MTA) service areas into a Geographic Information System (GIS) database that is compatible with the Commuter Connections ridematching software. This enhanced information is available to applicants to the Commuter Connections program.

Additionally, several kiosks in the District of Columbia and Virginia have been opened that display Commuter Connections information, bus and train information, rideshare information, traffic conditions, and other related traveler information. Kiosks have been located at a number of key sites in the region, including major office developments, shopping malls, and at Union Station in Washington. Additionally, two of the kiosks

purchased under this program are mobile units that can be placed temporarily at key locations.

Bicycle Parking

This TERM was designed to increase trips by bicycle, and therefore decrease trips by automobile, by providing 2,000 additional bicycle parking racks in Suburban Maryland and Northern Virginia. State bicycle coordinators for Maryland and Virginia have worked with local planners to determine the best rack types and locations. The targets of this TERM are neighborhood developments that often do not have bicycle parking (such as shopping centers and employment sites), enabling and encouraging shoppers, workers, and other visitors to access these developments by bicycle instead of by automobile.

Taxicab Replacement

This TERM was designed to replace old, polluting taxicab vehicles. Older vehicles tend to emit a disproportionate amount of pollutants, both because older technology was not as effective in removing pollutants, and because of age-induced failures of antipollution equipment on individual vehicles. Also, taxicabs drive much greater distances in the region than do most other vehicles, thereby compounding the problem of pollution from an aging taxi. Some jurisdictions around the region already had age limits on their licensed taxicabs before this TERM was adopted. Among those jurisdictions that did not previously have such age limits, a near-term program was adopted for Prince George's County, Maryland, and a long-term program for the District of Columbia. The program has expanded to allow participation by light or heavy duty vehicles (such as airport shuttles and transit buses) meeting mileage or fuel use criterion.

Virginia Vanpool Incentives Program

This measure, adopted for Northern Virginia, aims to abate any potential decreases in the number of commuter vanpools in Virginia, and assist in the formation of new vanpools. Assistance will help encourage vanpool riders to remain vanpool riders by reducing the per-person cost. Vanpools frequently utilize the region's HOV facilities, and are a cost-effective and efficient use of the region's transportation system. Vanpools are eligible for capital and operating subsidies from the Federal Transit Administration (FTA) if they report the number of passengers and miles of operation. This measure when implemented by WMATA will follow guidelines to receive the capital and operating subsidies.

Mass Marketing Campaign

A mass-marketing campaign, featuring advertising on radio and in other media to encourage use of alternatives to driving, and to encourage use of Commuter Connections programs and services.

Other TERMs

The TERMs described above were adopted by the TPB through a special regional planning process. A number of other activities undertaken by state, regional, and local agencies as part of their ongoing responsibilities for the region's transportation systems contribute a major share of emissions reductions. The impacts of these activities are vital to the region's air quality conformity with Clean Air Act targets. General categories of these TERMs include traffic signal system improvements, park-and-ride facility construction or expansion, purchase of new transit vehicles (buses or trains), bicycle trails or facilities, bus shelters and other bus stop improvements, ridesharing support, alternative fuel vehicle programs, and transit center developments.

GROUND ACCESS ELEMENT OF THE REGIONAL AIRPORT SYSTEM PLAN

A critical and often overlooked component of the airport system is the transportation linkage between the airports and the surrounding communities. Airport ground access has become an increasingly severe problem at major U.S. airports during recent years.

The TPB prepared the first phase of a Regional Airport System Plan[5] in 1988 that focused on demand forecasts for the region's commercial airports. Volume II of the Regional Airport System Plan[6] has been developed to address ground access to Washington National and Washington Dulles International Airports, as well as access for air passengers in the Washington metropolitan area to Baltimore/Washington International Airport. The plan approaches the issue from a regional, multimodal perspective, examining the total transportation system in the metropolitan area. A modeling approach consistent with the COG regional travel demand models formed the methodology for the plan. The TPB approved the ground access element of the Regional Airport System Plan on September 21, 1994. The plan is now incorporated by reference in this long-range transportation plan.

The ground access element includes the following recommendations concerning facility improvements:

Highway Improvements

- All airport-serving facilities in the Highway Element of the Long Range Plan be built in a timely manner;

- Transportation improvements be constructed in the corridor between Laurel and Gaithersburg that are consistent with the results of the corridor study to be done;

[5] MWCOG, *Washington-Baltimore Regional Airport System Plan*, Volume I (Commercial Airports), 1988

[6] MWCOG, *Washington-Baltimore Regional Airport System Plan*, Volume II - Airport Ground Access, 1993

- Highway facilities be upgraded in the Western Study Corridor, and the construction of a complete limited-access bypass-type facility be studied by Virginia and coordinated with Maryland; and

- Further study be undertaken to determine the improvements needed in the Dulles Airport Access Highway Corridor.

Transit Improvements

- Full pedestrian integration between Metrorail and the terminal improvements at National Airport;

- Completion of the full 103-mile Metrorail system as soon as possible; and

- High-quality transit service that can be implemented quickly and that maximizes the use of available resources be instituted in the Dulles International Airport Access Highway Corridor.

Paratransit Improvements

- The existing Washington Flyer service be more fully integrated into the region's overall transit service program;

- The Washington Flyer system institute a shared-ride door-to-door super-shuttle type of service;

- A study be done to assess the possibility of establishing a system of remote airport terminals; and

- A regional taxicab licensing system be studied for implementation at National Airport.

The ground access component also includes several policy recommendations of relevance to the long-range plan:

- Future high-quality access to Washington Dulles International Airport be assured by continuing operational policies that preserve free-flow travel for the airport traveler for the entire extent of the Access Highway, in both directions.

- A coordinated effort be undertaken to encourage airport employees and those making "other" trips to the airport to use bicycles, or transit and other high-occupancy modes of travel.

CONGESTION MANAGEMENT SYSTEM

Federal planning regulations have shifted the emphasis of metropolitan transportation planning from expanding the transportation system to better managing the system beginning with ISTEA. This shift requires a systematic analysis of congestion and the design of strategies to preserve the infrastructure and to arrange for its more efficient use. A Congestion Management System (CMS) was to be made a part of the metropolitan transportation planning process by October 1997.

The definition of a CMS is a systematic process for managing congestion that provides information on transportation system performance, on alternative strategies for alleviating congestion, and on enhancing the mobility of persons and goods to levels that meet State and local needs. The CMS results in serious consideration of implementation of strategies that provide the most efficient and effective use of existing and future transportation facilities.

Federal planning regulations specify a number of categories of congestion management strategies that are to be considered by the CMS. These include capital or construction actions such as new transit facilities, intersection improvements, or the construction of new HOV systems. They also include non-construction solutions designed to reduce travel demand (e.g., carpooling, vanpooling, and telecommuting). Also to be examined are changes such as new technologies, transit operational or fare changes, congestion pricing and tolls, and the use of non-motorized means of transportation. The addition of general purpose highway lanes may be considered if and when alternative solutions do not prove adequate. In those instances where new facilities are constructed, effective management will also have been considered.

The CMS is not intended to be a preemptive requirement and will not impose decisions. Instead, it will provide information to guide decisions for regional planning and programming. One exception to this, however, is that, for an air quality nonattainment area such as Washington, federal regulations have the following stipulation: for any proposed project that increases single occupant vehicle (SOV) capacity, federal funds can be used only if all reasonable travel demand and operational strategies, as identified in the CMS, are incorporated into the SOV project and implemented.

Federal guidance lists steps needed in a CMS process as:

- Define methods to monitor transportation system performance and usage; establish or continue data collection programs; post-implementation monitoring of identified CMS components.

- Define performance measures and service thresholds to indicate conditions and projected impacts of proposed strategies.

- Consider alternative strategies for more efficient use of the transportation system (see below for a list of noted CMS strategies that may serve as alternatives to increasing single-occupant vehicle roadway capacity).

- Identify schedules and funding for CMS components proposed for implementation.

The Washington region undertakes these steps as part and parcel of the overall regional transportation planning process. These generally are elements that are wholly incorporated in the planning process as described throughout this CLRP; the CMS is not a separate or parallel process. The following sections describe how the Washington region is undertaking the steps of the CMS process.

Monitoring Transportation System Performance and Usage

TPB and its member agencies undertake a wide variety of activities that monitor the performance and usage of the transportation system. The states and many of the local jurisdictions of the Washington region collect counts of roadway traffic. The familiar pneumatic (air pressure) rubber tube traffic counter laid across a roadway is a common method. There are also advanced and emerging technologies being applied to measure usage and congestion on our region's highways: radar, in-pavement loop detectors, surveillance cameras, and automatic traffic signal equipment. Data provided by these sources help public agencies gauge system usage and identify the existence and extent of congestion.

Additionally, TPB and its member agencies undertake a variety of activities that supplement the traditional "traffic count". These include: counts of riders of rail and bus transit; aerial photography surveys of roadways; in-the-field collection of travel times or speeds; in-field observations of the number of persons per motor vehicle (often to verify compliance rates for high-occupancy-vehicle lanes); surveys by telephone of the travel characteristics of the region's residents and businesses; and special studies of other transportation usage issues, such as truck movement and bicycle usage.

Results of the region's travel monitoring activities are compiled in a Regional Transportation Data Clearinghouse at TPB, and then are applied for planning purposes. These data sources help increase the accuracy of computer models used to forecast future travel. They are used to inform the region's elected officials and other decision makers. And they help gauge the success of previously implemented projects and programs, including implemented CMS strategies. Chapter 5 of this plan shows information on the current and future usage of the region's transportation systems.

Performance Measures

Important performance measures or indicators for the region's transportation system include number of vehicles, number of passengers per vehicle, travel times or speeds, transit usage, and the number of trips or number of miles traveled by vehicles. Regional totals of these performance measures are shown in Chapter 5. Also, individual corridor studies and CMS analyses delve into detailed, specific indicators for individual facilities or corridors.

Consideration of Alternative Strategies

Federal planning regulations require that in any corridor where a project is proposed to increase single-occupant-vehicle carrying capacity, all reasonable (including multimodal) travel demand reduction and operational management strategies have to be considered. The CMS Strategies that must be considered are:

- Transportation demand management strategies, including growth management and congestion pricing;
- Traffic operational improvements;
- Public transportation improvements;
- ITS technologies;
- And, where necessary, additional system capacity.

The Washington region addresses these requirements in a number of ways, including ongoing programs, corridor studies, and CMS analyses.

The region has committed to and has ongoing a robust number of congestion management strategies and alternatives. These services and programs support one of the highest rates of transit use and ridesharing of any metropolitan area in the country. Examples of ongoing programs that have a congestion management impact include Metrorail, Metrobus, commuter rail, local transit services, and the Commuter Connections ridesharing and alternative commute program.

The TPB has identified locations with major transportation issues as study corridors. These studies have looked at a full range of CMS alternatives, and may be the source of future commitments by the region to increasing the already-robust set of congestion management strategies underway. Examples of congestion management strategies considered in the region include land use changes around new rail transit stations in the I-270 Corridor in Montgomery and Frederick Counties; and new transit services in the corridor of I-66 and U.S. 301. The numerous corridor studies included in the plan are shown on Figure 4-1.

In addition to analyses undertaken as part of MISs, a number of CMS analyses have been performed on a regionwide basis or on a location-specific basis. Examples of the strategies that have been analyzed on a regionwide basis include the potential impact of programs for bicycle and pedestrian improvements, parking surcharges and transit subsidies, and sensitivity analyses of the interaction of transportation improvements and land use changes (such as compact development versus sprawl). Many strategies with potential congestion management benefits have been reviewed and adopted in the region's air quality planning program to reduce emissions for mobile (motor vehicle) sources.

Federal planning regulations require that if single-occupant-vehicle (SOV) capacity is needed, then all reasonable strategies to manage the SOV facility (or to facilitate its management in the future) shall be identified. All reasonable strategies shall be committed for implementation. This CLRP serves as evidence of the commitment of the region to implementing alternatives. A substantial portion of the region's transportation funding has been devoted to maintaining and increasing transit services, expanding the number of park-and-ride lots, expansion of the region's Commuter Connections alternative commuting program, and bicycle and pedestrian improvements.

The CMS as Part of the Planning Process

The federal planning regulations offer flexibility in how a CMS can function as part of a regional planning process; states and metropolitan areas will design systems to meet their own needs. In the Washington region, the CMS is a component of the CLRP and the transportation planning process—not a replacement or parallel process. TPB and member agencies use CMS findings to help guide their decisions on projects to be included in plans and programs, considering these findings along with other relevant information such as air quality implications, economic impacts, and fiscal constraints.

Public Participation in the CMS

The CMS shares in the overall public participation program of the regional planning process. Representatives from the TPB Citizens Advisory Committee were active participants on the CMS Task Force and the Subcommittees that have followed up on the recommendations of the Task Force, including the Travel Management Subcommittee and the Travel Monitoring Subcommittee. Many citizen suggestions have been incorporated into the CMS design. As a component of the overall CLRP, the CMS receives public review along with the overall CLRP public involvement process. All public comment on the CMS component of the CLRP will be given explicit consideration and responses.

Geography of the CMS

The Washington region CMS covers the TPB planning area (Figures 4-1 to 4-3 show the TPB Planning Area). Studies have been performed to gauge the order of magnitude of the impact of those CMS strategies of a regionwide nature. These analyses are coordinated with the air quality planning process and the study process of the region. Resource limitations do not permit the detailed analysis of every transportation facility; a strategic subset of the region's facilities are subject to consideration or analysis of CMS strategies within corridor studies or other transportation studies. In identifying locations for inclusion in the CMS, several factors are considered: the overall importance of the location or facility for the region, the designated functional classification (such as freeway or arterial) or usage level of the facility, the inclusion of the facility on the designated National Highway System (NHS), and the severity of existing congestion at or on the given location or facility.

MANAGEMENT, OPERATIONS, AND INTELLIGENT TRANSPORTATION SYSTEMS

Intelligent Transportation Systems (ITS) are the application of current and evolving technology (particularly computer and communications technology) to transportation systems, and the careful integration of system functions, to provide efficient and effective solutions to multi-modal transportation problems. In the past, ITS was a major emphasis area for improving capacity and efficiency of transportation systems. However, the opportunities and benefits seen from ITS have uncovered another key proponent of transportation systems —management and operations (M&O). As a new directive for transportation agencies, the focus on management and operations is emphasized by the TEA-21 metropolitan planning factor that requires state and regional plans to "promote efficient system management and operations".

Management and operations can be defined as the consideration of the day-to-day actions and agency responses to the region's transportation system. Examples of management and operations include routine or recurring activities such as reconstruction and maintenance, snow plowing and salting, coordination among public safety and transportation agencies, and traffic signalization. Non-recurring activities such as traffic plans for special events, severe weather, or major disasters also fall under the umbrella of M&O.

By focusing on the evolving technology of ITS and the day-to-day activities of M&O, transportation planners have a greater opportunity of providing more efficient and effective solutions to the region's transportation problems.

As a logical progression beyond the existing ITS planning efforts, the TPB's ITS Technical and Policy Task Forces (previously the Washington Region ITS Task Force) have expanded their purview to M&O and ITS technology.

M&O/ITS Strategic Plan

As the focus of M&O and evolving technology continues in the region, identifying issues from a policy standpoint and on a metropolitan basis must be considered. The development of the M&O/ITS Strategic Plan would assist the TPB in making appropriate decisions and recommendations regarding funding, inter-jurisdictional issues, and long-range plan implications. The M&O/ITS Strategic Plan emphasizes two objectives: to help the TPB's transportation planning process better reflect and be consistent with the actual, day-to-day operations on the region's transportation systems, and to help encourage collaborative and cooperative efforts to integrate M&O/ITS activities within the region.

Accompanying the M&O/ITS Strategic Plan is a region wide ITS Inventory. The inventory, expected to be updated annually, will track regional ITS investments and activities. In the future, the Regional ITS Inventory could provide background information for transportation policy officials for regional funding dialogues.

ITS Architecture

The collection and dissemination of ITS data has proved to be quite useful in the transportation planning process. Transportation agencies use ITS data for traveler information, freeway and arterial management, incident management, electronic fare and toll payment, transit management, emergency response management and data archiving.

The ability to share this data between regional agencies can be even more beneficial. But in this region where political boundaries and funding priorities and practices are irrespective of jurisdictional boundaries, the feasibility of exchanging this data becomes complicated.

In the field of ITS, the interrelationships of ITS systems are described by an overall systems architecture. Federal regulations require that an ITS architecture be developed for states and metropolitan areas.

Based on this and under the direction of the TPB's ITS Architecture working group, the Computer Sciences Corporation (CSC) and PB Farradyne (PBF) team has agreed to coordinate the development of the Metropolitan Washington Regional ITS Architecture. The effort will be an operations-based architecture and will be centered around roadway operations centers, transit dispatch centers and police/fire dispatch centers. It will also be closely coordinated with the Maryland Statewide ITS Architecture and the Virginia Department of Transportation (VDOT) Northern Virginia ITS Architecture initiatives.

The completion of the Washington Regional ITS Architecture is expected for Spring 2002.

Safety and Incident Management: Capital Wireless Integrated Network (CapWIN)

As the demand to share data and communicate with transportation agencies continues, a new demand to communicate with public safety officials in the incident management arena has come to light.

Transportation officials and public safety and emergency personnel have in the past been unable to communicate with one another in the event of an incident. The lack of communication guidelines and standards in transportation and public safety agencies fosters discordance and escalates the cost of providing services. Through the use of technology, transportation and public safety agencies will be able to share more timely and accurate information and greatly improve safety for the public.

A regionally spearheaded project called CapWIN, would allow regional public safety and emergency personnel to communicate with transportation officials by integrating transportation and public safety data and voice communication systems throughout the metropolitan Washington region. CapWIN is the first project planned in the country to implement a wireless network for a multi-state region.

CapWIN is funded in part by the FY2000 ITS grant for the region. It is proposed to supercede the 1999 ALERT project.

The first phase of the project — the strategic planning phase — began in December 2000. The second phase, the implementation phase, will take approximately two to three years.

Professional Capacity Building

The M&O/ITS PCB working group has coordinated and offered training and professional capacity building to transportation professionals from around the region. These courses are developed to fit in the context of identified needs, plans and ongoing activities as specified by the TPB's member jurisdictions.

The program addressed several regional needs. First was the need to focus on quick-changing technology topics. Technical and operations personnel needed to be kept up-to-date on software, hardware, telecommunications, and related topics; these topics had either not been covered or had changed significantly since the basic education of these personnel.

Second was the need for opportunities to be offered to local government staffs. These small staffs often do not have the resources to offer specialized training, or even the staff backup to allow a staff member to travel for training. Collaboration on holding these professional capacity building sessions, with the vital ingredient of federal seed money, assists local staffs in their day-to-day activities.

Third, the program allowed training to be tailored to the specific needs of this region's agencies and personnel. Courses directly addressed local needs, local examples, and the software and hardware actually used by member agencies. Roundtable discussions allowed for brainstorming on local problems and ideas.

Finally, the regional courses served as opportunities to bring together personnel of a variety of duties and jurisdictions, with benefits regarding potential future coordination, collaboration, and cooperation on transportation operations activities.

Electronic Fare Payment

Advanced electronic payment system technologies are creating new business opportunities for transportation providers to partner and develop a truly "seamless" regional transportation network for the public. In comparison with traditional forms of payment the ability to use a single payment mechanism, such as the "Smart" card within the regional transportation network, provides users with an enhanced level of convenience and improved access to transportation services.

A variety of stored-value or "Smart" cards have been proposed or implemented for transportation services. Such cards or transponders can store a pre-paid value and/or identity from which the appropriate fee (e.g. transit fare or roadway toll) can be

instantly deducted, or the holder's appropriate fee; for example, driving past an electronic unit at moderate highway speeds instead of having to stop at a toll booth. "Smart" cards may also facilitate quick and easy transfers from one transit mode to another, such as rail to bus or parking to rail. Overall, these cards and their supporting devices can help reduce delays for drivers and transit riders.

In August 2000, under the direction of the TPB's M&O/ITS Technical Electronic Payments Systems working group, a study contracted through VDOT proposed to explore a longer-term vision for a multi-modal and multiple agency system. The report identifies an action plan for regional consensus as well as addresses the issues of linking existing payment systems i.e. SmartTrip, Smart Tag, with multiple technologies. The plan includes specific suggestions for a sequence of near-term actions to build on the region's interest and momentum of a seamless regional electronic payment system.

"SmarTrip", a Smart card technology, is currently operational on Metrorail and some parking garages.

ITS As a Data Resource

Existing ITS devices generate large amounts of real-time operational data and can be used for traffic and congestion management. Data from ITS field devices offer great promise for uses beyond control strategies. In fact, ITS generated data can be used for traditional transportation planning purposes if aggregated at the right level.

The TPB's M&O/ITS Technical working group, ITS As A Data Resource, contracted TransCore and VRPA Technologies to conduct a feasibility study and an implementation plan for using existing and planned ITS equipment.

In the future, the study conclusions will lead to a design of a regional data sharing system.

Traffic Management

The region's highway agencies have applied emerging technologies to improve the management of traffic and congestion. Activities such as traffic signal optimization across jurisdictional boundaries have improved traffic flow on the region's transportation network.

Regional traffic management activities have accelerated due in part to the cooperation and communication of traffic management agencies from around the region. These agencies meet under the direction of the TPB's M&O/ITS Technical Task Force Traffic Signals working group.

Future study areas of the Traffic Management working group include the feasibility of traffic signal priority and preemption for transit and emergency vehicles.

Traveler Information Systems

Investments in ITS can improve the availability of up-to-the-minute traveler information, so that travelers may change their travel mode, route, or time of departure in response to congestion or other conditions. For this to occur, public and private agencies need to have surveillance systems (video cameras, microwave radars, in-pavement loop detectors) and communications links (such as fiber optics or leased telephone lines) to centralized databases. From these central databases, frequent and timely information can be distributed to travelers by a combination of public and private means: radio and television broadcasts, the Internet, variable message signs along roadways and telephone information lines.

One of the first major traveler information systems created from a public/private partnership in the country was established in 1997 here in metropolitan Washington. This consortium of public and private agencies and private companies was called Partners In Motion (PIM). Traveler information from PIM is provided free of charge by telephone (other than the cost incurred by the caller for the telephone call) and on the Internet.

The Federal Communications Commission assigned 511 for use throughout the nation for traveler information services. The region is expected to explore implementation issues of this complex process. The conversion of the existing PIM system into 511 will be considered for future exploration.

BICYCLE AND PEDESTRIAN IMPROVEMENTS

Importance of Bicycle and Pedestrian Facilities

The many problems associated with a transportation system dependent primarily on single occupant automobiles have long been recognized, including traffic congestion, environmental pollution, and dependence on uncertain energy reserves. Thus modal alternatives to the single occupant automobile are encouraged; bicycling and walking are such alternatives that must be developed as an integral part of the transportation network.

Many commuting trips are five miles or less in length; this average distance can be effectively covered by means of bicycle transportation. For longer trips, bicycles can provide greater access to transit stations and services from adjacent neighborhoods. Bicycling and walking are indeed applicable in the home-to-work commuter market, in addition to serving recreation and trips to schools, shopping, recreational facilities, and other intra-neighborhood destinations. Bicycling and walking are energy efficient, economical and healthy for the user and minimally impacts physical surroundings and public budgets. Bicycle and pedestrian transportation modes, either alone or combined with mass transit modes, are some of the most cost effective, viable alternatives to the increasing use of the automobile.

Regional issues related to pedestrian access and safety have been highlighted in the last several years. In recognizing the importance of pedestrian facilities, the TPB's Bicycle Subcommittee changed it's name and focus to the Bicycle and Pedestrian Technical Subcommittee. The Subcommittee sponsored a workshop on pedestrian planning and design in November 1998. The TPB has two advisory committee's that will be examining priority projects that improve pedestrian access. The TPB Advisory Committee on Circulation Systems will identify pedestrian facilities that improve mobility within the downtown core and other activity centers throughout the region. The TPB Advisory Committee on Integration of Green Space into a Regional Greenways System will examine ways to complete a network of bike and pedestrian trails through the region's "green space" corridors. Several jurisdictions have studied pedestrian safety issues and developed public education campaigns to reduce pedestrian related accidents. Maryland conducted an in-depth study on bicycle and pedestrian access to rail transit to determine improvements needed to ensure safe and effective access[7].

Bicycling and Bicycle Facilities in Metropolitan Washington

Over the past 25 years, a great deal of progress has occurred in the area of improving bicycling conditions in the Washington metropolitan region. Most area jurisdictions have now adopted, or are developing, bicycle transportation plans and/or multi-use trails master plans. Most levels of government have bicycle coordinators, trail coordinators, and/or bicycle or trail facility planners on their staffs. Master plans call for the establishment of thousands of miles of bikeways, bicycle routes, and multi-use trails. Unfortunately, only a small fraction of the planned facilities have been built so far.

While most of these facilities have been built at public expense, in recent years a growing share of bicycle route mileage has been obtained from private land developers who have assumed responsibility for the construction of those bicycle trails and routes called for in county plans that pass through their development sites. This trend suggests that the provision of such facilities is viewed by the private sector as a desirable transportation and lifestyle amenity to offer prospective residents and office tenants.

One key area of development in recent years has been the establishment of bicycle routes along the right-of-way of railroad corridors no longer in use. Assisted by the Washington Area Bicyclist Association, the Rails-To-Trails Conservancy, and other private organizations, several jurisdictions have been converting (or proposing for conversion) abandoned railroad lines into multi-use trail facilities. Examples of this design include the 45-mile long Washington & Old Dominion (W&OD) trail (which now serves more than two million users each year), the Bluemont Junction trail, and the Capital Crescent Trail, along the CSX Railroad's Georgetown Branch in Montgomery County and the District of Columbia. Several additional rails-to-trails projects have been proposed for the region including: the Metropolitan Branch rail line in the District,

[7] *Access 2000: Bicycle and Pedestrian Access to Rail Transit Stations in Maryland.* June 1997. Prepared for the Mass Transit Administration, Maryland Department of Transportation. Prepared by Rummel, Klepper and Kahl, LLP Consulting Engineers.

and the Washington-Baltimore-Annapolis and Chesapeake Beach lines, which have been included in the Prince George's County Master Plan. Another highlight of the regional bike network is the accessibility to bicycles of the Chain, Key, Roosevelt, Memorial, and Mason Bridges, which provide links between established bicycle routes on both sides of the Potomac River.

Efforts have also been made to encourage bicycling to Metro stations. The Washington Metropolitan Area Transit Authority now includes bicycle storage facilities at most of its stations throughout the region, and allows bicycles to be carried on board trains during evening and weekend periods, as well as during midday off-peak hours, when ridership is moderate. It is estimated that 1,000 or more people a day currently commute by bicycle to the Metro system.

Despite these achievements, there is still a need for bicycle transportation planning to be conducted in a comprehensive and functional manner. Bicycles need to become more fully integrated into all transportation efforts, particularly with respect to highway and road development. Many roadways fail to provide sufficient lane width for bicycles and motor vehicles to safely coexist. Bicycling hazards also have resulted from roadway narrowing, intersection design, and poor maintenance of road surfaces. At the same time, jurisdictions should provide for the development of separate bicycle rights-of-way along such routes, whenever possible. The use of undeveloped land corridors, such as greenways, abandoned rail lines or utility right-of-ways, should be considered as bicycle route opportunities.

While a great deal of highway planning and construction is done at the state level, bicycle route design has traditionally been performed by local jurisdictions. To facilitate the development of a truly regional bicycle route network, consistent standards for design, construction and signage should be applied by each jurisdiction. Such common standards should also apply to sidewalks, hiking/equestrian paths, and all-terrain bicycle trails. Bicycle planning activities should include a high degree of community input, and should encourage the active participation of citizens and bicycle advocacy groups. A bicycle advisory committee is recommended for each jurisdiction, as a source of user knowledge and a barometer of trail demand.

Capital improvement programs and master plans should ensure that adequate funding is available to complete the projects recommended. Developers should be required to build the trails planned for their developments. Adequate funds should also be made available for proper maintenance of facilities once they are completed.

Although much progress has been made in recent years, there is still more potential for bicycles to serve as a significant alternative mode for short distance trips, one which could induce thousands of residents out of their automobiles. To achieve greater levels of bicycle use, there needs to be coordination of facility design and development, inter-jurisdictional cooperation in route layout and construction, and participation from all segments of the public and private sector.

Bicycle Policy Recommendations

An updated Bicycle Plan for the region is currently under development and will assist the region in furthering comprehensive and functional bicycle transportation planning. The 1995 *Bicycle Plan for the National Capital Region* contained the following policy recommendations regarding bicycles:

- Incorporate a bicycle element in all jurisdictional planning and design policies.

- Develop and adhere to consistent bicycle facility design and construction standards in each jurisdiction.

- Plan and establish a comprehensive bicycle network, to be integrated with existing and future transportation facilities. Include bicycle facilities in future development projects for large tracts of land as they occur throughout the region.

- Provide adequate bicycle support facilities (e.g., parking, lighting, showering and changing facilities).

- Develop bicycle safety education and enforcement programs in all jurisdictions.

- Each jurisdiction should develop a high visibility bicycle project to demonstrate the effective use of bicycles as a short distance transportation mode.

The separate Bicycle Plan document contains detailed explanations of the objectives behind these recommendations. The objectives served by these recommendations include increasing safety for bicyclists, making bicycling a more attractive alternative to the single-occupant motor vehicle, and making the existing system of bicycle routes and facilities more useful through expansion and interconnection.

Categories of Bicycle Projects Proposed for the Region

Bicycle projects included in the CLRP fall into two types and eight categories. The two types are funded projects (where funds have been identified in support of the future construction or development of a project) and study projects (which are corridors or locations proposed for a bicycle facility, but without any commitment or schedule of funding or completing the project).

Bike projects, both funded and study status, are categorized in one of the eight following ways:

1. Provide spot and route improvements to facilitate bicycling in congested urban areas.

2. Conduct major facility improvements where necessary to upgrade safety, usability, and capacity of existing bicycle facilities.

3. Create regional bike routes and trails by linking existing facilities across jurisdictional boundaries.

4. Identify existing physical barriers to bicycling (such as rivers and streams, bridges, railroad tracks, highway crossings, and limited access highways with no crossing route) and implement solutions to overcome them.

5. Improve bicycle access to major residential and commercial activity centers.

6. Integrate bicycling into the public transportation system through the provision of access routes to terminals and stations, and through the transport of bicycles on transit vehicles.

7. Expand the existing bicycle route network into developing areas in the metropolitan region.

8. Provide links between the metropolitan region and existing or planned long-distance bicycle facilities.

TRANSPORTATION ENHANCEMENT AND COMMUNITY PRESERVATION

TEA-21 enabled a portion of federal surface transportation funding to be devoted to transportation-related projects of a community enhancement, aesthetic improvements, scenic preservation, or historic preservation nature. Every year the Washington region implements a wide range of enhancement projects; examples include a train station restoration, scenic/historic acquisition of a Civil War battlefield, and wheelchair and bicycle trails, ramps and facilities.

TEA-21 created the Transportation and Community and System Preservation (TCSP) Pilot Program and the TPB was awarded a TCSP grant in May 1999 to assist in the implementation of two key components of the adopted Vision for transportation in the Washington region:

- Circulation systems within the regional core and regional activity centers; and

- Integration of green space into a regional greenways system.

TCSP funding provided the resources needed to advance these program areas, including involvement of key agencies, officials and stakeholders and the identification of financial resources for project implementation. The TCSP funding was used to design comprehensive regional programs for each of these two components, to identify priority projects that need to be implemented within each of the programs, and to encourage the inclusion of these priority projects into the Constrained Long Range Plan (CLRP) and Transportation Improvement Program (TIP).

The TPB appointed representatives from government, non-profit, and business groups to serve on the Circulation Systems and Green Space/Greenways Advisory Committees to guide the implementation of the TCSP grant in the Fall of 1999. Reports on the TCSP projects were adopted by the TPB in February 2000 and can be found at http://www.mwcog.org/trans/priorities.html.

RELEVANT LOCAL, STATE AND REGIONAL STRATEGIES

Several existing local, state, and regional strategies have had and will continue to have an important influence on the region's travel and are pertinent to the attainment of regional transportation goals. For example, the District of Columbia tax on commercial parking encourages transit use and carpooling, and the regional Metrochek program helps employers provide subsidies to workers who commute by transit. Some of the strategies that are currently adopted and in place are highlighted in a report *Zoning and Land Use Practices to Improve Transportation*[8], produced and reviewed by the COG Metropolitan Development Policy Committee (MDPC) in June 1999. The most promising of these types of strategies, possibly expanded and modified, can be considered in developing future plan updates.

[8] MWCOG. Zoning and Land Use Planning Practices to Improve Transportation. June 25, 1999.

5.

ADDRESSING THE VISION'S GOALS AND OBJECTIVES

The 2000 Constrained Long-Range Plan is the first plan update since the TPB adopted the Vision in October 1998. The TPB Vision, which was presented in Chapter II, is the policy framework for amending the long-range transportation plan. The Vision includes a statement, policy goals, objectives, strategies and an action agenda intended to guide the development of the 2000 Constrained Long-Range Plan (CLRP).

The purpose of this chapter is to describe the expected performance of the future transportation system in relation to the Vision's policy goals and objectives. The first section presents the plan's anticipated overall performance based on travel demand forecasts. The second section assesses how the plan is expected to perform in relation to the Vision's policy goals and objectives. The last section summarizes the policy goal assessment and identifies challenges for updating the plan.

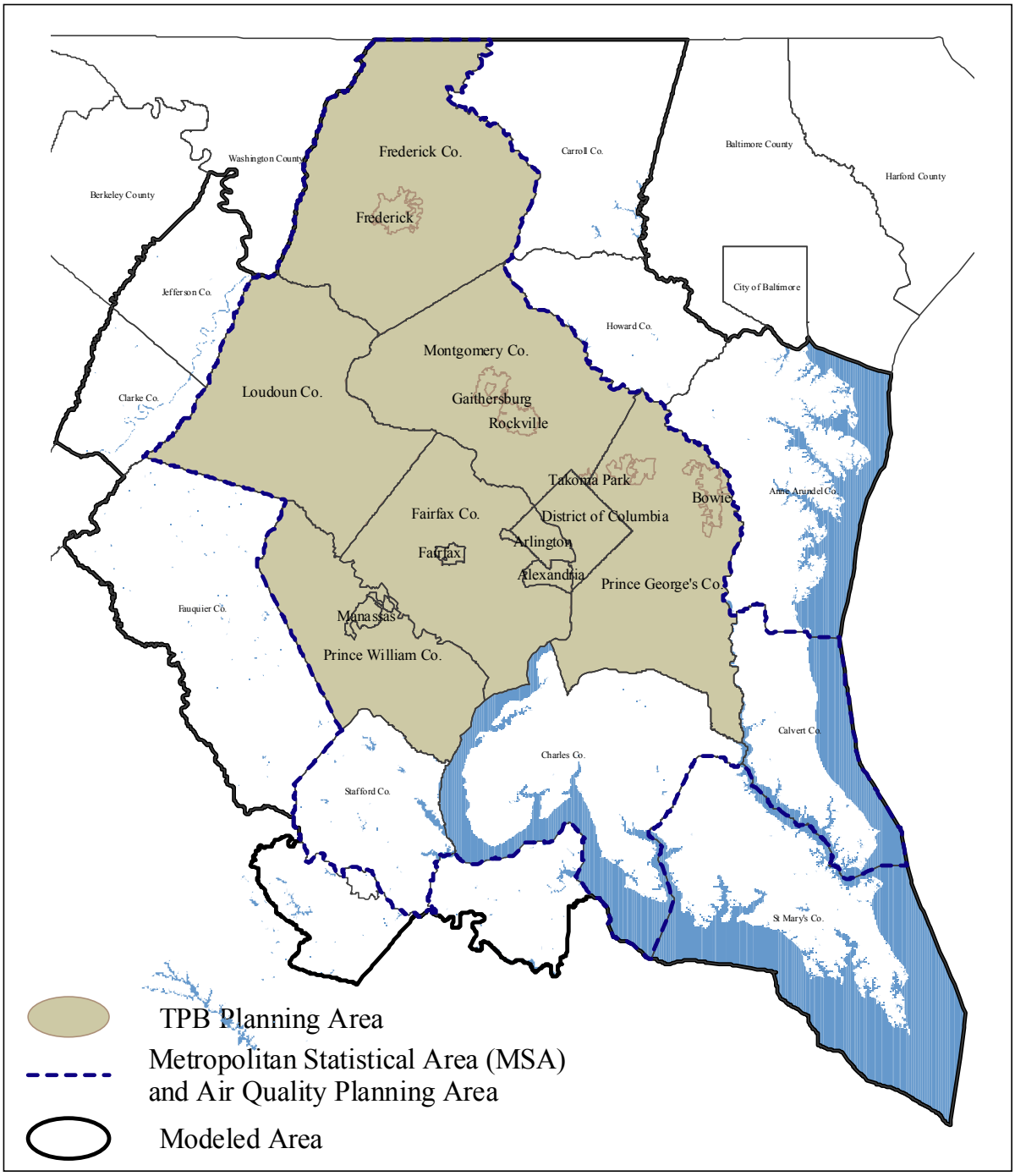
THE EXPECTED PERFORMANCE OF THE PLAN

Regional transportation demand projections for the plan developed from the application of the COG/TPB travel forecasting process are presented here to provide background information on the overall expected performance of the plan. The COG/TPB travel forecasting process utilizes forecasts of households and jobs together with a simulation of the expected transportation system in future years to predict the amounts and types of travel by persons and vehicles, and the resulting system performance. Information will be presented on changes in demographics and travel characteristics, such as VMT, vehicle trips, transit trips, transit mode share and accessibility measures.

The travel demand data provided in this chapter are based on the TPB planning area. Figure 5-1 shows the boundaries for the TPB planning area, which includes the COG member jurisdictions. Also shown in Figure 5-1 is the boundary of the federally

designated Metropolitan Statistical Area (MSA), which also serves as the area for air quality planning for the region[1].

Figure 5-1: The TPB Planning Area



[1] Previous CLRP Updates and the Air Quality Conformity document provide travel demand data for the TPB modeled area. The information in the 2000 CLRP Update is provided for the TPB planning area, which is comprised of TPB member jurisdictions, shown in Figure 5-1.

Population and Employment Growth

Land use changes expected over the next 25 years were discussed in Chapter 3 (see Metropolitan Growth and Development). As an introduction to forecast conditions and the plan's performance, information on how the region is expected to develop is helpful because metropolitan growth greatly impacts the transportation challenges this region is facing. The region is forecast to grow by more than one million people and one million jobs over the next 25 years—a 31 percent increase in population and a 41 percent increase in employment.

Figure 5-2: Change in Population and Employment in the Regional Core, Inner Suburbs and Outer Suburbs 2001 - 2025[2]

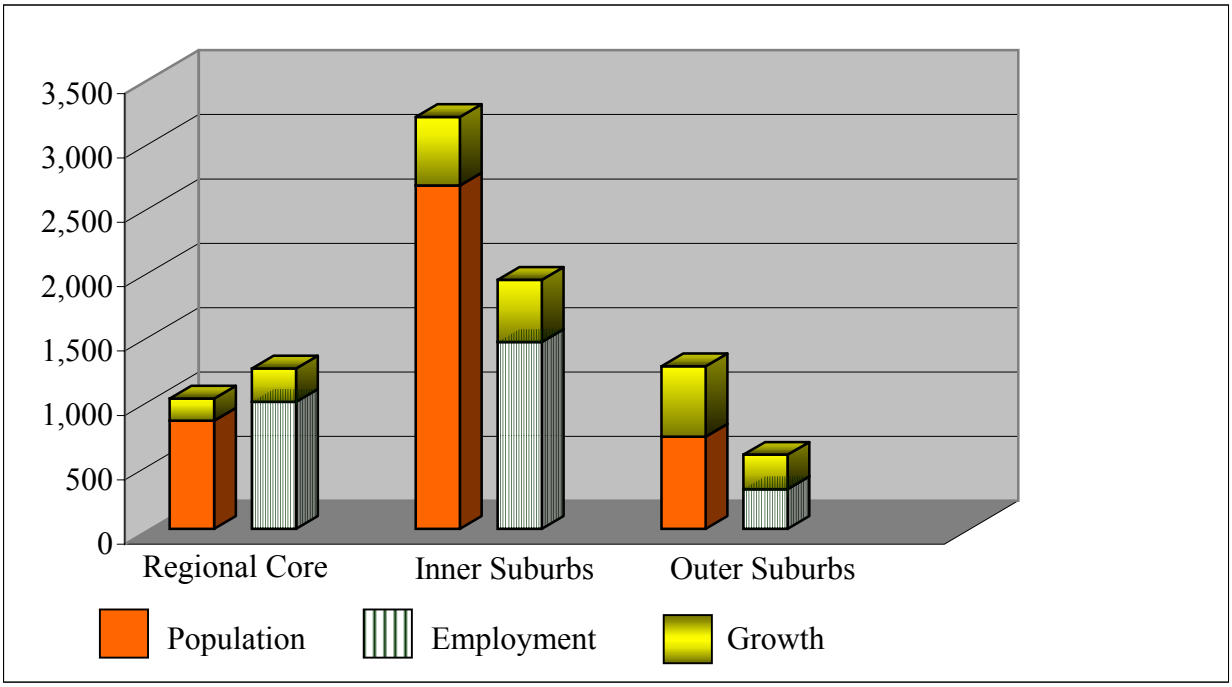


Figure 5-2 shows that the regional core is growing at a slower rate than the outer suburbs, which have seen dramatic increases in population and employment. Despite the dramatic growth in the outer suburbs, the inner parts of the region (the regional core and inner suburbs) are still expected to have the highest concentrations of jobs and people in 2025. However, while most of the employment is in the regional core and inner suburbs, most of the population is located in inner and outer suburbs.

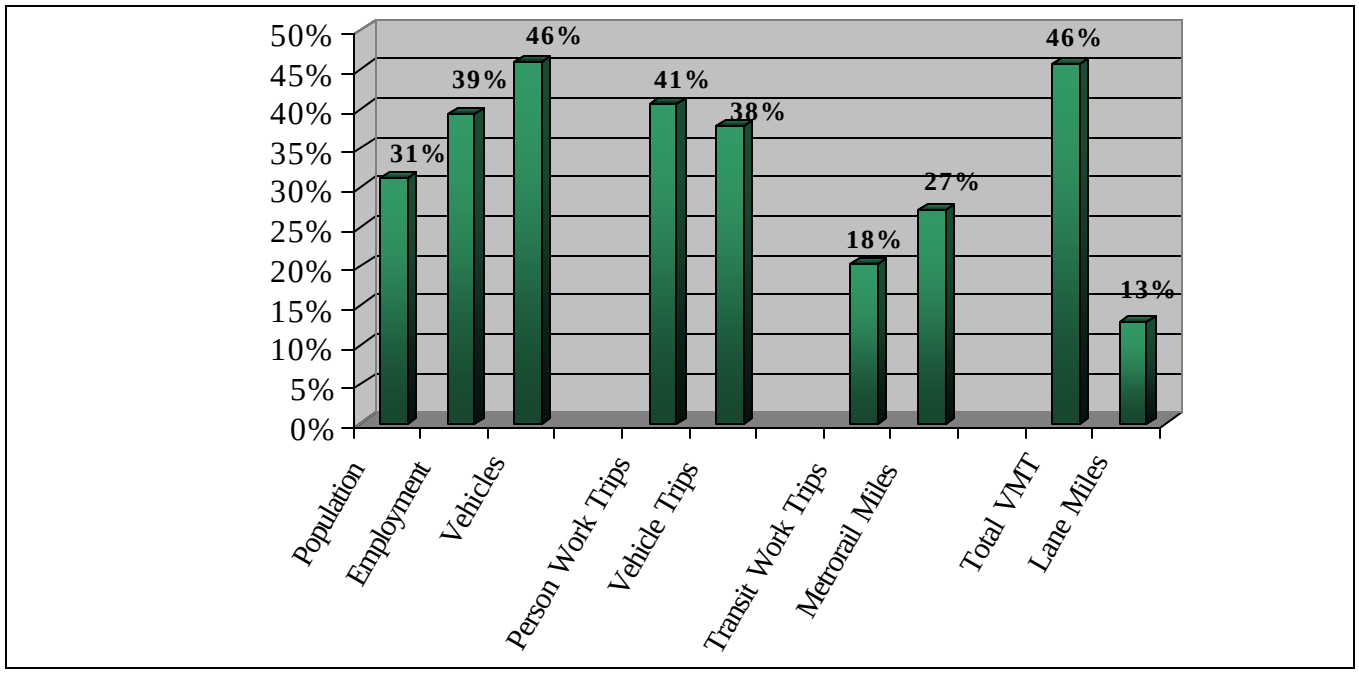
[2] The Regional Core includes the District of Columbia, Arlington and Alexandria. The Inner Suburbs include Montgomery County, Prince George's County, Fairfax County, the City of Fairfax and the City of Falls Church. The Outer Suburbs include Loudoun County, Prince William County and Frederick County.

Travel Demand Forecasts and Resulting Conditions

The significant increase in population and jobs creates additional vehicles, trips and congestion on the region's transportation system. Regional transportation demand projections for the plan predict the amounts and types of travel by persons and vehicles and the resulting performance levels.

Figure 5-3 presents a summary of the change in regional demographic and transportation forecasts over the next 25 years. The figure illustrates that while population and jobs will continue to increase, the expected numbers of vehicles and total daily vehicle miles of travel (VMT) will grow at much higher rates.

Figure 5-3 Percent Changes in Demographics and Travel Characteristics 2001 - 2025



Source: Air Quality Conformity Determination of the Year 2000 Constrained Long-Range Plan and the FY2001-2006 Transportation Improvement Plan for the Washington Metropolitan Region. National Capital Region Transportation Planning Board. October 18, 2000.

Table 5-1 and 5-2 provides the year 2001 and 2025 data for regional travel that support Figure 5-3. Significant increases in travel are expected over the next 25 years. Total VMT is increasing faster than population or employment. The transit system is expected to be under greater strain due to the demand for transit ridership.

Constrained Metrorail Demand

The Washington Metropolitan Area Transit Authority (WMATA) requested more than $2 Billion to accommodate ridership growth over the next 25 years, which is not provided in the CLRP. The travel demand analysis took these unmet needs into account by constraining Metrorail trips into and through the core area[3], the most congested part of the system, after 2005. As Table 5-2 shows, transit work trips are forecast to increase by 18 percent in 2025 under this constraint, but would increase 36 percent without the constraint. This constraint caused 104,000 additional daily trips to be absorbed by the highway system, causing an increase in emissions. As a result of the projected growth in both commuting and daily travel (work and non-work trips), the expected levels of congestion throughout the region will increase.

Table 5-1: Summary of Regional Travel Forecasts 2001 - 2025 (in Thousands)

	2001	2005	2015	2025	Absolute Change 2001 - 2025	Percent Change 2001 - 2025
Demographics						
Population	4,200	4,500	5,000	5,500	1,300	31%
Employment	2,700	3,000	3,400	3,800	1,100	41%
Vehicles	3,600	3,800	4,500	5,100	1,500	42%
Estimated Daily Travel						
Truck Trips	300	320	360	400	100	33%
Total Vehicle Trips	12,800	13,800	16,000	17,600	4,800	38%
Total Daily VMT	116,000	126,000	148,000	169,000	53,000	46%
Total Daily VMT Per Capita*	28	28	30	31	3	19%
Lane-Miles of Roadway	12.5	13	14	14.1	1.6	13%

*Figures are shown in total and are not in thousands.
Source: Air Quality Conformity Determination of the Year 2000 Constrained Long-Range Plan and the FY2001-2006 Transportation Improvement Plan for the Washington Metropolitan Region. National Capital Region Transportation Planning Board. October 18, 2000. Figures are for the TPB planning area.

[3] The core area includes the area directly surrounding downtown Washington D.C., and a small portion of Arlington.

Table 5-2: Summary of Regional Work Travel Forecasts 2001-2025
(in Thousands)

	2001	2005	2015	2025	Absolute Change 2001 - 2025	Percent Change 2001 - 2025
All Person Work Trips	3,000	3,200	3,700	4,100	1,100	37%
Auto Person Trips	2,400	2,600	3,100	3,500	1,100	46%
Auto Driver Trips	2,200	2,300	2,700	3,000	800	36%
Auto Passenger Trips	200	300	400	500	300	150%
Vehicle Trips on HOV Facilities	40	47	52	66	26	65%
Average Auto Occupancy*	1.13	1.13	1.14	1.15	0.02	2%
Constrained Transit Work Trips**	--	--	652	682	103	18%
Constrained Transit Share of Work Trips	--	--	17%	16%	-2	--
Unconstrained Transit Work Trips	579	624	700	786	207	36%
Unconstrained Transit Share of Work Trips	19%	19%	19%	19%	0	--

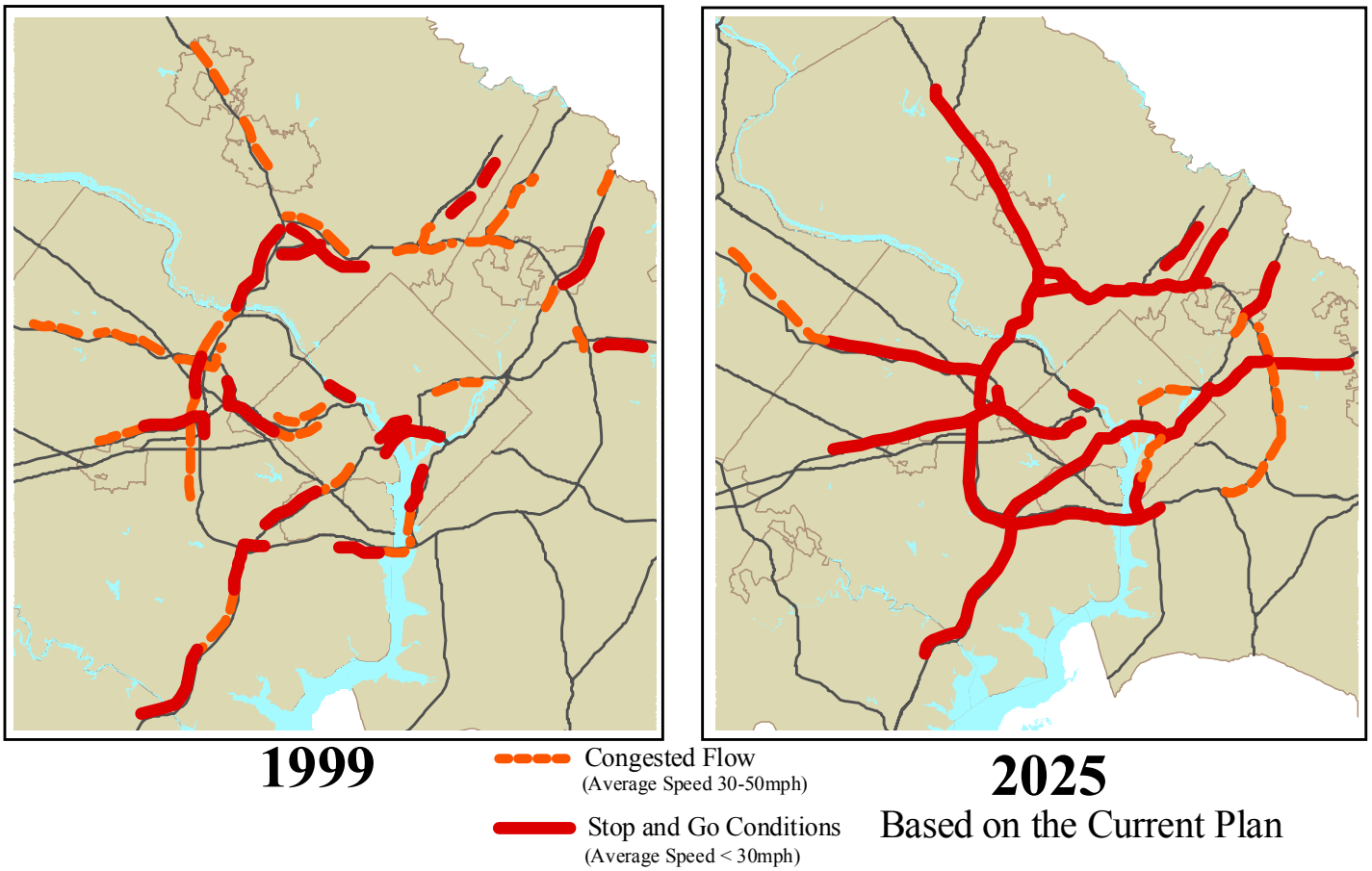
*Figures are shown in total and are not in thousands.
**Transit work trips are constrained to and from the core area after 2005 due to WMATA's unmet needs to accommodate future ridership growth.
Source: Air Quality Conformity Determination of the Year 2000 Constrained Long-Range Plan and the FY2001-2006 Transportation Improvement Plan for the Washington Metropolitan Region. National Capital Region Transportation Planning Board. October 18, 2000. Figures are for the TPB planning area.

Levels of Highway Congestion

Figure 5-4 displays the expected changes in evening peak-hour highway congestion by 2025. The 1999 levels are based on aerial photo-surveys of highway traffic. The expected congestion levels for 2025 are based on travel demand forecasts. On both maps, light gray represents congested flow with the average speed of 30 to 50 miles per hour (mph) and dark gray represents stop-and-go conditions with the average speed less than 30 mph. Severe stop and go congestion is expected to be prevalent throughout the entire region in 2025, not just in isolated areas.

While travel forecasts and simulations of the transportation system in the future have projected more congestion, it is less clear how people during the next 25 years would adjust to those conditions. As the durations of the daily peak congestion periods spread, increasing numbers of commuters and others would be likely to change their times of departure, seeking less congested travel times. Employees would be more likely to try telecommuting. Automobile users would be more likely to carpool or ride transit. As congestion becomes more pervasive, people would be more likely to combine trips with different purposes and take shorter trips in order to avoid frustrating delays. People also might be more likely to seek jobs closer to where they live.

Figure 5-4: Changes in Evening Highway Congestion 1999 - 2025



Accessibility To Jobs

Another way to assess the performance of the plan is to consider the number of opportunities or places that can be reached within a certain time frame. Accessibility measures take into consideration a variety of factors, including travel times, congestion levels and land use inputs such as the locations of employment, as Figure 5-5 shows. Accessibility to jobs within 45 minutes is the measure used in this section to assess the long-range plan.

What is Accessibility?

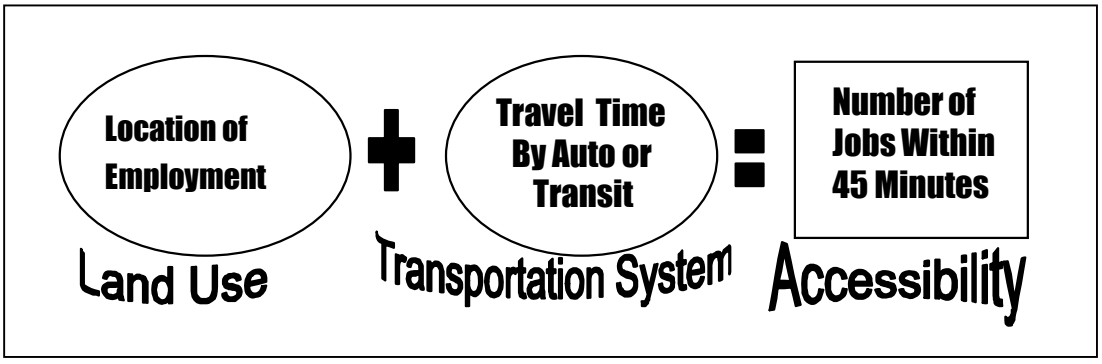
- Accessibility measures the number of opportunities or places (the number of jobs in this assessment) that can be reached in a specific amount of time from a given location by automobile or transit.

- The accessibility of an area increases as the amount of activity in or around the area increases, or as the speed of travel to or from the area increases.

- Similarly, losses in accessibility occur when activity decreases around an area or travel times increase due to higher levels of congestion.

- The two main factors that determine job accessibility are 1) characteristics of the transportation system (such as travel times) and 2) employment locations, as shown in Figure 5-5.

Figure 5-5: Understanding Accessibility to Jobs



Accessibility to Jobs by Auto

Figure 5-6 shows accessibility to jobs by auto for the year 2001. The greatest accessibility to jobs is in the central area of the region because that is where the greatest concentration of jobs is located. In 2025, accessibility to jobs decreases for much of the region, as shown in Figure 5-7 and 5-8. A decrease in accessibility might be linked to an increase in travel time, a decline in the number of jobs, or a shift in the location of jobs. Employment is expected to steadily grow over the next 25 years, but the location of the growth is not uniform across the region. The shifts in the location of employment and households can increase the amount of travel and congestion. Total daily vehicle miles of travel (VMT) are forecast to increase 46 percent by 2025 and capacity is planned to increase 13 percent.[4]

Figure 5-8, which displays the change in accessibility to jobs by auto between 2001 and 2025, illustrates a number of key points:

- Accessibility to jobs by auto is decreasing for the majority of the region.

- The greatest losses in accessibility to jobs are seen around the Capital Beltway where congestion levels are high.

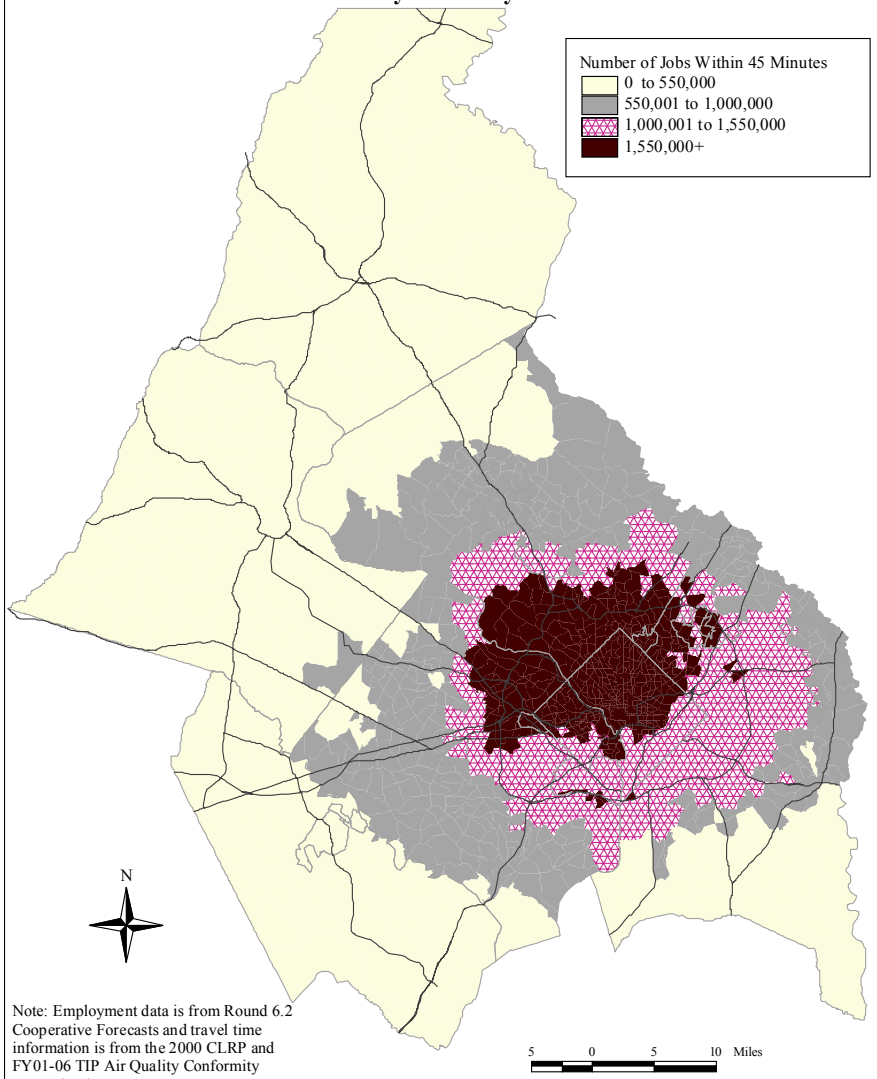
[4] Capacity is defined as low-occupancy vehicle lane miles on arterials and freeways. This figure is for the TPB planning area shown in Figure 5-1.

- Moderate gains are found inside the beltway, near the City of Fairfax and in the northwestern portion of Fairfax County.

- Due to high levels of congestion in the year 2025 and despite the growth in employment, significant decreases in mobility are seen, accessibility to jobs by auto decreases for the majority of the region between 2001 and 2025.

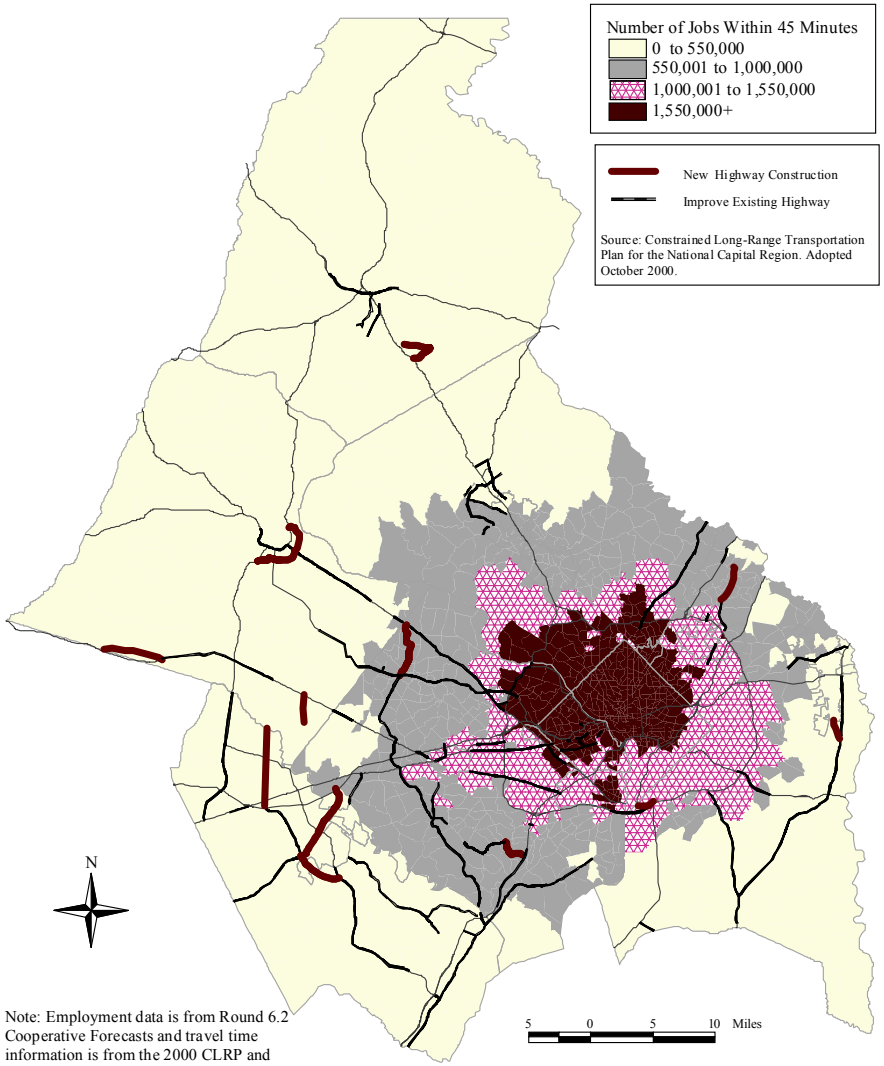
- Even though accessibility to jobs by auto is decreasing between 2001 and 2025, Figure 5-7 shows that a large number of jobs are still accessible by auto in 2025.

Figure 5-6
Accessibility to Jobs by Auto: 2001



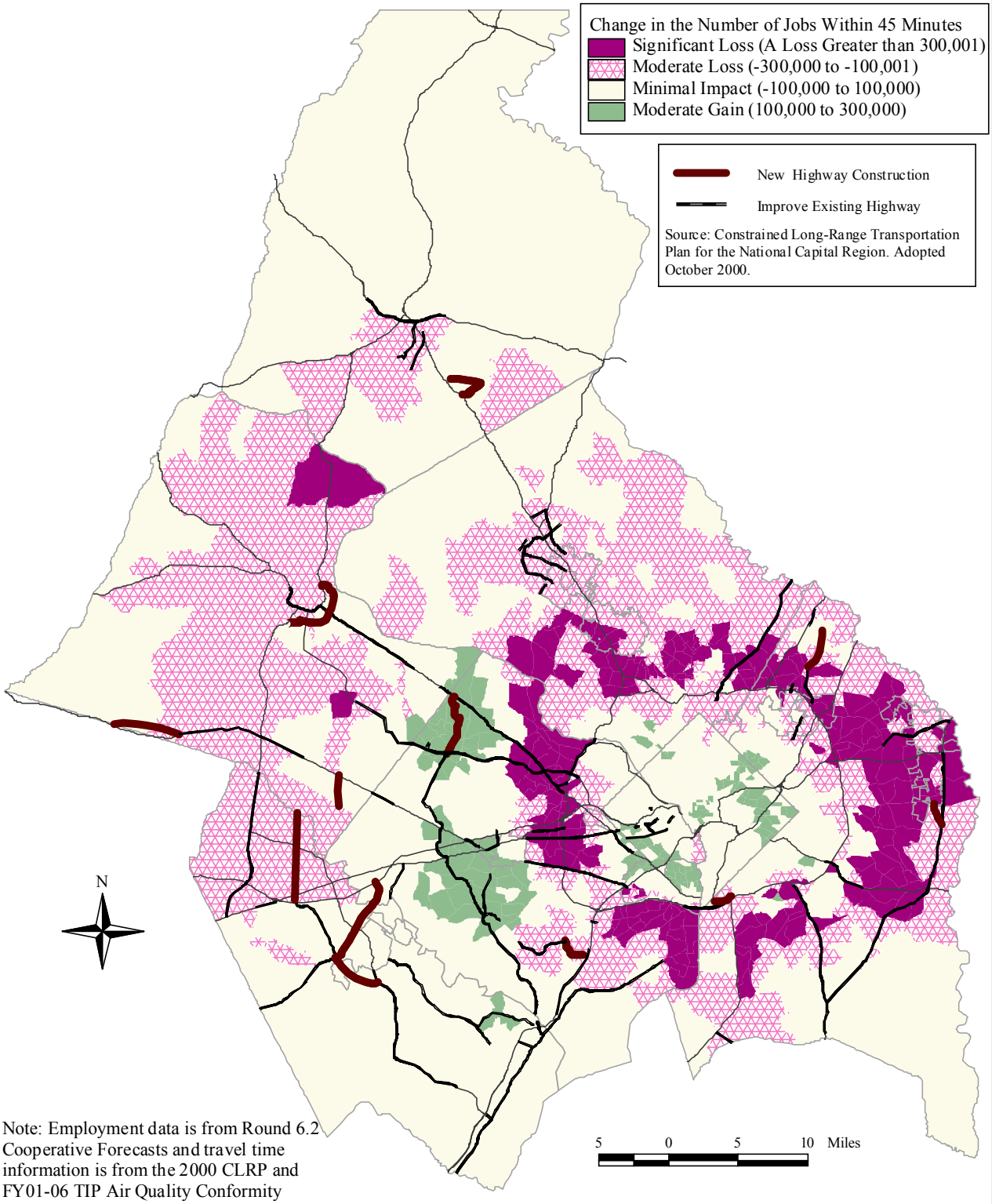
Note: Employment data is from Round 6.2 Cooperative Forecasts and travel time information is from the 2000 CLRP and FY01-06 TIP Air Quality Conformity Determination.

Figure 5-7
Accessibility to Jobs by Auto: 2025



Note: Employment data is from Round 6.2 Cooperative Forecasts and travel time information is from the 2000 CLRP and FY01-06 TIP Air Quality Conformity Determination.

Figure 5-8
Change in Accessibility to Jobs by Auto Within 45 Minutes
2001 - 2025



Note: Employment data is from Round 6.2 Cooperative Forecasts and travel time information is from the 2000 CLRP and FY01-06 TIP Air Quality Conformity Determination.

Accessibility to Jobs by Transit

Accessibility to jobs using the transit system (bus or rail) in 2001 is displayed in Figure 5-9. The areas with the greatest amount of accessibility by transit are around the Metrorail lines. In 2025, accessibility to jobs by transit is predicted to increase due in part to the expansion of the Metrorail, bus and commuter rail systems, shown in Figure 5-10. The travel times used in these accessibility measures do not take into the account the Metrorail constraint, as explained below under "Transit Accessibility Assumptions".

Figure 5-11, which displays the change in accessibility to jobs by transit between 2001 and 2025, illustrates a number of key points:

- Accessibility to jobs by transit increases by the year 2025.

- The areas with the greatest gains in accessibility to jobs are near the Blue Line extension to Largo, the Green Line extension to Branch Avenue, in Tysons Corner, and in southern Prince George's County where express bus service will be added.

- Both the transit improvements and employment growth contribute to the increase in accessibility to jobs.

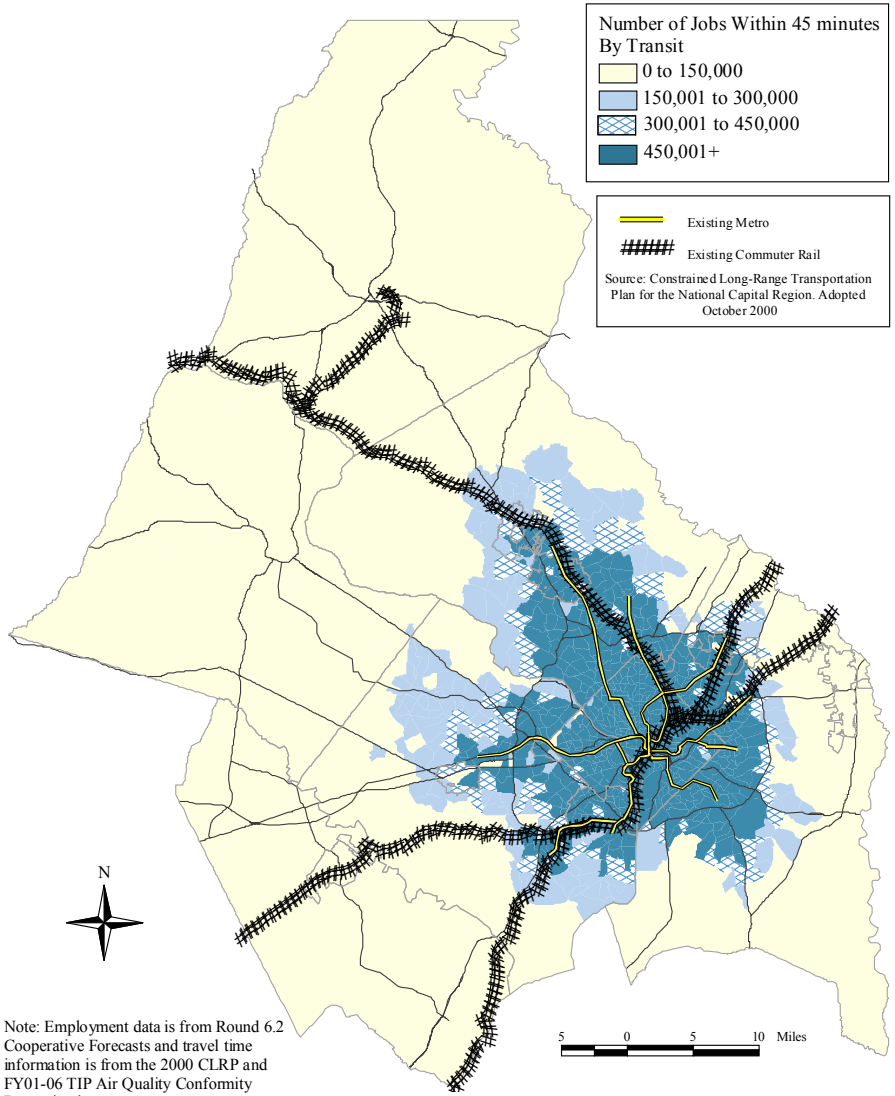
- Transit accessibility is expected to increase over the next 25 years, but auto users are still able to get to more jobs in 45 minutes than transit users due to faster travel times.

Transit Accessibility Assumptions

Transit work trips were constrained into and through the core area after 2005 due to a lack of funding to accommodate transit ridership growth. This constraint caused 104,000 additional daily trips to be absorbed by the highway system, causing an increase in emissions. The accessibility analysis presented here does not analytically reflect the effects of the constraint. Accessibility reflects the travel times to employment locations. An assumption was made that the transit system can handle all the demand without significantly increasing travel times. The impact of the constraint on transit accessibility cannot be estimated with the current travel demand model because there is no "feedback" to the input travel times based upon the levels of projected ridership.

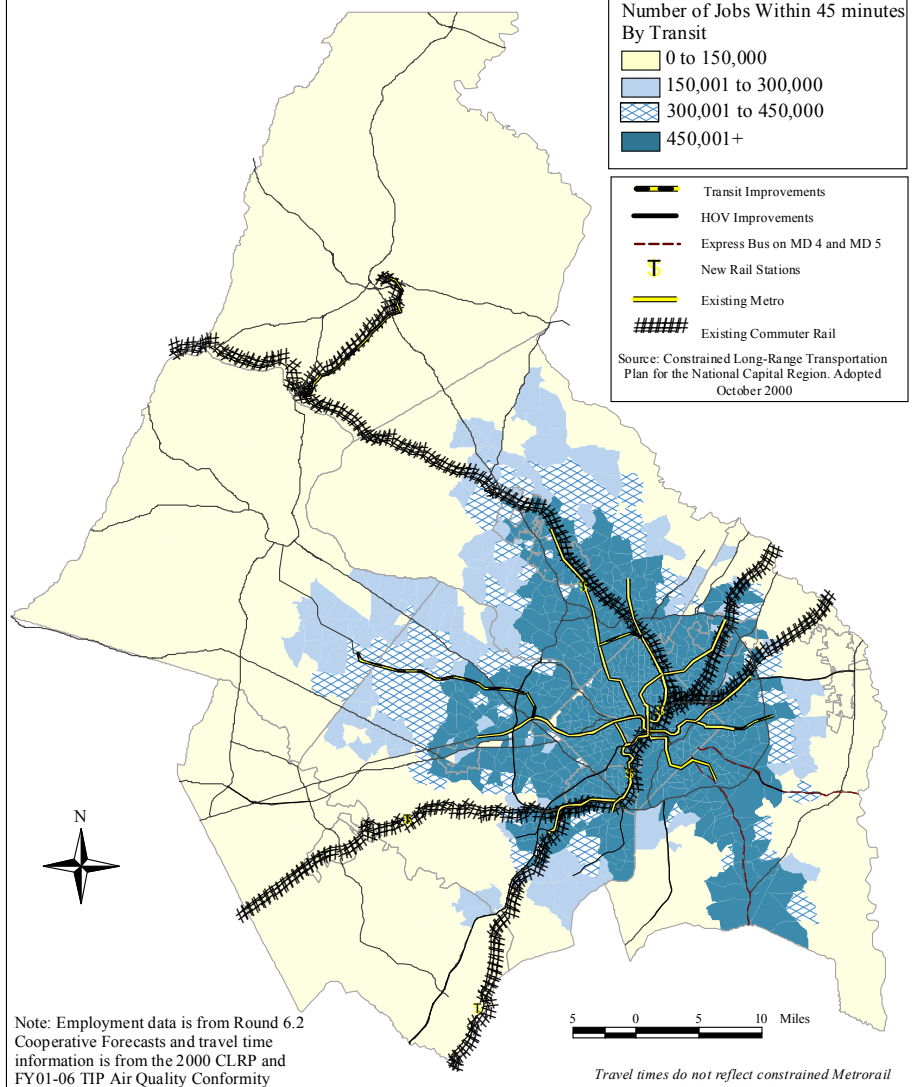
The impact is expected to be minimal on the transit accessibility analysis for the following reasons. First, only the trips coming into or through the core area of the region were constrained. Second, many of the 104,000 trips on the "congested" transit system would most likely be accommodated in the same fashion as on the congested roadways, that is by the lengthening of the peak period as people commute earlier or later to avoid crowded facilities.

Figure 5-9
Accessibility to Jobs by Transit: 2001



Note: Employment data is from Round 6.2 Cooperative Forecasts and travel time information is from the 2000 CLRP and FY01-06 TIP Air Quality Conformity Determination.

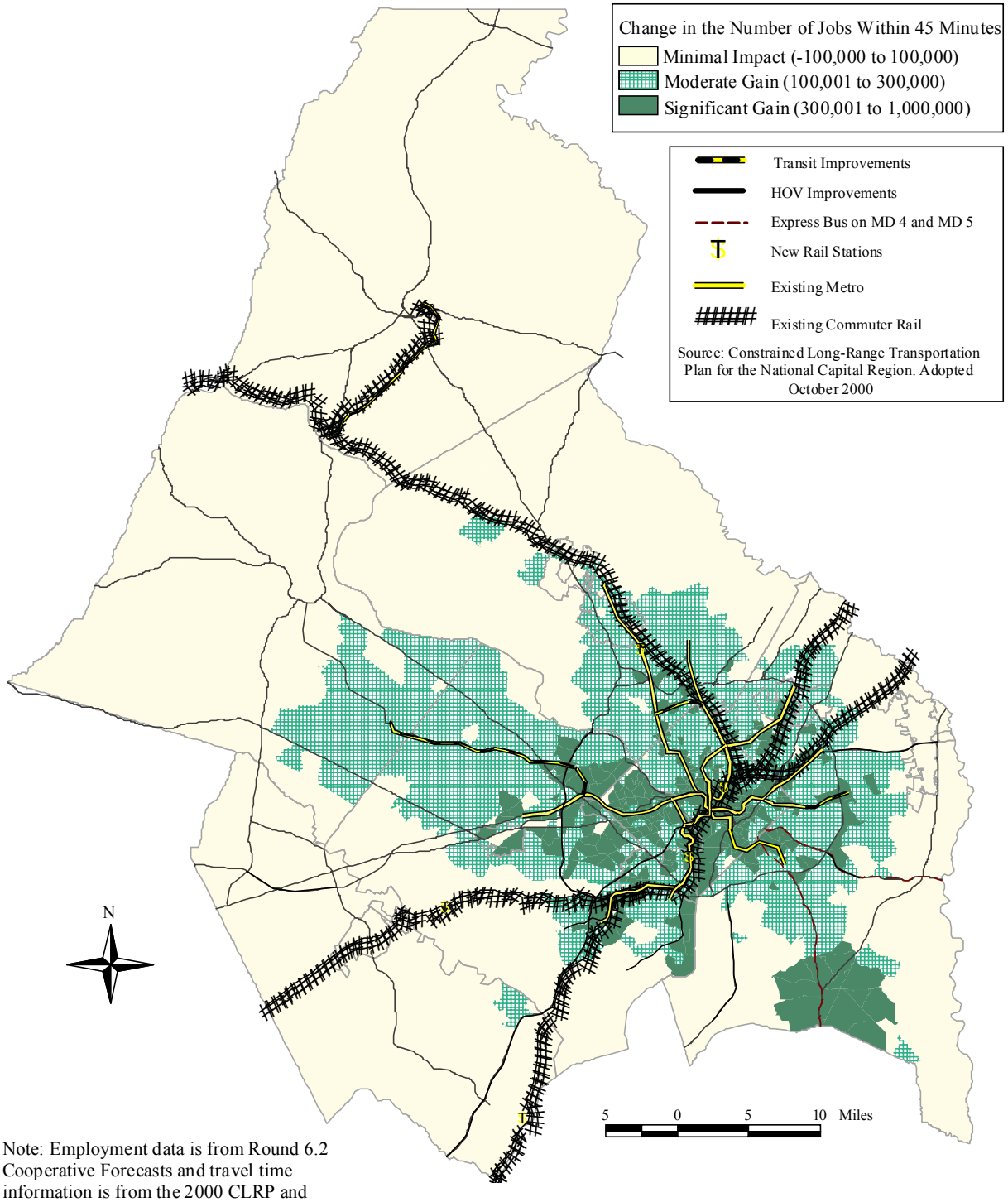
Figure 5-10
Accessibility to Jobs by Transit: 2025



Note: Employment data is from Round 6.2 Cooperative Forecasts and travel time information is from the 2000 CLRP and FY01-06 TIP Air Quality Conformity Determination.

Travel times do not reflect constrained Metrorail trips into and through the downtown core area.

Figure 5-11
Change in Accessibility to Jobs by Transit Within 45 Minutes
2001 - 2025



Note: Employment data is from Round 6.2 Cooperative Forecasts and travel time information is from the 2000 CLRP and FY01-06 TIP Air Quality Conformity Determination.

Travel times do not reflect constrained Metrorail trips into and through the downtown core area.

An Assessment of the Impacts of the CLRP on Low-Income and Minority Populations

Accessibility measures were used to analyze the impact of the 1999 CLRP on low-income and minority populations. Accessibility was chosen as an evaluation measure for several reasons. Access is a priority in the TPB Vision; the first policy goal in the Vision states "*The Washington metropolitan region's transportation system will provide reasonable access at reasonable cost to everyone in the region*." Second, accessibility is a measure that captures both travel demand and land use impacts. Traditional transportation measures, such as travel times, are considered in an accessibility analysis, together with employment and population change.

A report was produced on the analysis in May 2000 "A Regional Accessibility Analysis of the 1999 Financially Constrained Long-Range Transportation Plan and Impacts on Low-Income and Minority Populations." Demographic data on Asian, Black, Hispanic, and Low-Income populations was presented in the report based on 1990 Census data and 1999 data purchased from a private marketing data firm. The demographic data was used in conjunction with predicted changes in accessibility to jobs to review the plan for disproportionately high and adverse effects. The results of the analysis show that the benefit and burdens of the CLRP are generally well aligned with the regional demographic profile. Low-income and minority populations do not seem to be disproportionately and adversely effected by the changes in regional accessibility to jobs. However, it is important to note some caveats regarding the analysis. First, the analysis was based on a broad context. It was performed using a region-wide geographic perspective and reviews predicted changes over 25 years. In addition, the analysis did not review impacts on persons with disabilities.

SUMMARY OF THE EXPECTED PERFORMANCE OF THE PLAN

The preceding section on the plan's performance between 2001 and 2025 can be summarized in the following points:

- Vehicle ownership is increasing at a faster rate than population and employment.
- Total daily vehicle miles of travel (VMT) increase 46 percent while capacity is planned to expand only 13 percent (as measured in roadway lane-miles).
- High-Occupancy Vehicle (HOV) trips increase 65 percent while the region's HOV system is planned to increase 24 percent.
- Average auto occupancy remains relatively steady—1.13 in 2001 and 1.15 in 2025.
- Transit work trips increase 18 percent, from 580,000 to 682,000 trips, with a capacity constraint into and through the core area after 2005 due to a lack of funding. Without this constraint, an additional 104,000 trips would be accommodated in 2025 for an overall growth of 36 percent
- Stop-and-go conditions are prevalent on most of the region's highways by 2025
- Accessibility to jobs by transit generally increases throughout the region by 2025, while accessibility by auto generally decreases, though auto users still have the highest access to jobs.

THE PLAN'S PERFORMANCE IN RELATION TO THE VISION POLICY GOALS AND OBJECTIVES

As stated earlier, the 2000 CLRP is the first transportation plan to be updated since the adoption of the Vision. The TPB Vision is a useful reference point and measuring stick. In contrast to the financially limited CLRP, the Vision considered creative approaches to the region's transportation future without being limited to projects and programs that can be paid for with existing funds. Looking at the Vision's policy goals and objectives can provide the region with important information on shortcomings of the CLRP in relation to regional goals. What are the shortcomings of the financially constrained plan? What areas need specific attention the next time the CLRP is updated?

The TPB Vision is also a symbol of regional consensus. The TPB consists of multiple levels of agencies and officials within varying political, institutional and geographic entities. The TPB Vision reflects the views, ideas, and goals of the region as a whole and reflects the collective sense of how the region wants the transportation system to develop and perform. Along with providing a framework for the development of the transportation system, the Vision also sets goals for the environment, metropolitan development patterns, and the economy. Because the Vision extends beyond transportation, not all of the TPB Vision's policy goals can be assessed with travel demand forecasts.

The TPB has called for further study of how the plan performs in relation to the Vision. The TPB approved the 2000 CLRP after lengthy debate and public comment regarding the plan's inadequacies to address the region's demand for transportation and the goals of the TPB Vision. After approving the 2000 CLRP, the TPB amended it to include a study of key elements of the TPB Vision. The new study, "Improving Regional Mobility and Accessibility Study," will further evaluate the plan's performance, especially in policy goal areas that cannot be assessed with readily available travel demand forecasts.

The following assessments of each Vision goal provides information on where we are today, what the plan does by 2025 and challenges to be addressed in future plan updates. Travel demand and land use activity forecasts are the main sources of information used to describe the plan's performance. The Regional Mobility and Accessibility Study will provide supplemental information on the 2000 CLRP's performance in relation to the Vision.

Policy Goal #1

The Washington metropolitan region's transportation system will provide reasonable access at reasonable cost to everyone in the region.

Objectives:

(1) A comprehensive range of choices for users of the region's transportation system.

(2) Accurate, up-to-date and understandable transportation system information which is available to everyone in real time, and is user-friendly for first-time visitor and residents, regardless of mode of travel or language of the traveler.

(3) Fair and reasonable opportunities for access and mobility for persons with special accessibility needs.

(4) Convenient bicycle and pedestrian access.

Where We Are Today

The region currently has a comprehensive transportation system primarily focused on access to the regional core. Many highways and roads are radially orientated; the Capital Beltway is the major highway providing circumferential access. The transit system, comprised of local bus, Metro bus, Metrorail, and commuter rail, is also designed to serve the regional core and exists primarily in radial corridors. The 103-mile Metro system was recently completed with the opening of the Green line extension to Branch Avenue. Currently, there are approximately 12,500 miles of roadway and 244 miles of high-occupancy vehicle lanes. Today, 19 percent of work trips are made by transit, 77 percent by low- occupancy vehicle auto, and 3 percent by high-occupancy vehicle. There are approximately 700 miles of trails and on-street bikeways in the region. From the 1994 Household Travel Survey, we know that over a million pedestrian trips are made everyday, accounting for 8 percent of all trips. The region's 77,000 average daily bicycle trips account for 0.7 percent of all trips.

"Bad Traffic Grows Worse, Study Says"

Washington Post, Front Page Headline, December 16, 1999

The current highway and transit systems are overloaded today. Highway congestion in the region made the *Washington Post* front page in December 1999 when a TPB study of traffic quality showed conditions have dramatically degraded over the past 6 years. The Skycomp report showed that stop-and-go conditions were found to occur more than twice as often in 1999 as in 1993[5].

"Metro trains have been attracting thousands of new riders…resulting in loaded platforms and packed cars"

Washington Post, October 25, 2000

[5]Traffic Quality in the Metropolitan Washington D.C. Planning Region (Spring 1999). Prepared for the Metropolitan Washington Council of Governments by Skycomp.

A record number of riders has created "transit congestion" on the Metrorail system, which has been increasingly noted by the media throughout the past year. Daily transit work trips increased 30 percent since 1994 on all the transit systems—the local bus systems, Metro rail, Metro bus and commuter rail. Work transit trips are important because they account for about 60 percent the total number of transit trips made on an average weekday.

Several current activities relate to Objective 2: *Accurate, up-to-date and understandable transportation system information which is available to everyone in real time, and is user-friendly for first-time visitors and residents, regardless of mode of travel or language of the traveler*. The Internet has made transportation information more available to people in real-time. Partners in Motion, a partnership of public agencies and private businesses, operates a state-of-the-art traveler information system for the region called SmarTraveler. This system provides route-specific, real-time traffic and transit information via the Internet and the telephone. The WMATA website provides "The Ride Guide" which allows users to specify an origin and destination address and then provides schedule and cost information of rail lines and buses. Each Metro bus schedule can be viewed on-line and downloaded. Transit information from WMATA by telephone is available in several different languages. Metrorail has electronic messaging signs in most stations that provide real-time information on train arrivals. Some bus shelters in Montgomery County and the City of Fairfax offer the same type of real-time information with electronic signs. Interactive kiosks are available at malls and other public places throughout the region that provide on-line traffic, transit and weather information.

These sources provide good information to those with access to the Internet, telephones, and the kiosks. Visitors can take advantage of this readily available information. Printed material for the region's bus systems is not as readily available as the electronic information. Limited information is provided at some bus stops and shelters. WMATA provides telephone information on the regional transit system in different languages using interpreters. There is even less information written for people who have limited English skills, such as bus schedules in Spanish.

What the 2000 CLRP Does by 2025

Accessibility to Jobs by Auto and Highway

The best measure available to assess the *reasonable access* portion of Policy Goal 1 is regional accessibility. Regional accessibility is discussed in detail at the beginning of this chapter and will be reviewed here. The regional accessibility analysis shows very different results for auto and transit.

Due to high levels of congestion in the year 2025 and despite the growth in employment, significant decreases in mobility are seen and accessibility to jobs by auto decreases for the majority of the region between 2001 and 2025. Even though accessibility to jobs by auto is decreasing between 2001 and 2025, Figure 5-7 shows that a large number of jobs are still accessible by auto in 2025. Transit accessibility is expected to increase over the next 25 years, but auto users are still able to get to more

jobs in 45 minutes than transit users due to faster travel times. The transit accessibility measure does not take into account the Metrorail constraint on trips through the core in 2025. (see page 5-12 "Transit Accessibility Assumptions") The Metrorail ridership constraint was required in the CLRP due to a lack of funding to accommodate transit ridership growth.

Assessment of the Objectives

Transportation system users have a *comprehensive range of choices* (Objective 1) including highways, arterial roads, Metrorail, Metrobus, local bus, commuter rail, and an extensive HOV system. The Metrorail system will be expanded by 27 percent, from 103 to 131 miles by 2025. The Green line extension to Branch Avenue and the Blue line extension to Largo will provide new service to areas in Prince George's County. New stations are under development for New York Avenue in the District of Columbia and Potomac Yards in Alexandria. Rail will be extended to Tysons Corner and the Dulles airport. The HOV system will be expanded 31 percent by 2025 with 75 more miles of HOV. New HOV lanes are being planned along the Capital Beltway in Fairfax County and along I-95 in both Fairfax and Prince William Counties. Road miles are planned to increase 13 percent from 12,500 miles to 14,100 miles by 2025[6]. Bike and pedestrian facilities are included in 23 percent of the projects in the plan and 4 percent are solely bike and pedestrian projects.

*Accurate, up-to-date and understandable transportation system information (*Objective 2) can be expected to improve over the life of the plan. Technological improvements will make readily available real-time information on transportation even more accessible.

Objective 3 states *fair and reasonable opportunities for access and mobility for persons with special accessibility need.* Transit improvements in the plan will meet American with Disabilities Act (ADA) requirements. It should be noted that congestion of the region's roadways would limit access and mobility for everyone, including bus users and those with special accessibility needs.

Convenient bicycle and pedestrian access (Objective 4) will be improved in the plan. Four percent of the transportation improvements in the plan are specifically bicycle and/or pedestrian projects—or 54 of the 1,234 projects in the plan. Although the travel demand model does not provide forecasts on travel by bicycle and walking if it is not connected to transit access, bicycling and walking will likely increase in certain areas due to the implementation of specific projects and through the inclusion of bicycle and pedestrian facilities in other transportation improvements. However, as roads and intersections are expanded for motor vehicles, bicycle and pedestrian access often decreases. The challenge is to design transportation improvements that improve, or at least maintain, bicycle and pedestrian access. Another major factor affecting pedestrian and bicycle access is land use and urban design. More compact areas with a mix of land uses have higher levels of bicycling and walking than areas with destinations far apart and separated by busy highways.

[6] Lane miles includes arterials and freeways.

The Bicycle Plan for the National Capital Region, last updated in 1995, describes 110 projects to be completed over 20 years at a cost of $80 million. Only 35 of these projects are included in this CLRP update.

Most of the greenway and circulation projects identified in the TPB's *Priorities 2000* reports (see page 4-34) under the federal Transportation and Community and System Preservation (TCSP) Pilot Program are bicycle and pedestrian oriented. Through the distribution of these reports, the TPB hopes to encourage implementation of these projects and others like them.

Challenges To Be Addressed in Future Plan Updates

The review of the 2000 CLRP against Policy Goal 1 indicate that while the region is making progress towards this goal, there are remaining challenges that need to be addressed.

The high levels of congestion on both the transit and highway system will be examined in more detail under the Regional Mobility and Accessibility Study. The need for additional funding to accommodate the demand for transit ridership is expected to be a priority this next year, along with funding for other critical transportation needs.

The TPB will appoint an advisory committee in May 2001 to involve low-income, minority and disabled populations in the planning process. Improving the availability of transit information, especially for people with limited English skills, will be a priority for this committee, as well as improvements in bus service and the affordability of transit fares over the next 25 years.

Policy Goal #2

The Washington metropolitan region will develop, implement, and maintain an interconnected transportation system that enhances quality of life and promotes a strong and growing economy throughout the entire region, including a healthy regional core and dynamic regional activity centers with a mix of jobs, housing and services in a walkable environment.

Objectives:

(1) Economically strong regional core.

(2) Economically strong regional activity centers with a mix of jobs, housing, services, and recreation in a walkable environment.

(3) A web of multi-modal transportation connections which provide convenient access (including improved mobility with reduced reliance on the automobile) between the regional core and regional activity centers, reinforcing existing transportation connections and creating new connections where appropriate.

(4) Improved internal mobility with reduced reliance on the automobile within the regional core and within regional activity centers.

(5) Efficient and safe movement of people, goods, and information, with minimal adverse impacts on residents and the environment.

Where We Are Today

The Washington metropolitan region has a well-developed transportation system that is radially oriented towards moving people and goods to and from the core. Both the transit and highway systems tend to connect activity centers along radial corridors with the exception of the circumferential connections that the Beltway provides. A circumferential rail line that follows the Beltway, the "purple line," is under study and has become a part of the public debate on future transportation improvements. Outside the Beltway, circumferential suburban travel is becoming more difficult. Calls have been made for greater circumferential improvements, including an additional river crossing.

The region is economically prosperous and has experienced significant increases in population and employment in the last two decades. The regional core, which includes the District of Columbia, the City of Alexandria, and Arlington County, continues to have large concentrations of employment and residents. The District of Columbia continues to gain employment and is thriving in many respects, but has decreased in population in the last decade.

Multi-modal connections are greatest in the regional core and within regional activity centers. Transit use is highest in these areas, although regional activity centers in suburban locations tend to have a higher reliance on the automobile.

The TPB Vision and Action Agenda called for the creation of a composite regional map that identifies transportation corridors and facilities, regional activity centers, and "green space." During the plan update process regional activity centers were identified to assist in the development of the plan. This map is discussed in more detail in Chapter 2 and under Policy Goal 6. Approximately 130 regional activity centers were identified for the region as well as a typology of centers based on criteria such as employment, population, and density. A joint working group of the COG Board and TPB was established to refine the regional activity centers map, criteria, and "green space." Currently 12 percent of the jobs in the region are found in the high-density regional activity centers but only 3 percent of the households. All of the high-density regional activity centers are currently served by rail transit except Tysons Corner.

What the 2000 CLRP Does by 2025

The plan addresses this goal in several ways. First, the plan will support local planning efforts that promote concentrated development along existing transportation corridors and within regional activity centers. Highway improvements in the plan are almost exclusively widenings of existing highways. Second, the projects and programs in the plan emphasize maintaining existing transit and highway corridors as opposed to new construction in new corridors, which is one way of using transportation investment to encourage an economically strong regional core and regional activity centers. Third, numerous improvements in the plan contribute to a web of multi-modal connections between the core and activity centers. These improvements include Dulles Fixed Guideway Transit, High-Occupancy Vehicle (HOV) lanes and additional bus service on MD 4 and MD 210, and improvements to circumferential corridors such as US 301 and the Fairfax County Parkway. All of these projects reinforce existing transportation connections between activity centers.

Assessment of the Objectives

Employment and population growth forecasts are indicators of a strong economy, which is part of Objective 1 (*Economically strong regional core)* and Objective 2 (*Economically strong regional activity centers).* Employment is expected to increase by 41 percent by 2025 and population is expected to increase 31 percent. The regional core is expected to remain economically strong, and is forecast to account for 33 percent of the region's employment and 18 percent of the region's population. The 130 Initial Regional Activity Centers will capture 80 percent of the region's growth in employment and 20 percent of the region's household growth by 2025. The high-density regional activity centers in 2025 will account for 12 percent of the employment and 4 percent of the households in the region. All of the high-density regional activity centers, including Tysons Corner, will be served by rail transit by 2010.

Objective 2 refers to a mix of uses in the regional activity centers (*activity centers with a mix of jobs, housing, services, and recreation in a walkable environment).* Round 6.2 of the Cooperative Forecasts[7] provide some information on the mix between jobs and

[7] The Cooperative Forecasts are produced by each local jurisdiction and approved by the COG Board. The forecasts are updated annually.

households in the centers over the next twenty-five years. The 2025 jobs-households mix in the activity centers range from 0 to 84. Table 5-3 provides this ratio for select centers. Many centers have a higher concentration of employment than housing.

Table 5-3: Jobs to Households Ratio in Select Activity Centers, 2025

Activity Center	Jobs 2025	Households 2025	2025 Jobs to Households Ratio
New Carrollton/Transit Triangle	15,890	3,070	5.2
Bethesda CBD	47,888	7,766	6.2
Potomac Mills	27,197	2,752	9.9
Tysons Corner	126,639	9,688	13.1
Downtown Washington	427,198	24,290	17.6

A web of multi-modal transportation connections which provide convenient access (including improved mobility with reduced reliance on the automobile) between the regional core and regional activity centers, reinforcing existing transportation connections and creating new connections where appropriate is Objective 3. The majority of the projects in the plan reinforce existing transportation connections by upgrading, improving, extending, or widening routes. The region's transportation system was built to serve demand to and from the core with radial corridors. Travel patterns are changing with less radial-oriented travel and more travel between suburbs. A challenge for the region is meeting the increasing demand for suburb-to-suburb travel, which involves crossing the Potomac River.

Objective 4 calls for *Improved internal mobility with reduced reliance on the automobile within the regional core and within regional activity centers.* In 2001, 19 percent of commuters are expected to use transit and in 2025, that percentage is expected to drop to 16 percent. Without the Metrorail constraint on trips through the core area, transit mode share is forecast to remain at 19 percent in 2025. Car occupancy for work trips remain relatively stable—1.13 in 2001 compared to 1.15 in 2025. The Regional Mobility and Accessibility study will evaluate in more detail the jobs-housing mix, multi-modal connections, and travel mode shares within the regional activity centers.

A TPB Advisory Committee was established in 2000 under the Transportation and Community and System Preservation (TCSP) grant to assist in the implementation of circulation systems within the regional core and regional activity centers. This committee recommended nine circulation system projects, such as the Downtown DC circulator, a pedestrian plaza over Rockville Pike and improving pedestrian access in Tysons Corner.

Efficient and safe movement of people, goods, and information, with minimal adverse impacts on residents and the environment is Objective 5. The growth of e-commerce has led to a boom in the home delivery of goods ordered on-line—everything from

garden tools to groceries. The region must be ready to handle the emerging demands of the freight industry. The efficient movement of information has become a growing issue in the region. The demands of information technology have caused conflicts over adding cable lines in and around streets in the region and cell phone towers within existing rights-of-way. Projects in the plan that upgrade key transportation routes to move both people and goods help address this objective.

Challenges To Be Addressed in Future Plan Updates

While the region has made progress towards maintaining a*n interconnected transportation system*...*including a healthy regional core and dynamic regional activity centers*, (Policy Goal 2) there are significant challenges for future plan updates. TPB activities that will help the region better understand these challenges and potential solutions are found below.

A joint committee between the TPB and the COG Board has been formed to oversee the finalization of the Regional Activity Centers Map and will be looking at ways to increase both housing and employment in the regional activity centers.

Reports from the Transportation and Community and System Preservation (TCSP) committees will raise awareness about specific projects needed to improve transit, bike, and pedestrian circulation systems in and near regional activity centers.

The Regional Mobility and Accessibility study will review how to provide better connections between the transportation corridors and the regional activity centers, including additional highway and transit circumferential facilities and capacity, including Potomac River Crossings, and ways to increase transit and high-occupancy vehicle (HOV) travel mode shares

Policy Goal #3

The Washington metropolitan region's transportation system will give priority to management, performance, maintenance, and safety of all modes and facilities.

Objectives:

(1) Adequate maintenance, preservation, rehabilitation, and replacement of existing infrastructure.

(2) Enhanced system safety through effective enforcement of all traffic laws and motor carrier safety regulations, achievement of national targets for seatbelt use, and appropriate safety features in facility design.

Where We Are Today

Throughout the region, various transportation agencies have placed cameras at key intersections to help prevent red-light running, coordinate seatbelt campaigns, operate motorist assistance patrols, implement programs to enforce speed limits and educate the public on safety issues like drinking and driving. While such programs are effective, safety issues also need to be addressed at the regional level. Addressing safety at the regional level is challenging because three jurisdictions are involved – the District of Columbia, Maryland, and Virginia—which have different safety and traffic regulations and laws.

What the 2000 CLRP Does by 2025

Objective 1 calls for *adequate maintenance, preservation, rehabilitation, and replacement of existing infrastructure.* The region will spend approximately $76.8 billion on the plan over the next 25 years. 80 percent, or $2.4 billion per year, will be spent on operating and preserving the transit and highway system. Why do operations and maintenance claim the lion's share of available resources? In part, this is the price of yesterday's successful construction programs. The major facilities built during the past 40 years are aging and need upkeep. Older transportation systems cost more to maintain, just as older homes and cars do. Highway and transit operating costs are also significant and growing, and transit operations are only partially offset by passenger fares. Transit rehabilitation and maintenance is a growing unmet need in this region. In particular, the CLRP could not identify adequate funding for WMATA's Infrastructure Renewal Program (IRP) for the 103-mile Metrorail system. Rehabilitation and maintenance is also essential on highways and bridges. The plan does not currently provide a reliable source of funding for adequate highway and bridge maintenance and rehabilitation.

Objective 2 focuses on safety issues by calling for *enhanced system safety through effective enforcement of all traffic laws and motor carrier safety regulations,*

achievement of national targets for seatbelt use, and appropriate safety features in facility design. Transportation agencies in the region have various programs to address safety. Safety is the first priority in all transportation improvements. Technology related safety enhancements offer opportunities for better highway lighting and visibility, crash avoidance, bicycle and pedestrian safety, railroad grade crossing camera enforcement systems, and safety-related law enforcement.

Challenges To Be Addressed in Future Plan Updates

While the operating agencies within the District of Columbia, Maryland and Virginia have programs and policies in place that give *priority to management, performance, maintenance, and safety of all modes and facilities*, the region as a whole can do more to address system wide and inter-jurisdictional safety issues.

Management and operations will be a focus area for the TPB in the immediate future, which will result in a greater emphasis on safety. Safety performance measures such as traffic fatalities, crashes and injuries by mode will be useful to the region in better understanding trends and influencing safety programs and policies. The TPB can play a role in bringing together the safety data already collected by the operating agencies to look at regional trends. Understanding the trends is the first step towards better *management, performance, maintenance, and safety of all modes and facilities*. Bicycle and pedestrian safety is a key area that can be improved with public education and safety workshops.

Future technology will likely offer ways to improve both management of the existing system and safety. Intelligent Transportation System (ITS) improvements will help the region better manage the system to enhance system performance, which is the subject of Policy Goal 4. Technological safety improvements to cars, roads, buses, rail and pedestrians will likely enhance system safety in the future.

A remaining challenge is reliable sources of funding to rehabilitate and maintain the region's transportation system adequately. The TPB will continue to discuss funding issues and raise awareness of the funding shortfalls at the federal, state and local levels.

Policy Goal #4

The Washington metropolitan region will use the best available technology to maximize system effectiveness.

Objectives:

(1) Reduction in regional congestion and congestion-related incidents.

(2) A user-friendly, seamless system with on-demand, timely travel information to users, and a simplified method of payment.

(3) Improved management of weather emergencies and major incidents.

(4) Improved reliability and predictability of operating conditions on the region's transportation facilities.

(5) Full utilization of future advancements in transportation technology.

Where We Are Today

Reducing crashes, managing congestion, making transit more user-friendly, and providing timely, accurate information on which to base travel decisions have great potential to improve the overall quality of life in the region. The application of emerging computer, telecommunications, and other electronic technologies to transportation systems is known by the term "Intelligent Transportation Systems," or ITS. These technologies have demonstrated impacts on maximizing transportation system effectiveness, and hold promise in the future for more improvements. The latest technology is being incorporated and utilized by traffic management centers, the SmarTraveler information system, WMATA's SmarTrip card, and Global Positioning Systems (GPS) on buses.

The region has seen increased availability of information to the public with public/private partnering activities, such as Partners in Motion/SmarTraveler and traditional television and radio media outlets. More and better information is provided to the public through agency web sites (such as MDOT, VDOT, and Montgomery County). Variable message signs on the region's freeways provide information to motorists at critical locations. Local bus providers, such as Montgomery County and the City of Fairfax, use Global Positioning System technology to tell passengers exactly when their bus will arrive. In addition, WMATA has installed changeable message signs in the Metro system that will alert passengers of the arrival of the next train.

In order to maximize the benefits of ITS improvements, the TPB has promoted regional coordination of ITS planning and projects. Two ITS task forces—focusing on policy and technical coordination—meet regularly to discuss coordination and to share experiences

about ways in which ITS can be deployed to improve congestion, safety, maintenance and system efficiency.

What the 2000 CLRP Does By 2025

Many expansion projects in the plan are expected to take advantage of the best available technology. There is currently a significant level of funding for ITS projects, however, since most projects are scalable (e.g. more cameras could cover more locations for traffic management), additional deployments could have a nearly immediate impact on traffic congestion and pollution in the region.

Objective 1 calls for *Reduction in regional congestion and congestion-related incidents*. Figure 5-4 indicates that stop-and-go conditions are expected on the majority of the region's highways by 2025 and additional congestion-related incidents can be expected with higher levels of congestion.

In an era of quickly advancing technology, the region must ensure that public capabilities are in place to enable travelers to take advantage of the latest technology, as Objectives 2 through 5 indicate. TPB's ITS Task Forces are providing regional coordination to help take advantage of the best available technology.

Challenges To Be Addressed in Future Plan Updates

The Washington region has been highly successful in deploying ITS to maximize system effectiveness. Remaining challenges being addressed by the ITS Task Forces include improving cooperation and coordination between multiple jurisdictions for full utilization of advanced technology. An ITS Strategic Plan is being developed by the ITS Policy Task Force which will identify opportunities for coordinating regional ITS projects and programs as well as identifying what types of advanced technology could be best utilized in the region.

The last challenge is common to achieving many of the Vision's policy goals: the need for additional funding. Reliable sources of funding are needed to maintain the technological systems already in place. Additional funding is also needed to further maximize system effectiveness in areas such as safety and incident management systems, traffic detection, management and information systems, Automatic Vehicle Location (AVL) systems for buses, traffic signal systems and electronic payment systems.

Policy Goal #5

The Washington metropolitan region will plan and develop a transportation system that enhances and protects the region's natural environmental quality, cultural and historic resources, and communities.

Objectives:

(1) The Washington region becomes a model for protection and enhancement of natural, cultural, and historical resources.

(2) Reduction in reliance on the single-occupant vehicle (SOV) by offering attractive, efficient and affordable alternatives.

(3) Increased transit, ridesharing, bicycling and walking mode shares.

(4) Compliance with federal clean air, clean water and energy conservation requirements, including reductions in 1999 levels of mobile source pollutants.

(5) Reduction of per capita vehicle miles traveled (VMT).

(6) Protection of sensitive environmental, cultural, historical and neighborhood locations from negative traffic and developmental impacts through focusing of development in selected areas consistent with adopted jurisdictional plans.

Where We Are Today

Transportation dollars have been used effectively throughout the region to *enhance and protect the region's natural environmental quality, cultural and historical resources and communities.* Examples of this include the C&O Canal, the Alexandria train station, the George Washington Memorial Parkway, and the Baltimore Washington Parkway.

In 2001, 19 percent of all work trips are made by transit on either bus, Metrorail or commuter rail. The Household Survey conducted by the Metropolitan Washington Council of Governments indicates that the number of bike trips made for commuting purposes has increased 61 percent from 13,200 trips in 1988 to 21,300 trips in 1998.[8]

"Green space" in the region has been defined in the regional activity centers map and is currently undergoing refinements. Identifying "green space"—areas that are permanently protected and those green spaces that are not protected—that help inform the region on important missing green space connections and places where permanent protection should be pursued.

[8] Metropolitan Washington Council of Governments Household Travel Survey 1988, 1994, and 1999.

Across the region, both residents and local governments are recognizing the value of integrating green space into communities. Momentum is building as jurisdictions, both small and large, are acquiring lands and opening them to the public. The Washington Metropolitan area has over 75 miles of existing greenways or trails. Significant existing regional greenways and trails include the C&O Canal National Historic Park, Mount Vernon Greenway, Washington and Old Dominion (W&OD) Trail, Rock Creek Greenway, Capital Crescent Trail, Anacostia Tributary Trail System, Appalachian Trail Greenway, Cactoctin-Gambrill Greenway, Bullrun Occoquan Greenway and the Patuxent River Greenway.

This region does not currently meet national air quality standards for ozone. An air quality attainment plan for the region has been adopted by the Metropolitan Washington Air Quality Committee (MWAQC) under which the region will attain air quality standards by 2005.

Governor Glendening of Maryland, Governor Gilmore of Virginia and Mayor Williams of the District of Columbia signed a new agreement on the restoration of the Chesapeake Bay watershed. The Chesapeake 2000 Bay Agreement is a comprehensive agreement with commitments related to bay restoration, water quality, vital habitats, land use, and transportation. Commitments include coordinated land use and transportation planning and reducing the dependence on automobiles[9]. These commitments are consistent with and help reinforce the TPB Vision's goals.

What the 2000 CLRP Does by 2025

Environmental enhancement and protection is challenging at the regional level because many of the decisions that affect the environment are made at the local level. Local comprehensive land use plans and transportation agency plans and proposals guide these decisions. Impacts on the environment, natural and cultural resources and communities are considered when transportation improvements are in the project planning process, as required by the National Environmental Policy Act (NEPA). However, there is no mechanism to examine all the local impacts of a regional plan for an area that covers over 3,000 square miles. System-wide impacts of all the transportation improvements included in the plan are best captured by the air quality conformity analysis for the region (reviewed below).

Federal enhancement and CMAQ funding that made projects such as the C&O Canal and the Alexandria train station possible are assumed to continue throughout the time period of the plan.

Assessment of Objectives

Objective 1 envisions that *The Washington region becomes a model for protection and enhancement of natural, cultural, and historical resources.* One of the ways that the plan addresses this objective is through a grant awarded to TPB under the

[9] Chesapeake 2000 Bay Agreement. The agreement can be found at the Chesapeake Bay Program's website: http://www.chesapeakebay.net/.

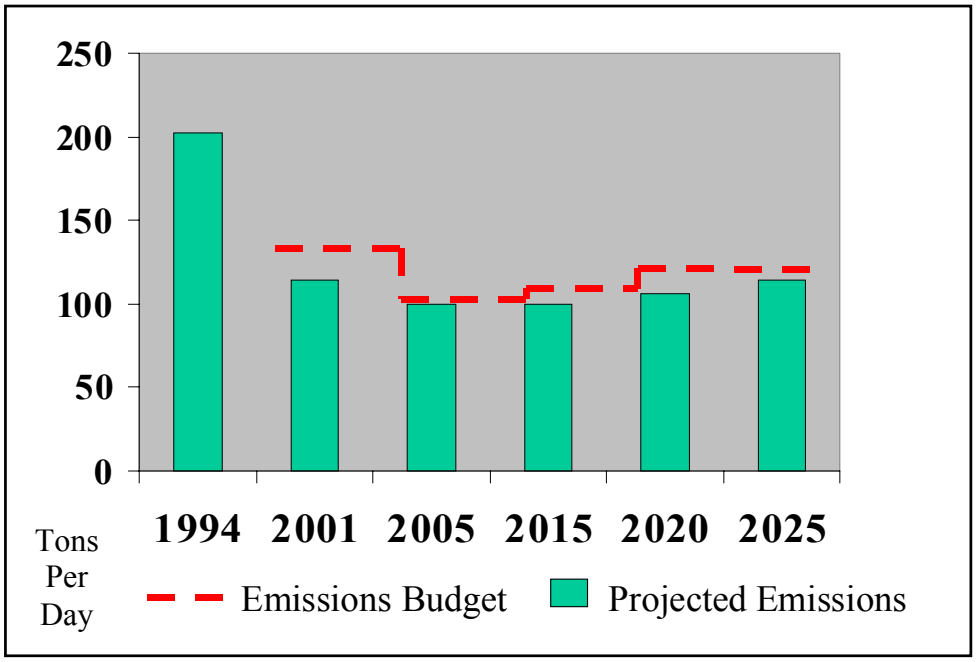
Transportation and Community and System Preservation (TCSP) Pilot Program to support a key component of the TPB Vision: Integrating green space into a regional greenways system. In order to provide the level of attention needed to advance regional greenways and to involve key agencies, officials and stakeholders, the TPB created a Green Space Advisory Committee to help guide the planning and implementation process. Working with these experts and local planners, regional greenway priorities were established along with an implementation strategy to help make these proposed greenways a reality. Eight regional priority projects were identified and are described in detail in the report. 175 miles of additional greenways and trails are proposed—doubling the miles of greenways and trails currently found in the region. These projects range in scale and character, but they all provide inter-jurisdictional connections that are the foundation of the greenway network.

Objective 2, *Reduction in reliance on the single-occupant vehicle (SOV) by offering attractive, efficient and affordable alternatives*, can be measured in several ways. Attractive, efficient and affordable alternatives include rail, bus, and High Occupancy Vehicle (HOV) lane systems. Over 50 percent of the funding for the plan is committed to transit projects, including the Dulles Fixed Guideway Transit project and the Metrorail extension to Largo. Transit trips are expected to increase 18 percent over the next 25 years. Average auto occupancy increases slightly from 1.13 in 2001 to 1.15 in 2025.

Objective 3 calls for *Increased transit, ridesharing, bicycling and walking mode shares*. Transit mode share decreases from 19 percent in 2001 to 16 percent by 2025 with the Metrorail trip constraint through the core area due to a lack of funding. 19 percent of work trips, or 104,000 additional trips, would be accommodated by transit in 2025 without the constraint. The current model does not forecast bicycle and pedestrian commuting share. The new travel demand model, Version II, will provide this information for the Regional Accessibility and Mobility Study.

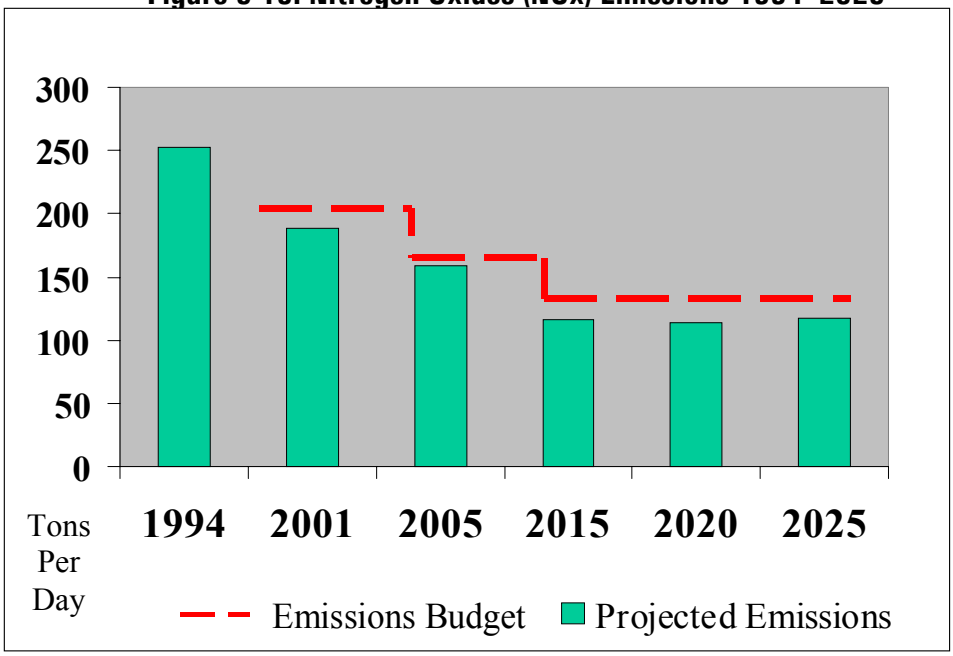
Compliance with federal clean air, clean water and energy conservation requirements, including reductions in 1999 levels of mobile source pollutants is Objective 4 and mobile source emissions are within emissions budgets established in the region's air quality plan. The TPB's air quality conformity analysis measures the projected mobile source emissions based on the CLRP against emissions ceilings ("budgets") established by the region's air quality plan. Volatile Organic Compounds (VOC) and Nitrogen Oxides (NOx) emissions are important because they are precursors for ozone. While the region has made great progress in reducing emissions since 1994, the margins between the emissions budgets and the projected emissions are tight, as Figures 5-12 and 5-13 show, especially in 2005. The decline in vehicle emissions over the past decade is due largely to cleaner vehicles and cleaner fuels. However, in 2015 the projected emissions will begin to rise because the growth in VMT overwhelms the technology benefits. With such tight margins for both VOC and NOx, there is little room for higher population, employment and VMT than what is currently projected.

Figure 5-12: Volatile Organic Compounds (VOC) Emissions 1994 -2025



Source: Air Quality Conformity Determination of the 2000 CLRP and FY2001-2006 TIP. October 18, 2000.

Figure 5-13: Nitrogen Oxides (NOx) Emissions 1994 -2025



Source: Air Quality Conformity Determination of the 2000 CLRP and FY2001-2006 TIP. October 18, 2000.

Objective 5 contains the most specific quantitative measure listed in the Vision, which is the *Reduction of per capita vehicle miles traveled (VMT)*. Daily VMT per capita increases 11 percent from 28 in 2001 to 31 in 2025, as shown in Table 5-5.

Table 5-4: Daily Vehicle Miles of Travel (VMT) Per Capita 2001 - 2025

	2001	2015	2025	Change 2001-2025
VMT Per Capita	**28**	**30**	**31**	**11%**
Population (Thousands)	4,200	5,000	5,500	31%
Total Daily VMT (Thousands)	116,000	148,000	169,000	46%

Total daily VMT is forecast to increase 46 percent between 2001 and 2025. VMT is increasing at a faster rate than population, which causes VMT per capita to increase. This means that more people will be driving and traveling longer distances. The growth in VMT reflects the location of increases in population and employment, which is greatest in the inner and outer suburbs, as shown in Figure 5-2. VMT tends to be higher in suburban areas than in central cities because there is greater spatial separation between housing, jobs, and shopping centers. The development occurring in the outer jurisdictions increases the length of trips, which causes VMT to increase.

Factors that influence VMT and VMT per capita include auto ownership, trip lengths, income, the number of workers in a family, access to transit, and the location of housing and jobs. Household income is a key factor affecting driving choices, not only because income closely correlates with auto ownership levels, but also because higher income households have more housing choices, including large suburban homes that have limited transit service and few walkable destinations. Transit use tends to be highest and vehicle use lowest in communities with a high proportion of low-income households.[10]

The rate of growth in VMT per capita could be reduced by improved transit, more ridesharing, telecommuting incentives, and increased bicycle and pedestrian facility options. Compact, mixed-use development tends to be more pedestrian- and bike-friendly, which can encourage less driving. The Vision's objectives regarding regional activity centers (Policy Goal 2) call for a mix of uses in a walkable environment. Opportunities exist within the centers to improve the mix of uses and the walkability of these areas.

Objective 6 emphasizes *Protection of sensitive environmental, cultural, historical and neighborhood locations from negative traffic and developmental impacts through focusing of development in selected areas consistent with adopted jurisdictional plans.* This objective is addressed by the region in several ways. First, at the project planning

[10]The Region. National Capital Region Transportation Planning Board. Volume 37 1997, page 9.

level, negative traffic and development impacts are identified in an Environmental Impact Statement (EIS) for major investments. Impacts on the environment, cultural, and historic resources also have to be identified in the EIS. Second, 130 Initial Regional Activity Centers and "Green Space" were identified as part of a composite regional map. The composite regional map will provide information to policy makers, planners and the public on:

- Areas where more development is needed to better utilize existing infrastructure (such as underutilized transit areas);
- Activity centers that need more residential development; and
- Regional "green space" issues such as different definitions and regulations in Maryland, Virginia and the District of Columbia and key locations in need of protection.

Challenges To Be Addressed in Future Plan Updates

The Washington region is working towards many of the objectives in Policy Goal 5. Transit use and ridesharing rates in our region are among the highest in the nation. However, significant challenges remain in achieving this goal, which are listed below.

The Regional Mobility and Accessibility Study will examine ways to reduce the reliance on the single-occupant vehicle (SOV) through transportation and land use scenarios. Changes in per capita VMT will also be examined in the study. A land use scenario that focuses development in selected areas, such as the regional activity centers, is expected to be examined in the study.

The TPB will continue work to ensure that mobile source emissions conform to budget levels established in the air quality plan. Mobile source emissions will be examined for the various scenarios under the Regional Mobility and Accessibility Study.

Policy Goal #6

The Washington metropolitan region will achieve better inter-jurisdictional coordination of transportation and land use planning.

Objectives:

(1) A composite general land use and transportation map of the region that identifies the key elements needed for regional transportation planning—regional activity centers, principal transportation corridors and facilities, and designated "green space."

(2) Region-wide coordination of land use and transportation planning in accordance with the recommendations of the Partnership for Regional Excellence report approved by the COG Board of Directors in 1993.

Where We Are Today

The coordination of land use and transportation planning within one jurisdiction is challenging. The coordination of land use and transportation planning within 18 jurisdictions with different land use controls and laws in the District of Columbia, Maryland, and Virginia is considerably more challenging. County and state offices of planning, elected officials, and planning commissions are responsible for implementing and creating laws, regulations and policies that guide land use and development. Land use planning is done locally and there is no regional body responsible for long-range land use plans. Land use laws and philosophies vary in each three jurisdictions (Maryland, Virginia and the District of Columbia). Even though transportation planning is also done by transportation agencies in the states and counties, the TPB is a forum to weave the plans together and to discuss emerging issues and challenges for the region.

The TPB has addressed this goal three ways. First, a composite map of adopted land use plans was produced in 1996 that provides information on local comprehensive plans. Second, each year the local jurisdictions provide employment and household forecasts for the TPB to use in planning the transportation system and testing the long-range transportation plan for conformity with air quality standards. Third, steps have been taken to develop *a composite general land use and transportation map of the region that identifies the key elements needed for regional transportation planning—regional activity centers, principal transportation corridors and facilities, and designated "green space"* and this activity is described in more detail below. A map of the 1999 Initial Regional Activity Centers was provided in the 2000 CLRP Solicitation Document for implementing agencies to consider in submitting projects for the plan.

What the 2000 CLRP Does by 2025

Assessment of Objectives

Objective 1 calls for a composite general land use and transportation map of the region that identifies the key elements needed for regional transportation planning—regional activity centers, principal transportation corridors and facilities, and designated "green space." An initial regional activity centers map with transportation corridors and "green space" was developed by the Planning Directors Technical Advisory Committee and transmitted to the TPB by the MDPC and the COG Board of Directors on July 14, 1999.[11] The map, along with supporting data and criteria were prepared in response to the TPB Vision. A joint working group of the COG Board and TPB will oversee the finalization of the regional activity centers map and criteria. Issues being addressed include the need to consider a mix of uses, criteria for defining regional activity centers, definition of "green space," and how the map will be used in transportation planning. The 2000 CLRP Solicitation Document sought increased emphasis on projects that support local, regional, and state development policies by providing information on the initial regional activity centers and requested that agencies consider how project submissions will influence the regional activity centers, transportation corridors and "green space."

The Planning Directors are refining the green space categories and improving the geographic information system (GIS) coverages of regional green space. The green space coverage will identify environmentally sensitive areas, or “stay-away” zones where development is prohibited.

Approximately 150 initial activity centers were identified. The criteria for developing the centers were defined by the Planning Directors. The local planning directors for each jurisdiction were asked to submit activity centers with the following guidelines:

- The center is important to the jurisdiction and is based on the Comprehensive or Master Plan.
- The center has geographic boundaries.
- Employment and household data are based on Round 6.1 Cooperative Forecasts.

The centers were then categorized by criteria involving uniform measures of employment and household activity.

The initial regional activity centers account for approximately 70 percent of the region's employment and less then 10 percent of the land area. The centers are expected to capture 80 percent of the job growth by 2025. However, only 20 percent of area households are found in the initial regional activity centers.

The activity centers are aligned with major transportation corridors. The Metrorail corridors provide important connections between regional activity centers. Many

[11]Transmitted by COG Resolution R35-99 July 14, 1999.

centers are located along Metrorail corridors, such as the Red line (Shady Grove and Glenmont) in Montgomery County, the Orange line in Arlington and Fairfax Counties, and the Green line in Prince George's County. The highway corridors that connect the activity centers include I-270, I-95, the Capital Beltway, US 301, US 50, MD 4, MD 5, I-66, I-395, US 29, the Dulles Toll Road, VA 7, and VA 28.

Objective 2 calls for *region-wide coordination of land use and transportation planning in accordance with the recommendations of the Partnership for Regional Excellence report approved by the COG Board of Directors in 1993*. The report's recommendations included reconstituting COG's Metropolitan Development Policy Committee (MDPC) by adding representation from TPB, the Metropolitan Washington Air Quality Committee (MWAQC), business and environmental communities, and the federal government[12]. The MDPC initiated a series of local land use planning and development dialogues to promote the exchange of information that will help educate local officials on planning challenges in the region.

Also related to Objective 2 is the 1999 COG report entitled "Zoning and Land Use Practices to Improve Transportation." This report surveys land use, comprehensive plans, and zoning measures that might assist in achieving regional air quality emission reduction goals. It highlights planning measures being used by local jurisdictions that involve the coordination of land use and transportation planning such as development around transportation facilities, provision of alternative commuting, and parking provisions.

Challenges To Be Addressed in Future Plan Updates

Positive steps have been taken to work towards *better inter-jurisdictional coordination of transportation and land use planning*.

A joint committee between the TPB and the COG Board has been formed to oversee the finalization of the Regional Activity Centers Map and will be looking at ways to increase both housing and employment in the regional activity centers. The map should be refined so it becomes an effective tool in integrating regional growth and transportation plans and programs.

The Regional Mobility and Accessibility Study will look at the impacts of concentrating residential and commercial development in regional activity centers along transportation corridors.

[12] MWCOG. The Report of the Partnership for Regional Excellence. July 14, 1993.

Policy Goal #7

The Washington metropolitan region will achieve an enhanced funding mechanism(s) for regional and local transportation system priorities that cannot be implemented with current and forecasted federal, state, and local funding.

Objectives:

(1) Consensus on a set of critical transportation projects and a funding mechanism(s) to address the region's growing mobility and accessibility needs.

(2) A fiscally sustainable transportation system.

(3) Users of all modes pay an equitable share of costs.

Where We Are Today

An analysis of revenues and expenditures through 2025 was conducted and used to financially constrain the 2000 CLRP. The plan was adopted with the full awareness that the funding is inadequate to maintain and operate the existing transportation system, let alone expand the system. There is a continuing public dialogue on transportation funding challenges and ways to address the shortfalls. Funding for transportation has been a highly debated issue in the state legislatures, the Council of District of Columbia and Congress over the past year. Both the Maryland and Virginia General Assemblies had bills introduced that would increase the funding for transportation in the metropolitan Washington region. Transportation funding is an issue for several reasons. First, much of the transportation infrastructure in the region is aging and just like a house, more rehabilitation and maintenance is required keep the system operating. Second, fuel taxes have not maintained the revenue levels they did in the past because of more fuel-efficient cars and tax rates not keeping pace with inflation. For these reasons, future revenues are projected to be inadequate to keep pace with growth and development.

What the 2000 CLRP Does by 2025

The region will spend approximately $76.8 billion on the plan over the next 25 years. Overall funding projections are about 30 percent higher in real terms than for the 1997 update of the plan. The region's transportation funds come primarily from federal and state fuel taxes, vehicle fees, transit fares, tolls, and local property and sales taxes. Eighty percent of the transportation revenue from these sources will be needed to maintain and operate the current transportation system, which leaves only 20 percent for major fix-up and system expansion.

The development of the plan has increased the awareness of remaining transportation funding shortfalls. The magnitude of unmet needs led to the creation of a 5-step

process to address key issues associated with the 2000 CLRP and FY2001-2006 TIP. The first two steps involved a resolution approving the CLRP and expressing the TPB's "serious concerns over the region's inability to meet the goals of the TPB Vision due to a shortfall in transportation funding." The third step was an in-depth discussion with state transportation agencies and WMATA on regional transportation needs. Fourth, a structured briefing and discussion with state secretaries of transportation, Congressional representatives, and key members of the Council of the District of Columbia and of the Maryland and Virginia General Assemblies was held at Union Station in November 2000. A video and pamphlet was created based on the briefing materials and discussion from the November 30 dialogue on regional transportation needs which was part of the last step—outreach to the general public to build consensus and support for a regional transportation action plan.

In an attempt to achieve an *enhanced funding mechanism(s)* Senator Robb, Congressman Moran, and Representative Norton introduced the "Metropolitan Washington Regional Transportation Act" in May of 1998. Referred to as "Robb-Moran-Norton," this legislation would address challenges arising from the complex institutional arrangement in the region and would grant the TPB additional responsibilities. Funding would be provided to achieve a broad consensus on a package of critical transportation needs and a funding mechanism to supplement other transportation funding sources. A transportation corporation would be established with the power to accept revenue and issue debt for transportation projects. The concept of the Robb-Moran-Norton bill has been supported by the elected leaders of Northern Virginia cities and counties, the Greater Washington Board of Trade, and the Mayor of the District of Columbia, Anthony Williams.

Assessment of Objectives

In order to reach *consensus on a* set *of critical transportation projects and a funding mechanism(s) to address the region's growing mobility and accessibility needs,* as stated in Objective 1, the region needs to be more informed on funding transportation improvements needed to keep pace with population and employment growth. The TPB has identified transportation needs that are about 50 percent greater than existing revenue but more information is needed on what types of projects, programs and actions are most critical and what are the most appropriate ways to fund them. Although past research shows that some citizens are skeptical that additional funding is needed, user-based fees, such as gas taxes and tolls, were found in survey research to be the most favored type of enhanced funding mechanism.[13]

Objective 2 calls for a *fiscally sustainable transportation system.* This objective stresses the importance of funding the maintenance, rehabilitation and operating costs that recur on an annual basis before funding system expansion. The former requires a reliable, predictable stream of current revenues; the latter requires large injections of capital funds over relatively short periods. In effect, the region must enact strategies that both

[13] Final Report to the Metropolitan Washington Council of Governments on Public Outreach for the Year 2000 Update of the Constrained Long-Range Plan for the Washington Region. Strat@comm. August 23, 2000. Pages 3-5.

increase available funds from current or new sources, as well as expand the authority to leverage those funds through new financing techniques.

Users of all modes pay an equitable share of costs is Objective 3. This objective involves raising awareness about the subsidies for automobile use—such as free or reduced parking, construction and maintenance of roads and highways, the interest on debt assumed for earlier construction, some police costs, street lighting costs, and sewer and sidewalk costs. One way in which this objective is addressed is by the Metrochek program, which provides transit benefits to employees and attempts to "level the playing field" between automobiles and transit.

Challenges To Be Addressed in Future Plan Updates

The TPB will pursue two priorities in 2001—the identification of key regional transportation priorities, including both rehabilitation and expansion and the identification of an agreed upon approach for the funding of these established priorities. Accomplishing these actions will require a dedicated effort from a wide spectrum of regional decision makers, including state legislators and members of Congress. Throughout the coming years, the TPB will be in engaged in efforts to tackle this crisis. Solving the problem will require an unprecedented level of cooperation among the numerous jurisdictions across the region. Only with a concerted effort can the region begin to tackle the critical rehabilitation and capacity needs of the region's transit and highway networks.

Policy Goal #8

The Washington metropolitan region will support options for international and inter-regional travel and commerce.

Objectives:

(1) The Washington region will be among the most accessible in the nation for international and inter-regional passenger and goods movements.

(2) Continued growth in passenger and goods movements between the Washington region and other nearby regions in the mid-Atlantic area.

(3) Connectivity to and between Washington Dulles International, National, and Baltimore-Washington International airports.

Where We Are Today

In the past few years, the region has seen rapid growth in air cargo and passenger travel as well as increased freight and goods movement. The Washington-Baltimore Region Airport System Plan includes components on Commercial Airports, Ground Access and Air Cargo that support the planning, development, and operation of airport facilities and other transportation facilities that serve the airports in a systematic framework for the Washington-Baltimore region.[14] Several activities are underway to improve the coordination between the Baltimore and Washington regions. These initiatives include a study of inter-regional high-speed rail between the Washington area, Baltimore and Richmond. Increased coordination was demonstrated by the development of Baltimore area activity centers by The Baltimore Metropolitan Council (BMC) Planning Directors Committee, which were incorporated into the Washington region's 1999 initial regional activity centers map. Finally, the Washington/Baltimore Regional 2012 Coalition, which was established to bid on the 2012 Olympic Games, is an example of business and government coordination between both regions.

What the 2000 CLRP Does by 2025

Forecast information on goods movement over the next twenty-five years is unavailable but will be examined in more detail in the Regional Mobility and Accessibility Study. The travel demand forecasts available indicate that daily truck trips in the region will increase 33 percent between 2001 and 2025. A total of 400,000 truck trips per day

[14] Washington-Baltimore Regional Airport System Plan. Metropolitan Washington Council of Governments. National Capital Region Transportation Planning Board. Volume I—Commercial Airports. 1988. Volume II—Ground Access 1993. Volume III—Air Cargo 1997.

are forecast for 2025. A challenge for freight movement and planning is increasing congestion levels and travel times, which will seriously affect goods movement.

Assessment of Objectives

Objectives 1 through 3 are addressed in part by transportation improvements in the plan such as rail to Dulles airport by 2010 and other highway improvements near the airports and in major corridors. The plan also contains a variety of projects relevant to the maintenance of airport access facilities. These objectives are also addressed through the Commercial Airports, Ground Access and Air Cargo components of the Regional Airport System Plan. The information provided on highway congestion levels and regional airport accessibility in this chapter indicate that the high levels of congestion expected by 2025 will impact access to the airports as travel time reliability will become much worse in the future, and costly delays can be expected for passenger and goods movement.

Challenges To Be Addressed in Future Plan Updates

The 2000 CLRP moves the region towards achieving the objectives under Policy Goal 8 but challenges for future plan updates remain. A regional plan for freight movement could be useful to the region in understanding trends and planning a regional system that accommodates freight movement with minimal disruption to traffic flow. The Regional Mobility and Accessibility Study will provide more information on regional freight movement, accessibility to the region's airports and high quality inter-regional travel for people and goods. Air travel, air cargo and ground access will be addressed by the TPB's continuous airport system planning process.

SUMMARY OF GOAL ASSESSMENT AND CHALLENGES FOR UPDATING THE PLAN

This section summarizes the main findings of the previous assessment. These conclusions concerning the plan's accomplishments and the challenges that remain are intended to provide guidance for future updates to this plan.

Achievements of the Plan

The long-range plan will move the region toward the goals expressed in the Vision. The plan:

- Is financially realistic and includes all projects of regional significance;
- Provides enhanced people-moving capacity along existing transportation corridors using a combination of transit, HOV and highway approaches;
- Expands the region's transit system by completing the 103 mile Metrorail system, extending it to Largo, providing rail transit to Dulles airport by 2010, adding a station at Potomac Yards and New York Avenue, creating a light rail link between Bethesda and Silver Spring, and establishing new express bus services;
- Meets current Clean Air Act requirements, including the reduction of ozone-causing mobile emissions, but the margin between the projected mobile emissions and emissions budgets in 2005 is quite small;
- Encourages ridesharing through informational and incentive programs, new park and ride facilities, and the expansion of HOV lanes;
- Encourages telecommuting through the establishment of a regional resource center, telework centers, and promotional activities;
- Was developed with extensive public participation and comment, including input from low-income and minority populations;
- Extends rail transit services so that all of the high-density regional activity centers will be served by rail transit in 2010;
- Includes overall funding projections that are about 30 percent higher in real terms than for the 1997 update of the plan; and
- Increases the awareness of remaining transportation funding shortfalls.

Challenges for Updating the Plan

Challenges specific to each policy goal were reviewed in the previous section with information on ways the TPB will be addressing the challenges. This summary presents the general categories or themes these challenges fall into:

- Addressing the projected growth in highway and transit congestion with effective, equitable and feasible strategies, and considering the appropriate role for demand management such as pricing, tolls or fees;

- Identifying additional transportation revenues to address these challenges, including funds that are needed to adequately maintain and rehabilitate existing facilities;

- Ensuring that the region takes full advantage of new technologies to maximize system performance and enhance the safety of all transportation modes;

- Accounting for the special issues of moving goods and the needs of freight transportation within the regional planning process;

- Identifying ways in which regional planning can encourage local site designs that enhance walking, bicycling and transit use; and

- Finalizing the regional composite map with activity centers, transportation corridors and "green space" to help inform the region on development patterns and guide the regional transportation planning process.

6.

PUBLIC COMMENTS AND RESPONSES

Federal regulations require the long-range plan to include a summary analysis and report on significant public comments made as part of the public involvement process. This chapter presents summaries of the comments received on those amendments to the plan and associated TIP and air quality documents along with the TPB's response to each comment. The 2000 CLRP received significant public comment, both in writing and during the TPB public comment period, throughout the update process. Attached are the summaries and responses to the main categories of public comment received which were presented to the TPB at the June 2000 and October 2000 TPB meetings.

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The following reference documents are relevant to many of the issues and projects discussed in this Long-Range Plan. Documents prepared by the Metropolitan Washington Council of Governments are available through COG's Information Center at (202) 962-3256.

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Appendix
Resolutions on the 2000 Constrained Long-Range Plan

TPB R5-2001
October 18, 2000

METROPOLITAN WASHINGTON COUNCIL OF GOVERNMENTS
NATIONAL CAPITAL REGION TRANSPORTATION PLANNING BOARD
777 North Capitol Street, N.E.
Washington, D.C. 20002

RESOLUTION APPROVING
THE 2000 CONSTRAINED LONG-RANGE TRANSPORTATION PLAN
FOR THE NATIONAL CAPITAL REGION

WHEREAS, the National Capital Region Transportation Planning Board (TPB), which is the metropolitan planning organization (MPO) for the Washington Region, has the responsibility under the provisions of the Transportation Equity Act for the 21st Century (TEA-21) of 1998 for developing and carrying out a continuing, cooperative and comprehensive transportation planning process for the Metropolitan Area; and

WHEREAS, the Joint Planning Regulations issued October 28, 1993 by the Federal Transit Administration (FTA) and the Federal Highway Administration (FHWA) required that the long range transportation plan be updated by October 1, 1994 reviewed and updated at least triennially thereafter; and

WHEREAS, on September 21, 1994, the TPB adopted the Constrained Long-Range Transportation Plan (CLRP) by selecting and prioritizing projects and strategies for implementation through the year 2020 by considering their contributions to regional and federal objectives -- in particular their likely effects on air quality and the interim congestion management plan -- and the availability of projected revenues to implement them; and

WHEREAS, on July 15, 1998, the TPB approved the publication: *1997 Update to the Financially Constrained Long-Range Transportation Plan for the National Capital Region*, which documents the triennial update to the CLRP from September 21, 1994 to July 16, 1997; and

WHEREAS, on July 15, 1998, October 20, 1999, and July 19, 2000 the TPB updated the CLRP by approving amendments to include certain projects for implementation; and

WHEREAS, the transportation implementing agencies in the region have submitted inputs for the CLRP amendments, in response to a December 1999 solicitation issued by the TPB, and the Technical Committee and the TPB reviewed the financial analysis and the submissions at work sessions and meetings in March, April, May and June 2000; and

WHEREAS, during the development of the 2000 CLRP, numerous opportunities were provided for public participation: (1) At the May 17 TPB meeting, the 2000 CLRP submissions affecting air quality were described by TPB staff; (2) An opportunity for public comment on the 2000 CLRP update was provided during the public comment period at the beginning of the June 21 TPB meeting and TPB staff responded to the comments received during the meeting; (3) The draft 2000 CLRP update and the conformity analysis results were released for public comment at the September 14 CAC meeting and public comment on the 2000 CLRP update was received during the public comment period at the beginning of the September 20 TPB meeting ; and (4) TPB staff reviewed and recommended responses to public comments received through October 16 at the TPB meeting on October 18, 2000; and

WHEREAS, the major highway, HOV and transit improvements in the 1999 CLRP together with changes associated with the 2000 CLRP submissions (shown in bold italics) are described in Attachment A and detailed information on all of the projects is provided in Appendix B of the Air Quality Conformity report as adopted October 18, 2000; and

WHEREAS, the submissions have been developed to meet the financial plan requirements in the Metropolitan Planning Rules and show the consistency of the proposed projects with already available and projected sources of transportation revenues as shown in the tables of projected revenues and expenditures provided in Attachment B; and

WHEREAS, the constrained long-range plan as amended conforms with the requirements of the Clean Air Act Amendments of 1990; and

WHEREAS, the TPB Technical Committee has recommended favorable action on the 2000 CLRP by the Board,

NOW, THEREFORE, BE IT RESOLVED THAT THE NATIONAL CAPITAL REGION TRANSPORTATION PLANNING BOARD approves the 2000 Constrained Long-Range Transportation Plan for the National Capital Region, as described in Attachment A and in Appendix B of the Air Quality Conformity report as adopted October 18, 2000.

Adopted by the Transportation Planning Board at its regular meeting on October 18, 2000.

TPB R6-2001
October 18, 2000

METROPOLITAN WASHINGTON COUNCIL OF GOVERNMENTS
NATIONAL CAPITAL REGION TRANSPORTATION PLANNING BOARD
777 North Capitol Street, N.E.
Washington, D.C. 20002

RESOLUTION ON FUNDING CHALLENGES IN MEETING THE GOALS OF THE TPB VISION WITH THE 2000 UPDATE TO THE FINANCIALLY CONSTRAINED LONG-RANGE TRANSPORTATION PLAN FOR THE NATIONAL CAPITAL REGION

WHEREAS, the National Capital Region Transportation Planning Board (TPB), which is the metropolitan planning organization (MPO) for the Washington Region, has the responsibility under the provisions of the Transportation Equity Act for the 21st Century (TEA-21) for developing and carrying out a continuing, cooperative and comprehensive transportation planning process for the Metropolitan Area; and

WHEREAS, on October 18, 2000 the TPB approved the *2000 Update to the Financially Constrained Long-Range Transportation Plan (CLRP) for the National Capital Region*; and

WHEREAS, the 2000 CLRP was developed based on an extensive analysis of revenues and expenditures over the next 25 years; and

WHEREAS, the plan included only those projects and programs that can be accommodated within the funding reasonably expected to be available, as required by federal planning regulations; and

WHEREAS, the TPB has reviewed the performance of the plan in relation to the goals set forth in the TPB's Vision adopted in October 1998; and

WHEREAS, while the 2000 CLRP meets air quality conformity requirements, the margin between the projected emissions and budgets in 2005 is quite small; and

WHEREAS, the review identified the following immediate challenges in the year 2000 CLRP:

- Identify reliable sources of funding to rehabilitate and maintain the region's transportation system adequately; and
- Address projected gridlock on transit and roadway networks.

NOW, THEREFORE, BE IT RESOLVED THAT THE NATIONAL CAPITAL REGION TRANSPORTATION PLANNING BOARD:

- Expresses serious concerns over the inability of the 2000 Update to the Financially Constrained Long-Range Transportation Plan for the National Capital Region to meet the goals of the TPB Vision due to a shortfall in transportation funding;
- Commits to in-depth dialogue and discussion on regional transportation needs with state transportation agencies, WMATA, state secretaries of transportation, and key members of the Council of the District of Columbia and of the Maryland and Virginia General Assemblies over the next several months;
- Commits to conduct an outreach program to the general public to build consensus and support for a regional transportation action plan consistent with the TPB Vision goals; and
- Commits to ensuring that mobile source emissions continue to conform to budget levels established in the air quality plan for the metropolitan Washington region.

Adopted by the Transportation Planning Board at its regular meeting on October 18, 2000.

TPB R12-2001
November 15, 2000

METROPOLITAN WASHINGTON COUNCIL OF GOVERNMENTS
NATIONAL CAPITAL REGION TRANSPORTATION PLANNING BOARD
777 North Capitol Street, N.E.
Washington, D.C. 20002

RESOLUTION APPROVING AN AMENDMENT TO THE 2000 CONSTRAINED LONG-RANGE TRANSPORTATION PLAN FOR THE NATIONAL CAPITAL REGION TO PROVIDE FOR AN ADDITIONAL STUDY OF KEY ELEMENTS OF THE TPB VISION

WHEREAS, the National Capital Region Transportation Planning Board (TPB), which is the metropolitan planning organization (MPO) for the Washington Region, has the responsibility under the provisions of the Transportation Equity Act for the 21st Century (TEA-21) of 1998 for developing and carrying out a continuing, cooperative and comprehensive transportation planning process for the Metropolitan Area; and

WHEREAS, on October 21, 1998, the TPB unanimously adopted its Transportation Vision, the culmination of a four-year development process involving citizens, elected officials and interested organizations of the region; and

WHEREAS, on October 18, 2000, the TPB adopted the 2000 Constrained Long-Range Transportation Plan (CLRP) by selecting and prioritizing projects and studies for implementation through the year 2025 with consideration of their contributions to the TPB Vision as the policy framework, and the availability of projected revenues to implement them; and

WHEREAS, during the development of the 2000 CLRP, numerous opportunities were provided for public participation: (1) At the May 17 TPB meeting, the 2000 CLRP submissions affecting air quality were described by TPB staff; (2) An opportunity for public comment on the 2000 CLRP update was provided during the public comment period at the beginning of the June 21 TPB meeting and TPB staff responded to the comments received during the meeting; (3) The draft 2000 CLRP update and the conformity analysis results were released for a public comment period beginning at the September 14 CAC meeting and ending on October 16, and public comment on the 2000 CLRP update was received during the public comment period at the beginning of the September 20 TPB meeting ; (4) TPB staff reviewed and recommended responses to public comments received through October 16 at the TPB meeting on October 18, 2000; and (5) the TPB approved the summaries of comments and responses at the October 18, 2000 meeting; and

WHEREAS, at the October 18, 2000 TPB meeting, a proposed amendment to provide for ten additional studies of key elements of the TPB Vision was considered but not approved;

WHEREAS, this amendment to provide for an additional study of key elements of the TPB Vision responds to issues raised during the public comment period for the 2000 CLRP as adopted October 18, 2000; and

WHEREAS, planning studies are exempt projects and including them in the plan does not require any changes to the air quality conformity analysis conducted for the 2000 CLRP;

NOW, THEREFORE, BE IT RESOLVED THAT THE NATIONAL CAPITAL REGION TRANSPORTATION PLANNING BOARD approves an amendment to the 2000 Constrained Long-Range Transportation Plan for the National Capital Region to create a new category, TPB regional studies, and to include in this category a new study entitled "Improving Regional Mobility and Accessibility Study" to evaluate alternative options to improve mobility and accessibility between and among regional activity centers and the regional core.

The 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.)

The study shall include short and long term analyses of primary and secondary impacts of any new facilities, both circumferential and within the regional core, on land use including on established communities and open space; on transit ridership; on total vehicle miles traveled and numbers of single occupancy vehicles; and on economic shifts within the region, especially to or from the regional core.

This amendment shall be transmitted to the Federal Highway Administration, Federal Transit Administration, and the National Park Service as an indication of TPB's interest and concerns in this area.

Adopted by the Transportation Planning Board at its regular meeting on November 15, 2000.